

**Ministry of Fisheries: Follow-up report on
information requirements for the
sustainable management of fisheries**

June 2005

*This is the report of an audit we carried out under
section 16 of the Public Audit Act 2001.*

ISBN 0-478-18135-3

Foreword

In 1999, the previous Auditor-General presented a report that concluded that the Ministry of Fisheries was managing most of New Zealand's fish stocks without being sure if that management was sustainable. The report made 7 recommendations on how the Ministry could improve its management of fisheries information.

In 2004, I undertook a follow-up report to see how well the Ministry had implemented the 7 recommendations we made in 1999. I am encouraged by the progress the Ministry has made in implementing most of those recommendations, but I believe that further improvements can be made. Accordingly, this report makes 4 additional recommendations.

The Ministry is focusing increasingly on the work needed to protect the marine environment from the effects of fishing. I agree with the direction the Ministry is taking, but I am concerned about the time being taken to complete the work on environmental standards. This work needs to be completed as soon as possible.

I thank the staff of the Ministry of Fisheries, and the other organisations involved, for their co-operation and assistance during this performance audit.

K B Brady
Controller and Auditor-General

1 June 2005

Contents

Glossary	5
Summary and recommendations	6
Our findings	6
Recommendations	7
Part 1 – Background	8
Introduction	8
The fisheries resource	8
How are our fisheries managed?	8
Our 1999 report	9
Our follow-up audit	9
Part 2 – Progress in implementing our recommendations	10
Uncertainty of information about fish stocks	10
Information for maximum sustainable yield	12
Giving priority to environmental requirements of the 1996 Act	15
The Environmental Performance Indicators Programme	17
Working co-operatively with other research funders	19
Recognising research in budgeting	20

Glossary

The Act: The Fisheries Act 1996.

Biomass: The total weight of a fish species in a given area.

Biomass of Maximum Sustainable Yield (B_{MSY}): The biomass that matches the maximum sustainable yield (see below).

By-catch: The unintended catch of other marine or seabird life during fishing operations.

Exclusive Economic Zone (EEZ): An oceanic zone 200 nautical miles around the coastline over which New Zealand has jurisdiction (including management control over fishing).

Fish species: A group of fish that share common characteristics and are able to breed together to produce fertile offspring.

Fish stock: A group of fish of the same species (for example, snapper) that occupy a defined area of the ocean. Fish stocks are the basis of fisheries' management.

Maximum sustainable yield (MSY): The greatest yield that can be achieved over time while maintaining the productive capacity of the stock.

Seamounts: Underwater hills that rise more than 100 metres from the seabed.

Sustainable fishing: Fishing activities that do not cause or lead to undesirable changes in biological and economic productivity, biological diversity, or ecosystem structure and functioning, from one human generation to the next.

Total Allowable Catch (TAC): The total quantity of fish that can be taken by both commercial and recreational fishers during a 12-month period.

Total Allowable Commercial Catch (TACC): The total quantity of fish that can be taken by commercial fishers during a 12-month period.

Quota Management System (QMS): A system that limits the amount of fish that can be taken by commercial fishers. The QMS sets a quota that can be taken by each commercial fisher.

Summary and recommendations

In 1999, one of our reports¹ drew attention to the risks involved in managing New Zealand's fisheries. We were concerned that the agency managing those fisheries, the Ministry of Fisheries (the Ministry), did not have enough information to ensure that the fisheries were being managed in a sustainable way, and to their full economic potential. The risks were 2-fold:

- particular stocks could be over-fished, risking the survival of the stocks; and
- particular stocks could be under-fished, depriving New Zealand of export income, employment opportunities in the fishing industry, and tax revenue.

The Ministry maintained it had sufficient information to manage the nation's fish stocks without necessarily knowing their status in detail. Specifically, it had enough data on productivity, growth rates, and commercial catches to advise the Minister of Fisheries on management approaches.

Our view was that scientific understanding of the complex biological, ecological, and environmental factors that affect fish stocks would always be incomplete. These uncertainties, we said, should be explicitly stated so that decision-makers were aware of the limitations of the information they used to make decisions on the size of the total allowable catch (TAC).

