



Ministry of
Fisheries
Te Tautiaki i nga tini a Tangaroa

Harvest Strategy Standard

Summary of Submissions and Ministry Responses

13 October 2008



SUMMARY OF SUBMISSIONS

Overview

- 1 The Ministry received two sets of stakeholder submissions following two formal consultation processes. The initial draft Harvest Strategy Standard (HSS) was released for consultation in November 2006 and a revised draft in December 2007. In addition, presentations and discussions were undertaken with representatives of industry, recreational and environmental groups, and external reviews were undertaken by three international experts.
- 2 Submissions were received from:
 - The Royal Forest & Bird Protection Society of New Zealand (Forest and Bird);
 - Environment and Conservation Organisations of NZ Inc (ECO);
 - WWF-New Zealand (which also supported the submissions of both Forest and Bird and ECO);
 - New Zealand Recreational Fishing Council (NZRFC);
 - New Zealand Big Game Fishing Council (endorsed by Option4);
 - Ngatiwai Trust Board (Hikurangi, Northland);
 - Te Runanga O Te Rarawa (Kaitaia);
 - SeaFIC, which provided the lead submission from industry on both consultation documents, supported by the NZ Rock Lobster Industry Council, Challenger Finfisheries Management Co Ltd, Sanford Limited, and Area 2 Inshore Finfish Management Company Limited;
 - G A O'Rourke (of Timaru).
- 3 Views on the proposed HSS were diverse and tended to advocate particular sector-centric views. Full copies of all submissions received are available upon request.
- 4 A short summary of key issues is outlined below and is followed by a Ministry response:
 - a) Supportive comments were received from representatives of different sectors. There was general support as to the intent of developing standards. However, there were differing views on what needed to occur to improve or modify the proposed approach to meet stakeholder expectations or to obtain stakeholder support.
 - b) There was opposition by industry to the prescription in the HSS. Sanford Limited, for example, expressed concern that a move to a more prescriptive fisheries management regime would lead to higher direct costs on industry and possibly reduce fisheries utilisation opportunities.
 - c) The scope of the HSS was questioned from a number of perspectives. The view was expressed that the HSS should apply to all retained species, not just QMS stocks. It was also suggested that New Zealand should retain the right to take stronger measures than those adopted under international

agreements and that RFMO measures should take precedence only where they are more stringent than those prescribed under the HSS. The need for the HSS to acknowledge the interdependence of species in mixed stock fisheries was identified. An apparent failure to identify ecological objectives as an integral consideration in the HSS was also raised.

- d) There was interest in the interface between the HSS and other environmental standards. The view was expressed that the proposed HSS does not incorporate environmental variables into the management framework and thus the decision making process for setting a TAC. One contention was that the HSS should not be considered without a full appreciation of other standards yet to be presented for consultation that will have linkages with the HSS. Another submission suggested that environmental standards must also constrain harvest decisions.
- e) The legal basis of the proposed HSS was questioned by some stakeholders. One issue was that the approach appears to be premised on a policy approach rather than the Act, which itself is a standard. A second issue was that the HSS went well beyond what was required to meet obligations under the Act; hence it was argued that it will not enable utilisation as required by the purpose of the Act. It was contended that any standards higher than those included in the Act would require legislative amendments. A contrary view was expressed that the proposed HSS failed to consider all the requirements of the purpose and principles of the Act and international obligations. A further issue was the necessity to amend the Act either because the standards were essentially voluntary or if the proposed standards were higher than those in the Act.
- f) SeaFIC submitted that the HSS should not be approved as there is a raft of inter-connecting issues that need to be resolved before anything resembling the HSS could possibly be approved.
- g) There was objection to the specific reference points incorporating what are perceived to be value judgments of what is required beyond what is biologically necessary. It was suggested that the technical details of the HSS mix together a scientific basis to ensure Fisheries Act obligations are met with apparently, but not explicitly, value judgments and management considerations.
- h) SeaFIC was generally supportive of developing a framework that sets default mechanisms for framing advice consistent with obligations under the Fisheries Act. SeaFIC was also supportive of the use of MSY-related reference points and the use of proxies within that framework (although developed where possible through a structured management strategy evaluation approach. SeaFIC accepted that it is appropriate to focus on fishing mortality measures as a means of monitoring and controlling the activity of fishing, but disagreed that the fishing mortality rate associated with achieving B_{MSY} should function as a limit (as proposed by ENGOs but not supported by the Ministry).
- i) Widely differing views were expressed as to the specific metrics proposed for targets, thresholds and limits in the initial consultation document. SeaFIC also considered that the soft limit of $\frac{1}{2} B_{MSY}$ or 20% (whichever is

greater) implies a target level of 40% which it considered too high. It disagreed with HSS default definitions for reference points (as prescribed % B_0 values), rebuilding times, and a 70% probability of rebuilding to the target biomass level. SeaFIC contended that fish stocks can be managed sustainably and legally at lower levels than that specified in the HSS. SeaFIC suggested that 25% B_0 would be a good default assumption for B_{MSY} rather than 40% B_0 as implied in the HSS.

- j) Recreational and environmental groups argued for setting targets above B_{MSY} , especially in the case of shared fisheries in order to allow for social, cultural and economic well-being of the recreational fishing public. Environmental groups viewed B_{MSY} as a limit rather than a target; hence they advocated a precautionary approach that requires action to avoid stocks falling below B_{MSY} . A precautionary approach was supported as it was said to generate benefits for society for greater non-market values, ecosystem functioning and recovery of depleted stocks.
- k) Recreational and environmental groups supported a higher hard limit (especially in shared fisheries). Generally, they supported a hard limit of $\frac{1}{2} B_{MSY}$ (or 20% B_0), if not higher. This is the level currently proposed as the soft limit, a trigger point for a formal, time-constrained rebuilding plan, not closure of a fishery. A hard limit of 10% B_0 was seen as being too low and was considered to run a very high risk of complete stock collapse. It was argued that bycatch of species at or below the hard limit must be avoided or strictly controlled.
- l) SeaFIC appeared to accept adoption of a specified soft limit of $\frac{1}{2} B_{MSY}$ and a hard limit of $\frac{1}{4} B_{MSY}$, but not where the limits are defined, in their view, in terms of an arbitrary and unreasonable % B_0 levels. SeaFIC submitted that, based on overseas studies, B_{MSY} is on average about 25%–30% of B_0 , hence the proposed HSS default of hard and soft limits at 10% B_0 and 20% B_0 respectively are not well justified.
- m) The notion of a formal, time-constrained rebuilding plan was generally supported. No consensus existed as to the timeframes for rebuilding. NZRFC advocated a 5–10 year rebuild timeframe for shared fisheries. Industry argued that the HSS potentially neglects important social and economic objectives and that there are issues regarding the assumptions or inputs used to calculate rebuilding times. SeaFIC considered that the HSS as proposed would unnecessarily fetter decision-making that properly balances the dual purposes of the Act.
- n) The HSS proposes a 70% probability of rebuild. ECO recommend that a 75% chance of a rebuild to B_{MSY} or higher should be adopted. SeaFIC considered the requirement for the probability of being above the target to be redundant and potentially unnecessarily harsh.
- o) Industry raised a list of concerns about the potential implications of the proposed HSS. They considered that the framework proposed will lead to reduced yields, reduced fisheries management values, and lesser transparency, resulting in more uncertainty. They suggested that the level of detail would preclude flexibility and would not provide incentives for, nor reward, efficient and innovative management responses. The HSS was

described as a bureaucratic and prescriptive government-based approach to fisheries management that is a theoretical pretence of certainty rather than confronting and dealing with uncertainty in real New Zealand fisheries. It was seen as representing a shift from acting to improve management of New Zealand fisheries to improving public, political and international perceptions about the way in which fisheries are managed.

- p) There was recognition and acceptance from all sectors that better quality information is needed that harvest fish. Better monitoring of stocks to identify those that are in decline or approaching threshold levels was advocated. Big Game Fishing Council stated that the less information available to assess or monitor a stock, the more conservative the harvest strategy should be. ECO suggest that the CCMALR approach of “no data, no fish” should be adopted. Such an approach was seen as providing a clear incentive to pay for data.
- q) Industry submitters referred to the failure to monitor and manage non-commercial allowances. The argument was made that the HSS should not be introduced until the level of recreational catch is assessed.
- r) Industry identified management of low information stocks as being of particular concern. They suggested that a finer categorisation that recognises the nature of different stocks and fisheries may be required, in particular TACs that are set for administrative purposes and for new and developing fisheries. They contended that a decline in catch should trigger a fishery characterisation rather than a reduction in the TAC. Industry also suggested that in many cases it is inappropriate to continue to manage these stocks under section 13 of the Act and advocated a shift to section 14.
- s) SeaFIC advocated the development of management strategy evaluations as a practical alternative to the proposed HSS. Management strategy evaluation is a formal scientific procedure for testing adaptive or feedback management strategies. It has generally been used on a single species basis although it has also been extended to an ecosystem-wide basis. The Australian approach to management strategy evaluation includes:
 - Defining management objectives;
 - Turning management objectives into quantifiable performance measure;
 - Selecting a set of management strategies;
 - Developing [one or more] “operating models” of the system;
 - Predicting the consequences of applying each strategy using the operating models;
 - Summarising performance and highlighting trade-offs between meeting different objectives;
 - Communicating the results to decision-makers.
- t) SeaFIC argued that to the extent possible, harvest control rules need to be developed and evaluated in respect of specific fisheries. SeaFIC proposed that a timetable be agreed for all fisheries to undergo inclusive objective

setting, management strategy evaluation or similar work, and implementation of agreed management strategies based on that work. It suggested that for middle depth and deepwater fisheries, this task could be started immediately and possibly finished within five years, and for major stocks, the work could be completed within three years. For many other shared and commercially important stocks, including for example snapper and rock lobster, a similar timetable was seen as being feasible and desirable. SeaFIC has commenced a Management Procedure Evaluation project, which involves a Steering Group comprising a number of senior Ministry staff. It submitted that the project is an ideal opportunity to develop default numbers (effectively in lieu of the proposed HSS).

- u) Te Runanga O Te Rarawa noted the growing awareness of traditional environmental/ecological knowledge as a legitimate field of environmental expertise. Traditional environmental knowledge is defined as a cumulative body of mātauranga (knowledge) and tikanga (beliefs), handed down through whakapapa (generations) by cultural transmission, about the inter relationship of living beings (including humans) with one another and te pūtaiao (environment). Te Runanga O Te Rarawa stated that it is important to integrate traditional environmental knowledge into the setting of stock targets and limits.

5 In response, the Ministry advises that:

- a) In order to encompass all viable approaches covered by subsection 13(2) and 13(2A) of the Act, the HSS now uses the shorthand phrase “MSY-compatible reference points or better.”¹
- b) A “best practice” standard is not inconsistent with the Act. The HSS represents a reasonable and balanced application of the legal provisions. Where there is no single accepted measure of minimum sustainable harvest levels, it is inevitable that a HSS will entail some element of value judgment, rather than being solely based on biological inputs. A value judgment represents what Government determines to be acceptable level of risk given the absence of complete information.
- c) The HSS is part of an overall framework that is under development. It is not practical for all aspects of the framework that stakeholders would like to see developed to be integrated with the HSS at the outset. Future environmental standards may modify the HSS.
- d) There are differing means of estimating MSY-compatible reference points. However, not all those undertaken are necessarily “best practice” or credible. The values for hard and soft limits implicitly proposed by industry are significantly below those formally adopted in other jurisdictions and well outside what would be generally accepted as international best practice. The MSY-compatible reference points that the HSS and the associated Operational Guidelines adopt are consistent with international “best practice”.

¹ As defined in the HSS itself.

- e) There is a need to transition from the levels at which many fish stocks are managed in New Zealand to higher levels. The reference points proposed in the HSS are seen as an interim step. Integration of an ecosystem approach ultimately is likely to result in more conservative management strategies. The notion of having more conservative target and limit reference points than those proposed in the HSS can only be achieved over time, unless there is political support to impose greater short term costs on the industry and other sectors.
- f) The HSS is not intended to address the shared fisheries policy. However, it is acknowledged that the target biomass size and providing for recreational interests through providing for increased availability are closely related. The issue of improving information about the level of recreational catch is a further aspect of the shared fisheries policy initiative.
- g) The HSS sets targets that should be achieved with at least a 50% probability and limits that should be breached with very low probability. This does not of itself mean that flexibility or innovation is unduly constrained. The HSS does not discount the ability to implement management strategy evaluations. Harvest Strategies and management strategy evaluations can work in tandem; they are not mutually exclusive.
- h) However, the development of management strategy evaluations for all New Zealand fisheries is a major undertaking. It is overly optimistic to expect that this could be achieved within the time frames proposed by industry. There is no practical consideration given to the limited resources available to complete this task or the costs involved. It is likely that the use of management strategy evaluations will become more prevalent over time, but that they are likely to be developed only in a relatively few fisheries, given the time and cost involved. The HSS will provide minimum performance measures for management strategy evaluations.
- i) Effective management of low information stocks is not easily achievable. Generally, high levels of uncertainty exist about the sustainability of harvest levels given the paucity of information. The costs of obtaining more detailed information may not be commensurate with the benefits (either more reliable estimates of current stock size or increased utilisation levels). It is acknowledged that in general the less the information available to assess or monitor a stock, the more conservative a harvest strategy should be. The emphasis should also be on improving analyses of available information.
- j) The Act does not support a “no information, no fishing” policy. There is also no requirement under international law to prohibit fishing in the absence of information.
- k) Process issues have been addressed in part with the development of a set of Operational Guidelines as an accompaniment to the HSS. The Operational Guidelines outline acceptable methods of estimating MSY-compatible reference points. Not all details relevant to implementation of the HSS have been specifically documented. It is anticipated that management processes will be developed, including monitoring and stock

assessment working group procedures. Guidelines will be developed in tandem with fisheries plans. The lack of specification of procedural matters does not preclude you from approving the HSS as a key consideration in setting TACs.

