Review of the Fisheries Stock Assessment Process and the Ministry of Fisheries Sustainability Advice to the Minister of Fisheries

To the Acting Chief Executive Ministry of Fisheries

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1 Executive Summary

Everybody that we spoke to said the processes for stock assessment and the sustainability round were fundamentally sound. However, everyone also found some fault with different aspects of the way they were operated, particularly in the more contentious Fishery Assessment Working Groups ("FAWGs") and the Fisheries Assessment Plenary ("Plenary").

These faults included:

- research, and stock assessment not being clearly driven by management needs,
- costs, uncertainties, and delays in the research contracting process,
- inadequate funding for stock assessment,
- the assumption that there is a market for research services, when in fact there is a near monopoly provider,
- the short time frames for particular parts of the process,
- the objectivity of science in FAWGs being seen by some to be undermined by some participants with non scientific objectives,
- the over-emphasis on consensus decision making in FAWGs and the Plenary – particularly in contentious situations, and
- stocks being included in the sustainability round that had not been included in the most recent stock assessments.

The Review team explored with interviewees the dynamics of the FAWGs and the Plenary. There has been a deliberate policy of operating the process on an open, inclusive basis. On balance, the assessment of participants was that this competing stream of advice and advocacy has benefits. But it creates a range of different incentives, not all of which coincide with the Ministry's objective of achieving the statutory goals of the sustainability round. The relationship dynamics appear to entrench players into specific and sometimes predictable roles. Many of the people we spoke to have a perception that the interests of one group or another interfered with the process.

These included the perceptions that:

- Research providers' interests in future business affected their input on research planning,
- Industry interests in minimizing costs affected their input into research planning, and commercial views of future yields from the fishery affected industry input into stock assessment,
- Environmental groups' interests in conservation affected their input into stock assessment, and
- Officials' concern for matters of political and process risk affected their role in the development of management options for fisheries.

We did not attempt to investigate whether there was any substance to these perceptions.

We believe that the stock assessment process would benefit from a number of enhancements. The gain in transparency and the value of external contribution into the processes should be greater than the risk of conflicts of interest damaging the result; but the conflicts need careful management at each step of the process by the Ministry. This should be achieved with a clear understanding of the Chairperson's role in the various consultative groups, which is documented in the terms of reference of the meetings and rules of engagement. Where opinions are reported their sources should be attributed to allow readers to take account of possible interests.

There is a need for much greater clarity about the objectives of the process, its ownership, and who is accountable for its various elements including the role of FAWGs, the Plenary, FARs, and IPPs and FAPs. In particular, the role of the Chief Scientist should be strengthened to include an overall responsibility and accountability for the stock assessment process and the scientific information that is considered during a sustainability round. The Chief Scientist should be responsible for certifying that the information in a Plenary Report and an FAP to the Minister contains the best available scientific information.

There is a need for improved co-ordination between Fisheries Science and Fisheries Operations. Fishery managers need to be more involved in the planning and execution of the stock assessment process, particularly to ensure advance notice of an intention to include a stock in a sustainability round and provide adequate information about fishery management priorities to inform the stock assessment process. For example, the inclusion of ORH 3B in the October 2007 sustainability round should have been signalled given the 2006 work and the Ministerial decision on the first 1000 t reduction.

When it comes to the sustainability round, the Chief Scientist should certify that the FAP contains the best available scientific information. That would overcome the deficiency in the 2007 process for ORH 3B, which resulted from the Plenary Report not reporting the lack of confidence in the 2006 stock assessment findings.

We have recommended a range of other measures, which are designed to improve the integrity of the overall process and assure its quality. The Ministry needs to move to address these issues now, but should also regard the development of multi-year fisheries plans as an opportunity to embed an improved approach to co-ordination and management of the process.

1.1 Recommendations

1.1.1 General

1. The Ministry should redesign the overall process for stock assessments and sustainability rounds, with the following broad objectives:
    - to allow more notice to be given of which stocks will be included in a round;
    - to ensure that adequate information is provided about management priorities, to inform the stock assessment process;
    - to ensure a common focus on the information the Minister needs for sustainability decisions; and
    - to provide adequate notice to quota holders of impending TACC changes.

2. Consideration should be given to establishing a formal categorization of high risk stocks that require additional assurance work during the stock assessment and sustainability processes.

3. In the longer term, the Ministry should address the need to achieve full integration of stock assessment information and fishery management information in the context of future fisheries plans.

4. The role of the Chief Scientist should be strengthened, to include an overall responsibility and accountability for the stock assessment process and the scientific information that is considered during a sustainability round. The Chief Scientist should be responsible for certifying that the information in a Plenary Report and any FAP to the Minister contains the best available scientific information.

1.1.2 Research Planning

5. Steps should be taken, before the commencement of the 2008-2009 research planning process (i.e. by late January 2008), to better specify the management needs which research planning should address – in particular, by requiring fishery managers to specify short and medium term questions for the stock assessment round.

1.1.3 FAWGs and the Plenary

6. Terms of reference should be developed for each FAWG and the Plenary, both of a generic nature and for each stock assessment cycle. Preparing the terms of reference should be the responsibility of Ministry science staff, under the oversight of the Chief Scientist and with input from Fisheries Operations. Fisheries Operations should specify to Fisheries Science the stocks that they are considering making TAC recommendations on or likely to be considered in the sustainability advice round. The terms of reference for the Plenary should recognise its role:

   - as a forum to review the work of FAWGs; and
   - to achieve consistency in the reports of FAWGs.

7. The Ministry should clarify the nature and status of FARs, and the obligations of research providers and authors. Those obligations should be specified in the relevant research contracts.

8. The Ministry should consider establishing rules of engagement for FAWG and Plenary meetings, so that the objectives of each meeting are understood and constructive involvement is encouraged. The rules of engagement should address the following matters:
   - Identification and management of interests.
   - The role of the Chairperson.
   - Method of contribution and decision making.

- Procedure for enabling alternate views to be included in the FAWG or Plenary Report.
- Ministry "ownership" of the Report.

9. Contracts with research providers should specify the level of involvement expected in FAWGs and the Plenary, and require participants to act in accordance with the rules of engagement and the relevant terms of reference.

10. The Ministry should consider making funding available in addition to existing funding for NIWA to contract non-Ministry scientists specifically to review the work of the FAWGs and participate in the Plenary.

11. The selection of FAWG chairpersons should be made against defined capabilities to manage contentious issues while recognising the role of the group, the Chair, and the Ministry's requirements for participative processes. Specific competencies should be defined and developed for chairs.

12. The Ministry should review periodically the performance of FAWGs, the Plenary, and other working groups (including the Aquatic Environment Group), and be prepared to take management action where necessary to ensure that best value is obtained from them.

1.1.4 Sustainability rounds

13. The Ministry should review the style and content of IPPs and FAPs, with a view to reducing their length and complexity, and improving the focus on providing the best available information to the Minister for sustainability decisions.

14. The Ministry should consider the option of holding a stakeholder meeting on IPPs, to provide a forum (in addition to the FAWGs and Plenary) for non-scientific objectives to be contributed to the overall stock assessment and sustainability measures process.

15. An FAP should be signed off by a senior manager in the Ministry who is able to take accountability for all the major inputs to the process, including science and fishery management inputs.

16. There should be a full debrief of the entire stock assessment and sustainability measures process with Fisheries Operations and Fisheries Science staff, including the Ministerial decisions, following the completion of each annual sustainability round.

2 Introduction

2.1 Background to the review

This review is about the processes by which the Ministry gives advice to the Minister of Fisheries on his decisions on sustainability measures and commercial catches, under Parts 3 and 4 of the Fisheries Act 1996.

2.1.1 The sustainability measures process

The primary focus of the Minister's decision-making powers under Part 3 of the Act is the setting of a total allowable catch ("TAC"). The reference point for a decision in relation to a particular fish stock is the level of the stock (B_{MSY}) that can produce the maximum sustainable yield ("MSY") of the stock, having regard also to interdependencies with other stocks. In order to apply the statutory tests, the Minister therefore needs:

- scientific information about the current state of the stock in relation to B_{MSY}; and
- advice on the management options, having regard to that scientific information.

Decisions about TACs feed, in turn, into decisions about the level of total allowable commercial catches ("TACCs") for quota holders under Part 4 of the Act.