We also said the Ministry should ensure that it gathered enough research-based data to allow stocks to be fished for maximum sustainable yield (MSY) – that is, the largest amount of fish that can be harvested over time without damaging the productive capacity of the stock.

Our 1999 report found that the Ministry had been slow to fulfil the environmental requirements of the Fisheries Act 1996 (the Act). We recommended that the Ministry give greater priority to its legal obligations to protect the marine environment from any damage that might be caused by fishing operations. This would also require more research-based information.

Our findings

This follow-up audit looks at whether the Ministry had acted on the recommendations of our 1999 report. The information given to us indicates that it has done so. The Ministry has:

- Provided clear assessments of the limitations of the information it holds on the majority of New Zealand's fish stocks. However, a small number of assessments are either contradictory or conclude that it is not known whether existing catch levels are sustainable. The Ministry should state the level of risk to such stocks.

¹ Parliamentary paper B.29[99e], *Information requirements for the sustainable management of fisheries*, pages 49-112.

- Prepared a series of 3- to 5-year research plans for the major fish species, to address the gaps in its research. In the meantime, the Ministry believes it has sufficient information to advise the Minister on the sustainability of the most important fish stocks.
- Given greater priority to fulfilling the environmental requirements of the Act. Part of Spirits Bay in Northland and 19 seamounts have been closed to fishing methods that damage the seabed. Action has also been taken to limit the by-catch of New Zealand sea lions, dolphins, and seabirds.
- Started to prepare environmental standards for the management of New Zealand's fisheries, and their marine environment. If implemented effectively, these standards will be a significant step towards the better management of fisheries and the marine environment.
- Begun work on a website that will contain up-to-date information on how our fisheries are being managed, conveyed through a set of environmental performance indicators (EPIs). These indicators will more effectively measure fishing's effect on the marine environment.

Recommendations

For further improvement, we recommend that –

1. In all cases, the Ministry of Fisheries provide in its annual stock assessment reports consistent, up-to-date, and complete information on the sustainability of fish stocks.
2. Where it is not known if the current levels of fishing, or the current total allowable commercial catch, are sustainable, the Ministry provide an assessment of the risk to the stock if current fishing and catch levels are maintained.
3. The Ministry improve its proposed strategy for managing the environmental effects of fishing by:
 - implementing the improvements to its reporting on the status of species and habitats affected by fishing;
 - implementing environmental risk assessments for fisheries;
 - completing the environmental performance standards for the management of fisheries as soon as possible; and
 - ensuring that when the standards for the management of fisheries and their marine environment are finalised, they are written in sufficient detail to be measurable, and that it will be clear to all parties when a breach of the standards has occurred.
4. The Ministry complete the work on its website for the environmental performance indicators programme for fishing and the marine environment. The Ministry will also need to ensure that data for the website is kept up to date.

Part 1 – Background

Introduction

- 1.1 This is our second report about information requirements for the sustainable management of fisheries.
- 1.2 Our 1999 report², *Information requirements for the sustainable management of fisheries*, followed a period when many of the world’s fisheries were in a state of crisis. The 1990s, for example, saw the collapse of most of Canada’s Atlantic commercial groundfish³ stocks.

The fisheries resource

- 1.3 New Zealand’s fisheries are a valuable natural and renewable resource, important to the social, cultural, and economic well-being of New Zealanders.
- 1.4 The 200-nautical mile exclusive economic zone (EEZ) within which our fishing industry operates was declared in 1978. At about 1.3 million square nautical miles, it is the fourth largest EEZ in the world.
- 1.5 The commercial seafood industry employs more than 26,000 people (10,000 directly), and is New Zealand’s fourth largest export earner. About 20% of the population participates in recreational fishing each year.

How are our fisheries managed?