- l) Management of a species under section 14 is restricted by a number of limited qualifying criteria. The wholesale migration of species to section 14 in order to avoid the need to manage at targets in section 13 is not supported. First, international law does not indicate that MSY-compatible targets or better are appropriate only for high-information, high-value species. Management under section 14 should also not be envisaged as a means of obtaining greater flexibility to overfish or to manage stocks at levels less conservative than MSY-compatible targets. The Ministry recommends that TACs for all stocks under sections 13 and 14 of the Act should be based on achieving MSY-compatible reference points or better. No lesser standard should be adopted for stocks under section 14.
 - m) The Ministry acknowledges the merits of the submission made by Te Runanga O Te Rarawa relating to the increased recognition given to traditional environmental/ecological knowledge. The Ministry considers that a number of avenues exist to ensure that traditional environmental/ecological knowledge is accessed and acknowledged.
- 6 The Ministry determined that the draft HSS submitted for consultation in November 2006 needed to be simplified. Based on stakeholder comments and submissions, as well as reviews by three international experts, as it stood, it was considered too complex, too difficult to understand, and too different from current practice. The Ministry regards that it is more practical for incremental improvements to be progressed.
- 7 A key change following consultation has been the removal of information tiers and associated harvest control rules from the HSS (both elements being relatively commonplace in other management regimes). Most New Zealand fisheries fall into a lower information category, with little more than records of landings available to assess stock status. Only a handful of key stocks have some form of robust stock assessment. Even within this category, the level of uncertainty is often high. For example, a significant amount of data about orange roughy are available, but the level of uncertainty as to the status of the stocks remains high. In comparison, rock lobster is reliant on fishery-dependent information, in the form of CPUE data, which has proven to be an effective monitoring tool for this species. In the New Zealand context, rock lobster could be regarded as a high information species, while orange roughy is not.

FIRST ROUND OF SUBMISSIONS

- 8 Submissions on the initial draft of the HSS were received from:
- SeaFIC, which provided the lead submission from industry (supported by NZ Rock Lobster Industry Council, Challenger Finfisheries Management Co Ltd, and Sanford Limited);
 - Royal Forest & Bird Protection Society of New Zealand (Forest & Bird)
 - Environment and Conservation Organisations of NZ Inc (ECO)
 - New Zealand Recreational Fishing Council
 - New Zealand Big Game Fishing Council (endorsed by Option4)
 - Ngatiwai Trust Board (Hikurangi, Northland)
 - G A O'Rourke (of Timaru)
- 9 Views on the proposed HSS were diverse. Generally they advocated particular sector-specific views of the world. Specific themes emerging from the submissions are presented below. This is accompanied with Ministry commentary.

Supporting Comments

- 10 Sanford Limited was not resistant to the notion that fisheries standards (or output-based management) can assist in achieving the intended sustainability and utilisation purposes of the Act (the submission then went on to note some concerns).
- 11 SeaFIC supported in principle the concept of a standards framework to improve transparency and clarity in fisheries management. It remarked that, if properly developed and implemented, fisheries standards can facilitate rights-holder-based management and contribute positively to the Fisheries Act's purpose of enabling utilisation while ensuring sustainability. It stated that it was, however, unable to accept or support the HSS as it was at the time of the first consultation.
- 12 SeaFIC advised that it had no difficulties with the concepts outlined as to harvest control rules and the use of different categories of reference points (e.g. targets and limits). These are standard fare in many fisheries regimes. It also supported the use of well-defined rules within clear management systems when accompanied by clear data collection and analysis. SeaFIC's major point of difference regarding harvest control rules was that such rules should be the tools of management, designed case-specifically with a clear intent to meet agreed multiple objectives.
- 13 The Big Game Fishing Council provided a very coherent and reasoned submission which adopted a very constructive approach and was generally positive in response to the direction taken in the HSS. NZRFC congratulated the Ministry on this initiative to create fisheries standards. They were regarded as long overdue. NZRFC advised that amateur fishers support having greater

certainty that fish stocks are managed in a sustainable, clear and measurable way.

- 14 Royal Forest & Bird Protection Society of New Zealand (Forest & Bird) welcomed the intention of the HSS to provide limits on resource utilisation as this offers the ability, and guidance to decision makers, to implement sustainable fisheries management (although it goes on to express concerns that the HSS does not fully succeed in this regard).
- 15 ECO agreed with having a clearer set of outcome-focussed standards – although they also go on to express concerns about the HSS not being sufficiently conservative.

The Ministry's response

- 16 Submitters generally expressed support for the overall intention of the HSS. This encouraged the Ministry to continue to develop and refine the HSS, while addressing and balancing sector-specific concerns.

Legal Basis

- 17 Rock Lobster Industry Council submitted that the HSS is “hard-wired” to a Ministry operational manifesto that is not correctly aligned to the Act nor consistent with the intended operation and outcomes of the rights-based management regime that is the QMS. The approach was described as too rigid as compared to the Act and, as such, would constrain initiatives and innovation that may fall within the Act. Challenger Finfisheries voiced similar concerns that the HSS would narrow the decision space available to rights holders and therefore will not enable utilisation as required by the purpose of the Act.
- 18 SeaFIC and Sanford Ltd contended that the HSS went well beyond the statutory requirements of the Act. Sanford opposed any move away from the current standards included in the Act (i.e. the B_{MSY} definition) on the basis of economic impacts. It suggested that any proposed standards higher than those included in the Act would require legislative amendments. Challenger Finfisheries also contended that the HSS would embed disputed legal interpretations. It suggested a collaborative process to develop a common understanding of the Act's provisions.
- 19 SeaFIC stated that the Act is the Standard: it was clear to SeaFIC that, as proposed, the HSS may greatly exceed requirements to meet obligations under the Act, relating to maximum sustainable yield, or any reasonable sustainability criteria. It was said to be of great concern to industry that prescriptive and constraining minimum standards were proposed which would, regardless of rhetoric, likely fetter Ministerial decision making, or at least constrain Ministry advice. SeaFIC suggested that in many cases the value of many commercial fisheries would likely be destroyed.
- 20 ECO contended that the proposed HSS fails to consider all the requirements of the purpose and principles of the Act and international obligations. It contended that the proposed HSS is inconsistent with commitments arising

from the World Summit on Sustainable Development in 2002 and the UN Fishstocks Agreement. It made reference to substantial departure from what Parliament specified. It shared the view of the Rock Lobster Industry Council that the Ministry's SOI has little relevance to the interpretation or application of the Act.

- 21 ECO also noted that the HSS is essentially voluntary, unless implemented by regulation. It suggested amending the Fisheries Act to provide for standards in a similar vein to that achieved under the Resource Management Act.

The Ministry's response

- 22 Industry submissions articulate a very sector-specific paradigm. Commercial rights-holders' interests are important but are not the only interests that need to be taken into account.
- 23 A process to develop a common understanding of the Fisheries Act's provisions was undertaken several years ago, which resulted in the development of a set of policy statements for key provisions of the Act. The process did not produce any agreement or consensus as to legal interpretations. Recommencing such a process is not seen as being necessary or beneficial. The Ministry's role is to advise the Minister on appropriate interpretations of the Act, having had due regard to alternative points of view. But the advice provided to the Minister is not a matter of negotiation. Those who do not accept those views are afforded the opportunity to submit their views to the Minister and of course they have recourse to the Courts.
- 24 The Statement of Intent does not have legal force. It is not intended to supplant the Act. However, it provides a legitimate context for the Ministry's policy initiatives. The role of the SOI in signalling the adoption of best practice standards is not contrary to the Act; rather it is a sign of credible management.
- 25 It is commonplace for Departments to develop guidelines relating to application of specific legislative provisions. It is appropriate that such guidelines reflect best practice. The Ministry rejects the notion that best practice reference points go beyond what the Act requires. Best practice guidelines ensure that the Act does not remain inflexible and time-bound. However, it is accepted that those best practice guidelines must be consistent with the wording and intent of the legislative provisions.
- 26 A standard does not fetter Ministerial discretion. The Minister is bound to consider the full range of practical alternatives. However, best practice applications should be given significant weight in the decision-making process.

Targets

- 27 SeaFIC contended that under a "classical" fisheries interpretation (as clearly envisaged under UNCLOS and by the authors of the Fisheries Act), B_{MSY} is often much lower than the "proxies" generally used in New Zealand. It claimed that for southern blue whiting 6I, for example, B_{MSY} calculated assuming stock-recruitment as used in the assessment is just 8% B_0 [that is 8%

of the unfished or virgin biomass]. SeaFIC argued that for snapper, B_{MSY} is likely of the order 18-20% B_0 and it is very hard to push estimates beyond about 25% B_0 . The Ministry advises that these figures have not been reviewed by any working group or the Plenary for southern blue whiting 6I and may require review for snapper.

- 28 SeaFIC suggested that fish stocks could be managed sustainably and legally at lower levels than the ranges suggested for the “proxies” in the discussion document. It perceived that it was likely that the Ministry’s proposed default targets will range from over 30% B_0 to around 50% B_0 , considerably higher than “classical” B_{MSY} values.
- 29 SeaFIC outlined problems with B_0 as a basis for reference points, many of which are common problems for B_{MSY} estimation. Without case-specific testing demonstrating otherwise, SeaFIC contended that it was inappropriate to base generic harvest control rules on such a flawed construct. It noted that alternatives based on empirically-demonstrated stock sizes provide a useful alternative (as used for rock lobsters and southern blue whiting in New Zealand, and in various fisheries around the world; e.g. for the majority of stocks in the ICES region).
- 30 SeaFIC suggested that the use of F_{MSY} may on a case by case basis be desirable or not. [Note: F_{MSY} is the fishing mortality rate that yields the maximum average yield over the long term; by definition fishing a stock at F_{MSY} will move a stock towards B_{MSY} on average, both from above and below.] SeaFIC was not convinced that F_{MSY} estimation should be a requirement for stocks to qualify for an “information rich” tier. It contended that there are a handful of stocks in New Zealand for which F_{MSY} might be calculated, but there are many more for which effective management can be put in place.
- 31 SeaFIC also did not accept that F_{MSY} can be adopted as a limit. While SeaFIC acknowledged that there are obvious reasons for wanting to restrict fishing mortality to be no more than F_{MSY} (e.g. not allowing fishing capacity to increase), it argued that if F_{MSY} is adopted as a limit, it is inconsistent to claim B_{MSY} as a target. If F_{MSY} is truly a limit, then the average fishing mortality (and implied F target) must be lower – the resulting average (and implied target) biomass must also then be above B_{MSY} . SeaFIC contended that given that the then-current version of section 13 of the Act is specific regarding the stock size capable of producing maximum sustainable yield, this is potentially problematic.
- 32 NZRFC stated that in all shared fisheries the biomass target should be significantly above B_{MSY} to allow for the social, cultural and economic well-being of the recreational fishing public and their ability to catch fish (a view shared by the Big Game Fishing Council). NZRFC and the Big Game Fishing Council placed reliance on the High Court kahawai decision of March 2007 as a basis for the contention that the “bottom line is sustainability” and that proper provision should be made for non-commercial fishing interests as the “starting point” before there is any allowance made for commercial fishing

(this matter has since to appealed to the New Zealand Court of Appeal and is now under appeal to the Supreme Court of New Zealand).

- 33 The Big Game Fishing Council supported a greater focus on exploitation rate or F_{MSY} rather than the long term average biomass that will support the maximum sustainable yield (B_{MSY}). Reference was made to the need to take account of all fishing-related mortality and not just landed catch.
- 34 NZRFC and the Big Game Fishing Council also supported the notion that the harvest rate for a stock should be consistent with the information base available for that stock - the less information available to assess or monitor a stock, the more conservative the harvest strategy should be.
- 35 Forest & Bird submitted that a threshold above B_{MSY} should be adopted so as to elicit action prior to B_{MSY} being reached. It suggested that a well managed sustainable fishery should not fall below B_{MSY} . ECO also advocated a target of greater than 125% of B_{MSY} and less than 75% of F_{MSY} . It rejected the strategy of considering B_{MSY} as a permissible target.
- 36 ECO rejected the contention that using a target greater than B_{MSY} and taking a precautionary approach “wastes” potential catch. ECO contended that “saving” the stock for future years generates benefits for society for greater non-market values, ecosystem functioning and recovery. It argued that “the capital stock is not lost, it is just more productive in the future. This is especially so when fisheries management is over-optimistic, operating under conditions of chronic information deficiency, uncertainty and pressure from harvesters.” The existence of bureaucratic inertia (being slow to respond to the need to reduce TACCs) and industry taking action to block TAC cuts were cited as an additional reason for a precautionary approach.

