Conservation Services Annual Plan 2004/2005

.

Conservation Services Programme
Marine Conservation Unit
Department of Conservation
PO Box 10 420
Wellington
7 May 2004

Statement on Conservation Services

The Fisheries Act 1996, defines conservation services as "outputs produced in relation to the adverse effects of commercial fishing on protected species, as agreed between the Minister responsible for the administration of the Conservation Act 1987 and the Director-General of the Department of Conservation, including –

(a) research relating to those effects on protected species:
(b) research on measures to mitigate the adverse effects of commercial fishing on protected species:
(c) the development of population management plans under the Wildlife Act 1953 and the Marine Mammals Protection Act 1978."

I am satisfied that the projects identified in this Plan are "conservation services" as defined in the Fisheries Act 1996.

Part 14 of the Fisheries Act 1996 enables the Crown to recover its costs with respect to conservation and fisheries services. Cost recovery must be undertaken in accordance with principles outlined in s.262 of the Fisheries Act 1996. Section 263 of the Fisheries Act 1996 sets out procedures for promulgating cost recovery rules. On 10 September 2001 the Governor-General pursuant to section 263 made the Fisheries (Cost Recovery) Rules 2001, which provides for the apportionment of costs of conservation services as follows:

(a) Research relating to protected species populations where risk to those populations by human intervention has been estimated - percentage of costs to be borne by industry is calculated using the formula: A over B, expressed as a percentage, where-
    - A is the risk to the populations posed by commercial fishing in the EEZ of New Zealand
    - B is the total risk of human interventions on the populations
(b) Research relating to protected species populations where risk to those populations by human intervention has not been estimated - 50% of costs to be borne by industry.
(c) Services (including research) provided to avoid, remedy, or mitigate that portion of the risk to, or adverse effect on, the aquatic environment or biological diversity of the aquatic environment caused by commercial fishing - 100% of costs to be borne by industry.
(d) Observer coverage to support stock assessment process and conservation services - 100% of costs to be borne by industry.
(e) Aquaculture services - 100% of costs to be borne by industry.

After consultation with 'interested parties', which includes representatives of Maori, non-government organisations and commercial fisheries, I hereby approve the attached Conservation Services Annual Plan 2004/05.

Hon Chris Carter
Minister of Conservation

Director-General's Introduction

Conservation services are outputs produced in relation to the adverse effects of commercial fishing on protected species, as agreed by the Minister of Conservation and the Director-General of the Department of Conservation.

The Office of the Auditor-General reviewed the administration of the Conservation Services Programme and published its findings in December 2002. The process followed in the development of this Conservation Services Annual Plan and elements of the contents of the Plan reflect many recommendations made by the Auditor-General.

The Department of Conservation has committed to the development of a Conservation Services Strategic Plan and a Five-year Research Plan that will provide a long term direction for future conservation services.

The New Zealand seafood industry has made significant gains in reducing its impact on marine protected species and, in many ways, sets an example to those other countries whose vessels and people fish the Tasman Sea and the Southern and Pacific Oceans. This has been due in no small part to the commercial fishing industry, the Conservation Services Programme, the Ministry of Fisheries and others. I am confident that the conservation services provided through this Annual Plan will enhance the sustainability of commercial fishing in New Zealand waters and contribute to the Government's National Plan of Action to Reduce the Incidental Catch of Seabirds in New Zealand Fisheries.

Hugh Logan
Director-General of Conservation

Table of Contents

1. Overview of the 2004/2005 Conservation Services Annual Plan

1.1. *Introduction*

The 2004/2005 Conservation Services Annual Plan (Annual Plan) identifies the work that will be subject to cost recovery as a conservation service from the commercial fishing industry. As such, the Annual Plan forms the basis for levying the commercial fishing industry under the Fisheries Act 1996. A summary of the legal basis of the Plan "Legislation and Guidelines used for the Formulation of this Plan" is appended (Appendix Three).

1.2. *Policy*

The development of the Annual Plan has been informed by the Interim Strategic Statement (Appendix Two). This Statement provides a framework for determination of the Annual Plan while a separate five-year Strategic Plan is developed.

The interim nature of the Interim Strategic Statement has implications for the policy direction established. In particular, no new initiatives into research on population studies, indirect effects of fishing, or population management tools will commence in the 2004/2005 year. A clear prioritisation of species has also been established and, consequently, specific research on species of red and black coral, black spotted grouper and marine reptiles will not be initiated in the 2004/2005 year.

The Annual Plan reflects the intent of the Interim Strategic Statement both in the selection of projects themselves and the term of each of the projects. Project duration is generally limited to one year though some mitigation projects identified have a two-year timeframe. Previous conservation services annual plans have contained multi-year projects. With the exception of population studies on New Zealand sea lions, all multi-year contractual obligations will be concluded on 30 June 2004. This will allow the Strategic Plan to guide the development of the Five-year Research Plan and subsequent annual plans without the constraints of established contractual obligations.

The Ministers of Conservation and Fisheries have now approved the National Plan of Action to Reduce the Incidental Catch of Seabirds in New Zealand Fisheries (NPOA). It is clear that many of the objectives of the NPOA can be aligned with those of the Conservation Services Programme. However, the NPOA provides specific mechanisms for the identification and delivery of research and other projects, i.e. the Officials and Technical Working Groups. As these groups had not been formed at the time of writing of this Annual Plan, no new projects were developed to implement specific actions in the NPOA. However, where possible, policies in the Interim Strategic Statement ensure that projects are aligned to the general direction of the NPOA.

1.3. *Format*

The format used to specify the conservation services includes an outline of the objectives and rationale for each project, and a summary of key policy provisions that have informed the selection of the project. The key outputs that are anticipated to be produced by the 2004/2005 projects are also specified.

The project specifications provide cost recovery information including: project costings, identification of the relevant provisions within the Fisheries (Cost Recovery) Rules 2001 that have been used to determine cost allocation, and the identification of fish stocks from which cost will be recovered for each project. These are summarised in Appendix One.

1.4. *Administration Support*

Current staffing within the Conservation Services Programme comprises: one manager, two scientific officers, one briefing officer, and administration support (0.5 FTE). In addition, an advisory officer is on contract to work with snapper fishers.

The table below summarises the research and administrative costs of all projects. This reflects a number of changes from the way these costs were managed in 2003/04. Conservation Services Programme staffing and administration costs have been allocated to different projects primarily in relation to where staff effort is directed. Hence, briefing officer (0.75 FTE[1]) and scientific officer (0.9 FTE) time and costs are included in "observer project operations", while relevant management and administration support is listed in "observer project administration". Remaining costs (including that of the scientific officer leading non-observer projects) have been shared across the remaining projects in proportion to the cost of the project (given that no accurate estimates for staff time are possible at this stage).

The salary, administrative and overhead costs are made up by the following:

Item	Observer Project Operations	Observer Project Administration	Other projects	Total
Total salaries[1]	$101,726	$58,052	$148,499	$308,276
Accommodation, services, and computing	$29,833	$13,193	$35,163	$82,565
Total	**$131,559**	**$71,245**	**$183,662**	**$390,841**

Notes:

(1) Including human resource overheads.

(2) All financial amounts appearing in this document are exclusive of GST.