- 1.6 The Fisheries Act 1996 (the Act) provides the framework for ensuring that New Zealand’s fisheries are managed on a sustainable basis, and sets out principles for the protection of the marine environment.
- 1.7 The Ministry of Fisheries is the Government agency responsible for administering the Act and advising the Minister of Fisheries (the Minister) on the management of fisheries. This includes oversight of the Quota Management System (QMS) that has operated since 1986. The QMS was introduced to manage fish stocks, and to ensure that catches were limited to levels that could be sustained over time.
- 1.8 Where possible, the QMS uses annual scientific estimates of the population of commercial fish species. Using this information, together with advice from the Ministry and data from the fishing industry, the Minister sets an annual total

² Parliamentary paper B.29[99e], pages 49-112.

³ Groundfish are species that, with a few exceptions, live on or near the bottom of the ocean.

allowable catch limit for each fish stock (TAC), including a total allowable commercial catch (TACC). The TAC is designed to sustain fish stocks by moving them to a size at or above that which will produce the maximum sustainable yield (MSY).

- 1.9 Given the importance of the fisheries resource – and the unique involvement of the Crown in rationing it – Parliament needs to be assured that the arrangements for sustaining our fisheries are adequate.

Our 1999 report

- 1.10 In our 1999 report, we drew attention to some of the risks involved in the management of New Zealand’s fisheries. We questioned whether the Ministry had enough information to ensure that those fisheries were being managed in a sustainable way. A shortage of information could cause stocks to be over-fished, risking the survival of the stock; or under-fished, depriving the country of export income, employment opportunities, and tax revenue.

- 1.11 Our 1999 report made 7 recommendations. These were that the Ministry:

- ensure that all information on the status of fish stocks clearly specifies the uncertainty in that information;
- recognise and address the level of uncertainty of the status of fish stocks in its annual research and management documents;
- ensure that information is collected that will allow fish stocks to be utilised to their potential (that is, maximum sustainable yield);
- give greater priority to fulfilling the environmental requirements of the 1996 Act;
- continue to work with the Ministry for the Environment (MfE) on the Environmental Performance Indicators Programme;
- ensure that research funding does not overlap, and avoid duplication of research by continuing to work co-operatively with other research funders; and
- recognise in its budgeting the research required to fulfil the environmental principles of the 1996 Act.

Our follow-up audit

- 1.12 Our follow-up audit assessed the extent to which the Ministry had acted on the 7 recommendations in our 1999 report.
- 1.13 We asked the Ministry to provide us with information on the progress it had made in implementing those recommendations. We reviewed its response, and have made 4 further recommendations because of this audit.

Part 2 – Progress in implementing our recommendations

2.1 In this Part, we assess the Ministry's progress in implementing the 7 recommendations made in our 1999 report.

Uncertainty of information about fish stocks

2.2 Our view in 1999 was that scientific understanding of the complex biological, ecological, and environmental factors that affect a fish stock was incomplete. These uncertainties, we said, needed to be explicitly stated so that decision-makers were aware of the limitations of information they used to make decisions on the size of the TAC.

2.3 Our 1999 report recommended that the Ministry –

- ensure that all information on the status of fish stocks clearly specifies the level of uncertainty in that information; and
- recognise and address the level of uncertainty of the status of fish stocks in its annual research and management documents.

The Ministry's response

2.4 The Ministry has 3- to 5-year research plans for major fishing species. These plans aim to identify the gaps in knowledge that lead to uncertainty about the status of fish stocks, and include research programmes designed to fill those gaps. The Ministry is confident that its research planning is reducing the uncertainty.

2.5 The Ministry produces an annual stock assessment report, which summarises the work of groups representing the fishing industry, the Ministry, Māori, and conservation and recreation interests. These groups make recommendations about stock management, including stock within the QMS, after considering the results of research undertaken in the various fisheries.

2.6 The report also describes in detail the scientific information available on each fish stock, catch levels during recent years, and changes to each TAC. It includes the status of the fish stock in relation to its B_{MSY} – if this is known.

Our findings

2.7 We reviewed the Ministry's research plans and the 2004 stock assessment report. In our view, these research plans and the annual stock assessment report set out the limitations and uncertainties in the information the Ministry has collected on fish stocks.