The Ministry's response

- 37 The recreational sector submissions mixed arguments of allocating the TAC with the setting of the TAC. The kahawai court case was first and foremost about allocating the TAC and the considerations of social, economic and cultural well-being in doing so. However, the underlying issue is the extent to which section 8 considerations, i.e. the purpose statement, as documented in the kahawai case, influence not just allocation decisions under the Act but also the setting of the TAC.
- 38 Under section 13 the underlying purpose in setting a TAC is to ensure sustainability while providing for utilisation (hence enabling people to provide for their well-being). The means of doing so is to set a TAC based on MSY-compatible reference points or better. MSY-compatible reference points are traditionally regarded as a compromise between the interests of sustainability and use. It is one interpretation of well-being. Clearly, the Act also enables TACs to be set so as to allow for more conservative targets. However, the Act does not clearly identify the factors to be considered when determining when and to what extent more conservative targets should be used. The Ministry accepts that consideration of well-being is one factor that can be taken into account, but that with respect to shared fisheries it is not the only relevant

consideration and certainly it is not limited solely to considerations of recreational interests. Factors such as the interdependence of stocks, effects of fishing on the ecosystem, and the uncertainty of the available information are equally valid considerations.

- 39 The industry estimation of B_{MSY} for southern blue whiting ($8\% B_0$) is not credible. It does not take stock-recruitment considerations into account (i.e. the likelihood that average stock recruitment will be substantially reduced at low spawning stock levels).
- 40 The notion of “classical” B_{MSY} values is a reference to a particular period of time in the past that has long been superseded and largely discredited. The classical B_{MSY} values that SeaFIC seeks to rely upon to contest the values expressed in the proposed HSS are not reflected in target levels now being endorsed worldwide. Classical values are giving way to new accepted proxies for B_{MSY} . Fisheries science like all fields of endeavour has moved on. UNCLOS itself does not prescribe any particular basis for estimating B_{MSY} . It is entirely appropriate that obligations in international law should be interpreted consistent with current best practice.
- 41 The underlying argument put forward by SeaFIC appears to be to shore up support for existing estimates of B_{MSY} used in New Zealand fisheries assessments. However, estimates of B_{MSY} at $8-25\% B_0$ are not consistent with international best practice. Estimates in the range $30-60\% B_0$ are the accepted norm. These estimates can be found in jurisdictions that have MSY-related reference points as the statutory reference point.
- 42 The Ministry supports the use of F_{MSY} as an MSY-compatible reference point. F_{MSY} and its proxies have been used for at least 50 years as valid biological reference points for targets (and in some cases limits), both internationally and in New Zealand. F_{MSY} provides an essential indicator of stock and fishery sustainability. Fishing at an appropriate fixed percentage of the current biomass ensures that stocks will not be overfished. It will ensure that a stock is fished down to the target at an appropriate rate and the target is not overshoot and conversely when the stock is below the target (either because of overfishing or natural fluctuations in stock size) it is rebuilt. Fishing at F_{MSY} equates to achieving a biomass level of B_{MSY} on average; by definition this will continually move the stock towards achieving B_{MSY} from above or below.
- 43 The first draft of the HSS contained reference to three different information tiers. This was similar to the approach implemented in other jurisdictions – e.g. the Australian Harvest Strategy Policy uses four tiers and for Alaskan fisheries six tiers are used. The purpose of the tiers was to outline suitable proxies based on the nature of the information available to estimate MSY-compatible reference points. The Ministry has removed the information tiers concept from the proposed HSS to simplify the approach and reflect that the practical distinction between different categories of information is often hard to maintain; rather it is the degree of confidence in the available information is more relevant to the reference points adopted.

- 44 The Act does not stipulate that B_{MSY} is a limit. B_{MSY} (or higher) should be regarded as the biomass level that is achieved on average over an extended period of time relevant to the characteristics of the stock. It is unrealistic to expect that B_{MSY} can be maintained as a constant. Stocks continually fluctuate. In addition, estimates of B_{MSY} can alter over time given the type of fishing method employed, size limits and long term trends in recruitment in response to factors such as climate variation or change. A best practice interpretation is that a stock will fluctuate around B_{MSY} with about a 50% probability of being below B_{MSY} (or a higher target) at any given point in time. The Act does not suggest that B_{MSY} should be interpreted differently from accepted practice – i.e. as a limit as argued by environmental stakeholders. However, there is discretion as to the level at which the target is set – at or above B_{MSY} .

Limits

- 45 NZRFC and the Big Game Fishing Council supported the use of limits, but suggested that the limit should be higher than that proposed in order to ensure that stocks are managed at or above B_{MSY} . They advocated a hard limit of $\frac{1}{2} B_{MSY}$.
- 46 The Big Game Fishing Council agreed that there is a role for hard limits where there is a risk of stock collapse or where fishing may lead to changes in the food chain (ecosystem). In these situations the fishery should be closed. The Council noted that there may have to be some catch associated with surveys after time has been allowed for a rebuild to occur, but that by-catch of species at or below the hard limit must be avoided or strictly controlled.
- 47 Forest & Bird and ECO advocated for a new “threshold limit” reference point to be set at or above B_{MSY} to indicate that the legal limit is being approached. ECO considered the suggestion that the threshold for action is only when the fish stock falls below B_{MSY} to be inconsistent with the Act and international law. ECO stated that “over-fished” should be defined as any stock below B_{MSY} . They claimed that the proposed limits are “ridiculously low”, “not precautionary” and increase the risk of statistical error.
- 48 ECO advocated that the hard limit should be no lower than 20% of B_0 and 60% of B_{MSY} (whichever is the greater). It suggested that the limits should be well above the depensation level and at levels that consider ecosystem effects of reducing stocks to such low levels. A hard limit of 10% was seen as being pitched too low and running a very high risk of complete stock collapse (if that hasn’t already occurred at the proposed limit).
- 49 Forest & Bird stated that the proposed hard limit is not representative of the precautionary approach and falls below international standards. Forest & Bird also supported a hard limit of at least 20% B_0 . It contended that a hard limit of 10% would effectively allow the western stock of hoki to be further reduced.

The Ministry’s response

- 50 The initial consultation document contained a threshold reference point and a soft limit and a hard limit, as well as targets. The threshold ranged between 70-90% of B_{MSY} . It represents the point at which the fishing mortality rate is

reduced. The threshold reference point has been removed as a formal standard. Reduction of fishing mortality rates for stocks below the target, but not yet at or below the level of the soft limit, will be an operational decision rather than one prescribed in a standard.

- 51 The claim that action will only be taken when stock size falls below the limit reference point is incorrect. The notion of a fixed fishing mortality rate is that the proportion able to be taken from the available biomass remains fixed, but the TAC fluctuates based on the actual stock size. The exception is where the biomass has declined below a particular trigger point in which case the actual exploitation rate may also need to be reduced.
- 52 The views expressed by the environmental groups in respect of the trigger points and limits reflect their views as to the correct interpretation of the Act; namely that B_{MSY} is a limit, not a target. As noted above, the Ministry does not agree with these views.
- 53 The intent of a hard limit of 10% B_0 is not to allow stocks to be fished actively down to this level. Management actions to achieve targets with at least 50% probability must be continually applied; if these have not been adequately applied or the actions did not achieve the desired result, and the stock falls below the soft limit, a formal, time-constrained rebuilding plan must be implemented. If this also fails to prevent further stock depletion to the extent that the hard limit is breached, fisheries should be considered for closure.
- 54 The Ministry acknowledges that there is some support for adopting a closure point at 20% B_0 ; however, an immediate hard limit of 20% B_0 could have serious social and economic implications for some stakeholders. Current B_{MSY} estimates for a number of stocks, including some snapper stocks, are near or below this level. Significant changes cannot be implemented overnight. The Ministry regards the proposed HSS as being an important starting point.

Rebuilding Plans

- 55 Forest & Bird commented that there is a need for a clear timeframe for stock recovery to be specified in the HSS. The need for formal rebuilding plans was supported by G.A. O'Rourke. NZRFC advocated a 5–10 year rebuild timeframe for shared fisheries to be built into the HSS.
- 56 The Big Game Fishing Council also agreed that formal, time-constrained rebuilding plans are required. It supported a maximum timeframe of twice the minimum with rebuilding measures staying in place until the target biomass is reached. It noted that the rebuild rates for overfished stocks are not well defined at present and are not always sufficient (the failure to rebuild SNA 8 following the Minister's decisions in 1998 is referred to).
- 57 SeaFIC expressed no difficulty with the intention that rebuilding plans should be implemented if stocks fall below a given level. It supported rebuilding plans with clear goals as part of fishery plans. SeaFIC did, however, identify a concern about the minimum timeframes for rebuilding as proposed. It also noted that the Act provides for the taking into account not just biological

characteristics but also of the interdependence of stocks and environmental conditions and having regard to relevant social, cultural and economic factors and contended that the proposal effectively disregarded these matters. It claimed that bio-economic analyses can suggest better performing rebuilding plans that are less severe than those based solely on biological criteria without undue risk to stocks.

- 58 SeaFIC also suggested that for many stocks, the issue of defining B_{MSY} or a proxy will be problematic. Putting this aside, SeaFIC noted that defining T_{min} (the minimum possible biological time frame within which a stock can be rebuilt) will require the use of model projections. It also referred to problems associated with what recruitment to use in those projections and what allowances to make for illegal catches. Choices would depend on allocation policy and would have allocation implications.
- 59 ECO supported the idea of formal rebuilding plans for fisheries for all stocks below B_{MSY} . It contended that the rebuilding plan should take account of the commitment made by New Zealand at World Summit on Sustainable Development in 2002 “to restore stocks to a level that can produce the maximum sustainable yield with the aim of achieving these goals for depleted stocks on an urgent basis and where possible no later than 2015.” It recommended that a 75% chance of a rebuild should be adopted in the HSS.

The Ministry's response

- 60 A defined period of time, such as 5-10 years to rebuild a depleted stock may not be realistic to specify as a standard. It may not be feasible to achieve a rebuild within such a timeframe. The rate of rebuild will be determined by the biological characteristics of the stock, the extent to which it has fallen below the target, and the prevailing environmental conditions. A “one size fits all” approach is also not supported for similar reasons; the characteristics of the stock and the associated fishery need to be considered.
- 61 The World Summit statement has the status of “soft” international law; it certainly does not impose a binding obligation. Notwithstanding that limitation, it represents an acknowledgement of the need to rebuild depleted fisheries worldwide. It is carefully worded – “where possible” reflects practical constraints to rebuilding stocks. The Ministry does not consider a fixed date is practical as the status of all stocks will change over time. Instead it would be appropriate to assess the performance of New Zealand’s fisheries in 2015 in terms of the World Summit statement.
- 62 The Ministry rejects the contention that the proposed rebuilding plans overlook legal requirements. The timeframe of $T_{min} - 2 \times T_{min}$ forms the parameters within which the relevant statutory factors can be considered. If appropriate, a time frame outside these parameters can be considered if the Minister believes it is justified.
- 63 The practical difficulties identified by SeaFIC in determining stock projections are part and parcel of fisheries science. Uncertainty is not a reason to avoid formulating a rebuilding plan. Past experience has shown that assumptions

about the rate of stock rebuilding may have been overly optimistic, such as in the case of SNA 8; however, that does not mean that a rebuilding time frame that reflects relevant interests and fishery and stock characteristics should not be adopted. The key issue is the actions that will be adopted when it becomes evident that rebuilding is not being achieved.

Implications

- 64 Sanford Limited stated that it would be more supportive of the initiative if it provided greater alignment of objectives with the delivery of services, greater transparency and reduced costs, but did not believe that this will be the case. Sanford considered that the framework proposed would lead to reduced harvest yields, reduced fisheries management values, and lesser transparency, resulting in more uncertainty for itself.
- 65 Challenger Finfisheries suggested that the level of detail would preclude flexibility and would not provide incentives for, nor reward, efficient and innovative management responses. It contended that that the HSS would result in a shift from acting to improve management of NZ fisheries to improving public, political and international perceptions about the way in which fisheries are managed. Challenger also argued that the HSS should not be considered without a full appreciation of other standards yet to be presented for consultation that will have linkages with it. A similar concern was voiced by environmental groups., although for somewhat different reasons.
- 66 SeaFIC submitted that the proposed HSS would embed a bureaucratic and prescriptive government-based approach to fisheries management that narrows the decision space available to rights-holders, is not enabling of utilisation, stifles innovation, and appears to be focused on managing perceptions, rather than improving fisheries management outcomes. They further contended that the HSS is technocratic and untested, divorced from wider management strategy considerations, and little consideration has been given to the implications for fisheries science, management and decision-making processes. They maintained that the draft HSS is based on a theoretical pretence of certainty rather than confronting and dealing with uncertainty in real New Zealand fisheries. SeaFIC contended that with objective-based, credible fisheries management, it is essential to work case-specifically to meet specific fishery objectives. Instead, they said, the proposed HSS attempts to constrain specific cases by the imposition of generic (and highly precautionary) standards relating to only one objective.
- 67 SeaFIC also stated that it was not clear what problem the proposed HSS was seeking to address or what benefits, as opposed to problems, were likely to accrue. It was of the strong opinion that this is too important an issue to be rushed or that an inappropriate standard be adopted in order to meet a departmental deadline.
- 68 A number of industry submitters (SeaFIC, RLIC and Challenger Finfisheries) expressed concern about the lack of testing of the approach. SeaFIC regarded testing as a necessary step in development of such a far-reaching and important matter and stated that consideration of process is a necessary and

fundamentally important issue to be addressed. RLIC stated that the requirements were untested in the face of actual stock assessment and management decisions. Challenger Finfisheries did not support the HSS as it had not been fully tested and there had been no adequate assessment of the disadvantages and risks to the fisheries resources or commercial industry or other users.