[1] Full-time equivalent staff time.

1.5. *Conservation Services Levy*

The details of the conservation services levy are provided in tables in Appendix One. These details have been used to derive the provisional levies (see Appendix Four).

For the purpose of modelling the seabird autopsy project, Item 4 was adopted. In previous years, Item 8 was used for the recovery of costs for this project. While both items require 100% cost recovery from industry, the allocation between fish stocks varied between item 4 and item 8. The seabird autopsy occurs as a consequence of the observer project, but is not considered to form part of the observer project. It is therefore cost recovered under item 4. Consultation on the Annual Plan includes consultation on items utilised to recover costs and attention has been drawn to this point accordingly.

For clarification, the Minister of Conservation is responsible for approval of the Conservation Services Annual Plan. The Minister of Fisheries is responsible for the actual levying of the costs in accordance with this Plan, once approved.

1.6 Consultation processes

Conservation services stakeholders were advised on 19 December 2003 of the timetable for the development of the 2004/05 Conservation Services Annual Plan as follows:

16 January 04	Interim Strategic Statement and outline of projects released to stakeholders
11 February 04	Workshop on Interim Strategic Statement and outline of projects
8 March 04	Draft 2004/2005 Conservation Services Annual Plan released to stakeholders**.**
9 April 04	Stakeholder submissions on Draft Annual Plan due
21 April 04	Meeting with stakeholders to discuss submissions and for the Department to seek clarification and respond to matters raised.
14 May 04	Final 2004/2005 Conservation Services Annual Plan forwarded to Minister of Conservation
31 May 04	Minister of Conservation advises Minister of Fisheries about details of the 2004/2005 Conservation Services Annual Plan for levy purposes.

2. Projects

2.1. *Fishing interactions*

2.1.1. Observer Project

Reference: INT 2004/1

Objectives

1. To identify, monitor and, where possible, quantify protected species interactions with commercial fisheries;
2. To identify possible means for mitigating the incidental mortality of protected species;
3. To collect biological information on the incidental mortality of protected species that will assist assessing mitigation techniques; and
4. To assess the adoption of mandatory and other reporting of the incidental mortality of protected species.

Term of project

- July 2004 to June 2005 (reviewed annually).

Rationale

- ISS Policy 6: The Conservation Services Observer Project will seek to:
  (a) provide an appropriate level of observation of fisheries where interactions are thought to be generally identified;
  (b) enhance observations in fisheries where observations have not been undertaken historically or, where understanding of interactions has not yet been obtained; and
  (c) gather data that will facilitate understanding of nature of fisheries interactions and lead to development of mitigation techniques.

- NPOA section 4.5.2: Information gathering:
  A specific objective of the NPOA is to ensure that there is sufficient, reliable information available for the effective implementation and monitoring of management measures. In particular, information will be required on:
  - the interaction of seabird species with fisheries, including the level of incidental catch, so that decisions can be mae about appropriate management measures;
  - compliance with management measures, to enable corrective action to be taken where necessary; and
  - the effectiveness of the management measures in achieving the goals and objectives of the NPOA.

- Understanding the nature and extent of interactions between commercial fisheries and seabirds is the foundation of the Conservation Services Programme. This information can identify where the most significant interactions are occurring and can suggest ways to minimise adverse effects. It will also monitor the effectiveness of government and industry initiatives, such as the seabird National Plan of Action. Over the last few years the interactions with some fisheries have become well understood, although rarely quantified. Interactions with other, especially inshore, fisheries are less well understood. The Conservation Services Programme continues to purchase services from the Ministry of Fisheries Observer Programme.

Observer seadays have been allocated in relation to:
- historical mortality of protected species (the approximate relative impacts of fisheries on protected species are shown in the table below);
- status of particular threatened protected species; and
- current level of information.

There are cost benefits in fitting in with observer coverage determined primarily for Ministry of Fisheries operational needs. However, Conservation Services Programme requirements will be targeted at fisheries, times, locations, and vessels[2] for which information is poor or interactions are known (or suspected) to be significant.
There is a particular focus in 2004/05 of increased reporting of findings. To this end, observer briefing and debriefings will be optimised, and increased resources will directed towards analysing and reporting the findings of this project (see Outputs).

- Application

Inshore longline fisheries: We have little historical information on snapper and inshore ling longliners, primarily due to the difficulty in placing observers on these vessels. Data is urgently needed so that a proper assessment of the effects of these fisheries on seabird bycatch can be made. Birds caught include a variety of petrels and shearwaters[3]. The Conservation Services Programme advisory officers have been promoting the adoption of practices to reduce seabird mortality in the snapper fishery[4], but this does not replace the need to have observers on these boats. Some of the difficulty in placing observers has been related to the small size of the vessels and the weather dependence of the fisheries. Cooperation by the longline snapper fishers has enabled more observers to be placed in that in 2003/04 than previously. The results of the snapper and inshore ling observer projects will be reviewed after a further 150 days and 200 days respectively are achieved in 2004/05.

Offshore longline fisheries: Previous data been collected through the observer project have revealed that deep sea ling longliners have killed significant numbers of white-chinned petrels, and Salvin's and sooty albatrosses. The industry appears to have responded to higher levels of observer coverage and an earlier unfortunate incident involving the deaths of a large number of white-chinned petrels, through trials of integrated weighted lines ,double tori lines, and side-setting. The impacts of these mitigation methods will need to be monitored, although slightly less effort needs to be invested. As the number of observer days is greater than that needed for Ministry of Fisheries purposes, additional days, largely funded through the Conservation Services Programme, will be needed.

Tuna longline fisheries: Charter tuna vessels have historically had high captures of seabirds (including a variety of albatrosses and petrels[5]) but high observer coverage and

[2] A relatively small proportion of vessels catch the majority of seabirds (Robertson, CJR, Bell, E, and Scofield, P (2004). Autopsy report for seabirds killed and returned from New Zealand fisheries 1 October 2001 to 30 September 2002. DoC Science Internal Series 155.
[3] Conservation Services Programme unpublished data.
[4] The snapper advisory officer will continue until April 2005 using previously levied funds.
[5] Baird SJ (2001) Estimation of the incidental capture of seabird and marine mammal species in commercial fisheries in new Zealand waters, 1999-00. Draft New Zealand Fisheries Assessment Report 2001, December 2001.

the adoption of a code of practice substantially reduced incidental mortality. A reduced level of surveillance will be retained.

Marine protected species interactions with the domestic pelagic tuna fishery are still relatively unknown. Birds caught include black petrels, Campbell albatrosses and flesh-footed shearwaters[6]. More data are urgently required, but this is difficult as the fishery mainly involves small vessels, which may reduce in numbers as tuna comes into the QMS.

Deep water trawl fisheries: Hoki is a substantial fishery with a significant capture of fur seals, an issue being addressed by the Hoki Fisheries Management Company, in part through its Marine Stewardship Council certification requirements. The impacts of squid trawlers on endangered NZ sea lions are of particular concern and a maximum allowable level of fishing related mortality has been set for the Auckland Islands squid fishery Recent investigations have shown that seabirds, especially larger birds, are at risk from impacts with, or drowning, caused by, trawl warps. This project will work with fishing industry initiatives to monitor the performance of newer mitigation devices, especially "bird bafflers" and offal management techniques.
The southern scampi fishery interacts with pinnipeds around the subantarctic islands. There are potential interactions between the east coast North Island scampi fishery and seabirds including Chatham Islands mollymawk.