The Ministry has devised elaborate systems and processes for generating stock information, assuring its quality in scientific and fisheries management terms, formulating TAC and TACC options, and consulting with stakeholders about them before providing formal advice to the Minister. There is a cycle of work which can be understood as having three main components: the scientific research planning and contracting process; the stock assessment process; and the preparation of position papers and advice papers for the Minister.

The cycle normally proceeds over a two – three year period, meaning that research planned in one financial year will become the subject of advice to the Minister one to two years later.

Figure 1 - Linear Process Diagram

Research Planning	July-October 2004
Statement of Intent consulted and approved	May 2005
Research Tendered and Contracted	Late 2005
Research undertaken by providers	Late 2005 – 2006 -2007 depending on research
Research results provided to MFish	January 2007 for 2006 work
Fisheries Assessment Working Groups and Plenary	February – May 2007
Initial Position paper IPP	May 2007
Final Advice Paper to Minister	September 2007
Ministers Decision & Gazette	Late September
TAC & TACC decisions effectives	1 October 2007

Taken as a whole, this work is affected by a number of significant constraints, incentives, and risks. They include the large number of stocks (currently 629) that have been introduced to the quota management system and may therefore require assessment and advice; the large number of stakeholders involved, and the breadth of their interests; the high costs of undertaking scientific research and the fact that many of those costs are recoverable from industry under the cost recovery system; the high level of inherent scientific uncertainty in respect of some stocks (particularly deep water stocks and numerous small inshore stocks for which it is not cost-effective to conduct stock assessments); a shortage of suitably qualified personnel; time pressures dictated by the annual fishing year; a difficult and demanding statute under which decisions must be made; and in some cases industry groups challenging the Minister's decisions through litigation.

2.1.2 The impetus for this review

One particular group of stocks – orange roughy ("ORH") – has tended to magnify a number of these constraints and risks. The nature of the species is such that resources are extremely difficult to assess; in all current assessment methods there is great uncertainty. It is extremely difficult to estimate biomass of orange roughy stocks. There has been widespread concern for some years about the state of the ORH stocks, the state of knowledge about them, and the ongoing impacts of the management model. Reviews of the ORH stock assessment process were carried out in 2000-01, at the request of the then Minister of Fisheries, and in 2005-06, at the request of the then Chief Executive of the Ministry.

The need for a further review emerged after the Minister of Fisheries had considered the advice given to him in respect of one ORH stock – ORH 3B – in the sustainability round and TACC decisions for the fishing year commencing on 1 October 2007. The Ministry's consultation with stakeholders (through its initial position paper, or IPP) and its advice to the Minister (in the final advice paper, or FAP) referred to a stock assessment completed in 2006. That assessment drew on a number of assumptions about the species and the fishery and two stock assessment models which had been developed over a number of years. The 2007 Plenary Report had been considered; reviewed, and signed off by the Ministry's Deepwater Fisheries Assessment Working Group and the Fisheries Assessment Plenary. Yet it was also apparent from the FAP that the Ministry's science staff (including the Chief Scientist) had reservations about the adequacy of the model and, accordingly, the utility of the 2007 report.

This information caused the Minister to seek further scientific advice from the Ministry's Chief Scientist before considering the TAC options set out in the FAP. These events, and the resulting decision, were summarised in the Minister's decision letter to stakeholders on 24 September 2007:

I have significant concerns over the status of the ORH 3B stock, and in particular the sub-stocks on the East and South Chatham Rise. While there is no new stock assessment available for these sub-stocks, I am aware that discussions at the Deepwater Fisheries Assessment Working Group have identified serious problems with the stock assessment model – or perhaps better put, the information available to go into it, and the assumptions that must be made due to a lack of data on recruitment. Concerns were also raised over how this part of the Chatham Rise has been partitioned for stock assessment purposes. These issues have increased the uncertainty in the status of these sub-stocks and consequently the status of the ORH 3B stock as a whole. They have also created uncertainty as to the sustainability of the current catch and effort, as well as the best way forward both for future stock assessments and for management measures.

In recent days I have been briefed by Mfish scientists on the deficiency of the assessment model used in the 2007 plenary and have been provided with a compilation of existing information from research surveys and the fishery itself. The briefing discussed what these data sets are suggesting directly about the status of the East and South Chatham Rise substocks, rather than what the output of the model described in the Plenary is suggesting. Taken together, the information provided raised serious concerns in my mind about the current status and the future of this stock.

However I have reluctantly chosen to give this information very little weight at this time in reaching my decision this year, relying instead on the information that has been peer reviewed and was subject to public consultation. Obviously I will consider all new information when considering the future management of the fishery...

Following these events, the Acting Chief Executive of the Ministry decided to initiate a review of the systems and processes that support the provision of advice to the Minister on sustainability measures.

2.2 Terms of reference for the review

The primary focus of the review was to be on the stock assessment process, but its ambit was to cover the entire sustainability measures process. We were tasked to examine:

1. The systems and processes for planning and undertaking stock assessments, including:
   - the methods for gathering, testing and analysing relevant information, and
   - obtaining, evaluating and assessing input from properly qualified scientists, fisheries managers, tangata whenua and stakeholders;

2. The roles and responsibilities within those systems and processes, having particular regard to the need for objectivity, independent peer review, quality assurance and accountability around the stock assessment process.

3. The structural and process relationships between the Ministry's Science team, Fisheries Operations personnel, contract research providers, tangata whenua and stakeholders who participate in the stock assessment and ministerial advice processes.

The full terms of reference are set out in Appendix A.

It is important to note that the terms of reference refer to the Ministry' systems and processes in general. We conducted our review on that basis. However, we also recognised the need to consider the particular circumstances leading up to the ORH 3B decision in 2007, which was the trigger for the review. We use this matter, in effect, as a case study of how the overall system may be understood in an especially challenging context.

2.3 Method

We had access to, and were given, a large amount of documentary information to support and inform the review. This included information about the Ministry's systems generally; and specific information generated by the 2007 research planning and contracting process, the stock assessment process (including working groups and the plenary meeting), and the sustainability round itself.

We considered papers in respect of the two previous reviews of the ORH stock assessment process. The first review dated from 2000-01, and resulted in a report by Robert E Kearney in 2001 entitled *Review of Orange Roughy Assessment*s. Then in 2005-06 the then Chief Executive established two workshops, with international expert participation, which aimed at understanding and improving the methods and processes for undertaking ORH biomass estimates.

We were also briefed about the work going on in the Ministry to develop a framework for fisheries plans and a non-statutory standard for harvest strategy.

We met with the Acting Chief Executive, the Ministry's Chief Scientist, the National Manager Fisheries Operations, and other staff of the Ministry's Science and Operations groups. The object of those meetings was to obtain a first hand understanding of the systems and processes, and participants' observations of them. We also held meetings with, or obtained written comments from, representatives of NIWA, a number of industry groups, and other stakeholders. We were unable to obtain tangata whenua views, because of the lack of any identifiable group with an interest in these issues (particularly ORH).

We discussed a draft of this report with the Chief Scientist and the National Manager Fisheries Operations.

We found universal support for the review, and a widespread commitment by everyone to improving the system and making it work. We are grateful to everyone for their constructive and helpful contributions.

2.4 The statutory context

It is helpful to set out in a little more detail the statutory context in which the sustainability measures process operates.

The heading of Part 3 of the Act indicates that it is about "sustainability measures". Section 11(1) encapsulates what is involved:

> *The Minister may, from time to time, set or vary any sustainability measure for one or more stocks or areas, after taking into account –*
>
> *(a) any effects of fishing on any stock and the aquatic environment; and*
> *(b) any existing controls under this Act that apply to the stock or area concerned; and*
> *(c) the natural variability of the stock concerned.*

Decisions under Part 3 must, however, be guided by the purpose of the Act and the principles set out in Part 2. The purpose of the Act is well known (section 8(1)):

> *The purpose of this Act is to provide for the utilisation of fisheries resources while ensuring sustainability.*

This is supported by two sets of principles: the environmental principles (section 9) and the information principles (section 10). The information principles play a crucial role in the TAC process when (as with ORH stocks) information is "uncertain, unreliable, or inadequate" (section 10(c)).