2.8 The analysis of each fish stock includes an opinion on whether current levels of fishing, or the current TACC, are sustainable. For example, the assessment of the western hoki stock concludes with the words –

*Continued fishing at current catch levels is unlikely to be sustainable and may not even be feasible in the short term.*⁴

2.9 Such assessments give a very clear picture of the status of, and risk to, the fish stock, and provide the basis for recommendations to the Minister on levels of catches for the following year.

2.10 However, in a small number of cases, information in the report's summary conflicted with information in the body of the report. For example, in its assessment of a bluenose fishery, the body of the report stated –

*... it is not known if recent catch levels or the current TACC are sustainable or if they are at levels that will allow the stock to move towards a size that will support the maximum sustainable yield.*⁵

2.11 The summary stated –

*... recent catch levels ... appear to have had little effect on stock sizes and there is a reasonable probability that current biomasses are greater than sizes that will support MSY.*⁶

2.12 In other words, one part of the report stated that it was not known if existing catch levels were sustainable, and another said that catch levels had little effect on stock size. These statements are contradictory.

2.13 We also found examples in which the information was clearly outdated or incomplete. For instance, the 2004 stock assessment report on an oreo fishery states that voluntary catch limits had been agreed to, and that the expected catch for 2000-01 would be similar to the long-term catch estimate. Given that this is a 2004 report, it is reasonable to expect more up-to-date information.⁷

2.14 Incomplete information can be found in the ling fishery section of the same report. The summary for one of the ling fisheries states that the stock is estimated to be large enough to support the MSY, although it is not known if catch levels are sustainable over time. However, the full report is more pessimistic. It indicates that a 'catch per unit of effort analysis'⁸ of this stock had shown for many years that its biomass was declining. Such information should have been included in the summary description.

⁴ Ministry of Fisheries, Science Group, *Report from the Fishery Assessment Plenary, May 2004: stock assessments and yield estimates*, Part 1, page 273.

⁵ *ibid.*, page 82.

⁶ *ibid.*, page 22.

⁷ The Ministry informs us that these inconsistencies have been addressed in the 2005 fishery assessment plenary report.

⁸ An analysis that divides tonnes of fish caught by a measure of effort, such as the number of days spent fishing.

Our conclusion

- 2.15 The Ministry has provided clear assessments of the limitations of the information it holds on the majority of fish stocks. However, in a minority of cases, we found inconsistent, outdated, and incomplete information in the stock assessment report.

Recommendation 1

We recommend that, in all cases, the Ministry of Fisheries provide in its annual stock assessment reports consistent, up-to-date, and complete information on the sustainability of fish stocks.

Information for maximum sustainable yield

- 2.16 Our 1999 report recommended that –

The Ministry ensures that information is collected that will allow the fish stocks to be utilized to their potential (i.e. maximum sustainable yield).

- 2.17 This recommendation was based on an assessment that the Ministry lacked knowledge about the MSY of many fish stocks. Without this information, the Ministry would not be able to determine – or would at least have difficulty in determining – how much of a particular stock could be caught.

The Ministry's response

- 2.18 The Ministry told us that–

Estimates of stock status and sustainable yield are available for most of the major Fishstocks that make up about two-thirds of New Zealand's fisheries by weight and value...Of these stocks, where assessments are available, 75% are at, near, or above sustainable target levels (based on weight of TACCs at 1 October 2004). All stocks known to be well below target levels have rebuilding strategies in place.

- 2.19 The Ministry told us that it deliberately focuses its research on the commercially important fish species, including hake, hoki, ling, orange roughy, oreos, paua, rock lobsters, snapper, and southern blue whiting.

Our findings

- 2.20 As stock assessment resources are limited, it makes good sense for the Ministry to ensure that those resources concentrate on the most valuable fisheries. As recommended in our 1999 report, information is being collected on the MSY.