Shoal water trawl fisheries: The recent capture of 15 common dolphins by one vessel trawling for jack mackerel in the North Taranaki Bight is of concern, not just through the capture of the common dolphins, but also due to the proximity of this fishery to Maui's dolphins. The project will also monitor the interactions between the southern blue whiting fishery and southern pinnipeds, including leopard and elephant seals.

Inshore set netting: Information has previously been obtained on commercial set net interactions with Hector's dolphins from the Banks Peninsula and Kaikoura areas. Very limited information is available on interactions with Maui's dolphins (west coast North Island – much of this commercial fishery is currently closed) and yellow-eyed penguins (southern South Island). If a proposal to increase the TACC for school shark in Area 7 (West Coast/Nelson/Marlborough) is approved, interactions with Hector's dolphins in this area will need to be monitored.

Purse seine fishing: While the tuna and other purse seine fisheries are not large, there have been past seabird and dolphin mortalities, and therefore monitoring is needed.

Outputs

- An Annual Report will describe the allocation of seadays and summarise incidental mortalities in key fisheries. This report will guide the implementation of the National Plan of Action to Reduce the Incidental Catch of Seabirds in New Zealand Fisheries (NPOA).
- Situation Alerts will be circulated to companies with vessels in the vicinity in response to significant mortalities of protected species, with advice regarding mitigation measures. These will be followed up with written Occurrence Reports.

[6] Baird (2001).

- Technical reports will investigate relationships between the key factors affecting incidental mortality. In 2004/05, the focus will be on those vessels that have particularly high and low rates of mortality to identify practices that increase or reduce incidental mortality.

Cost recovery information

- Fish stock: Directly related to the projected observer days in each fishery See Table below.
- F(CR) Rules: Item 8 (100% industry)
- Project Costing: $766,309[7]

In 2004/05 the Conservation Services Programme and the Ministry of Fisheries have agreed to allocate costs to the Programme in approximate relationship to the services received, broadly as follows:

- Fisheries for which only the Conservation Services Programme (not industry or the Ministry of Fisheries) needs observer coverage: CSP pays 100%.
- Longline fisheries, in which the Conservation Services Programme observer needs to observe close to 100% of hooks: CSP pays 90% (note that owing to difficulties of placing Ministry and Conservation Services Programme funded observers on domestic tuna vessels, Conservation Services Programme funded observers will observe approximately 25% of the vessels hooks and contribute 25% of the costs).
- Trawl fisheries for which Conservation Services Programme has a particular interest: 20% (where the observer can spend the other 80% meeting Ministry and industry needs).
- Other trawl fisheries: 10%.

[7] Note that these estimates do not include Conservation Services Programme administration costs (see Appendix One).

Observer project: allocation of observer sea days

Fishery	Known impact on seabirds[1]	Known impact on marine mammals[1]	No. of days[2]	% of day required[2]	Effective days[2]	Rate/day	At sea cost	Direct staff costs[3]	Admini-stration costs[3]	Total
Snapper	✧ ***	*?	150	100	150	$500	$75000	$18187	$8664	$101851
Inshore ling	✧ ***	*?	200	100	200	$500	$100000	$24250	$11552	$135801
Deep sea ling	✧ ****	*	150	10	15	$500	$7500	$1819	$866	$10185
			175	90	158	$500	$78750	$19096	$9097	$106943
Domestic Tuna	✧ ***?	*?	600	25	150	$500	$75000	$18187	$8664	$101851
Charter tuna	✧ **	**	200	10	20	$500	$10000	$2425	$1155	$13580
Hoki	✧ ****	****	600	20	115	$500	$57500	$13943	$6642	$78086
Squid trawl	✧ ****	***	600	20	120	$500	$60000	$14550	$6931	$81481
Jack mackerel	*?	[5]**	150	20	30	$500	$15000	$3637	$1733	$20370
Sthn blue whiting	*?	***	350	20	70	$500	$35000	$8487	$4043	$47530
Scampi	✧ *?	*	100	100	100	$500	$50000	$12125	$5776	$67901
Purse seine tuna	**?	*?	30	20	6	$500	$3000	$727	$347	$4074
Inshore set net	[6]**	[6]*?	100	100	100	$500	$50000	$12125	$5776	$67901
Total			**3405**		**1234**		**$616750**	**$149559**	**$71245**	**$837554**

✧ Fishery defined in the NPOA as a "Fishery with known seabird interactions".

1. Indicative rankings of the estimated numbers of seabirds and marine mammals killed through commercial fishing operations, ranging from low (*) to high (****). "?" indicates particular uncertainty.
2. "No. of days" indicates the number of observer days required, of which "% of day required" indicates the percentage of each day required, generating "effective days", being the effective number of days to be levied for.
3. "Direct staff "costs are the costs of the science and briefing officers, "Administration costs" are the proportion of the CSP administration costs charged to the Observer Project.
4. The 150 observer days proposed by the Ministry of Fisheries provide for insufficient vessels trips, and hence additional days 90% funded through the Conservation Services Programme are needed..
5. Recent mortality of common dolphins, potential risk of mortality to Maui's dolphin.
6. Potential risk of mortality to yellow-eyed penguins and Maui's dolphin.

2.1.2. Seabird Autopsy Project

Reference: INT 2004/2

Objectives:
1. To collect protected seabirds incidentally taken in observed fishing operations for the determination of: species, age (where possible), sex, reproductive status, stomach contents and general condition.
2. To establish a profile of those species caught incidentally in commercial fishing operations to identify potential types and causes of interactions and to detect trends.

Term of project
- 1 July 2004 – 30 June 2005

Rationale

- ISS Policy 6: The Conservation Services Observer Project will seek to:
  (b) gather data that will facilitate understanding of nature of fisheries interactions and lead to development of mitigation techniques.

- NPOA: 4.4.1.1: Proposed measures
  4.5.2: Information gathering
  4.5.3.2: Nature & extent of seabird bycatch

- Large numbers of seabirds frequent New Zealand commercial fishing waters. Birds with significant differences in conservation status can appear morphologically similar. Seabirds returned for autopsy are collected by the Ministry of Fisheries observers on commercial vessels. Fisheries observers are not always able to identify seabirds at sea with high precision. Fine scale assessment and confirmation of identification of these birds by experts is needed to identify which species are being affected and thereby reflect the impact of commercial fisheries[8]. A key part of avoiding interactions between seabirds and fishing operations is to identify the factors that attract the birds to the operations. This is often provided by examining gut contents. Expert physical analysis can identify the cause of death, further suggesting mitigation methods. When combined with spatial, temporal, and vessel characteristics, the factors contributing to mortality can be indicative of the type of interactions occurring between seabirds and fishing operations[9]. All seabird specimens returned by observers will be examined to determine: species, age (where possible), sex, reproductive status, stomach contents and general condition.

  The NPOA will require the development of codes of practice including establishing bycatch limits. The NPOA also highlights the need for ongoing research into the nature and extent of seabird bycatch. The results of this research will contribute to both these objectives.