Part 3 contains several mechanisms for setting sustainability measures. The primary mechanism, which was also the focus of the ORH 3B decision, is section 13. It is helpful to set out section 13(2) in detail, because it illustrates the crucial link between the Ministry's processes of stock assessment and the giving of advice about management options:

The Minister shall set a total allowable catch that –

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

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

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

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

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

Other mechanisms for setting sustainability measures are set out in sections 14 (which involves listing stocks on Schedule 3 of the Act) and 15 (which deals with population management plans for protected species). There is also provision for emergency measures (section 16).

Stocks that are introduced to the quota management system ("QMS") must also be the subject of decisions about catch limits under Part 4 of the Act. Section 20 requires the Minister to set a TACC for each QMS stock, and enables the TACC to be varied from time to time. In setting or varying a TACC the Minister must have regard to the TAC, and certain other factors (section 21). It follows that any significant change to a TAC will have implications for the TACC.

Finally in this brief summary of the legislation, it is important to mention section 11A of the Act, which provides for the development of fisheries plans. Although section 11A has been in force since 1999, a framework for fisheries plans is only now being developed. Indeed it has become a major strategic initiative for the Fisheries Operations group.

It became clear to us that the use of multi-year fisheries plans has the potential for significant positive influence on the sustainability measures process. Accordingly, it is helpful to quote the section in full:

> *(1) The Minister may from time to time approve, amend, or revoke a fisheries plan.*
>
> *(2) A fisheries plan approved under subsection (1) may relate to 1 or more stocks, fishing years, or areas, or any combination of those things.*
>
> *(3) Without limiting anything in subsection (2), a fisheries plan may include –*
>
> *(a) Fisheries management objectives to support the purpose and principles of the Act:*
>
> *(b) Strategies to achieve fisheries management objectives, which may include –*
>
> *(i) Sustainability measures set or varied under any of sections 11, 13, 14, and 15:*
>
> *(ii) Rules to manage the interaction between different fisheries sectors:*
>
> *(c) Performance criteria to measure the achievement of the objectives and strategies:*
>
> *(d) Conservation services or fisheries services:*
>
> *(e) Contingency strategies to deal with foreseeable variations in circumstances.*
>
> *(4) Nothing in this section prevents the Minister from considering a proposal under Part 9 [relating to Taiapure].*

2.5 Cost Recovery

The Ministry expects to spend $15.3 million on stock assessment research services for the 2007/08 financial year. Of this total, $13.7 million is to be recovered from industry under the cost recovery system.

Cost recovery has been an integral element of New Zealand's fisheries management regime since 1994. The setting of fisheries services and conservation services levies is a regular process, undertaken every year.

The purpose of the cost recovery regime is to enable the Crown to recover its costs in respect of the provision of fisheries services (and conservation services), as far as practicable, from those people who benefit from the provision of those services or cause the adverse effects that the services are designed to avoid, remedy or mitigate.

The cost recovery system has resulted in processes that allow for stakeholders to become involved in providing feedback on the proposed nature and extent of each year's fisheries services, including proposed research. This operates on a number of levels, and provides four distinct opportunities to contribute: first, by participation in the technical processes of the research planning phase; secondly, through the selection process for recommended research, through the Ministry's Research Coordinating Committee("RCC"); thirdly, with written submissions and responses after the RCC; and fourthly through the more formal process of consulting all stakeholders (including industry) on the Ministry's annual Statement of Intent ("SOI") – which includes the proposed services for the entire Ministry.

The Minister makes the final decision on the required research services when approving the SOI – which is published along with the Vote Estimates on Budget day (usually in May) each year.

These decisions feed into the process of determining the proposed cost recovery levies for the fisheries services which are to be provided. Under the rules prescribed in the Fisheries (Cost Recovery) Rules 2001 (the "Rules"), the Ministry calculates the levies to be applied to each fish stock, based on the total amount to be cost recovered from the commercial fishing industry. There follows a further review process with industry to consider the levies and their application to fish stocks. The Minister then recommends to the Governor-General that the levies be imposed by Order in Council.

All commercial fisheries research is subject to varying degrees of cost recovery, depending generally on the split of TACC limits. The application of cost recovery through the Rules attributes each research project specifically to the species and stock that the project relates to. Quota owners are then levied for the cost of the research into the stocks they hold.

3 Review of Current Processes

3.1 Research Planning

The research planning system starts with Research Planning Groups. These are open to Ministry staff, research providers and stakeholders, and have the role of recommending proposed future research activity for their area to the RCC, which is similarly open. The RCC evaluates the proposals and determines overall priorities leading to specific research proposals for the following year.

This appears to be a science driven process. That is quite appropriate for identification of the most important issues to advance understanding of the fish stocks. But there was a widespread concern among interviewees about the need for more information about management needs in the research planning process. We discussed this with Fisheries Operations staff, who accepted there should be more involvement on their part. In our view, that involvement should become a fixed and integral part of the process. Planning should be based on Fisheries Operations' priorities for the information they will need from research and stock assessment, in order to provide advice for forthcoming sustainability rounds.

This should take place in the context of a restructured timetable for the entire process, which we discuss later.

3.2 Tendering and Contracting

The contracting model for the purchase of research by the Ministry was described by a number of interviewees as being inefficient and cumbersome.

The decision to move to a contract model and then to a competitive tendering model was implemented in the mid 1990s. However, the expected market and competitive options have not been achieved.

We heard concerns about high Ministry overheads and difficulties in obtaining committed contracts with the Ministry in a timely manner. Our review of this area was limited, as we do not believe it has any material impact on the issues that are the focus of the terms of reference, except for some associated matters.

The participation at FAWGs by research provider representatives (mainly NIWA) is on a mixture of informal and contracted involvement. We recommend later in the report that the Ministry clarify with research providers what participation is expected at FAWGs and Plenary meetings, and that this be appropriately specified and contracted.

The accountabilities for completing Fisheries Assessment Reports ("FARs") are unclear. The author is expected to be the research provider, but the Ministry guidelines require the author to present the consensus opinion of the FAWG or the opinions of individual author(s). This mix of accountability should be addressed, and the obligations on the research provider and author should be clearly determined. It is the understanding of the Review that the FAWG Report is the report of the work of all participants in the process, and the FAR is the report of the research provider. It may well reflect input from the FAWG. However, it should remain the research provider's report and reflect his or her final opinion. This should be specified in the contract for the FAR.

3.3 Fisheries Working Groups and Fisheries Assessment Plenary

3.3.1 Current workings

The Terms of Reference for the FAWGs in 2006-07 are contained in the *Report of the Fisheries Assessment Plenary, May 2007: stock assessments and yield estimates* ("the Plenary Report"). While the terms of reference are given for 2006-07, they are generic and give no indication of any specific information that Fisheries Operations staff may require for forthcoming sustainability rounds. Nor do they indicate whether there are particular stocks for which Fisheries Operations is considering advising the Minister to change the TAC or TACC.

Generic terms of reference are appropriate for stocks that become candidates for TAC changes solely as a result of assessments. In addition to the generic terms of reference, specific annual requirements should be provided by Fisheries Operations to Fisheries Science for incorporation in the terms of reference of the appropriate FAWG for that particular year. This again reflects the general feedback we received about the need for research and stock assessment to be more clearly reflecting fishery management needs.

The Fisheries Operations Group expressed a concern that their management priorities should not influence the science response. However, we believe there is less risk from that than there is from stocks being included in the sustainability round that have not been addressed in detail by the stock assessment process.

There seems to be general agreement that the role the Plenary should have is to be a forum to review the work of the FAWGs, and to ensure consistency in the reports of those groups. That is how it operated in the early days of its existence. Not all reports of FAWGs are referred to the Plenary. The Chief Scientist and the FAWG Chairs determine which reports should be considered by the Plenary, including those that raise sustainability issues and those on which the FAWG was not able to reach agreement.

However, the Plenary's role, and its effectiveness, have clearly diminished in recent times. There are a number of reasons for this. First, there are no Terms of Reference for the Plenary, and in their place cultures about procedures seem to have developed. Secondly, it seems that there has been a tendency for plenary sessions to be attended for the most part only by those working group members whose contribution is being reviewed. This undermines the Plenary's effectiveness in both aspects of its role. Fisheries Science has been endeavouring to contract scientists for this role but this could be improved.