- 69 SeaFIC acknowledged the proposed transition period as a useful recognition of the difficulty of changing to a new management regime but were somewhat unclear as to what was contemplated. It was sceptical of interim strategies and supported testing of the proposal on specific stocks using thought experiments or, ideally, through rigorous analytical processes.
- 70 A formal process for requesting a review of the HSS was advocated by the Ngatiwai Trust Board. Reasons noted for a review were that evidence accumulated within fishing communities of interest could indicate the need for a review; errors are almost inevitable in early implementation; and many of the metrics proposed in the HSS were reliant on overseas examples that might not be appropriate for local conditions.

The Ministry's response

- 71 Fisheries do not operate in a vacuum, so the Ministry and participants cannot choose to be insular in their views and actions; societal perceptions and expectations are important considerations. That does not mean that a management regime should be tailored towards responding to perceptions. Rather it is the case that the management regime should be transparent as to the outcomes expected across fisheries, provide meaningful information to the public, and have the means to take action to ensure that the outcomes are achieved. In essence, the industry appeared to have a different view to the Ministry as to what constitutes a credible management regime.
- 72 The mantra of reducing costs runs the risk of becoming the sole yardstick for industry to measure the relative merits of a policy initiative. Reducing costs is an important consideration for the Ministry in the development and implementation of fisheries plans, but this is not the primary purpose of performance standards. The standards are intended to perform a much wider role.
- 73 The industry submissions accentuate the negative and overlook the long-term benefits of fisheries standards. Value has a long term dimension that is often ignored. There is a tendency to place greater weight to consideration of current users of the resource. Best practice standards offer the ability to maintain and enhance value through sustainable fisheries. Best practice standards provide a means of demonstrating that a credible sustainable fisheries management regime exists which constitutes more than simply the QMS. Opportunities arise, including through certification, for industry to maximise its ability to compete in the world market place to increasingly discerning consumers.
- 74 Industry submissions also appear to downplay the degree of uncertainty that exists in the management of fisheries – “it is not even clear what problem the

proposal is seeking to address”. There tends to be an over-reliance placed on the incentives created by the QMS. The submissions ignore the state of fisheries worldwide. Best practice approaches are the response to such problems. To argue that such approaches are not needed here is to suggest either that such problems do not arise in New Zealand (which is not clearly not the case) or that they will not occur in future (which is simply not credible; our management framework is by no means perfect). Yet clearly industry does accept that best practice approaches should be adopted; the issue is more one of the approach that should be adopted.

- 75 The proposed HSS has not being rushed; it has been under development for over three years. The Ministry accepts that it is integral to the development of fisheries plans, which will be developed over the next five years. Further refinement of the HSS is likely to occur over time both as it is applied and as international best practice evolves. The Ministry does not consider that there are sufficient reasons to delay implementing the HSS. The HSS does not preclude the development of management strategy evaluations (see further information on this issue below).

Information

- 76 The Big Game Fishing Council agreed that the less information available to assess or monitor a stock, the more conservative a harvest strategy should be. Both the Big Game Fishing Council and the NZRFC accepted that better information is required from all sectors about the total fishing mortality by method. The Big Game Fishing Council suggested that this include the juvenile mortality, escape mortality, high grading and dumping that occurs.
- 77 The Big Game Fishing Council also sought better monitoring of stocks to quickly identify stocks that are in decline or approaching threshold levels. It submitted that there is no point in developing better standards for fisheries management if there is no timely monitoring system to measure performance. It suggested collection of better quality CPUE from commercial fishers should be a high priority. Where information is uncertain or incomplete the standards should be set more conservatively.
- 78 ECO suggested that the CCMALR approach of “no data, no fish” should be adopted. Such an approach is seen as providing a clear incentive to pay for data. It supported an approach that provides an incentive to undertake research to identify the productivity level of the species involved. ECO did not support research commissioned by commercial interests being used for decision-making purposes. Greater emphasis on research of stock biomass was also supported by G A O’Rourke.
- 79 SeaFIC also saw potential for a wide range of decision rules, based not only on stock indicators but on information indicators, including explicit linking of catch limits to data collection.
- 80 Concerns were raised about the state of knowledge of non-commercial catch. RLIC contended that the HSS was unlikely to do anything to incentivise or improve data collection and assessment, in particular in non-commercial catch

data in shared fisheries. It also argued that the HSS fails to address monitoring and management of non-commercial allowances with the constraints of a TAC. Challenger Finfisheries referred to the inability to assess catch without an adequate measure of recreational catch and suggested that until that deficiency is addressed the HSS should not be introduced.

The Ministry's response

- 81 The Act does not go as far as the CCAMLR “no data, no fish” approach. The specific provisions of the respective regimes are quite different in nature. The lack of information is not itself a reason not to allow fishing.
- 82 The lack of information should lead to caution when considering the available information. A best practice standard may result in a more explicit assessment of risk to sustainability than may have occurred in the past. While that may be portrayed as the implementation of the precautionary approach, such an approach is consistent with the intent of section 10 of the Act. The Ministry is investigating an appropriate risk assessment approach that will support decision-making to give effect to the HSS. The HSS will not result in lower TACs as a matter of course. A case by case assessment of the available information will still be required. However, in some instances the identification of an appropriate target reference point, together with the implementation of a formal rebuilding plan, may require some TACs to be reduced.
- 83 The HSS may provide an incentive for commercial fishers to collect information on a stock. Increased confidence that a stock will not be overfished may support higher TACs being set. However, it is acknowledged that better information may confirm that the stock cannot sustain higher catch levels. Stakeholders will have a role in determining the type of information obtained for a stock. In some cases the benefits of obtaining additional information may not be commensurate with the cost.
- 84 Where there is a high level of uncertainty about the status of a stock it is not simply a case of collecting further information. The Ministry considers that the analyses of existing information can be improved at a relatively minimal cost for any stocks.
- 85 It is encouraging to see support from the recreational sector about the need to improve the quality of information about recreational catch. In the interim, the absence of reliable estimates of catch is not a reason to delay implementation of the HSS. The shared fisheries project is tasked with addressing information issues relating to recreational catch.
- 86 The notion of linking catch to data collection is an important management tool. The adaptive management programme took this approach. However, certain legal impediments preclude explicitly linking the TAC to data collection. The Ministry will continue to explore the use of decision rules relating to the collection of data.

Low information stocks

- 87 SeaFIC identified a number of concerns regarding management of low information stocks. It suggested that in many cases it is inappropriate to continue to manage these stocks under section 13 of the Act. It also suggested that many information-deficient stocks within the QMS should start with a more careful categorisation of these stocks that recognises the nature of the different stocks and fisheries, and that it is entirely unrealistic (and not credible) to expect these to be managed by a single “one size fits all” catch-based control rule.
- 88 SeaFIC commented that a number of stocks exist simply for administrative purposes (e.g. HOK 10) to ensure reporting of any bycatch that may occur, but that there is no expectation that the catch limits reflect levels that will allow maximum sustainable yields. SeaFIC contended that the existing catch history very likely does provide a credible basis for setting a TAC/TACC. However, it is probably most appropriate that the catch limit is regarded more as a low level trigger than a “ B_{MSY} proxy” and, if exceeded, should prompt a more detailed examination of nature of the fishery. Similarly, decreased catches should not prompt an immediate (rule-based) catch reduction, without an examination of the nature of the change. SeaFIC proposed that efforts are made to develop a more extensive suite of automatic fishery characterisation tools.
- 89 In the case of new and developing fisheries, SeaFIC submitted that the HSS must provide a clear approach for “proving up” the fishery whilst increasing information on the stock status and potential. In addition to data collection and research, changes in abundance are often necessary to inform understanding of stock dynamics.

The Ministry’s response

- 90 A single “one size fits all” catch-based control rule is not proposed. The initial consultation document included a diagram representing a control rule. This has not been carried forward to the proposed HSS (but is included in the Operational Guidelines for illustrative purposes).
- 91 The difference between administrative TACs based on catch history and new and developing fisheries is acknowledged. New fisheries expose the stock to the risk of overfishing – often knowledge about the fishery is gained through fishing activity and more complete information is only obtained over time. Optimistic catch limits based on limited information can result in stocks being reduced below a long term sustainable level. The HSS addresses this issue in part by proposing that initial catches should be set on the basis of the product of F_{MSY} (the fishing mortality rate that will result in MSY), or appropriate proxies, and a conservative estimate of stock biomass.
- 92 A large number of QMS species/stock units fall into the category of low information stocks. In some cases the species has had a lengthy fishing history prior to introduction into the QMS and catch history has been used as basis for setting TACs. Using the methods specified in the Operational Guidelines, a

specified target should be determined and performance against that target regularly monitored to assess the need for subsequent TAC changes.

- 93 In the case of stocks where nominal TACs have been set for administrative purposes it may be appropriate to consider alternative management options. Section 14B was generally designed to provide for such situations – to enable catch limits to be set at a level that allowed the TACCs for target fisheries to be taken. The provisions can be triggered by a proposal from industry; to date no proposal has been received from industry. Industry also expressed an interest in using section 14 of the Act for low information stocks. This issue is discussed in further detail below under the section on “Alternatives” beginning at paragraph 110.

Practical Application

- 94 The submissions identified a number of gaps in the HSS that were claimed to mean that its implementation was likely to be problematic.
- 95 Forest & Bird stated a concern about the process for allocating stocks to a particular information tier and suggest clearer guidelines to inform managers as to what information is required to be attained to step up to a higher tier. SeaFIC also commented that it has limited insight into Ministry thinking on factors relevant to choosing targets and risk profiles. Similarly, the Big Game Fishing Council noted that the consultation document was not explicit about what constitutes a medium productivity stock. It suggested that this may be a case where a decision rule needs to be developed rather than leaving it to stakeholders to decide.
- 96 SeaFIC also identified that the proposal is silent on the implications for science, management and decision-making processes. It stated that if implemented as proposed, there would likely be major implications for these processes, both at an initial implementation stage and on a continuing basis.
- 97 SeaFIC expressed a number of concerns relating to the stock assessment process. It submitted that the commonly-expressed belief that stock assessment outcomes are more certain for higher information stocks is not supported by examination of those outcomes. They stated that the assertion that more information (or more research) generally leads to lower coefficients of variation around indicators of stock status is simply wrong. SeaFIC also identified that stock assessments in New Zealand typically vary greatly from application to application. Models are changed, data treatments are varied, the weight or use of individual datasets is varied, etc. SeaFIC believed that, as currently performed, there is no basis from any stock assessment for consistent application of a harvest control rule. SeaFIC contended that requiring such an output from stock assessment processes has major implications.
- 98 Of particular concern to SeaFIC was how stock assessment working groups would work on a continuing basis to deliver the required outputs to implement harvest control rules as proposed. It suggested that the effects on working groups could be dramatic and that instead of the generally collegiate approach to producing best science, the groups potentially will be tasked to make

decisions with direct management consequences. The role of individual scientists and Ministry chairs/advisors would be changed dramatically as would the (devalued) role of fishery “managers”. Pressures in the groups was hypothesised to grow with the science processes likely being politicised.

The Ministry's response

- 99 The consultation document did not contain a full description of many of the process-related issues integral to the implementation of the HSS. This matter has been addressed in part by the development of a set of Operational Guidelines and the simplification of the HSS.
- 100 A key change following consultation has been removal of the three information tiers with associated harvest control rules from the HSS. The tiers introduced a level of added complexity and uncertainty about how the tiers would be applied. The practical distinction between different tiers often becomes blurred. The Ministry does not consider that prescriptive control rules are able to be effectively utilised at this time.
- 101 The Operational Guidelines address many of the technical, interpretation and implementation aspects of the HSS. However, it is impractical to seek to itemise every specific aspect. It is expected that the Operational Guidelines will continue to evolve over time and provide greater clarity based on experience with implementing the HSS.
- 102 It is acknowledged that the fisheries assessment working groups will have a key role in implementing the HSS. The HSS will result in fundamental and positive changes to the stock assessment working group process. The process will continue to deliver authoritative fisheries assessments of current stock status. However, the recently-introduced section 13(2A) and the HSS in combination will enable a much more comprehensive analysis of stock status relative to a wider range of reference points. This will greatly enhance the quality of the science advice on which to base management options and Ministerial advice.
- 103 In addition, interactions between scientists and managers are likely to be greatly enhanced with managers specifying targets and limits and scientists assessing stock status relative to these targets and limits. Scientists will not be tasked with specifying management objectives; this will continue to be the role of managers, whose role therefore, will not be devalued.