- 2.21 In the information provided to us, the Ministry has made an assessment – on a stock-by-stock basis and where such information is available – of whether the B_{MSY} for that stock has been met.
- 2.22 We are concerned, however, about whether the Ministry has enough information on the status of all commercially important fish stocks.
- 2.23 For example, paua is one of the species said to be fished at a sustainable level. Paua are currently fished in 8 stocks. It is apparent from the 2004 stock assessment report⁹ that 2 stocks are being fished at sustainable levels. A third (and the largest) stock is considered to be sustainable, but the report expresses considerable uncertainty about such an assessment, and says that it is not known if current catch levels for the remaining stocks are sustainable. There is a similar lack of information about the stocks comprising some of the other commercially important species.
- 2.24 New species are added to the quota management system every year. Under section 13 of the Act, the Minister must set a TAC for each new stock that maintains the stock at or above a level that can produce the maximum sustainable yield, having regard to the interdependence of stocks. This means that information about each new species is needed to ensure that these species are managed in a sustainable way. With stock assessment resources concentrated on the most commercially important species, we question how much information will be available on other species.
- 2.25 The Ministry has acknowledged this difficulty, and told us that –
- The introduction of a large number of new species into the Quota Management System during the last few years has provided additional challenges to obtaining sufficient information to manage resources sustainably. Many, if not most, of these new QMS species have low abundancies, are sparsely distributed and are taken primarily as by-catch in target fisheries for other species. It must be recognised and acknowledged that it will never be feasible to assess all the fisheries resources to determine their status with regards to the reference biomass level...*
- 2.26 The Ministry believes it is possible to manage these stocks in a sustainable way without a detailed knowledge of their status. Its approach includes strategies for specific fisheries, risk assessment, and adaptive management techniques.¹⁰
- 2.27 We asked the Ministry for its view on the obligations established by section 13 of the Act and, in particular, on the level of information required to enable the Minister to comply with the obligation to establish an MSY for each species.

⁹ Ministry of Fisheries, Science Group, *Report from the Fishery Assessment Plenary, May 2004; stock assessments and yield estimates*, pages 421-474.

¹⁰ An adaptive management programme allows for a variation in the TAC where there is limited information on stock size. Close monitoring of the fishery is maintained, and management action – such as further increasing or decreasing the TAC – is taken based on the monitoring information.

The Ministry told us that there was a shortage of legal guidance on the section, but that –

... stock assessment information (i.e. estimates of biomass, etc) is not required for every stock managed under s13. The Ministry reaches that position from both a purposive legal interpretation of the obligations in the Act and a realistic pragmatic application of those obligations. Practical fisheries management considerations may mean that such information is obtainable but with a level of cost, time or effort that is unreasonable. The Act specifically contemplates that decisions will be made in the absence of complete information. This view is supported by case law. The lack of stock assessment information does not equate to an inability to provide for use, nor that the most conservative option should be adopted. There is a requirement, in every instance, to make decisions based on “best available information” about the fishery. There is no prescribed legislative standard as to the nature of information required to inform a decision made under s13 of the Act.

- 2.28 This interpretation of the Act allows for the management of fish stocks based on limited information; the only requirement is that decisions be made on the “best available information”. In our view, such an interpretation is reasonable.
- 2.29 It is clear from the Ministry’s position that information on the MSY of some of the less commercially important species may never be collected.
- 2.30 It may not be known whether the existing levels of fishing of these species, or the TACC, are sustainable. In these cases, an assessment of the risk to the sustainability of the stock should be provided when TACC levels are being decided.

Our conclusions

- 2.31 On balance, we consider that the Ministry is taking a reasonable and pragmatic approach to gathering information that allows fish stocks to be managed to their full economic potential. We agree with the Ministry’s position that limited research resources make it impossible to collect all relevant information.
- 2.32 However, this lack of information creates risk, and it is important that the Ministry provides an assessment of that risk for all fish stocks, particularly where the information is deficient, and there is uncertainty about whether existing catch levels are sustainable.

Recommendation 2

We recommend that, where it is not known if the current levels of fishing, or the current total allowable commercial catch, are sustainable, the Ministry provide an assessment of the risk to the stock if current fishing and catch levels are maintained.