There are concerns among some participants that the objectivity of the discussion is undermined by some participants who tend to bring non-scientific objectives to the agenda. While there was general support for the open and transparent nature of the process and the inclusive style[1], there was some concern expressed at the participation of some who join the FAWGs selectively, for example by attending for the debate about the report without having participated in the substance of the assessment.

The review identified from feedback variability in the effectiveness of FAWGs. The Rock Lobster Group was identified as being participative and effective, the Deepwater Group as contentious, and the Aquatic Environment Group as extremely contentious. Management action should be considered to review the performance of the various "working groups" periodically, and action taken to ensure the best value is obtained from these intensive and costly processes.

3.3.2 Discussion

Generally, we consider that the broad participation, including of industry funded experts, adds value to the overall process. The range of interests and incentives clearly produces a challenging and sometimes contentious working environment. Some of the behaviours, particularly those which involve challenges to the cost benefit of

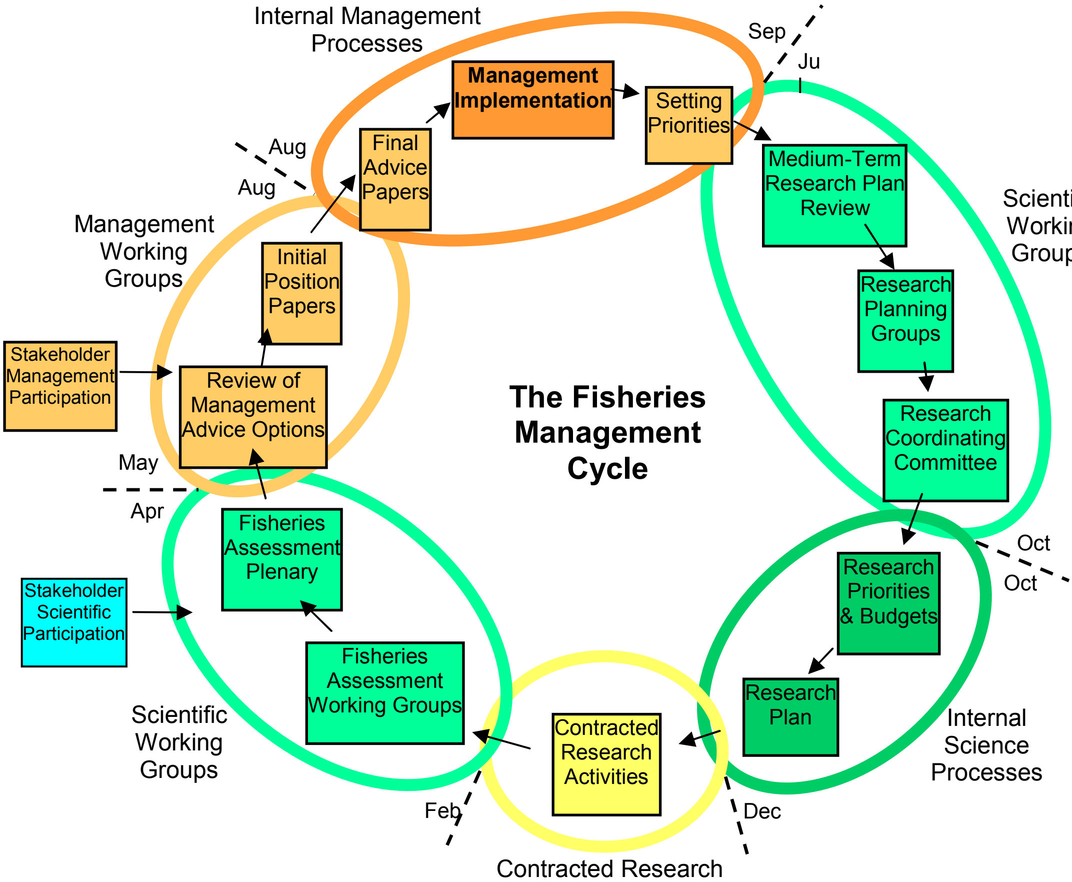
[1] It is sometimes said the FAWGs and Plenary provide an opportunity for peer review of research. In fact, the reviews are not what are commonly understood as scientific peer review, in which individual scientists provide a review of research. The review in the FAWGs and Plenary is more a negotiated consensus than a review by a peer.

investment in research and the engagement of competing scientific analysis, information and advice, are clearly driven by cost recovery considerations.

This draws us into some wider issues. We have a strong impression that there is no longer a commonly shared understanding of the roles of the FAWGs and the Plenary, the overall objectives of the process, or the "ownership" of their reports. The groups are, rightly in our view, open and inclusive and there is no system of accreditation based on qualifications, etc. But, conversely, there are no "rules of engagement" for either the FAWGs or the Plenary, and this leaves issues such as the method of decision making, the procedure for reporting of alternative views, and the role of the chairperson unclear. Most, though not all, of those interviewed recognized that the reports from the FAWGs and Plenary were the Ministry's reports, implying that the reports should at least include Ministry's views about the best available science. We saw this as essential, given that the Plenary Report is later taken to represent the Ministry's view of the best available science. However, when issues are contentious, there appears also to be a strong pressure to include only those aspects on which the meeting could achieve consensus. Using this method of decision making in such circumstances runs the risk of creating reports that include the lowest common denominator of views and interpretations of data, which does not provide a complete perspective of the science considered by the meeting.

There is also clearly a need for the FAWGs, and by extension the Plenary, to be more systematically informed by the thinking of Fisheries Operations advisers about the future management options for the fishery. Those we spoke to recognised clearly that the role of developing management options and advising the Minister is separate from that of stock assessment. But the one should inform the other. We find favour with the model suggested to us by one participant, based on a continuous "feedback loop":

Figure 2. Science developed loop



A common complaint from participants in the process was that some stakeholders choose which FAWG meetings to attend, choose the timing of their interventions to suit the interests they represent, and then to grandstand on certain issues. This appears to us counter-productive. We considered requiring stakeholder participants to commit to the whole planning and assessment working group process. However, on balance we felt this to be unnecessary.

We discussed with some participants whether the Plenary now serves any useful purpose. One option is to consider abolition, and replacement with a meeting of FAWG chairs in order to achieve the objective of consistency. Another option, which on balance we prefer, is to continue with the Plenary but on a considerably strengthened basis. We noted the comments about the strong role the Plenary has played in the past. Indeed there have been occasions in which the Plenary has rejected an FAWG's assessment or asked for additional work (for example PAU 5A in 2006, SNA 8 in 2005, and Southland smooth oreos 2004) – but not any orange roughy stocks.

Part of the reason for reduced participation in the Plenary is that potential members may need to devote their efforts to other stocks for which they have responsibility. Cost and other commercially-driven considerations of participants are clearly a factor in their diminishing availability to attend for the purpose of peer reviewing others' work. This illustrates the proposition that a robust system of review and quality assurance over stock assessments has to come at a cost. We are aware that Fisheries Science provides some funding for independent participation in the Plenary, but this does not appear to be enough to ensure its effectiveness.

Effective chairmanship of FAWGs and Plenary meetings by Ministry scientists is needed to balance competing advice, views and conclusions, and ensuring the Ministry's prime role in providing the best available objective advice to the Minister for sustainability decisions. From the interviews, we did not identify any specific deficiencies in chairmanship capabilities. However, by inference some chairs were identified as being more effective than others.

In our view the FAWGs and the Plenary would be enhanced by the following measures being taken:

- Providing terms of reference for the FAWGs and Plenary, both of a generic nature and for each stock assessment cycle. The terms of reference should be prepared by Fisheries Science under the oversight of the Chief Scientist, with input from Fisheries Operations.

- Better defining the role of the chairpersons of FAWGs and the Plenary, and providing guidance and training for chairpersons about how to manage diverse interests at a meeting and adopt a method of decision making that is suitable to the subject matter and the objectives of the discussion. Use of consensus decision making will sometimes be appropriate, but the risks of that approach need to be acknowledged and understood.

- Defining the basis of participation in FAWG and Plenary meetings, so that the objectives of the meeting are understood and constructive involvement is encouraged. Meetings should continue to be open on a non-accredited basis, but participants should identify whose interests they are representing. It is difficult to address this systematically without reducing the transparency of the process, but it is an issue that the chairperson should deal with. Agreed "rules of engagement" may be another option for achieving transparent and constructive involvement.