Environmental / Ecosystem Considerations

- 104 Forest & Bird stated that the proposed HSS did not incorporate the environmental variables into the management framework and thus the decision-making process for setting a TAC. ECO suggested that environmental standards must constrain harvest decisions.
- 105 The consultation document contained reference to fishing at or below F_{MSY} as being a good step towards ecosystem-based fisheries management. Ngatiwai Trust Board endorsed that view.

- 106 The Big Game Fishing Council commented that the Ministry must take account of ecological considerations. A category for ecologically-important stocks should be developed to protect these species within the current legislative framework. They contended that the HSS must not be used as a justification for developing commercial fisheries at B_{MSY} in every available fish stock in New Zealand.

The Ministry's response

- 107 The HSS will constitute one of a number of fisheries management standards that will be implemented over the next several years. Standards will likely exist for seabirds, benthic habitats and sealions. In the absence of those standards it is premature to determine the extent to which they will constrain harvest decisions.
- 108 In developing the HSS the Ministry has sought to avoid addressing the complete management framework through a single standard. The HSS does allow for explicit consideration of environmental variables. For example, the relative importance in the food chain is a relevant consideration in determining the reference points for a stock.
- 109 The approach taken to date has been to focus on reducing fishing impacts on protected species, rather than directly focussing on the ecosystem effects of fishing. No holistic integrated management framework has been developed. Reliance is placed on a standards-based approach to effectively manage the adverse effects of fishing on the aquatic environment. New Zealand, like most other nations, is still at the early stages of addressing ecosystem effects of fishing.

Alternatives

- 110 SeaFIC offered two proposals in response to the HSS. The first related to the management of stocks under section 14 of the Act instead of section 13. The second was the development of management strategy evaluations.
- 111 SeaFIC contended that the vast majority of stocks are inappropriately managed under section 13 of the Fisheries Act because it is impossible in practice to estimate B_{MSY} . SeaFIC noted that the wording of section 14 of the Act is unhelpful in allowing a more sensitive approach to management. In its view, rather than forcing many low information stocks into section 13 management, it would be appropriate to consider revision of section 14.
- 112 SeaFIC advocated that a timetable be agreed for all fisheries to undergo inclusive objective setting, management strategy evaluation or similar work, and implementation of agreed management strategies based on that work. It suggested that for middle depth and deepwater fisheries, this task could be started immediately and finished possibly within five years. For major stocks, the work could be completed within three years. For many other shared and commercially-important stocks, including for example snapper and rock lobsters, a similar timetable was seen to be feasible and desirable. SeaFIC contended that the HSS would not be appropriate for many fisheries that might

be better managed using fine-scale spatial approaches (e.g. paua, some rock lobsters and perhaps some orange roughy stocks).

- 113 SeaFIC accepted that in the course of work on management strategy evaluations many of the design elements of management strategies included in the draft HSS (harvest control rules, reference points, rebuilding plans etc) could be adopted on a case by case basis. However, it stated that while these structural components might be used, the specific details should be varied to meet stock or fishery needs in a way that best meets the purpose of the Act. In SeaFIC's view, in order to meet multiple objectives for any system it is necessary to understand how different management measures affect all objectives in order to determine a best course of action acceptable to all players.
- 114 SeaFIC argued that robust and credible objective-based management can only be delivered by government and stakeholders working together to achieve clearly agreed and articulated objectives using properly evaluated management. The industry view was that to the extent possible harvest control rules need to be developed and evaluated in respect of specific fisheries, not generically as proposed. However, SeaFIC suggested that for many "low information" stocks it may be worthwhile to evaluate alternative, generic management/harvest strategies to be used as defaults.

The Ministry's response

- 115 The option of managing a species under section 14 of the Act can only be exercised in a limited number of circumstances. The criterion of most relevance is where it is not possible to estimate MSY because of the biological characteristics of the species. The wording does not incorporate real or perceived practical difficulties associated with estimating MSY, in particular the cost of doing so. However, that does not mean there is a need to amend section 14 to accommodate a large number of the stocks currently managed under section 13. The Ministry has identified a number of MSY-compatible reference points that allow for the practical application of section 13, particularly since its amendment in September 2008.
- 116 The policy of maintaining only limited exceptions to section 13 is consistent with the intent of UNCLOS. The Convention does not treat practical difficulties associated with estimating B_{MSY} as a basis for adopting an alternative reference point. The Convention stipulates that MSY reference points should apply to all harvested species.
- 117 Section 14 does not require that stocks must be maintained at or above a level that can produce the MSY. However, the Ministry regards section 14 as providing for a no lesser sustainability risk than section 13. In this sense it is distinct from section 14B which expressly allows for certain stocks to be managed at levels below MSY-compatible reference points.
- 118 Management strategy evaluations are a widely accepted means of determining sustainable harvest levels for fish stocks. The proposed HSS does not preclude the use management strategy evaluations; rather the two can be used together.

The HSS provides minimum performance levels that should be achieved; a management strategy evaluations provides the means of testing how to best achieve those levels or better, as well as incorporating other performance measures of relevance to stakeholders. The Ministry notes a degree of inconsistency in SeaFIC's submission. It advocated development of management strategy evaluations to take account of the specific characteristics of species and fisheries, while suggesting that a default approach could be considered for low information stocks. Nonetheless, the Ministry sees there is merit in considering default approaches to low information stocks given the impracticality of undertaking management strategy evaluations for all 628 QMS stocks.

- 119 The Ministry regards the proposed timeframe suggested by SeaFIC for undertaking management strategy evaluations as ambitious. The submission contains no indication of the funding and resources required to meet this timetable. The Ministry does not have sufficient funding and other resources to support development of management strategy evaluations for all QMS stocks as part of the fisheries plan process, nor even management strategy evaluations for the major species or species complexes in each plan.

SECOND ROUND OF SUBMISSIONS

120 Submissions on the revised HSS were received from:

- New Zealand Royal Forest & Bird Protection Society (to the extent that it reiterated its submission on the initial draft of the HSS and supported the submissions of the other environmental NGOs);
- WWF-New Zealand (plus it supported the submissions of both Forest and Bird and ECO in respect of the initial draft of the HSS);
- Te Runanga O Te Rarawa (Kaitaia);
- SeaFIC, which provided the lead submission from industry, supported by submissions from Challenger Finfisheries Management Co Ltd, Area 2 Inshore Finfish Management Company Limited, and Sanford Limited.

121 Specific themes emerging from the submissions are presented below. This is accompanied by Ministry responses.

Supportive Comments

122 SeaFIC stated that it supported the appropriate use of standards within an objectives-based approach to fisheries management. SeaFIC also acknowledged that use of standards can help provide transparency and can provide confidence.

123 As a default, SeaFIC advised that it has no difficulty with a framework that contemplates a target clearly related to B_{MSY} or F_{MSY} , as required by law, or by agreement among stakeholders. SeaFIC also had no conceptual difficulty with the use of soft and hard limits as a basis for guiding analysis and framing advice, or with the intent of defining default rebuilding rules or guidance to be triggered if a stock is deemed to have fallen below a soft limit. It also had no difficulty in principle with the intent of a hard limit, and even the triggering of advice to close fisheries if appropriate. However, SeaFIC outlined difficulties with the details of the HSS. In summary, SeaFIC stated that while it disagreed strenuously with the prescription of the HSS, it sympathised with the intent.

124 SeaFIC stated that it was pleased that the proposed HSS attempted to provide space for management strategy evaluations approaches, although it did not think it appropriate to completely specify performance measures and associated probabilities.

General comments about HSS

125 This section outlines general overall stakeholder comments about the HSS. More specific comments are outlined in subsequent sections.

126 SeaFIC submitted that the HSS should not be approved, identifying a number of reasons for this view. SeaFIC stated that it is seriously problematic for the Ministry to consult on the proposed HSS given a raft of inter-connecting issues and the lack of clarity as to how it would in fact be implemented, how it would be amended, and what the impacts of implementation would be. They

claimed that the issues that need to be considered include *inter alia* the interpretation of B_{MSY} ; technical matters related to estimation of B_{MSY} or proxies; the legality of the use of proxies; separation of objective standard-setting from risk/value judgments; legal requirements as to use of information; the separation and coordination of science, management and decision-making roles; and how science and management processes w be developed, implemented, monitored and revised.

- 127 SeaFIC expressed concern that the Ministry was seeking Ministerial approval for the HSS in isolation, without reference to the Operational Guidelines, without testing of implications or alternatives, and without clarity as to how development of Operational Guidelines critical to application of the HSS would be carried out. It was unclear to SeaFIC how the Ministry could reasonably present such a package to the Minister for approval and how the Ministry could believe approval of the HSS would inspire confidence and improve transparency – especially given the lack of resolution as to how Operational Guidelines will be developed and amended (and by whom) or how the entire process will operate. SeaFIC submitted that:

“In discussion with officials, [it] has been told that the Guidelines could change regularly, and even “within a week” of the Minister approving the HSS. Under such conditions, the S in HSS can hardly signify “standard”.”

- 128 In particular, SeaFIC identified that it was very unclear what effect adoption of the HSS would have on CRA 7 and CRA 8, and the many other fisheries managed using such “conceptual proxy” reference points. Under the Ministry interpretation as SeaFIC understood it, it could become a requirement to estimate numbers currently rejected by Science Working Groups and “use those numbers to destroy healthy fisheries”. SeaFIC argued that these issues needed to be completely dealt with and resolved before anything resembling the HSS could possibly be approved.
- 129 SeaFIC advised that its general views on the standards framework had not changed, except to the extent that recent draft standards and a variety of other issues had served to deepen its concern about the movement of fisheries management to a more “instructive” regime. Sanford Limited also expressed increased concern about the movement to more prescriptive fisheries management regimes. This move was seen as presenting higher direct costs on industry and possible reduction of fisheries utilisation opportunities. In the course of its participation in the initial fisheries plan meetings, Sanford was not convinced that the Ministry had a desire to include the economic and developmental aspirations of the industry.
- 130 SeaFIC viewed the Act as the standard and stated that a variety of legitimate approaches existed to best meet its purpose – it did not accept the “imposition of an untested strait-jacket”. SeaFIC advised that it had serious difficulty with the proposed default values of 10%, 20% and implicitly 40% B_0 for the hard and soft limits and target respectively. It disagreed with HSS default definitions for reference points (as prescribed % B_0 values), rebuilding times (i.e., 2 times T_{min}), and a probability of rebuilding of 70%.

- 131 SeaFIC submitted that the correct place to set higher standards than those required under the Fisheries Act is through fishery plans (section 11 or otherwise, e.g. the CRA 7 and CRA 8 development of management procedures) or explicitly when making case-specific decisions that balance a range of biological, social and economic factors. They stated that this should depend not on an imposed HSS but on fishery planning processes, fully including or led by impacted stakeholders. Sanford Limited also opposed on economic grounds any proposal to move away from the current standards stated in the Act. It contended that any standards higher than those included in the Act would require legislative amendments.
- 132 SeaFIC also objected to the specific reference points incorporating what it perceived to be a value judgment of what is required beyond what is biologically necessary. It suggested that the technical details of the HSS mix together a scientific basis to ensure Fisheries Act obligations are met with apparently, but not explicitly, value judgments and management considerations.
- 133 SeaFIC submitted that setting reference points did not in itself ensure any consistency in the management of QMS fisheries. It suggested that surety is not provided on a number of grounds. First, the meaning of reference points depends on the means by which they are estimated (and the HSS sets no standard for consistency of monitoring and assessment or for provision of clear advice). Second, decisions still legally need to be made accounting for a range of factors other than biological ones and with the decision-maker exposed to a full and reasonable range of appropriately analysed options.
- 134 SeaFIC suggested that it is likely by happenstance to work for some stocks but potentially be disastrous for others. Its implementation would likely create major process problems and endanger already fragile and strained relationships between the Ministry and stakeholders. Further, although the proposed HSS does attempt to accommodate a structured strategy development approach, in SeaFIC's view, its implementation would likely embed other processes and stymie the possibility of progress towards good management approaches. SeaFIC saw no need or reason to progress without proper evaluation.
- 135 Te Runanga O Te Rarawa acknowledged efforts made to enhance sustainable management and utilisation of our fisheries and aquatic environments. Te Runanga O Te Rarawa noted the growing awareness of traditional environmental/ecological knowledge as a legitimate field of environmental expertise. Traditional environmental knowledge is defined as a cumulative body of mātauranga (knowledge) and tikanga (beliefs), handed down through whakapapa (generations) by cultural transmission, about the inter relationship of living beings (including humans) with one another and te pūtaiao (environment). Te Runanga O Te Rarawa stated that it was important to integrate traditional environmental knowledge into the setting of stock targets and limits. In its submission, Te Runanga O Te Rarawa set out a basis by which it can provide traditional environmental knowledge to assist the Ministry and the Minister in their decision-making processes.