Giving priority to environmental requirements of the 1996 Act

2.33 Our 1999 report recommended that –

The Ministry gives greater priority to fulfilling the environmental requirements of the 1996 Act.

2.34 The Act contains a number of environmental principles that must be considered in the management of fisheries. These include the requirement to take into account the following environmental principles:

- associated or dependent species should be maintained above a level that ensures their long-term viability;
- biological diversity of the marine environment should be maintained; and
- habitats of particular significance for fisheries management should be protected.¹¹

2.35 When we reported in 1999, the Ministry had prepared plans for research into the marine environment. However, the Ministry had been slow to commit resources that would give effect to the environmental principles of the Act.

The Ministry's response

2.36 In April 2003, the Ministry released a draft environmental management strategy, *Strategy for Managing the Environmental Effects of Fishing*.

2.37 Key elements of the strategy include:

- improved assessment and reporting on the status of species and habitats affected by fishing;
- environmental risk assessments for fisheries; and
- preparing environmental standards to define the acceptable limits of the effects of fishing on the marine environment. These standards will define the boundaries within which fisheries must be managed, either through stock strategies prepared by the Ministry, or fisheries plans prepared by stakeholders – for example, the fishing industry.

2.38 This strategy will be linked to, and supported by, a number of more specific strategies produced by the Ministry such as the Seamount Strategy,¹² the Marine Protected Area Strategy,¹³ and the National Plan of Action for

¹¹ Section 9, Fisheries Act 1996.

¹² Measures to avoid, remedy, or mitigate the adverse effects of fishing on seamounts. They include prohibiting fishing on some seamounts.

¹³ Prohibits fishing in specified areas of the ocean.

Seabirds.¹⁴ The Ministry has worked with the Department of Conservation to prepare the latter 2 strategies.

- 2.39 The Ministry has also implemented a number of specific environmental management initiatives, including:
- closing an area of Spirits Bay (Northland) and 19 seamounts to fishing methods that could damage the seabed;
 - action to limit the by-catch of New Zealand sea lions and, by limiting the use of set nets, reducing the deaths of Hector and Maui dolphins;
 - measures to limit the by-catch of seabirds (for example, by using scarer lines); and
 - participation in a joint initiative with the Department of Conservation and the fishing industry. The aim of this initiative is to reduce the by-catch of seabirds from long-line fishing.

Our findings

- 2.40 The Ministry has given greater priority to fulfilling the environmental requirements of the Act, and is preparing strategies to protect the marine environment. However, we are concerned about the rate of progress in this area. To date, we have seen no evidence of the implementation of strategies for improved reporting on species and habitats affected by fishing, or any action on environmental risk assessments for fisheries. For example, we would have expected the 2004 stock assessments to include reports on the effects of fishing on the marine environment. They do not.
- 2.41 The Ministry has now advised us that the 2005 stock assessment will include a section on the effect of hoki fishing on the marine environment. The 2006 report will include similar sections for all major stocks, and potentially for all stocks.
- 2.42 A key element of the Ministry's approach to managing the environmental effects of fishing is the establishment of environmental standards for all fisheries. This initiative was signalled in the Ministry's *Strategy for Managing the Environmental Effects of Fishing*, released in April 2003. Broadly, the strategy indicated that the Ministry intended to produce environmental standards that defined the environmental boundaries within which fisheries must be managed.
- 2.43 Since the release of the strategy, the Ministry has prepared Statements of Intent for 2004-08 and 2005-08. The latter document restates that environmental standards will be implemented for all fisheries. Fisheries management plans, prepared by the Crown in co-operation with tangata whenua and stakeholders, will provide one means of implementing those standards.

¹⁴ Measures to reduce the by-catch of seabirds. They include codes of practice and regulatory controls.

- 2.44 The 2005-08 Statement of Intent describes the types of standards that will be established. For example, the standards might set such requirements as:
- QMS stocks must not be fished down to a level below a proportion of virgin biomass¹⁵ (or equivalent proxy).
 - The adverse effects of fishing on the marine environment are to be identified and agreed levels of protection achieved.
- 2.45 To date, however, little detail has been provided on the content of the proposed standards. In our view, the Ministry has been slow to produce the standards, having first signalled its intentions in April 2003. We have seen very little progress.