- Providing additional funding to enable Fisheries Science to contract a wider range of scientists with a role of participation in all of the Plenary, with a brief for review of, and achieving consistency in, reports of different stocks.

We are fully aware of the difficulties of recruiting of competent scientists to be engaged in these processes and in providing adequate staffing in the Fisheries Science Group, but believe our report must address this point.

3.4 The IPP and FAP process, and the link with stock assessment

3.4.1 Initial Position Paper

The preparation of the IPP is preceded by a priority setting process which determines which stocks will be included in the sustainability round. This process is the responsibility of Fisheries Operations. The process begins in February, is informed by the FAWGs, but does not feed into the decisions on what stocks are assessed.

However, other issues can lead to a stock being included in a sustainability round, when it was not considered by the Plenary. In 2007, the sustainability round included ORH 3B, TAR 1, SCH 1, RCO 7, FLA 7, and North Island eels which did not have stock assessments in 2007. The Deepwater FAWG had intended to carry out a new stock assessment for South Chatham Rise portion of ORH 3B, but in the event did not, and the research providers and FAWG for the other stocks had scheduled new information to be provided in 2008 and 2009.

An initial identification of priorities and stocks for which Fisheries Operations would like scientific advice would have helped guide the work of the FAWGs, which could then have updated the scientific information available for those stocks. Obviously, if priorities for the IPP are identified before the FAWGs, they may have to be reassessed after the Plenary to consider other stocks for which sustainability issues were identified.

Fisheries Operations accept the Plenary Report as the best scientific advice available, and include that in their advice to the Minister. Because of that, it is vital that the Plenary Report includes the Ministry's view of the best scientific advice. If that is not done (and it is clear in some cases it has not been) it would be necessary for the Ministry to supplement the Plenary Report with its own view so that the Minister receives the Ministry's view of the best scientific advice.

We learned of instances of the IPP not accurately portraying parts of the Plenary Report. Kearney in his report, while recognizing the advantages in the separating research and management, said:

> *... it would appear be wise to have some more formal involvement of researchers in the finalisation of the explanation and advise that goes to the Minister.*[2]

We concur with that view. Later we recommend that the Chief Scientist should certify that the FAP is based on the best available science. That should as a process start with the IPP.

We noted the IPPs seemed to be written in a defensive style, perhaps with as much of an eye on possible future litigation on simply advising the Minister adequately. The symptoms of this are excessively long documents. This must make the Minister's task more difficult than need be. We recommend that greater attention be given to preparing more succinct papers, focusing on the immediate Ministerial decisions.

3.4.2 Final Advice Paper

The end point of the Ministry's process is the FAP. This is written taking account of the consultation following the IPP.

There was little concern from those spoken to about the process between the IPP and FAP; although some thought that including consultation via stakeholder meetings might improve that part of the process. One advantage of doing this would be to provide an additional opportunity for stakeholders to express their views on some of the non-scientific matters that are currently contributed during the stock assessment process. Allowing for such interventions after the IPP has been prepared would seem to us to be a more appropriate venue. We were advised that most IPPs are discussed at relevant iwi, recreational and commercial fora, but the feedback we received suggested this process could be strengthened.

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[2] Kearney, *Review of Orange Roughy Assessments* (2000-01), p 9.

The FAP should include the Ministry's view of the best scientific advice. This raises significant issues of "ownership" and accountability. In our view, these issues can be addressed by in two ways.

The first is through the role of the Chief Scientist. This needs to acknowledge, much more overtly than it does now, an overall responsibility and accountability for the stock assessment element of the sustainability process. The Chief Scientist is the officer who is logically responsible for mandating the FAWGs; ensuring there is sufficient input to their terms of reference from Fisheries Operations staff in respect of management options for each stock being assessed; designating and working alongside the FAWG chairs; setting the terms of reference for the Plenary; and signing off on the Plenary report, certifying that in her opinion it contains the best available scientific information.

The Chairperson of the Plenary could be the Chief Scientist or another appointed by her. In either case, she should retain the freedom to enable her to exercise her professional judgement to provide the Ministry and Minister the assurance that the advice presented is based on the best available science.

That certification should be repeated in the FAP.

Secondly, there is a need for more overt ownership of, and accountability for, the FAP itself. An FAP on a sustainability round is one of the Ministry's major "deliverables" each year. It contains advice based on input from a number of groups (including Fisheries Operations, Fisheries Sciences, and MFish Legal). We consider that it should be signed out by a manager who is able to take full accountability for that work. Under the Ministry's current structure, that manager is the Deputy Chief Executive. In this we differ from the view of the Fisheries Operations Group which would prefer the current arrangement with responsibility for management advice delegated to Fisheries Operations, and a clearer Fisheries Science responsibility for the stock assessment information in the paper.

Current organisational arrangements have the Fisheries Science and Fisheries Operations as separate Business Groups. We believe there needs to be better alignment between the two; this could be achieved by clarifying accountabilities and/or organisational structure changes. In any event, the independence of the Chief Scientist as discussed above should be strengthened.

3.4.3 Prioritisation

In the current mode all stocks are treated as “equals”. It is common practice, in other sectors of government, to identify and manage high risk areas with increased levels of awareness, additional assurances and active monitoring. Consideration should be given to establishing a formal categorization of high risk stocks that undergo additional assurance work during the stock assessment and sustainability measures processes. This would ensure that all possible steps have been tasken to provide the best available advice to the Minister.

3.5 Options for redesigning the system

In real terms, funding for fisheries research (excluding biodiversity research) by the Ministry has declined, and is now 58% of what it was 15 years ago. During the same period, the number of species and stocks in the QMS has increased from 31 and 183 respectively, to 96 and 618. The Ministry's ability to provide advice about the state of stocks has been degraded significantly over the period.

Addressing the sustainability issues as envisaged under section 13 of the Fisheries Act for all 629 stocks included in the QMS is a daunting prospect, and clearly one for which there is insufficient funding. Estimation of the stock size that will provide the MSY is a difficult and expensive undertaking for any stock, and, in the current financial environment, impractical for most. That means it is necessary to look for approaches for providing sustainability advice that rely on less sophisticated indicators, for example as practised by the Rock Lobster Management Group. We found a widespread view that it would be more practical in many cases to base management decisions on easier questions, such as whether current catches are:

- not sustainable, and will reduce, or have reduced, the stock to below B_{MSY}; or
- sustainable;

than it is to estimate the current stock size and the relationship of that to B_{MSY}. Care needs to be taken to ensure an approach of this sort is consistent with the tests under section 13 of the Fisheries Act. Use of section 14 of the Act, in situations limited by inadequate information, can also be problematic.

We are aware that the Ministry is developing a "Harvest Strategy Standard for New Zealand Fisheries", which examines the use of targets based on B_{MSY} or appropriate proxies for it. Legislation changes would be needed to take full advantage of this type of strategy, but it may also be possible to improve management advice using some of the ideas being developed within the existing legislation. We believe this development may lead to more practical approaches to sustainability advice.

There are severe timing pressures in particular parts of the process. It is demanding to fit in all the stocks considered by FAWGs, the Plenary, preparation of the IPP, consultation, delivery of the FAP to the Minister, the Minister's consideration and decision making, any resulting regulatory or gazetting of decisions, communication of these to Quota owners, and Quota owners responding to decisions, all between January and 30 September of each year. The timetable at times is made even more difficult by delays in the provision of contracts to research providers, who then struggle to provide results in time for consideration at the FAWG. Redesigning the timetable over a two year period, to allow more notice to be given of which stocks will be timetabled for the sustainability round, and accepting that the timetable could be extended accordingly in appropriate situations, would ease these timing problems and provide adequate notice to Quota owners for impending TACC changes. This would also enable better integration of the stock assessment process with the sustainability measures process.

Both Fisheries Science and Fisheries Operations could see some advantage in extending the timetable but also saw potential disadvantages.

4 ORH 3B

This section is included in the report because of the impetus for the review discussed in the Introduction.