[8] The numbers and species of birds returned depend on the placement of the observers and the birds actually recovered on the vessel. Hence, the distributions of the autopsied birds do not imply any specific relationship with total fishing effort or method

[9] Robertson, CJR, Bell, E, and Scofield, P (2004). Autopsy report for seabirds killed and returned from New Zealand fisheries 1 October 2001 to 30 September 2002. DoC Science Internal Series 155

Outputs

- A report describing the characteristics of the seabirds returned by observers, identifying potential interactions between seabirds and fishing gear, and identifying factors that may have contributed to seabird mortality.

Cost Recovery

- Fish stock: Costs allocated to those fisheries that have generated most of the seabirds recovered from observers and to fisheries with suspected impacts on seabirds but where observer coverage has been light.
  SQU6T, LIN 1,2,3,4,5,6,7 , HOK 1, JMA 3,7, SNA1, BIG, STN, YFN, SCI
- F(CR) Rules Item 4 (100% industry)
- Project Costing: $90, 000 (provides for the autopsy of up to 550 birds).

2.1.3. Evaluating electronic monitoring in longline fisheries

Reference: INT 2004/3

Objective

1. To identify issues that hinder the adoption of electronic monitoring and suggest methods by which these issues can be addressed;
2. To assess the effectiveness of electronic monitoring in monitoring the incidental mortality of protected species in longline fisheries.

Term of project

- 1 July 2004 – 30 June 2005

Rationale

- ISS Policy 7: The development, implementation, and verification of new monitoring methodologies will be supported.

- The Conservation Services Programme Observer Project seeks to identify, monitor and quantify protected species interactions with commercial fisheries. The emphasis of the NPOA on monitoring incidental mortality will increase the need for monitoring and reporting, and hence the need for observer services.

  Historically, this monitoring has been achieved by placing human observers on board vessels. However, this approach is:
  - expensive (Ministry of Fisheries observers cost $500 per day);
  - difficult to apply in some circumstances, such as on small, inshore vessels;
  - subject to human recording errors.

  Success with electronic monitoring, using computer-linked video cameras, in North America[10] has led to trials by the Southeast Finfish Company of electronic monitoring on some of its trawlers and set net vessels. This project aims to build on the New Zealand-based preliminary trials, and test the efficacy of electronic monitoring in longline fisheries. Of particular interest are fisheries with low levels of coverage by human observers, e.g. domestic tuna, inshore ling, bluenose, snapper. However, the trial outlined here need not be limited to these particular fisheries. Although vessel specifications differ greatly between fisheries, fishing techniques and technologies relate to protected species in broadly similar ways, ensuring that a trial of the practicality of electronic monitoring will provide useful information on the application of this technique to a range of longline fisheries.

  It is critical that this project is developed and implemented with the support of the industry – it cannot succeed without the assistance of the skippers of individual vessels and of the companies concerned. A range of concerns have been expressed by industry, including privacy and information management. The Department will invest government funds to address these issues to achieve objective (1). It will then encourage the participation of cooperative fishing industry partner(s) to assess the technology in monitoring the incidental mortality of protected species in longline fisheries. Funding beyond the $45,000

[10] For examples see http://www.archipelago.bc.ca/em-projects.htm

committed by the Department will be sought, if appropriate, in consultation with industry through the April 2005 levy round.

Outputs

- A report into the issues that hinder the adoption of electronic monitoring, suggesting methods by which these issues can be addressed;
- A report on the effectiveness of electronic video monitoring of longline fishing impacts on marine protected species, including example footage that allows achievement of objectives to be independently assessed and an assessment of data management and other operational issues.

Cost recovery information

- Fish stock: Fish stocks not to be levied at this stage.
- F(CR) Rules: Item 4 (100% industry)
- Project Costing: $45,000 (see text).

2.1.4. Observer, Seabird and Marine Mammal Autopsy Project Data Review

Reference: INT 2004/4

Objectives

1. To conduct a synthetic review of data held by the Conservation Services Programme that has been collected through the Observer, Seabird Autopsy and Marine Mammal Autopsy Projects.
2. To produce recommendations relating to best practice and methods (e.g. mitigation techniques) that may assist in reducing incidental catch and mortality of protected species.

Term of project

- 1 July 2004 – 30 June 2005

Rationale

- ISS Policy 8: Emphasis will be given to projects that analyse and publish existing observer data.

- The Conservation Services Programme has used human observers to monitor fisheries interactions with protected species for approximately eight years. Over a slightly narrower time frame, carcasses of seabirds and marine mammals retained by fisheries observers have been returned for autopsy. Although some parts of these datasets have been, and continue to be, analysed, synthetic exploratory analyses have not been conducted over all years of the datasets to date. Given the amount of data that is currently held, this review is timely and cost-effective, and the results of such a review will be used to inform other initiatives (e.g. development of mitigation research, refinement of observer data collection, recommendations for Codes of Practice). More specifically, the review of the Conservation Services Programme datasets will examine what combinations of events contribute to incidental captures of protected species occurring, as well as not occurring.

  Specifically, this review will examine incidental captures of protected species in the wider context to address the following questions:
  - What combinations of factors (e.g. fishery, vessel types, operational factors) contribute to incidental captures of protected species occurring?
  - What combinations of factors contribute to incidental captures of protected species not occurring?

  The seabird component of this review of Observer Project data bears broad similarity to Specific Objective 3 of Ministry of Fisheries project ENV2004/04. However, the Conservation Services Programme project proposed here relates incidentally caught protected species to largely qualitative observer debriefing data held solely by the Conservation Services Programme.

Outputs

A report that will identify the factors contributing to incidental captures of protected species and recommending methods that may assist in reducing incidental captures of protected species.

Cost recovery information

- Fish stock: Costs allocated to those fisheries that have contributed most of the marine protected species returns:
  SQU6T, LIN 1,2,3,4,5,6,7, HOK 1, JMA 1,7, SBW 6A, 6B, 6I, 6R EMA 1, 7, KAH 1, 8 BIG, STN, YFN, SKJ, SCI
- F(CR) Rules: Item 4 (100% industry)
- Project Costing: $30,000

2.2. *Population studies*

2.2.1. The effects of fisheries interactions on the Auckland Islands population of the New Zealand sea lion

Reference: POP 2004/1

Objectives

1. To characterise demographic parameters of the New Zealand sea lion population on the Auckland Islands.
2. To investigate potential indirect effects of fisheries interactions on New Zealand sea lions on the Auckland Islands.

- Objectives for 2004/05:
  (a) To measure pup production.
  (b) To determine survival of previously marked New Zealand sea lions.
  (c) To quantify reproduction by known-age female New Zealand sea lions.
  (d) To tag pups produced during the 2004/05 breeding season.
  (e) To retain the ability to identify known-age New Zealand sea lions.

Term of project

- July 2002 to June 2005.
  This project was previously consulted, but the objectives have been refined for the final (2004/05) year.

Rationale

- ISS Policy 1: Prioritisation for conservation services work on seabird and marine mammal species will be determined through the evaluation of:
  (a) threat status; and
  (b) level of fisheries interaction in New Zealand fisheries waters;

  ISS Policy 9: Research into the indirect effects of fishing on protected species will only be commenced following approval of the Strategic Plan

  ISS Policy 10: Population studies will be limited to those:
  (a) assisting in the development of population management tools; or
  (c) assisting in assessing the extent to which NZ commercial fishing interactions are causing an adverse effect on the population.