- 136 Area 2 Inshore FinFish Management Company Ltd suggested that the HSS overly focused on single stock management. It submitted that the interdependence of species in mixed stock fisheries needed to be mentioned or acknowledged in any harvest standard derived from the Act. It looked forward to seeing case studies that involve mixed stock fisheries so that the application of the HSS can be better understood.
- 137 Area 2 Inshore FinFish Management Company Ltd also suggested that a plain English version of the HSS should be made available so as to assist participants in the fisheries plan and to ensure the general readership is not excluded from discussions.
- 138 WWF-New Zealand supported the submissions of Forest and Bird and ECO in respect of the first round of submissions. Its key concerns related to the lack of application of the precautionary principle specifically in relation to the limits, the lack of consistency and clarity around terminology used in the document especially “hard and soft limits”, and the failure to identify ecological objectives as an integral consideration in the HSS.
- 139 WWF-New Zealand advocated that harvest strategies are developed for all retained species, not just QMS stocks. It also sought greater certainty as to the extent to which ecological objectives are required to be pursued by the HSS and recognition that harvest strategies in themselves, cannot deliver ecological sustainability and that the HSS is only one of a range of tools designed to deliver ecological sustainability. WWF also identified a lack of clear guidance on the application of the HSS to internationally-managed or high seas fisheries, and suggested that New Zealand retains the right to take stronger measures than those adopted under an international agreement. It recommended that RFMO measures take precedence only where they are more stringent than those prescribed under the HSS.

The Ministry's response

- 140 The Ministry considers that considerable progress has been achieved in terms of obtaining general acceptance as to the overall intent of the HSS. However, it is evident that there are still some major areas of debate and in places a considerable gap between the views of the Ministry and industry, in particular. The position of industry reflects a general desire not to be fettered by standards but to maintain the maximum flexibility to exploit fish stocks.
- 141 The Ministry considers that is essential to move forward with the HSS. In doing so this would align our management approaches with advances undertaken in other jurisdictions. It will also provide a credible basis to support the eco-certification of New Zealand fisheries in the future. The HSS has been reduced to the smallest possible of number of essential elements. The elements identified by SeaFIC as needing further development are contained within the Operational Guidelines. The Ministry has clearly signalled intent to work with stakeholders on these aspects. However, the Ministry is of the view that the only way to provide sufficient incentive for stakeholders to engage in this process is to adopt a standard from which we can all collectively move forward.

- 142 In developing the HSS, the Ministry has expressly taken into account developments in other jurisdictions. The absence of a comparable framework in New Zealand that aims to ensure long-term sustainability is readily apparent. New Zealand had long professed to have “the best fisheries management system in the world” (and we do in some respects), but we are falling behind by failing to adopt a framework of the type proposed. As SeaFIC is aware, such standards have already been adopted in other jurisdictions, most notably the US, Australia and numerous international organisations. In particular, Australia has adopted a more stringent standard than the one developed for New Zealand.
- 143 The HSS was developed on the basis of the Fisheries Act, particularly sections 13 and 14, and the TAC setting components therein; along with considerations of international best practice for both fisheries management and fisheries science. The Ministry considers that the HSS is unlikely to have the disastrous implications suggested by SeaFIC. It is acknowledged that there may need to be a period of realignment in some fisheries, but that is anticipated with the introduction of any policy initiative. It is certainly not the objective of the Ministry to engineer the wide-spread closure of New Zealand fisheries or to unnecessarily constrain harvest levels.
- 144 SeaFIC advocated an industry-led management strategy evaluation approach without necessarily having to substantiate that such outputs would be commensurate with minimum performance levels related to long-term sustainability. By rejecting the minimal set of standards proposed in the HSS, SeaFIC apparently did not see the value of benchmarking management strategy evaluation approaches against some minimum performance measures; in doing so, SeaFIC risks ignoring the international market-place. More than 90% of New Zealand’s commercial catch is exported. There is a substantial world-wide consumer and retailer initiated impetus to purchase products only from sources that can be certified as ecologically-sustainable.
- 145 The SeaFIC submission did illustrate the complexity associated with the subject matter. However, compared to the approaches adopted in other jurisdictions, the HSS is relatively simple and streamlined. A feature found in other approaches is the adoption of multiple fisheries management tiers, categorised on the basis of the types of information used to estimate sustainable harvest levels. This element was adopted in the initial consultation version of the HSS, but was deliberately removed in the revised approach because of the added complexity and the inability to clearly distinguish between the categories in the New Zealand context given the limited range of information used to manage New Zealand fisheries. Notwithstanding these points, the Ministry accepts the need to produce a plain-English version of the approved HSS.
- 146 The SeaFIC submission also highlighted the tension that exists between being overly-prescriptive and providing flexibility to managers and decision-makers. On the one hand, SeaFIC argued against prescription but on the other contended that there is not sufficient guidance or certainty to allow for the adoption of the “standard”. This is the fine-line to be addressed by Government in establishing any standards-based approach.

- 147 Faced with this situation, the objective of deriving standards is to produce statements of principle as to how the Government intends to give effect to the Act. The HSS represents a default approach that the Ministry recommends for setting TACs in the absence of alternatives that result in a demonstrably more beneficial outcome.
- 148 SeaFIC appear to have suggested that in deriving standards, a distinction needs to be made between risk analysis and risk management. By way of example, SeaFIC accepted the notion of targets and limits, but did not support specification of criteria “unrelated” to B_{MSY} (i.e. the specification of limits as a % B_0 as opposed to a proportion of B_{MSY}). SeaFIC indicated that the HSS goes beyond merely identifying the need to adopt targets and limit reference points and has inappropriately proposed default values for these.
- 149 The Ministry does not accept that the HSS should be confined to the requirement to identify target and limit reference points without specifying values for each of these. This appears to overlook the purpose of a standard. It is commonplace for governments to specify minimum values for giving effect to the letter of the law. While there may be multiple choices as to a potential framework, a standard codifies a particular approach or set of performance levels.
- 150 The Ministry acknowledges that elements relating to the practical implementation of the proposed HSS are not described in detail. Some of these elements are outlined in the Operational Guidelines, while others remain to be collectively worked through with stakeholders in the process of giving effect to the HSS (e.g. in the science working groups and fisheries plans working groups).
- 151 The Ministry submits that the lack of specification desired by SeaFIC does not preclude you from approving the HSS as a key consideration in setting TACs. This then leaves to the Ministry with stakeholder input/collaboration the role of working together to implement the HSS. Such an approach recognises the separation of power between a Minister determining the management framework and the Chief Executive being responsible for implementing that framework.
- 152 The Ministry acknowledges the merits of the submission made by Te Runanga O Te Rarawa relating to the increased recognition given to traditional environmental/ecological knowledge. The Ministry considers that a number of avenues exist to ensure that traditional environmental/ecological knowledge is accessed and acknowledged – including the iwi forums, iwi management plans, fisheries plans, treaty settlement process, and Pou Hononga and Pou Takawaenga (extension services).
- 153 WWF-New Zealand, in particular, and Area 2 Inshore FinFish Management Company Ltd identified issues relating to the overall scope of the HSS. The HSS encompasses all stocks managed under the QMS. This represents all major commercial species, other than toothfish, albacore and skipjack. The Ministry does not intend to develop an explicit HSS for non-QMS species at this time.

- 154 The Ministry acknowledges and accepts the point raised by WWF-New Zealand that the HSS alone cannot deliver ecological sustainability and that the HSS is only one of a range of tools designed to deliver ecological sustainability. The Ministry accepts that the effective integration and interaction of all relevant tools, including future environmental standards that are to be developed, is not well articulated at this time. The Ministry aims to continue to work towards providing greater clarity regarding how ecological sustainability will be delivered as it develops further elements of the objectives-based fisheries management framework.
- 155 The interdependence of stocks is a consideration identified in the setting of TACs under section 13. The term “interdependence” is used to describe the situation where there is a predator-prey or competitive relationship – i.e. those situations where there is a direct trophic relationship. In such situations the removal of a disproportionate amount of one species will affect the abundance of another species. There are situations where it will be appropriate to take into account the interdependence of stocks to ensure that the target is set at an appropriate biomass level or that the rebuild timeframe adequately takes into account such relationships. The Ministry does not consider that the extent to which the specific interdependence relationship needs to be taken into account can be specified in a standard. Rather it should be addressed on a case-specific basis.
- 156 The Area 2 Inshore FinFish Management Company Ltd raised the need to consider issues associated with mixed fisheries, where a number of commercially-important QMS species are routinely taken in combination together with limited ability to discriminate between which species are caught. In such situations, section 13 of the Act does not differentiate between the species; each must be managed in a manner that is consistent with MSY-compatible reference points or better. The concern is that the fisheries may be managed to the lowest common denominator. In other words, the reduction of the TAC for one species in the mixed fisheries can constrain catch of the remaining species. One solution is to set targets more conservatively than MSY-compatible reference points for selected stocks. Alternatively, it may be possible to utilise section 14B of the Act to enable some species to be fished below MSY-compatible reference points in order to enable catches of other stocks to be maximised. The HSS incorporates the use of section 14B for relevant stocks.
- 157 WWF-New Zealand also suggested that the HSS should extend to high seas fisheries and those fisheries managed under RFMOs. The HSS outlines the approach that the Ministry will take in international fora to promote the adoption of harvest strategies and rebuilding plans that meet or exceed the minimum standards in the HSS.

Process

- 158 SeaFIC submitted that there is a need for process issues to be thought through and attended to in a revised draft HSS. It envisaged both testing of the technical prescriptions proposed but also of the (science, advisory and decision-making) process implications of implementing the HSS. It regarded

the lack of process considerations as a serious flaw in the proposals and symptomatic of a general Ministry failing in the standards-setting process.

- 159 SeaFIC noted that the Ministry commissioned NIWA to carry out technical analyses for a number of stocks “intended to support development of the HSS” but was unclear, however, how that work (or other relevant analyses and reviews) fed in, if at all, to HSS development and to the review and amendment of the proposed Operational Guidelines. SeaFIC expressed concern that the work had not been reported to a relevant Ministry Working Group for review. It advised that it had some technical issues with the NIWA-contracted work.
- 160 SeaFIC contended that if the Ministry was truly aiming at achieving confidence and transparency, it would be far preferable to instigate fundamental and meaningful discussion on the many related issues rather than forging ahead with a reductionist approach to standards. SeaFIC reiterated that it was keen still to engage constructively and was committed to discuss with the Ministry options for satisfactory resolution of all matters raised in both sets of submissions.
- 161 SeaFIC and Sanford questioned the lack of feedback to submissions to initial consultation document. They contended that as a result it was difficult to have confidence in the consultation process. SeaFIC claimed that many of the issues previously raised with respect to the first draft HSS remain unresolved by the second draft HSS.
- 162 Challenger FinFisheries Management Company Limited expressed concern that the HSS was not completed prior to the start of the fisheries plan process.

The Ministry's response

- 163 The HSS has been developed over the course of more than three years. The process has involved two major workshops, numerous meetings with various commercial stakeholder organisations, environmental NGOs, the Recreational Fishing Ministerial Advisory Committee, and NIWA scientists. In addition, the Ministry has engaged in frequent formal and informal discussions with SeaFIC's Chief Scientist and other industry scientists. The Ministry also commissioned three independent reviews of the initial HSS by international experts to ensure that the HSS was consistent with international best practice.
- 164 For the purposes of the second round of consultation the Ministry adopted a deliberate strategy to simplify the approach in light of the submissions and reviews received. The HSS was reduced to a core set of reference points. The details concerned with implementation were split out into separate Operational Guidelines.
- 165 The Ministry agrees that formal consultation is not the end of the process. It also considers that there is no requirement that all implementation aspects must be fully resolved or tested to the satisfaction of SeaFIC. Some technical analyses were carried out by NIWA, but they were not intended to fully test all aspects of the approach. However, the Ministry notes that extensive testing of

the types of approaches contained in the HSS (targets, limits and rebuild strategies) has been conducted in other jurisdictions, and that, when these have been applied, they have resulted in several fisheries management success stories.

- 166 The Ministry will progress technical issues relating to the implementation questions in a science working group. It is intended that the NIWA work will be reported to a meeting of the stock assessment methods working group as the Ministry has previously noted to SeaFIC. It is not uncommon when initiating a new policy approach that not all aspects will be resolved in advance. In this instance, the Ministry has explicitly stated that the Operational Guidelines will be subject to on-going refinement in light of practical experience. The ability to refine, amend or update the Operational Guidelines does not detract from the utility of specifying a standard.
- 167 The Ministry argues that, while concerns about practical implementation issues should not down-played, it is the intent and direction that is being signalled which is the critical element. Whilst the support of industry would be beneficial to aid the implementation of the HSS, such support is not necessarily a criteria relevant to the decision about whether or not to approve the HSS.