ORH stocks are among the most difficult to assess, are very valuable, and have had past catches which were very much greater than current TACCs. ORH 3B is the biggest ORH stock and decisions surrounding its management are some of the most contentious. This difficulty flows into stock assessment work, the FAWG and the Plenary. The deficiencies in the advice to the Minister were the trigger for this review, and the recent history illustrates how the systems to provide advice can fail their purpose of providing the Minister with the best available scientific information to inform his management decisions.

The first TAC was set in 1981 on an arbitrary basis to curtail a rapid expansion of the fishery. Since then a great deal of research has been carried out and assessments have been performed on a regular basis. Between 1988 and 2000 the assessments provided a range of estimates of sustainable yields between 2 200 t and 8 840 t. An assessment in 2001 gave a range of sustainable yields of between 10 270 t and 15 940 t. This was followed by a TAC increase from 7 200 t to 10 400 t. However, there were concerns that the assessment did not reflect aspects of the data from the fishery, which caused the then Chief Executive to commission expert reviews during 2005 and 2006. These resulted in some improvements in the assessment techniques but not in a substantial difference in the conclusions.

Essentially the stock assessment model being used was driven by the assumption that, on average, the recruitment to the population should be enough to sustain the population as it was before fishing started. Given the estimates of growth and natural mortality, the model produced estimated surpluses that were greater than recent catches producing growth in the estimated stock size that were not consistent with data such as observations of changes in catch rates, distribution of fish, as well as other indicators.

The most recent assessment[3] was in 2006, using data derived up to 2005. The report of the assessment of the major part of the fishery (Spawning box and Northeast Flats) includes a section on yield estimates, which includes a table of CAY and MAY (alternative ways of viewing MSY) ranging from 3 000 t to 13 800 t depending on data sets used and assumptions about natural mortality. Apart from the range presented, the estimates are not qualified by any concerns about the applicability of the technique to the stock. However, in the section on the status of the stocks the language is more guarded. It contains three paragraphs, extracted below with emphasis added.

> ***Model runs indicate*** *that biomass has declined …but has subsequently increased.* ***What is very uncertain is the extent of the increase****, which appears to be driven by model assumptions about productivity, rather than the recent data.*
>
> ***If*** *the usual productivity assumptions are correct …*
>
> ***If*** *the actual productivity is lower than assumed…*

The report says what the model did, which presumably could be agreed by all participants, but says very little about whether any confidence could be placed in the model's representation of the actual stock, which presumably could not be agreed. This is an example, in our view, of what a number of people described to us as "lowest common denominator" decision making. In this case, not reporting the views about the actual state of the stock provided a report that at best was uninformative, and at worst, was misleading.

There was no assessment in 2007 for this part of the stock, and the 2007 Plenary Report repeated the 2006 report. The repetition, despite the fact that there had been some additional information available, magnified the shortcomings of the 2006 report.

[3] Report from Fisheries Assessment Plenary, May 2007

However, despite the lack of a new stock assessment, the stock was included in the consultation on the sustainability round for the 2007-08 fishing year. Fisheries Science had not been aware that would be the case; otherwise it may have put more emphasis on the 2007 plenary discussions.

In 2006, the Deepwater Group Limited (DWG) had suggested a staged catch reduction for the East and South Chatham Rise of 1 000 t per year for three years. The TAC was reduced in the first of the three years and the Minister reserved comment on 2007-2008 until he was able to consider the results of the 2007 assessment.

The 2007 FAP includes a section "Rationale for Management Action", which notes there is no new stock assessment information and that all submissions received supported a reduction in TACC. The Ministry's view related the uncertainty in the 2006 and earlier assessments, referred to a paper published by the Chief Scientist which claimed that the 2006 assessment was considered an example of a failed assessment[4], and concluded that the stock as a whole (including components other than the Spawning box and Northeast Flats) was likely to be below B_{MSY}. The basis for a TAC decision could then be either that the previous year's reduction was insufficient to address the 2006 assessment, and/or that the 2006 DWG proposal should be followed up.

Finally, the Acting Chief Executive instructed the Chief Scientist to give the Minister her views about the state of the stock. Those views included considerably more relevant information than had been available in the Plenary Report.

This is an instance where the overall system failed to ensure that the advice given to the Minister was based on the best available scientific information. Two issues were principally responsible for this failure. First, the 2006 Plenary Report contained an inadequate discussion of the state of the stocks. It largely confined itself to reporting the results of models, in which there was little confidence. This was repeated in 2007.

[4] Mace, *Technological needs for fish stock assessments and fisheries management*, Australian Society of Biology workshop on Cutting-Edge Technologies in Fish and Fisheries Science, 2006: reported at pages 16-17 of the Workshop Proceedings.

It seems to us that no one had taken responsibility for ensuring that the lack of confidence was addressed before the assessment information was included in the Plenary Report and then in the IPP.

The second issue was that Fisheries Science did not know in advance of the FAWG that the stock would be included in the IPP, and therefore did not attempt to ensure that the Plenary Report included up to date information.

The chance of these failures occurring would have been significantly less, if not eliminated altogether, had the changes which we are now proposing to the system been in place – in particular, the stronger sense of ownership and accountability for the process and its different parts; and better co-ordination between Fisheries Operations and Fisheries Science staff in respect of scientific assessment being informed by knowledge of management objectives.

5 Fisheries Plans

In the last section of our report we discuss the development of a framework for fisheries plans. We do so because it seems to us – and was recognised by many of those we spoke to – that the adoption of multi-year fisheries plans provides an opportunity to achieve the more integrated approach to stock assessment and management advice which we are proposing.

The Ministry has developed and published a framework for the implementation of Fisheries Plans. This framework is available on the Ministry's website at
http://www.fish.govt.nz/en-nz/Fisheries+Plans/fisheriesplanframework/default.htm

In summary, fisheries plans aim to get the best value from New Zealand's fisheries for all those involved in fishing and the country as a whole.

This framework for fisheries plans is ambitious, and is likely to require additional scientific and other information about a fishery to be obtained and used in management. The systems and processes to specify and obtain this information are not yet determined. The transformation of the current research planning processes and the stock assessment processes to suit objective based fisheries plans is identified as an issue in the framework. Little detailed planning has been undertaken on the process or resource changes required from this management approach.

The expected time frames for the completion of objectives based fisheries plans is over the next few years. In the interim the current science led research planning processes are evolving taking account of discussions about fisheries plans. The integrative issues we have discussed in our report could usefully be addressed in the context of the fisheries plan framework. These will need to be given very careful consideration. However, this is no substitute for the changes we have recommended being implemented now.

Appendix B provides related excerpts from the Ministry's framework for Fisheries Plans.

Appendix A: Terms of Reference

REVIEW OF THE FISHERY STOCK ASSESSMENT PROCESS

TERMS OF REFERENCE

Background

The Ministry of Fisheries has the legal responsibility for the administration of the Fisheries Act 1996.

The Ministry's Chief Executive is accountable to Ministers for the integrity of the systems and processes that underpin the administration of the Act.

The systems and processes that support statutory decision-making by the Minister of Fisheries are central to the sound administration of the Fisheries Act 1996.

As part of my governance responsibilities, I want to assure myself and the Minister of Fisheries that the systems and processes that support his sustainability decisions (Part III of the Fisheries Act 1996) are fit for this purpose and have the highest level of integrity.

In particular, I want to be satisfied that the Minister is provided with the best available information and any credible alternative analyses of the best available information, and is advised of all known risks and uncertainties relating to that information.

Accordingly, I have decided to commission a review of the Ministry's systems and processes commonly referred to as the "stock assessment process" and the "sustainability round".

Reviewers

I have appointed a multi disciplinary team of three experts to undertake the review;

* Dr Robin Allen
* Robert Buchanan
* Peter Murray

Focus of review

The reviewers will examine the systems and processes that support the provision of advice to the Minister on sustainability measures, including:

1. The systems and processes for planning and undertaking stock assessments, including;

   - the methods for gathering, testing and analysing relevant information, and
   - obtaining, evaluating and assessing input from properly qualified scientists, fisheries managers, tangata whenua and stakeholders;

2. The roles and responsibilities within those systems and processes, having particular regard to the need for objectivity, independent peer review, quality assurance and accountability around the stock assessment process.

3. The structural and process relationships between the Ministry's Science team, Fisheries Operations personnel, contract research providers, tangata whenua and stakeholders who participate in the stock assessment and ministerial advice processes.