- The New Zealand sea lion is classified as "range restricted" in the "at risk" category as a threatened species under the Marine Mammals Protection Act 1978. The Auckland Islands squid trawl fishery caught and killed an average of 57 sea lions per year between 1998 and 2002[11]. Since 1995/96, the Ministry of Fisheries has prepared an operational

[11] Baird, S.J. (2003) *Phocarctos hookeri* (Hooker's sea lion): incidental captures in New Zealand commercial fisheries during 2000/01 and 2001/02. Presentation to the Ministry of Fisheries Aquatic Environment Working Group.
Wilkinson, I., Burgess, J., Cawthorn, M. 2003. New Zealand sea lions and squid: managing fisheries interactions on a threatened marine mammal. *In:* N. Gales, M. Hindell, R., Kirkwood (eds.) Marine Mammals. Fisheries, Tourism and Management Issues. CSIRO Publishing, Australia. pp. 192-207.

plan for this fishery that identifies the maximum allowable level of fishing related mortality for New Zealand sea lions. The model on which this mortality limit was based[12] relied heavily on data collected by DoC and largely funded through the Conservation Services Levy. The use and application of the model was subject to High Court proceedings in February 2004[13].

Previous research has addressed diet[14], foraging energetics and behaviour[15], distribution, abundance and growth[16]

A DoC paper suggesting research priorities for sea lions[17] recommended the following:

(a) "Continue with the collection of vital rate estimates, in particular data on recruitment which are lacking at present, fecundity rates, and age-specific survival rates, all of which can readily be measured in this species, rather than estimated. Currently the population model hinges on limited data on survival and fecundity, and no longitudinal empirical data on recruitment.
(b) Further examination of the role of disease in the dynamics of the population, and in particular the identification of sources of pathogens causing major mortality events (1998, 2002, 2003), and the role of hookworm in the pup mortality.
(c) Detailed examination of the diet of New Zealand sea lions … the extent of overlap with commercial fisheries and hence the level of potential resource competition.
(d) Examination of female foraging behaviour (spatial and diving) and its relationship to environmental stochasticity, milk production, pup growth and maternal characteristics
(e) Investigate the possibility of active intervention (closed beaches, use of decoy females, translocations) to establish addition breeding colonies away from the Auckland and Campbell Islands."

Recommendation (a) is consistent with ISS Policy 10(a) and (c) and is the focus of the objectives for 2004/05. Recommendations (d) and (e) are beyond the scope of the Conservation Services Programme. Recommendations (b) and (c) are aimed at indirect impacts of fishing.

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[12] Breen, P.A. and Kim, S. W. 2003. Exploring alternative management procedures for controlling bycatch of Hooker's sea lions in the SQU 6T squid fishery. Final Research Report for Ministry of Fisheries Research Project MOF2002/03L Objective 3. National Institute of Water and Atmospheric Research.
Breen, P. A., Hilborn, R., Maunder, M. N. and Kim, S. W. 2003. Effects of alternative control rules on the conflict between a fishery and a threatened sea lion (*Phocarctos hookeri*). Canadian Journal of Fisheries and Aquatic Sciences 60: 527-541.

[13] Squid Fishery Management Company Limited v. Minister of Fisheries & Anor. High Court CIV-2003-485-2706 France J.

[14] Childerhouse, S., Dix., B., Gales, N. 2001. Diet of New Zealand sea lions (*Phocartos hookeri*) at the Auckland Islands. *Wildlife Research* 28: 291-298.

[15] Costa, D.; Gales, N. 2000: Foraging energetics and diving behaviour of lactating New Zealand sea lions, *Phocarctos hookeri*. *The Journal of Experimental Biology 203*: 3655-3665.

[16] Childerhouse, S., Gibbs, N., McAlister, G., McConkey, S., McConnell, H., McNally, N., Sutherland, D. *in* review. Distribution, abundance and growth of New Zealand sea lion *Phocarctos hookeri* pups on Campbell Island 2003. *New Zealand Journal of Marine and Freshwater Research*.

[17] Wilkinson, I (2003). New Zealand sea lion research: where we are and where we should be going. Department of Conservation internal report.

Output

- A technical report describing demographic parameters of the New Zealand sea lion population on the Auckland Islands suitable for incorporation in population models or management plans.

Cost recovery information

- Fish stock: The Auckland Islands squid trawl fishery catches the vast majority of sea lions.
  SQU6T
- F(CR) Rules: Item 2 (90% industry, reflecting a preliminary risk assessment. Note that the relative risks of human interventions will be reassessed in 2004/05).
- Project Costing: $200,000 - $300,000

2.2.2. An investigation into the demographic parameters of the Gibson's albatross (*Diomedea gibsoni*)

Reference: POP 2004/2

Objectives

- To characterise demographic parameters of the Gibson's albatross (*Diomedea gibsoni*).

Specific objectives for 2004/05:

1. To measure the age at which juvenile Gibson's albatrosses first return to the breeding colony.
2. To determine the survival rates of adult and juvenile Gibson's albatrosses.
3. To document, if possible, the first incidences of albatrosses banded as juveniles recruiting into the breeding population.
4. To examine population trends by conducting albatross counts and analysing count data from study blocks on Adams Island.
5. To conduct a full count of Gibson's albatrosses on Adam's Island (if appropriate in the context of the NPOA).

Term of project

- 1 July 2004 – 30 June 2005

Rationale

- ISS Policy 1: Prioritisation for conservation services work on seabird and marine mammal species will be determined through the evaluation of:
  (a) threat status; and
  (b) level of fisheries interaction in New Zealand fisheries waters;

  ISS Policy 10: Population studies will be limited to those:
  (a) assisting in the development of population management tools;
  (b) assisting in implementation of the National Plan of Action;
  (c) assisting in assessing the extent to which NZ commercial fishing interactions are causing an adverse effect on the population.

- NPOA: 4.5.3.1. Seabird population monitoring.

- The Gibson's albatross (*Diomedea gibsoni*) is a threatened and range restricted New Zealand endemic albatross[18], which was formerly considered a subspecies of the wandering albatross (*Diomedea exulans*). It has been studied in the Auckland Islands group from 1991 to the present. This long term study commenced following overseas reports that linked substantial declines in wandering albatross populations to longline fishing operations[19].

[18] Hitchmough, R. (comp.) 2002. New Zealand Threat Classification System Lists – 2002. Threatened Species Occasional Publication 23, 210 pp. Department of Conservation, Wellington.
Molloy, J, Bell, B., Clout, M., deLange, P, Gibbs, G., Given, D., Norton, D., Smith, N. and Stephens, T. 2002. Classifying species according to threat of extinction: a system for New Zealand. Threatened Species Occasional Publication 22, 26 pp. Department of Conservation, Wellington.

[19] Weimerskirch, H. and Jouventin, P. 1987. Population dynamics of the wandering albatross, *Diomedea exulans*, of the Crozet Islands: causes and consequences of the population decline. Oikos 49: 315-322.