Targets

- 168 SeaFIC was generally supportive of development of a framework that sets default mechanisms for framing advice consistent with obligations under the Fisheries Act. SeaFIC was also supportive of the use of MSY-related reference points and the use of proxies within that framework. It was of the opinion that such a framework should be developed case-specifically where possible and through a structured Management Strategy Evaluation approach.
- 169 SeaFIC contended that the HSS, as a minimum standard relating to obligations in the Fisheries Act, should seek to develop defaults that relate “properly and solely to B_{MSY} .” SeaFIC argued that the HSS itself conflates objective definitions of B_{MSY} and default reference points with values that are the proper preserve of management and decision-making processes. By way of illustration it stated that the much used CAY and MCY “strategies” have for many years similarly conflated B_{MSY} with additional risk criteria unrelated to B_{MSY} but in fact relating to avoidance of “low” stock size.
- 170 SeaFIC referred to information from a number of relevant scientific studies in support of its position that the target level adopted should be consistent with the requirements of the Act. SeaFIC noted that B_{MSY} for the range of most of the observed steepness values of exploited marine fishes (i.e., steepness 0.6 or higher) is at 31% B_0 or less, and for most stocks in Myers’ analysis (with steepness in the range 0.7 to 0.9) is in the range 16% to 20% B_0 . It suggested, based on Myers et al. (1999) meta-analysis using 0.7 as an average steepness, that 25% B_0 would be a good default assumption for B_{MSY} rather than 40% B_0 as implied in the HSS.

- 171 SeaFIC also rejected the use of specific $\%B_0$ reference points, especially when, as proposed, they would take precedence over reference points directly related to B_{MSY} . SeaFIC outlined reasons for its view that “problems in using B_0 are severe”.
- 172 In order to make the Fisheries Act operational, and to provide science support for effective advisory work and decision-making, SeaFIC stated that it was necessary to agree how to calculate MSY , B_{MSY} or other “related reference points” (such as F_{MSY}). It acknowledged that whilst B_{MSY} is a useful concept, it is in practice difficult to pin down and there is a need to use proxies, or alternative techniques such as Management Strategy Evaluation that circumvent the technical difficulties of estimating B_{MSY} or proxies, yet deliver robust and credible management options to achieve clearly articulated objectives.
- 173 SeaFIC noted that section 13 explicitly refers to setting of TACs in order to achieve the objective of maximising sustainable yield. The wording is such that much attention is focused in section 13(2) on “ B_{MSY} ” rather than on the action inherent in the section – setting TACs or, in other words, effecting changes in catch to maintain or vary the fishing mortality (exploitation rate) to maximise yield in a sustainable manner. SeaFIC submitted that it is by altering fishing mortality that fisheries management acts; the status of stocks in relation to B_{MSY} is only a way of guiding how to change fishing mortality in order to maximise yield, or of measuring the success of past interventions. With this in mind, SeaFIC thought it appropriate to manage proactively by concentrating more on fishing mortality measures as a means of monitoring and controlling the activity of fishing rather than reactively by concentrating on B_{MSY} . It agreed that development of suitable Guidelines would be useful.
- 174 SeaFIC claimed that the HSS specifies that F_{MSY} (the fishing mortality rate associated with achieving B_{MSY}) should be a limit – the rationale being that fishing mortality rates above F_{MSY} are likely to result in increased capacity which will be difficult to reduce in future. SeaFIC disagreed with the use of F_{MSY} as a limit. First, the issues dealt with are management ones, not science ones. Second, accepting B_{MSY} as a target (as provided for in the Fishery Act) necessarily implies that on average, not in the limit, fishing mortality will equal F_{MSY} . Curtailment of fishing mortality never to be greater than F_{MSY} is inconsistent with adoption of B_{MSY} as a target. Third, although over-capacity is undoubtedly a major ill of global fisheries, the New Zealand situation is not typical.
- 175 SeaFIC also analysed the current management approach adopted for a number of major species and identified potential limitations associated with the proposed HSS.
- a) Hoki: SeaFIC stated that the current assessments of B_0 are dependent on whether the estimated recruitments are assumed to come from an “average” production regime, or if, following a productive period, hoki entered a period of reduced productivity. If a B_0 based on historical recruitments for projections is used, then at recent levels of recruitment the stock can never rebuild to the long-term average B_{MSY} . If recent

recruitments as representing a new average are used, then the stock is already currently above B_{MSY} .

- b) Orange Roughy: SeaFIC submitted that a major difficulty with orange roughy stock assessment is how to determine absolute abundance or even trends in abundance. Difficulties with ageing and lack of basic biological knowledge all conspire to make assessment with respect to B_{MSY} problematic. SeaFIC contended that given the misalignment of QMAs and biological stocks and sub-stocks, it is truly impossible to estimate B_{MSY} on biological grounds – because the biology and management requirements do not align. SeaFIC suggested that from past experience, arbitrary and debatable use of default $\%B_0$ values, combined with highly uncertain stock assessments (and processes), could lead to major impacts on orange roughy fisheries and direct challenges to the HSS.
- c) Southern Blue Whiting (Campbell Plateau): SeaFIC noted that the stock is driven by highly variable recruitment and it is expected to fluctuate widely through time. SeaFIC suggested that it would be natural to expect the stock naturally to fluctuate below half B_{MSY} (the HSS designated soft limit and point at which the stock would be regarded as “depleted”). They claimed that a difficulty with the assessment is that estimates of B_0 are highly dependent on technical assumptions relating to age distributions in the early stage of the fishery and to the importance of density-dependent growth. SeaFIC argued that application of the HSS, especially with the default $\%B_0$ levels, would severely but unnecessarily (legally and biologically) impact management of southern blue whiting.
- d) Snapper: SeaFIC considered that the major snapper fisheries (SNA 1 and SNA 8) are well assessed and well managed despite serious difficulties in some aspects related to the assessment. If the proposed HSS were implemented, SeaFIC was concerned that the potential exists to close those fisheries to commercial and other interests because of the default hard limit proposals and use, for example, of the “greater of” $\frac{1}{4} B_{MSY}$ or $10\% B_0$. SeaFIC contended that the reality of snapper is that steepness is likely high and that B_{MSY} is of the order of $20\% B_0$ or slightly less, implying a default HSS soft limit of around the “true B_{MSY} ”, an inevitable characterisation of “depleted” and a likely characterisation of “collapsed” and closure of the fisheries.
- e) Rock lobster: SeaFIC suggested that some of the best managed fisheries in New Zealand are rock lobster fisheries, especially CRA 7 and CRA 8. These fisheries have been the focus of intense research and management procedure evaluation, with good stakeholder “buy in” to TAC reductions and increases guided by use of adopted decision rules. By global standards, these fisheries stand out as well managed by consistent application of agreed rules (harvest strategies). Under the proposed HSS, again working with limits specified as fixed $\%B_0$ points, SeaFIC contended those fisheries could be closed and deemed to be collapsed even though they are healthy, biomass is apparently at a

thirty year high, catch rates are excellent and the prognosis is for yet further biomass increase.

The Ministry's response

- 176 The Ministry noted that several of SeaFIC's concerns relating to the focus of section 13(2) of the Act on estimates on B_{MSY} have now been addressed with the addition to the Act of section 13(2A).
- 177 In order to make the Fisheries Act operational, and to provide science support for effective advisory work and decision-making, it is necessary to agree how to calculate MSY-compatible reference points. This is the role of the Operational Guidelines, which need to be continually developed in an appropriate context involving stakeholders.
- 178 The Ministry fully agrees with SeaFIC that the fishing mortality rate (exploitation rate) is the most important consideration, and that reactive focus on B_{MSY} is not ideal. However, the recent addition of section 13(2A) to the Act should resolve this issue. The HSS seeks to avoid an overly-reactive approach that is not conducive to industry stability in terms of continual changes to TACs and TACCs. One of the purposes of the HSS is to set out a context within which F_{MSY} and other interpretations can be formalised. In doing so, the HSS and the Operational Guidelines seek to formalise current stock assessment and management approaches for the vast majority of stocks that are being well managed, and to bring the few that fall below the HSS into line.
- 179 SeaFIC accepted that F_{MSY} is an important consideration, but do not support using F_{MSY} as a limit. The HSS does not actually propose this; rather it sets F_{MSY} as a maximum target. It is axiomatic that fishing at a level greater than F_{MSY} (the fishing mortality level that on average will result in a stock being maintained at B_{MSY}) for a sufficient period of time, even in a new fishery, will eventually reduce the biomass below B_{MSY} . Subsequent revisions of the HSS clarify the use of F_{MSY} as a maximum target rather than a limit.
- 180 Treating F_{MSY} as a maximum target is not at all incompatible with accepting B_{MSY} (or higher) as a target. A stock will naturally fluctuate around B_{MSY} when fished at F_{MSY} (all other things remaining equal). Fishing at F_{MSY} will still have the effect of fishing down a stock that is at a level higher than B_{MSY} as a higher tonnage will be taken from the available biomass. For example, in the southern blue whiting fisheries, at different times two large year classes have occurred in different fisheries. Surplus biomass is typically fished down gradually, providing economic benefits over a lengthy period of time rather than resulting in a short burst of increased fishing effort. In other fisheries, such as scallops, there is the option of providing for an in-season increase in the TAC to take account of a recruitment pulse. However, in these fisheries it is not evident that the TAC needs to be set at a level above F_{MSY} in order to take account of that increase in abundance. In fisheries such as Coromandel scallops the industry has tended to request a TAC lower than that which could be set under a F_{MSY} strategy.
- 181 The issue of over-capacity is not a fundamental consideration in the New Zealand context (notwithstanding that some inshore fisheries may demonstrate

signs of over-capacity and in the case of orange roughly this is only now being addressed). However, even in New Zealand there are instances of stocks being fished down to levels below B_{MSY} and a failure to reduce exploitation rates sufficiently early.

- 182 SeaFIC suggested that the HSS imposes a higher standard than that required under Act; hence the calculation of B_{MSY} for a particular stock should not be constrained by a specific default $\%B_0$ value, and where a default higher standard is proposed, this can be legitimately adopted only through fisheries plans or by consideration of case specific circumstances. The debate hinges on what represents plausible estimates of B_{MSY} and how limit reference points should be expressed.
- 183 SeaFIC suggested a target range of 16-25% B_0 , or alternatively a default B_{MSY} value of 25% B_0 is derived from deterministic calculations assuming a natural mortality rate of 0.2 (as well as a growth co-efficient of 0.2). This overlooks the particular characteristics that prevail in the New Zealand context – the vast majority of New Zealand stocks fall into lower productivity categories with lower natural mortality rates; hence B_{MSY} values would be much higher than the range portrayed in the SeaFIC submission.
- 184 More importantly, the calculations referred to by SeaFIC are restricted to the situation where all fish mature at age five and do not experience any fishing mortality until age four. The Ministry is unaware of any New Zealand fishery to which this applies. In general, for finfish (although not necessarily some crustaceans and molluscs) fish are vulnerable to fishing gear long before the age of maturity. Fifty years of fisheries science and management theory and practice indicates that the age at which a stock is vulnerable to fishing is a key factor in ensuring sustainability and maximising yields. The Inter-American Tropical Tuna Commission (IATTC) estimated that if the eastern Pacific bigeye tuna stock was to be fished using only purse seines, MSY would be about 60,000 tonnes. If it were to be fished using only longlines, MSY would be about 130,000 tonnes. The current mix of the two gear types gives an MSY of 77,000 tonnes. The reason for these differences is the difference in selectivity of the gears – on average; purse seiners catch much smaller fish than long-liners.
- 185 Further, a “spawn once” management approach suggests that if little or no fishing mortality is inflicted on fish at the average age/length of maturity plus one year, sustainability concerns diminish considerably. In some New Zealand fisheries (e.g. some paua and rock lobster stocks), fishing mortality may not even be significant until 2-4 years beyond the average age of maturity. In such cases, it is possible to exert high fishing mortality rates, while at the same time satisfying both sustainability and utilisation objectives.
- 186 The Ministry acknowledges that widely divergent views exist in the fisheries science community as to the appropriateness steepness values to be used when calculating B_{MSY} . Steepness is the proportion of the unfished average recruitment obtained at 0.2 B_0 (i.e. 20% B_0). A higher estimate of steepness results in a lower estimate of B_{MSY} . The Ministry acknowledges that current estimates of B_{MSY} for some stocks are within the range referred to by SeaFIC –

for example, snapper (B_{MSY} is in the order of 20% B_0 or less). However, in the case of snapper that is based on assumption of steepness = 1, a value which is being used progressively less frequently elsewhere in the world. This assumption appears to be the artefact of the assessment approach advocated at a particular point in time. As part of the stock assessment process the Ministry intends to review the assumptions adopted in a number of assessments to ensure that New Zealand remains consistent with international best practice approaches.