Access to information and administrative support

The reviewers will have full access to Ministry personnel and records. The reviewers will be authorised to consult with key stakeholders (including contract services providers).

Administrative support for the review will be provided through Peter Murray, the Ministry's General Manager Corporate Services.

Report

The reviewers will report the results of the review to the Acting Chief Executive by Friday, 30 November 2007 and may make such recommendations as they think fit – including, but not limited to:

a) The prerequisites for ensuring the integrity and independence of the systems and processes that support the Minister's sustainability decisions;

b) What, if any, are the underlying impediments to providing sound stock assessment advice to the Minister;

c) How any identified weaknesses in the existing systems, processes and governance arrangements should be addressed; and

d) What, if any, new or additional structures, processes and controls are required to ensure the stock assessment information and management advice to the Minister supports sound statutory decision-making.

GT (Stan) Crothers
Acting Chief Executive

5 October 2007

Appendix B

Extracts from Ministry of Fisheries Objectives Based Fisheries Plan Framework

The Ministry of Fisheries has developed and published the framework for the implementation of Fisheries Plans. This framework is available on the Ministry's website at
http://www.fish.govt.nz/en-nz/Fisheries+Plans/fisheriesplanframework/default.htm

Relevant sections of this document are reprinted here.

3.5.1 Contents of a Fisheries Plan

44. As noted above, there are no strict legislative requirements governing what a fisheries plan must contain, although s11A(3) does set out a number of components. While all of the s11A(3) components may not be appropriate in all circumstances, they do provide guidance as to the likely minimum requirements that the Ministry would be looking for in evaluating any proposed fisheries plan. With respect to scope, it is envisaged that a plan developed by the Ministry for a fishery will encompass meeting sustainability and environment standards and provision for utilisation by all extractive sectors, including allocation between those sectors.
45. Building on s11A(3), it is proposed that all fisheries plans should at least include the following:
    a. Information on the fishery including risks associated with current management
    b. Objectives that are clear and measurable;
    c. Implementation strategies (including specification of regulatory measures and services) to achieve the objectives and mitigate risks;
    d. Specification of responsibilities for delivery and implementation;
    e. Contingency strategies dealing with foreseeable variations in circumstances and known risks;
    f. Performance measures and monitoring strategy; and
    g. Review period
46. This leads to the question of structure. It is proposed that fisheries plans be made up of four main elements. The four elements of a fisheries plan would consist of:
    a. Information Brief: a compilation of biological; economic, social, cultural, and management information relating to the fishery or fisheries covered by the proposed plan. In the past, fisheries management decisions have largely been based on a single information source: stock assessments. This approach will widen the information base underpinning management decision-making.

b. Objectives: what tangata whenua and stakeholders wish to achieve in the fishery or fisheries. These objectives should contribute to achieving overall fisheries outcomes and would need to be consistent with relevant legislative provisions and standards. Objectives should be specific, measurable, appropriate, realistic, and time bound.
c. Risk assessment: an analysis of the risk to achieving objectives and also the risk of failing to meet legislative requirements and relevant standards. This assessment will help confirm the most appropriate arrangement of management tools and services that best manage the stock or stock complex to meet the management objectives and best mitigate risk to meeting standards. The risk assessment will also generate fishery specific performance measures to enable monitoring of fisheries against objectives.
d. Operational Plan: describes those tools and services that have been selected for implementation and delivery through the work under the risk assessment component of the fisheries plan. The operational plan should set out the implementation strategies to achieve the objectives and mitigate risks, the specific responsibilities for implementation, contingency strategies for variation in circumstances and known risks, performance measures and monitoring strategy, and the relevant review provisions.

47. The following sections set out in more detail the different components of the fisheries plan and the likely sequencing for development of a plan.

3.5.2 Information Brief

48. The Ministry proposes that that first stage of the development of a fisheries plan will be the establishment of the Information Brief. The development of the Information Brief is in effect an assessment of where the fishery is now. The completion of an Information Brief will ensure that all information relevant to the management of the fishery is collected in one place.
49. Biological; social, economic and cultural; and managerial information is required, and will be collected where it is available. It is likely that most fisheries plans would require the information on the following topics: 11

Biological

Growth, reproduction and recruitment
Distribution and key areas (feeding, spawning, migration, etc.)
Non-QMS and QMS bycatch
Habitat issues
Environmental conditions
Trophic level interactions
Protected species interaction
Stock assessment

Social, Economic and Cultural

Commercial fishery, including fleet and product characteristics, fishing methods, estimated discount rate, etc.

Recreational fishery characteristics, fishing methods, etc.

Customary fishery characteristics, fishing methods, etc.

Management

Statutory Management

- QMS
- ACE and deemed values
- Aggregation limits
- Harvest strategy
- Existing input controls and technical measures
- Decision rules
- Monitoring
    - Conversion factors
    - Fisheries-dependent reporting and record-keeping
    - Fisheries independent information verification
    - Research activities
    - Vessel, permit, data registries
- Education
- Enforcement
    - Surveillance, investigations and prosecutions
- Cost recovery

Existing Stakeholder Management

- Stakeholder organisations
- Voluntary agreements
- Individual industry-member actions

Performance

- Performance against management objectives
- Other sources of fishing-related mortality
- Compliance with rules

49. While the development of a comprehensive network of fisheries plans around New Zealand will take some time to complete, it is the Ministry's intent to try to establish the Information Briefs for most of our major fisheries over the next few years. The Information Briefs will be

used to document an initial Operational Plan that sets out information about the fishery and its current management regime. These initial Operational Plans will provide for transparent management of these fisheries until resources are available to complete all stages required to implement full fisheries plans. They will also help define management units, allow for organisation of Ministry processes, and help identify the priorities for the development of fisheries plans.

3.5.3 Objectives

50. The second stage of the process will be the development of the management objectives for the fisheries plan. The development of management objectives is in effect the consideration of where we want the fishery to be in the future.
51. Objectives are likely to cover a range of areas including how to maximise value from utilisation (i.e. Commercial, recreational, and/or customary) and how to meet standards (e.g. Sustainability, environmental, information, and compliance standards) in the most efficient and effective manner. As already noted, objectives should be specific, measurable, appropriate, realistic, and time bound.
52. Objectives should contribute to the government's stated overall fisheries outcomes. The overall fisheries outcome and the contributing outcomes outlined in the SOI (and paragraphs 14-17 of this document) are consistent with the purpose of the Fisheries Act 1996 and contribute to the achievement of a number of broader government goals and strategies. The Ministry is also planning work on further defining contributing outcomes so as to provide greater guidance to fisheries managers, tangata whenua, and stakeholders in this area. All management activities should be directed towards achieving these outcomes.
53. A key requirement for all fisheries plans and their objectives will be the need to ensure that they are consistent with all legislative obligations and meet all relevant fisheries performance, process, and service standards. All fisheries plans and their objectives will be assessed against these requirements.

3.5.4 Risk Assessment

3.5.4.1 Basis of risk assessment

54. The third stage of the process is the risk assessment component of the fisheries plan. The risk assessment is, in effect, a consideration of how well current management is doing at getting us to where we want to be and what changes may be necessary. The risk assessment is based on analysis of how different management tools and settings can reduce both the risk to achieving the objectives of the fisheries plan as well as the risk to meeting relevant standards. The risk assessment process should confirm an appropriate arrangement of management tools and supporting services that are best placed to achieve the stated objectives for the fishery or fisheries under the plan and also meet all necessary standards.

55. The risk assessment will also form the basis for triggering the statutory process in the Fisheries Act 1996 whereby non-QMS species with utilisation or sustainability concerns are considered for QMS introduction (based on the criteria outlined in s17B of that Act). The risk assessment will therefore guide whether the species should be moved into the QMS or whether other sustainability measures are appropriate.
56. The stock strategies discussion document released in December last year included a proposed risk assessment approach that received considerable feedback from stakeholders. The proposed risk assessment mechanism will need to be modified and adapted to meet the requirements of the new fisheries plan approach. The most appropriate risk assessment process will be worked through with tangata whenua and stakeholders in the initial proof of concept fisheries plans to ensure the risk assessment process reflects the amended approach to fisheries plans.