Since 1996, up to 19 Gibson's albatrosses incidentally killed in New Zealand fishing operations have been returned annually by fisheries observers[20]. The numbers of Gibson's albatrosses returned by observers have decreased in more recent years. However, captures of this species continue to be observed in longline fisheries[21].

During the long term study of the Gibson's albatross, a substantial body of information has been amassed such as population counts and demographic parameters including adult survival, nesting success, and fledging success[22]. Adults of the species have also been extensively tracked at sea, leading to a solid understanding of their movements and distribution. Since the early years of the study, chicks have been banded to allow individual identification and the tracking of their life histories. After fledging, juveniles leave their natal island for a number of years before returning there and eventually joining the breeding population. In 1997, the first banded juvenile albatross was reported returning to Adams Island,. Now, it is expected that sufficient time has elapsed since fledglings were banded for significant numbers of juveniles and birds around predicted breeding age to be returning to the Auckland Islands.

The focus of this project is to collect data on the survival of juvenile Gibson's albatrosses, the ages at which the birds first return to their natal island, and, if possible, age of first breeding attempts and recruitment into the breeding population. While this reflects a deliberate shift from monitoring to modelling, a population count on Adams Island will be undertaken as the last census was conducted in the mid 1990s if considered appropriate to support the NPOA. These data will address current gaps in the data collected during the previous years of the project. Addressing these gaps is key to furnishing a robust population model of this species, which may include determining bycatch limits referred to in the NPOA.

Output

- A report detailing how objectives were addressed and results including values of population parameters measured.

Cost recovery information

- Fish stock: Costs allocated to those fisheries that have caught most Gibson's albatrosses in recent years.
  LIN 2,3,4,5,6, STN, BIG, YFN
- F(CR) Rules: Item 3 (50% industry) (Note that the relative risks of human interventions will be assessed in 2004/05)
- Project Costing: $122,000

Croxall, J. P., Rothery, P., Pickering, S. P. C. and Prince, P. A. 1990. Reproductive performance, recruitment and survival of wandering albatrosses *Diomedea exulans* at Bird Island, South Georgia. Journal of Animal Ecology 59: 775-796.

[20] Reviewed in Robertson, C. J. R., Bell, E. and Scofield, P. 2004. Autopsy report for seabirds killed and returned from New Zealand fisheries, 1 October 2001 to 30 September 2002. Department of Conservation Science Internal Series 155. Department of Conservation, Wellington. 43 pp.

[21] Robertson *et al*. (2004)

[22] Gregory, G. (editor) 2002. Special Conservation Services Levy Compendium: Monitoring wandering albatrosses at Auckland and Antipodes Islands, 1995/96 – 2001/02. Department of Conservation Science Internal Series 68-80. Department of Conservation, Wellington

2.2.3. An investigation into the demographic parameters of the Antipodean albatross (*Diomedea antipodensis*)

Reference: POP 2004/3

Objectives

- To characterise demographic parameters of the Antipodean albatross (*Diomedea antipodensis*).

Specific objectives for 2004/05:

1. To measure the age at which juvenile Antipodean albatrosses first return to the breeding colony.
2. To determine the survival rates of adult and juvenile Antipodean albatrosses.
3. To document, if possible, the first incidences of albatrosses banded as juveniles recruiting into the breeding population.
4. To examine population trends by conducting albatross counts and analysing count data from study blocks on Antipodes Island.
5. To conduct a full count of Antipodean albatrosses on Antipodes Island (if appropriate in the context of the NPOA).

Term of project

- 1 July 2004 – 30 June 2005

Rationale

- ISS Policy 1: Prioritisation for conservation services work on seabird and marine mammal species will be determined through the evaluation of:
  (a) threat status; and
  (b) level of fisheries interaction in New Zealand fisheries waters;

  ISS Policy 10: Population studies will be limited to those:
  (a) assisting in the development of population management tools;
  (b) assisting in implementation of the National Plan of Action;
  (c) assisting in assessing the extent to which NZ commercial fishing interactions are causing an adverse effect on the population.

- NPOA 4.5.3.1: Seabird population modelling.

- The Antipodean albatross (*Diomedea antipodensis*) is a threatened and range restricted New Zealand endemic albatross[23], which was formerly considered a subspecies of the wandering albatross (*Diomedea exulans*). It has been studied on Antipodes Island from 1994 to the present. This long term study commenced following overseas reports that

[23] Hitchmough, R. (comp.) 2002. New Zealand Threat Classification System Lists – 2002. Threatened Species Occasional Publication 23, 210 pp. Department of Conservation, Wellington.
Molloy, J, Bell, B., Clout, M., deLange, P, Gibbs, G., Given, D., Norton, D., Smith, N. and Stephens, T. 2002. Classifying species according to threat of extinction: a system for New Zealand. Threatened Species Occasional Publication 22, 26 pp. Department of Conservation, Wellington.

linked substantial declines in wandering albatross populations to longline fishing operations[24].

Since 1996, up to 52 Antipodean albatrosses incidentally killed in New Zealand fishing operations have been returned annually by fisheries observers[25]. The numbers of Antipodean albatrosses returned by observers have decreased in more recent years. However, captures of this species continue to be observed in longline fisheries[26].

During the long term study of the Antipodean albatross, a substantive body of information has been amassed such as population counts and demographic parameters including adult survival, nesting success, and fledging success[27]. Adults of the species have also been extensively tracked at sea, leading to a solid understanding of their movements and distribution. Since the first years of the Antipodean albatross study, chicks have been banded to allow individual identification and the tracking of their life histories. After fledging, juveniles leave their natal island for a number of years before returning there and eventually joining the breeding population. In 1997, the first banded juvenile albatross was reported returning to the Antipodes Islands, but more were not seen until summer of 2000/2001. Now, it is expected that sufficient time has elapsed since fledglings were banded for significant numbers of juveniles and birds around breeding age to be returning to the Antipodes.

The focus of this project is to collect data on the survival of juvenile Antipodean albatrosses, the ages at which the birds first return to their natal island, and, if possible, age of first breeding attempts and recruitment into the breeding population. While this reflects a deliberate shift from monitoring to modelling, a population count on Antipodes Island will be undertaken as the last census was conducted in the mid 1990s if considered appropriate to support the NPOA. These data will address current gaps in the data collected during previous years of the project. Addressing these gaps is key to furnishing a robust population model of this species, which may include determining bycatch limits referred to in the NPOA.

Output

- A report detailing how objectives were addressed and results including values of population parameters measured.

Cost recovery information

- Fish stock: Costs allocated to those fisheries that have caught most Antipodean albatrosses in recent years.
  LIN 2,3,4,5,6, STN, BIG, YFN

[24] Weimerskirch, H. and Jouventin, P. 1987. Population dynamics of the wandering albatross, *Diomedea exulans*, of the Crozet Islands: causes and consequences of the population decline. Oikos 49: 315-322. Croxall, J. P., Rothery, P., Pickering, S. P. C. and Prince, P. A. 1990. Reproductive performance, recruitment and survival of wandering albatrosses *Diomedea exulans* at Bird Island, South Georgia. Journal of Animal Ecology 59: 775-796.

[25] Reviewed in Robertson, C. J. R., Bell, E. and Scofield, P. 2004. Autopsy report for seabirds killed and returned from New Zealand fisheries, 1 October 2001 to 30 September 2002. Department of Conservation Science Internal Series 155. Department of Conservation, Wellington. 43 pp.