Our conclusion

- 2.46 To be effective, the completed environmental standards will need to be sufficiently detailed so that performance can be measured against the standards. For example, they will need to contain clear definitions, be precise about the limitations on fishing activity, and specify the environmental outcomes sought.

Recommendation 3

We recommend that the Ministry improve its proposed strategy for managing the environmental effects of fishing by:

- implementing the improvements to its reporting on the status of species and habitats affected by fishing;
- implementing environmental risk assessments for fisheries;
- completing the environmental performance standards for the management of fisheries as soon as possible; and
- ensuring that when the standards for the management of fisheries and their marine environment are finalised, they are written in sufficient detail to be measurable, and that it will be clear to all parties when a breach of the standards has occurred.

The Environmental Performance Indicators Programme

- 2.47 Our 1999 report recommended that –

The Ministry continues to work with the Ministry for the Environment on the Environmental Performance Indicators Programme.

- 2.48 Our report described how the MfE was developing a national programme for reporting on the state of the environment. At that time, the Ministry was working with the MfE to establish performance indicators specifically for the

¹⁵ A fish stock that has never been fished.

marine environment. These Environmental Performance Indicators (EPIs) are designed to help track changes in the environment and to assess whether those changes are for the better.

The Ministry's response

- 2.49 The Ministry told us that since 1999 it had continued to work in partnership with the MfE to finalise a set of EPIs that will address the 2 key environmental issues facing New Zealand's fisheries – sustainable management and reducing the effects of fishing on the marine environment.
- 2.50 A set of EPIs was finalised in June 2001 after extensive consultation. It included 9 EPIs to assess the state of fish stocks and 3 to assess the effects of fishing on the marine environment.
- 2.51 The 9 fish stock EPIs that have been agreed to are:
1. Ratio of current biomass to target biomass for modelled stocks.
 2. Percentage of stocks modelled that are at or above target level.
 3. Number of assessed stocks (of high, medium or low value) about which stock status is known or unknown.
 4. Level of total catch for each species, by area.
 5. Ratio of total catch to sustainable yield for modelled stocks.
 6. Current TAC for each stock.
 7. Ratio of TAC to sustainable yield for modelled stocks.
 8. Percentage of stocks with current biomass below target where rebuilding strategies are in place.
 9. Number of non-assessed species of high, medium, low or unknown value, with the percentage of associated /dependent species that are protected.

Our findings

- 2.52 These EPIs are comprehensive and, if applied effectively, will give a valuable insight into the management of our fish stocks, and whether that management has improved.
- 2.53 The MfE has devised a further 3 EPIs to measure the effect of fishing on the wider marine environment, including non-target species, areas, and habitats. They are:
- the number of different non-fish and protected species caught by species for each fishery, by area, and by year;
 - the level of fishing effort, by method, area, and year; and
 - change in area of habitats (%) covered by marine farms.

- 2.54 The MfE website was to be the central access point to the EPIs, giving the Ministry and the public access to all relevant data. However, the website data was not kept up to date, and in mid-2004 the MfE advised the Ministry that it would no longer report the full range of fisheries performance indicators.
- 2.55 The MfE told us that these indicators were part of a set of 160 proposed environmental performance indicators that had cost more than \$23 million to develop. To maximise the value of that investment, the MfE said it was now focusing its reporting of environmental data on issues of national importance for which it and local government were able “to make a difference”. In short, the MfE considered the fisheries performance indicators not to be its core business.
- 2.56 The Ministry has decided to re-establish the site for fisheries performance indicators and is preparing a new website. In the longer term, the Ministry intends its website information to be more comprehensive than that previously available on the MfE website. Currently, the Ministry is updating information on the 30 species originally listed on the MfE website, and it intends to include information on a further 50 species. Its plan is to ensure that all data is updated each year.