- 187 Further, the Ministry view is that the weight of international fisheries science opinion overwhelmingly supports higher B_{MSY} estimates than those outlined by SeaFIC in its submission. Accordingly, in terms of the calculation of targets and limits, the Ministry does not accept that the HSS imposes a higher standard than that required under Act. The Ministry also rejects the notion that higher standards can only be set through fisheries plans. The Act explicitly enables the biomass for a stock to be maintained above the level that can produce MSY. The Act does not state that this contingent on the existence of a fisheries plan.
- 188 The Ministry also notes that the SeaFIC submission appeared to be internally inconsistent. It suggested that the “problems in using B_0 are severe”, yet goes on to contend that 25% B_0 would be a good default assumption for B_{MSY} . The Ministry also does not accept some of the views expressed by SeaFIC regarding specific fisheries. For example, the notion that the snapper stocks are well managed may not be universally endorsed by all sectors. Two snapper stocks have been assessed as being significantly overfished, with the need to undertake a rebuild. In the case of SNA 8, the latest stock assessment made it apparent that an anticipated rebuild proposed a decade previously had not eventuated.

Limits

- 189 SeaFIC accepted the use of the term “depleted” for stocks below a specified soft limit of $\frac{1}{2} B_{MSY}$, but not where that soft limit is defined, in their view, in terms of an arbitrary and unreasonable % B_0 . SeaFIC submitted that based on overseas studies B_{MSY} is on average about 25%-30% of B_0 for the stocks studied. SeaFIC contended that as a result it can be seen immediately that the proposed HSS default of hard and soft limits at 10% B_0 and 20% B_0 respectively, implying a default target of 40% B_0 , are not well justified.
- 190 SeaFIC further argued that the proposal that as a default “whichever is higher” of 20% B_0 or $\frac{1}{2} B_{MSY}$ be chosen as a soft limit (and similar proposals for the hard limit) is unacceptable. It noted that where B_{MSY} has been calculated for New Zealand stocks without additional risk criteria (such as are used in determining CAY estimates; e.g. southern blue whiting and snapper), it has been at 20% B_0 or even lower, making the proposed limit definitions untenable.
- 191 SeaFIC viewed the term “collapsed” (applied to a stock below the hard limit) as being emotive and needing to be used with great care. Hence, SeaFIC suggested it might be acceptable to call a stock collapsed if it is below $\frac{1}{4} B_{MSY}$

(defined with no additional risk constraints and in the absence of technical disagreement as, for example, to appropriate estimates of “steepness” or “productivity”); whereas to call stocks collapsed according to an “arbitrary and highly contentious benchmark such as 10% B_0 would create unnecessary havoc”. SeaFIC rejected the latter definition.

- 192 SeaFIC also noted that a soft limit of a $\frac{1}{2} B_{MSY}$, or 20% B_0 , whichever is greater, appears very much like a further imposition of value judgment rather than science.

The Ministry's response

- 193 The Ministry considers that specification of a hard limit as a % B_0 value is critical. It provides a clearly defined and consistent measure across all QMS fisheries. A hard limit of $\frac{1}{4} B_{MSY}$ or 10% B_0 (whichever is the higher) provides a clear statement of Government's approach to ensuring sustainability fisheries and acknowledging management failures. As mentioned, the Ministry is not aware of any currently-open fisheries that would breach the hard limit.
- 194 The Ministry rejects the notion that the values proposed for hard and soft limit reference points (10% B_0 and 20% B_0 respectively) are “arbitrary” and “highly contentious”. The values proposed are less conservative than those recently adopted in Australia. Australia has implemented a limit that may result in targeted fishing of commercial species being curtailed at levels of 20% B_0 .
- 195 SeaFIC advocated the removal of the explicit % B_0 reference points in order to align with the adoption of B_{MSY} estimates in the range of 16-30% B_0 . The adoption of targets in this range would result in the requirement to rebuild stocks being triggered at biomass levels potentially as low as 8% B_0 and considerations for closure at levels as low as 4% B_0 . The Ministry considers that it would be irresponsible to accept such measures. The values proposed in the HSS are generally below those formally adopted in some other jurisdictions and also below emerging international best practice. The Ministry considers it is unconscionable to suggest that fish stocks reduced by 90% of their potential biomass do not require major remedial action to rebuild them at the fastest rate possible (e.g. via a closure of appropriate fisheries).

Rebuild Strategies

- 196 SeaFIC disagreed with the prescription as to rebuild times. It considered that the HSS as proposed would unnecessarily fetter decision-making that properly balances the dual purpose of the Act. SeaFIC submitted that unlike the Act, the proposed HSS did not allow flexible rebuilding times; rather, it prescribed the possible rebuilding strategies that could be presented to the Minister for consideration even though they reduce any reasonable scope to account for social, cultural and economic factors.
- 197 SeaFIC argued that the HSS will be likely to fetter decision-making if advice is formulated based on the current proposal. SeaFIC stated that regardless of when “formal, time-constrained” rebuilding plans might be triggered, flexibility is essential given the reality that fisheries management advice needs to be carefully constructed on a case by case basis dependent on the specific

economic, social and cultural attributes of each fishery. Such advice can only be constructed if the science and management advisory processes are properly coordinated.

- 198 SeaFIC did not object to the use of criteria for when stocks have rebuilt, or to the 50% probability of being above an agreed soft limit. However, it contended that the additional requirement that a stock will only be considered to be rebuilt when it can be demonstrated that there is at least a 70% probability that the target has been achieved is arbitrary, redundant and potentially unnecessarily harsh. SeaFIC noted that in other jurisdictions, other criteria are used and that case by case as part of a specific fishery/rebuilding plan it would be useful to pre-define when rebuilding would be deemed to occur based on specific stock, management and assessment details.

The Ministry's response

- 199 The Ministry does not accept that the rebuild strategy is inflexible or that it unnecessarily fetters the options available. There may be a wide range of possible options that could be adopted to rebuild fisheries in light of the particular characteristics of the individual stock. The purpose of a standard is to provide some definition of the range of acceptable bounds that would be regarded as reasonable, without precluding the ability for a variety of alternatives to be adopted.
- 200 The range of T_{\min} to twice T_{\min} provides a level of flexibility that is responsive to both biological and socio-economic characteristics prevalent in New Zealand fisheries. Short-lived species generally are highly productive. Hence, while they may experience significant biomass fluctuations they can realistically be expected to rebuild within a limited number of years. In comparison the rate of rebuild of long-lived species will generally be slow. In such cases twice T_{\min} may represent a considerable timeframe, potentially several decades.
- 201 The Ministry does accept that a higher upper bound could be used where it can be justified. However, the Ministry believes that T_{\min} - $2 \times T_{\min}$ will adequately take into account social, cultural and economic factors in most cases. The HSS allows the long-term benefits of rebuilt stocks to be appropriately balanced with the short-term costs of reduced catch levels.
- 202 The debate is aptly illustrated by two potential examples. For the purposes of the present discussion, assume T_{\min} for an ORH stock is of the order of 15 years. Thus twice T_{\min} would be about 30 years. The higher the multiplier the less likely the need for immediate remedial action is to be taken seriously. On the other hand, if T_{\min} for a hypothetical snapper stock is of the order of 4 years, giving twice T_{\min} of 8 years, there may well be valid socio-economic reasons to extend this period to, say, 10-12 years. Such a strategy would not be disallowed under the HSS; rather it would need to be justified.
- 203 The trigger of 20% B_0 or $\frac{1}{2} B_{MSY}$ (which ever is the higher) also involves some degree of value judgment (as indeed do all standards, given they represent the balance between scientific knowledge and the risks that society is

willing to take). From a biological perspective, a level at or below half the target level would usually fall outside the range of natural fluctuations of a stock managed on the basis of MSY-compatible reference points or better. Certainly there have been instances where stocks have been reduced to lower biomass levels and the stock has recovered. However, in the absence of a pulse of recruitment, depleted stocks can take significant timeframes to rebuild, if at all. The depletion of stocks to low biomass levels is not regarded as a sound management strategy.

- 204 A soft limit of 20% B_0 could be regarded as overly constraining if considerations were restricted to the short-term sustainability of the species alone. But that is not the case if ecosystem considerations and medium to long-term (future generations) sustainability is taken into account. The Ministry acknowledges that no precise metric can be ascribed to these values; hence, a decision as to the rebuild trigger incorporates some element of an acceptable level of risk.
- 205 The criterion that a rebuild is achieved when there is at least 70% probability that the target has been achieved reflects the need to rebuild both the biomass and the age structure. A depleted biomass results in a distorted age structure – with relatively fewer mature large fish. Without an adequate age structure there is the risk that a stock is declared rebuilt in one year but depleted one or two years later. The objective is to maximise the likelihood of a rebuild having been successfully achieved.

Management Strategy Evaluations

- 206 SeaFIC supported the development of management strategies (or “procedures”) as a means of dealing with uncertainty in estimation of B_{MSY} or analytical proxies such as % B_0 ; that is, rules on how data will be collected, analysed and used in setting harvest regulations. Part of the process of evaluating the performance of alternative management strategies is to seek minimum performance standards across a range of possible stock dynamics.
- 207 SeaFIC claimed that most management strategies that have been adopted can be said to be consistent with the intent of legislative frameworks in that they are designed to avoid overfishing, even if they do not refer explicitly to B_{MSY} (but some do make explicit reference to B_{MSY}). One approach in developing management strategies is to use historical stock size or CPUE as targets or breakpoints in harvest control rules. SeaFIC suggested that there was no need to tie our management strategies to unknowable quantities like B_0 when we often have very well known reference points that can be broadly understood and applied.
- 208 SeaFIC was pleased that the proposed HSS attempted to provide space for management strategy evaluation approaches; however, it did not think it appropriate to completely specify performance measures and associated probabilities as in the HSS. The value of conducting management strategy evaluations lies substantially in the process of development, whereby objectives are elicited and specified and trade-offs considered by stakeholders. In SeaFIC’s view it is that process that leads to acceptance and likelihood of

consistent implementation (as in CRA 7 and CRA 8). SeaFIC agreed that desirable management procedures are very likely to meet the proposed performance measures, and suggested they would likely surpass them. Nevertheless, they stated that all that matters in reality is that management procedures must meet the standard of the Act.

- 209 SeaFIC identified the Management Procedure Evaluation project that they are leading as an ideal opportunity to develop default numbers (effectively in lieu of the proposed HSS). SeaFIC initiated the project in December 2007 aimed at achieving a structured evaluation approach to develop default or “template” management strategies for low information stocks, with guidance provided by a Steering Group comprising a number of senior Ministry staff. SeaFIC was of the firm opinion that the results from that project should provide a foundation for defining template management strategies as a basis for fishery planning. SeaFIC was of the view that a structured approach to evaluation of default strategies, including testing of potential impact on costs and processes (science, advisory and decision-making) remains the best way forward.

The Ministry’s response

- 210 The Ministry agrees with SeaFIC that management strategy evaluations are often a useful approach to assess potential harvest strategies, especially in circumstances of high uncertainty. This view is reflected in the nature of the changes made to the HSS between the original and second consultation document. The Ministry has gone to some lengths to ensure that the HSS not only does not preclude management strategy evaluations, but rather embraces them as widely-accepted approaches for balancing utilisation and sustainability considerations and ensuring that stakeholder aspirations are incorporated into considerations for management action. It is partly for this reason that the HSS has been simplified to the minimum number of essential performance measures.
- 211 The Ministry’s view is that management strategy evaluations are an augmentation of the HSS not a substitute for it. The Ministry is an active participant in Management Strategy Evaluation projects being undertaken by SeaFIC. However, the Ministry does not accept that the identification of all performance measures or reference points should be totally devolved to an industry-led working group. It is a Government decision as to what are the minimum performance levels to be achieved in ensuring the sustainable utilisation of fisheries resources.
- 212 The HSS provides a minimal set of performance measures that can be used in the context of management strategy evaluations to ensure stocks are managed on the basis of MSY-compatible reference points or better and that they do not become depleted. The Ministry sees nothing inappropriate about the HSS specifying minimum performance levels within which management strategy evaluations operate. The HSS does not specify all of the possible performance measures able to be considered in the context of a management strategy evaluation, only the minimum measures. Concerns of industry and others sectors can readily be overlaid. There is ample scope for management strategy evaluations to consider the minimisation of year-to-year variations in TACs,

changes to minimum legal sizes, effort controls, area closures, market preferences, economic returns, allocation of TACs and numerous other indicators of interest to the industry and other stakeholders.

- 213 The Ministry does not accept the inference that only management strategy evaluations can deal with major uncertainties in biological parameters. For example, the absence of explicit estimates of natural mortality rates can be addressed where there is a reasonable indication of longevity. Management strategy evaluations are but one approach that is used in some jurisdictions and regional fisheries management arrangements.
- 214 The Ministry notes that management strategy evaluations must be referenced back to the Act. The Ministry acknowledges that often there is a need to use MSY-compatible reference points or better that are conceptual in nature, yet still deliver robust and credible management options to achieve clearly articulated objectives. The definition of MSY-compatible reference points² clearly encompasses the use of conceptual approximations.
- 215 The Ministry also notes that management strategy evaluations invariably rely on a number of value judgments. In the case of CRA 7 & 8 for example, the SeaFIC submission refers to participants in the fishery and managers identifying a target CPUE based on a historical period in the fishery when yields and abundance, as measured by CPUE, were considered “good”. The Ministry does not dispute that this may be able to deliver a sustainable fishery; however, some benchmark specified by Government as to what constitutes a “good” or healthy fishery is essential.

² Above n 1.