[26] Robertson *et al*. (2004)

[27] Gregory, G. (editor) 2002. Special Conservation Services Levy Compendium: Monitoring wandering albatrosses at Auckland and Antipodes Islands, 1995/96 – 2001/02. Department of Conservation Science Internal Series 68-80. Department of Conservation, Wellington.

- F(CR) Rules: Item 3 (50% industry) (Note that the relative risks of human interventions will be assessed in 2004/05)
- Project Costing: $128,000

2.2.4. Investigation of demographic parameters of the black petrel (*Procellaria parkinsoni*)

Reference: POP 2004/4

Objectives

1. To assess the survival of juvenile (pre-breeder) black petrels.
2. To determine the age at which black petrels first return to their natal colony.
3. To determine the age at which black petrels first attempt to, and successfully, breed.
4. To quantify adult (breeder) survival[28].
5. To estimate population size and trends.

Term of project

- 1 July 2004 – 30 June 2005

Rationale

- ISS Policy 1: Prioritisation for conservation services work on seabird and marine mammal species will be determined through the evaluation of:
  (a) threat status; and
  (b) level of fisheries interaction in New Zealand fisheries waters;

  ISS Policy 10: Population studies will be limited to those:
  (a) assisting in the development of population management tools;
  (b) assisting in implementation of the National Plan of Action;
  (c) assisting in assessing the extent to which NZ commercial fishing interactions are causing an adverse effect on the population.

- NPOA: 4.5.3.1. Seabird population monitoring.

- The black petrel (*Procellaria parkinsoni*) is a threatened New Zealand endemic petrel which has remnant breeding populations on Little and Great Barrier Islands. Black petrels are able to dive deeply in the course of foraging activities[29] and they interact with fisheries operations when scavenging from behind fishing vessels and feeding on cast baits. In December 2002, the Office of the Auditor-General released a report on the Administration of the Conservation Services Programme. This report made a number of recommendations in relation to researching the adverse effects of commercial fishing on the black petrel.

  Although information on the distribution of black petrels at sea is limited, they have been identified as feeding at the edge of the continental shelf,[30] suggesting that there is significant spatial overlap between petrels and the locations of domestic longliner

[28] With particular reference to recommendations made in Hunter, C., Fletcher, D. and Scofield, P. 2001. Preliminary modelling of black petrels (*Procellaria parkinsoni*) to assess population status. Department of Conservation Science Internal Series 2

[29] Taylor, G. A. 2000. Action Plan for Seabird Conservation in New Zealand. Part A. Threatened Seabirds. Biodiversity Recovery Unit, Department of Conservation, Wellington.

[30] Imber, M. 1987. Breeding ecology and conservation of the black petrel (*Procellaria parkinsoni*). Notornis 34: 19-39.

activities[31]. Incidental mortality of black petrels has been recorded in fishing operations since the 1990s. While 9 birds were returned from by domestic tuna longliners between 1996-2001[32], observer coverage was insufficient[33] to enable estimates of total mortality to be made. Furthermore, there are high observed kills of related species such as flesh-footed shearwaters. The conservation status of the black petrel and the known interactions with fishing suggest this species as a priority. The black petrel's interactions with fishing are to be examined through the Observer Project.

Population research on the petrel began on Great Barrier Island in 1996[34]. This work set out to survey black petrels and assess their breeding success on Great Barrier Island, with the broader aim of establishing population trends and investigating causes and timing of mortality. The study increased in scope to generate population estimates for the species on Great Barrier Island as well as assess population dynamics[35]. Preliminary population modelling[36] used data collected to 1999 to investigate the ability of the population study to inform a population model. Conclusions and recommendations from this work aimed at creating a more informative research programme and reliable population model were fivefold, and included a three-pronged approach to improving estimations of the survival of breeding birds, estimating pre-breeder survival, and a three-pronged approach to indirectly investigating fishing interactions including satellite tracking petrels to determine foraging distribution.

In line with these recommendations, significant modifications were made to the black petrel project from the 2001/02 field season. These included adjusting timing of visits to the study sites, increasing monitoring of breeding adults, investigating pre-breeder survival, increasing banding effort, and investigating the feasibility of using satellite tracking[37]. Instituting these changes facilitated the initiation of data collection that, over time, will lead to a robust population model.

So far the following aspects of the black petrel population and its breeding ecology have been investigated: extent and causes of land-based mortality, burrow occupancy, adult survival, breeding success, age at first return to the colony, and age at first breeding. Also, population estimates have been generated for black petrels around the Mt. Hobson area of Great Barrier Island (including breeding and non-breeding birds). Due to the time lags involved in determining age at first return to the colony and age at first breeding, estimates of these parameters are currently indicative rather than reliable. Consequently, the objectives above seek to strengthen estimates of these parameters, and allow for the future construction of a population model that will inform decisions made under the NPOA or other population management tool.

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[31] Ministry of Fisheries, unpublished data.
[32] Robertson, C. J. R., Bell, E. and Scofield, P. 2004. Autopsy report for seabirds killed and returned from New Zealand fisheries, 1 October 2001 to 30 September 2002. Department of Conservation Science Internal Series 155. Department of Conservation, Wellington.
[33] For example, observer coverage of domestic tuna longliners ranged from 2.4-5% over 2000-2002.
[34] Bell, E. A. and Sim, J. 1998. Survey and monitoring of black petrels on Great Barrier Island 1996. Science for Conservation 77, Department of Conservation, Wellington.
[35] Bell, E. A. and Sim, J. 2000. Survey and monitoring of black petrels on Great Barrier Island 1997/98. Published client report on contract 3085, funded by Conservation Services Levy. Department of Conservation, Wellington.
[36] Hunter *et al*. (2001).
[37] Bell, E.A. and Sim, J.L. (2003). Survey and monitoring of black petrels on Great Barrier Island, 2001/02. DOC Science Internal Series 134, Department of Conservation, Wellington.

Output

- Report detailing how objectives were addressed, and results of study including population parameter values delivered by data collection.

Cost recovery information

- Fish stock: 100% Crown funded prior to risk assessment
- F(CR) Rules: None (Note that the relative risks of human interventions will be assessed in 2004/05)
- Project Costing: $50,000

2.3. *Mitigation*

2.3.1. Development and testing of discard management technologies

Reference: MIT 2004/1

Objective

- To develop one or more effective and practical techniques to minimise the volume of discards discharged in a form attractive to seabirds in the course of New Zealand trawl fishing operations.

Specific objective for 2004/05:

- Conduct background work necessary to develop appropriate discard management methodologies, including drafting any prototype designs that would be tested at sea in the second year of the project.

Term of project

- 1 July 2004 – 30 June 2006

Rationale

- ISS Policy 11: High priority will be given to projects that contribute to the research, development and conveying research results of effective mitigation methods.

- NPOA 4.5.3: Mitigation measures

- Depending on fishing and processing methods, discarded material includes whole fish, used baits, and heads, guts, and other fish parts deliberately discarded as part of onboard fish processing, and whole and pieces of fish attached to fishing gear. Discards produced in the course of fisheries operations can be highly attractive to, and represent a food source for, seabirds[38]. When seabirds gather around fishing vessels and forage on discards, they are at risk of injury and/or death as a result of interacting with fishing gear.