Our conclusion

- 2.57 A considerable amount of effort, including extensive consultation, was involved in preparing the fisheries EPIs to support the national programme. In our view, they have a valuable monitoring role in the management of those fisheries. While this programme went into abeyance for several years, the Ministry is now reviving it, and we endorse this approach.

Recommendation 4

We recommend that the Ministry complete the work on its website for the environmental performance indicators programme for fishing and the marine environment. The Ministry will also need to ensure that data for the website is kept up to date.

Working co-operatively with other research funders

- 2.58 Our 1999 report recommended that –
- The Ministry continues to work co-operatively with other research funders to avoid duplication and to ensure compatibility and complementary research funding.*
- 2.59 Our report said that there were a number of other sources of funding of research into the marine environment, including the Foundation for Research, Science and Technology (through the Public Good Science and Technology Fund). We noted our concern about the potential for areas of research funded by the Ministry and the Foundation to overlap.

The Ministry's response

- 2.60 The Ministry told us that it works closely with a variety of agencies, both within New Zealand and overseas, to reduce any duplication of effort, and to ensure complementary research. Domestic agencies and organisations include the Ministry of Research, Science and Technology, the Foundation for Research, Science and Technology, the MfE, the Department of Conservation, and the fishing industry. Overseas agencies include Australian Federal Government agencies, and universities.
- 2.61 An informal committee, comprising representatives of the main central and local government agencies that fund marine environment research, has been established to ensure better co-ordination of research activities. The committee also includes fishing industry representatives.
- 2.62 The Foundation for Research, Science and Technology has set up a reference group responsible for allocating funds for marine environment research. The Ministry's chief scientist is a member of this group, and of the research committee for the Australian Fisheries Management Forum. The Ministry also participates in several official groups that co-ordinate research activity in the marine biodiversity and marine biosecurity areas.

Our conclusion

- 2.63 The Ministry is aware of the potential for overlapping research funding, and has a number of mechanisms in place to guard against this. However, it is not just the Ministry that should be aware of this potential; all parties must engage in an open and timely way if duplication of funding is to be avoided.

Recognising research in budgeting

- 2.64 Our 1999 report recommended that –
- The Ministry recognises, in its budgeting, the research required to fulfil the environmental principles of the 1996 Act.*
- 2.65 We were concerned by the reduction in the fisheries research budget, at a time when the Fisheries Act 1996 seemed to require more information on the environmental effects of fishing in New Zealand waters.

The Ministry's response

- 2.66 The Ministry told us that its draft environmental strategy puts greater emphasis on gathering information on which to base its environmental standards for marine ecosystems. Fishery managers will be required to demonstrate that the effects of specific fishing activities are within agreed limits, and this will

generate a need for additional information on the effects of those activities on particular habitats and species.

- 2.67 The Ministry has a system for setting priorities, and uses it to evaluate research proposals. Proposals are evaluated against the following criteria:
- How does the proposed research fit with strategic and medium-term research plans, and the management/business plan for the resource?
 - What is the size/value/importance of the resource or fishery, including both commercial and non-commercial sectors?
 - Are there any stock assessment or management issues?
 - What are the merits of the proposed research?
 - What are the benefits and costs of the project, in terms of its major and minor outputs?
- 2.68 Ministry spending on marine environment research averaged about \$360,000 a year until 2002-03. By 2003-04, it was forecast to be about \$1.5 million a year.
- 2.69 The Ministry also manages research to meet the information needs of the Government's biodiversity strategy. Funding for this programme started at \$1 million a year in 2000-01, and increased to about \$3.5 million a year in 2003-04. This spending funds research into the diversity of marine communities, and the identification of threats to coastal and marine biodiversity. Spending on Ministry-managed biosecurity research has averaged about \$600,000 a year.
- 2.70 Funding for marine biodiversity and ecosystem-related research is provided through the Public Good Science and Technology Fund, administered by the Foundation for Research, Science and Technology. About \$17 million a year is spent on this research.

Our conclusion

- 2.71 The Ministry has a priority-setting mechanism through which research proposals are evaluated, and has significantly increased the amount of funding available for environmental research.