3.5.4.2 Environmental risk

57. A key element of the risk assessment will be how current and proposed new management tools manage environmental risk. The government (through the Ministry of Fisheries) will be responsible for establishing environmental standards in accordance with the Strategy for Management of the Environmental Effects of Fishing (SMEEF). The environmental standards established by government could apply for individual fisheries or may impact upon a range of fisheries.
58. Irrespective of the scope of individual environmental standards, fisheries plans should include an environmental impact assessment as part of the risk assessment to identify the species and habitats affected in the fishery and the nature of that impact. The environmental impact assessment will provide the necessary information to determine which environmental standards are relevant for that particular fisheries plan and consider whether environmental standards are currently being met.
59. Some effects of fishing may affect protected species or habitats that extend across a number of plans. Examples of these effects are:
    a. Seabirds;
    b. Marine mammals;
        - Sea lions;
        - Hectors/maui dolphins;
    c. Benthic (seabed) impacts; and
    d. Ecosystem interactions.
60. Where environmental effects arise in more than one fishery, and no fishery-specific environmental standards have been set by government, coordination and consultation across fisheries and fisheries plans will be essential in ensuring that aggregate environmental standards are met and impacts minimised.
61. In respect of each environmental standard, the total effect of fishing may be:

a. Not Adverse. The aggregate effect is within the limits established by the environmental standards.
b. Adverse. The aggregate effects of fishing are known to breach the limit established by the environmental standard.
c. Insufficient Information. There is insufficient information to establish whether the aggregate effects of fishing are within an environmental standard.

62. Different management responses will be required, depending on the assessment of the aggregate effect of fishing.
63. Where the effect of fishing is adverse, the fisheries plan will need to include measures to ensure that the effects are mitigated to the extent that the standards applicable to that species or habitat of fishing are met. Where impacts arise across a number of fisheries (and government has set no fisheries-specific standards) coordination and consultation across other affected fisheries will be required to ensure that relevant standards are not exceeded. This may require apportioning a bycatch limit between the relevant fisheries or by reaching agreement to operate in a consistent manner to meet the standard (e.g., to refrain from fishing in particular areas to protect a habitat type).
64. Fisheries plans will need to include appropriate processes to ensure ongoing access to sufficient information to demonstrate that the effects of fishing continues to meet the relevant environmental standards.
65. Where there is insufficient information to demonstrate that the effects of a fishery are not adverse, two options are available. The fisheries plan could alter the management of the fisheries so that, with the available information, it can be demonstrated that the effect of fishing is not adverse. Alternatively, the fisheries plan could include mechanisms to obtain more precise information to demonstrate that the effect of the fishery under current management arrangements is not adverse. Depending upon the time required to obtain the additional information, it may be necessary for the plan to implement interim management measures to reduce the effects of fishing. The fisheries plan could also include a combination of both approaches.
66. For impacts that extend – or are likely to extend – across a number fisheries plans, it is likely to be more efficient to undertake information gathering and research prioritisation at a national level. Indeed, this information gathering will be required anyway to allow the Ministry to establish its overall environmental standards and could then be utilised by individual fisheries when establishing fisheries plans.
67. This type of national information gathering and research prioritisation process currently operates for marine mammals and seabird interactions. National research programmes to help establish a wider range of environmental standards (habitat and protected species interaction) are also being developed. The Ministry of Fisheries and the Department of Conservation coordinated their research programs in this area for the first time for 1 October 2005. The results of this research will be available to inform standard setting that will affect a wide range of potential fisheries plans.

68. Cost recovery rules apply to information and research requirements for marine mammal and seabird interactions, which means that the cost of the project is appropriately recovered from those fisheries having the effect. The same approach would be taken to information gathering to establish the wider environmental standards discussed above.

69. The Ministry of Fisheries notes that cost recovery on research projects to investigate ecosystem interactions such as trophic level issues will need to be considered carefully to ensure that cost recovery is directed only to projects addressing effects of fishing. Other funding for baseline public good ecosystem research is available from such sources as the Foundation for Research, Science and Technology (FRST).

3.5.4.3 Management Tools

70. There are a range of different management options and mechanisms that could be considered to address the identified risks (to achieving plan objectives and meeting relevant standards) that will arise from consideration of current management.. The Ministry proposes that the following guidelines be applied when considering alternative management tools to mitigate such risks.
    a. Consideration should be given to provide the maximum discretion or flexibility to management of fisheries to contribute to the overall fisheries outcome within the constraints of the legislative requirements and relevant standards. Tangata whenua and stakeholders can contribute towards determining efficient strategies for managing fisheries management problems and maximising value. Undue constraint as part of a management framework could inhibit tangata whenua and stakeholder opportunities to maximise value.
    b. The Ministry of Fisheries wants to encourage voluntary compliance. With widespread support of the rules by tangata whenua and stakeholders, voluntary adherence to the management system will be encouraged. Government compliance efforts (and their costs) can be minimised. Monitoring will ensure appropriate levels of compliance and any necessary adjustment to the regime.
    c. In determining the appropriate set of tools, it is fiscally prudent (and the responsibility of government) to implement the tools that are most cost effective in meeting fisheries objectives. The fisheries plan will establish the objectives, and then seek out the most cost effective way of achieving that objective while still meeting relevant standards.

71. This process of selecting tools and services does not use a cap on cost as a goal, nor does it use the current budget for management as its starting point. Some fisheries plans may require more or less funding to manage risk than their current budget provides. The risk assessment and mitigation process will produce a list of mitigation strategies for the fishery that would need to be justified against the criteria for assessment of tools, including cost effectiveness.

72. The Ministry also intends to implement a process that will ensure consistency in how tools are considered and applied across fisheries plans. This process involves establishing guidelines

and is still under development, but will likely include the use of case studies and scenario modelling.

3.5.5 Giving effect to fisheries plans

104. The Ministry will be responsible for giving effect to government responsibilities under fisheries plans, including services (such as research, observer coverage, etc) and monitoring (including, but not limited to, compliance monitoring).

105. The Ministry will be responsible for monitoring and auditing implementation and operation of fisheries plans. The identification of particular performance indicators for a fisheries plan will enable regular assessment as to whether the plan is meeting its specified deliverables and identify the need for adjustment of management interventions and services. Where a plan incorporates tangata whenua or stakeholder-organised agreements or service delivery, tangata whenua or stakeholders will also have a role in monitoring.

106. Clear links will be established between management interventions and services in fisheries plans, and the objectives for the fishery. The approved plans will form the basis of Ministry advice to the Minister on statutory decisions regarding management measures, as well as decisions regarding purchase of fisheries services. As more fisheries plans are developed, they will increasingly drive processes for the provision of fisheries services.

107. Over time, existing Ministry processes, such as the annual research planning round, the sustainability measures process, and the annual process to prioritise fisheries services will be adjusted to align with the process of developing and reviewing fisheries plans. There will be a gradual move toward increased integration of Ministry processes into fisheries plans.

108. As the proof of concept plans are developed, the Ministry will consider how existing processes may need to be amended to integrate with the proposed new fisheries plan approach. Current Ministry of Fisheries processes for which fish plans have implications include:

- QMS introductions 22
- Research Planning
- Research Monitoring
- Stock Assessment
- Biodiversity/ Aquaculture/ Habitat Monitoring and Research
- Sustainability Reviews
- Cost Recovery
- Regulatory Services including Regulations, Acts and Gazette Notices
- Observer Planning
- Registry / FishServe including Review of Standards and Specifications
- Compliance Planning
- Allocations, including Marine Reserves, Mataitai, Taiapure, Aquaculture Management Areas, Section 186A/B Temporary Closures

- Assessment of Effects of Fishing
- Data Management
- Purchasing/monitoring/delivery of Services
- Operational Planning /Reporting including fisheries management and other business group input into budget and new initiatives processes

109. The process of fisheries plan development should highlight the resources necessary to manage the fishery effectively, including identification of the specific resources necessary to address sustainability and environmental risks while providing for utilisation. This may result in an increase in cost associated with research and other service requirements. Rationalisation and focus of management measures and services may also result in efficiency gains. The Ministry, and the Minister in his final approval of activities and services, will need to consider how, through prioritisation or changes in resourcing levels and provider capacity and capability, demand for resources is matched with funding.