  Autopsies conducted on seabirds returned from fishing operations between 1998 and 2001 demonstrated that at least 40 % these birds fed on discarded material. When broken down by fishery type, 2-15 % of the seabirds returned from longliners contained discards, compared to 50-65 % of birds from squid and finfish trawlers[39]. From these figures, it appears that in the course of, or after consuming discards, birds attending trawlers discarding fish waste may be at greater risk of death via interaction with fishing gear than those attending longliners.

  A variety of practices for addressing the interactions between seabirds and discards are in use and under investigation. These practices either address the discharge of discards (e.g.

[38] Votier, S. C., Furness, R. W., Bearhop, S., Crane, J. E., Caldow, R. W. G., Catry, P., Ensor, K., Hamer, K. C., Hudson, A. V., Kalmbach, E., Klomp, N. I., Pfeiffer, S., Phillips, R. A., Prieo, I. and Thompson, D. R. 2004. Changes in fisheries discard rates and seabird communities. Nature 427: 727-730.

[39] Robertson, C. J. R., Bell, E. and Scofield, P. 2003. Autopsy report for seabirds killed and returned from New Zealand fisheries, 1 October 2000 to 30 September 2001. Department of Conservation Science Internal Series 96. Department of Conservation, Wellington.

through use of meal plants or the retention of offal onboard), or aim to restrict bird access to danger zones in which discards may be present (e.g. through use of a Brady bird baffler). Some of these factors are being investigated in an experiment currently being conducted for the Seafood Industry Council. Although mitigation devices blocking bird access to danger zones around vessels may be effective in reducing incidental deaths, such devices do not address what is attracting birds to those areas in the first place. The onboard retention of fish waste, including the conversion of this material to fish meal, requires the incorporation of holding tanks (such that the waste can be discharged when birds are not at risk) or meal plants, and may have implications for the operation of vessels and processing plants. The reality is that even vessels with meal plants may discharge fish waste at inappropriate times.

Therefore, recognising the need for complementarity with industry initiatives, this project seeks to investigate vessel management and/or structural solutions to reduce the discharge of discards and/or the appeal of discarded material to seabirds.

Outputs

- Project report, including a review of New Zealand and overseas practices leading to development of discard management techniques, development processes for any new technologies, efficacy and problems with discard management methods, and results of at-sea trials of device(s)/technique(s) for discard management.
- Recommendations for the implementation of successful technologies and management approaches.

Cost recovery information

- Fish stock:
  Deep Water – OEO 1, 3A, 4, 6, ORH 1, 2A, 2B, 3A, 3B, 7A, 7B,
  Middle Depths – BAR 1, 4, 5, 7, CDL 1, 2, HAK 1, 4, 7, HOK 1, LIN 1, 2, 3, 4, 5, 6, 7, RBY 1, 2, SBW 6A, 6B, 6I, 6R, SKI 1, 2, SQU 1T, 6T, SWA 1, 3, 4, WAR 1, 2, 3, 7, 8, WWA 1, 2, 3, 4, 5, 6, 7, 8, SCI 1, 2
  Inshore – BNS 1, 2, 3, 7, 8, BYX 1, 2, 3, 7, 8, ELE 1, 2, 3, 5, 7, FLA 1, 2, 3, 7 , GMU 1, GUR 1, 2, 3, 7, 8, HPB 1, 2, 3, 4, 5, 7, 8, JDO 1, 2, MOK 1, 3, RCO 1, 2, 3, 7, RIB 1, 2, 3, 4, 5, 6, 7, SCH 1, 2, 3, 4, 5, 7, 8, SNA 1, 2, 7, 8, SPO 1, 2, 3, 7, 8, STA 1, 2, 3, 4, 5, 7, 8, TAR 1, 2, 3, 4, 5, 7, 8, TRE 1, 2, 7, SPD
- F(CR) Rules: Item 4 (100% industry)
- Project Costing: 50,000 (each year for two years

2.3.2. Global review of mitigation methods and research

Reference: MIT 2004/4

Objectives

1. To conduct a global review of methodologies aimed at avoiding and/or mitigating incidental catch of seabirds, marine mammals and marine reptiles, as well as damage to corals, in fisheries that share characteristics with New Zealand fisheries.
2. To generate a list of contacts in the field of incidental catch avoidance and mitigation, as identified through the process of conducting the review.
3. To recommend appropriate avenues of future research into the avoidance and mitigation of seabird and marine mammal incidental catch in New Zealand fisheries.

Term of project

- 1 July 2004 – 30 June 2005

Rationale

- ISS Policy 11: High priority will be given to projects that contribute to the research, development and conveying research results of effective mitigation methods.

- NPOA section 4.5.3.3

- The development of ways to avoid and mitigate incidental mortality of seabirds and marine mammals resulting from fisheries interactions is a growing field internationally[40]. Information on these methods has been released in a variety of ways (including through conferences, journal articles, government and NGO literature, fishing industry magazines, and websites), and at a variety of geographic levels (e.g. local, national, and international). Much of this information is likely to be directly applicable to New Zealand fisheries and waters. This project seeks to transfer the experience and information gathered worldwide and evaluate this for adoption in New Zealand.

  This review will be global in scope (including New Zealand), and will collate and synthesise information on methodologies for the avoidance of incidental catch of the marine animals listed above in fisheries that share characteristics with New Zealand fisheries, e.g. similar fishing methods or similar methods of incidental capture. Material reviewed will include mitigation and avoidance methods that have been proposed, tested but were demonstrated to be unsuccessful, or tested and demonstrated to be successful. The application of these methods to New Zealand circumstances is to be assessed. Areas for further research in New Zealand will be highlighted, and a list of contacts generated to allow independent follow up by interested parties. The results of recent unpublished work in this area, for example, a review of pinniped mitigation techniques commissioned by the Hoki Fishery Management Company[41] is expected to be integrated into this CSP project where appropriate.

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[40] Hall, M.A., Alverson, D.L. and Metuzals, K.I. 2000. By-catch: Problems and solutions. Marine Pollution Bulletin 41: 204-219.
Melvin, E.F. and Parrish, J.K., eds. 2001. Seabird Bycatch: Trends, Roadblocks, and Solutions. University of Alaska Sea Grant AK-SG-01-01, Fairbanks, AK, USA.

[41] Richard Cade, Chief Executive, Hoki Fishery Management Company, personal communication.

Outputs

- Results of the review will be published in a Department of Conservation technical publication and an international peer-reviewed journal, with summaries prepared for industry publications and newsletters, and in material for fishers. Presentation of internet-based material is also envisaged.

Cost recovery information

- Fish stock:
  Deep Water – OEO 1, 3A, 4, 6, ORH 1, 2A, 2B, 3A, 3B, 7A, 7B,
  Middle Depths – BAR 1, 4, 5, 7, CDL 1, 2, HAK 1, 4, 7, HOK 1, LIN 1, 2, 3, 4, 5, 6, 7, RBY 1, 2, SBW 6A, 6B, 6I, 6R, SKI 1, 2 , SQU 1T, 6T, SWA 1, 3, 4, WAR 1, 2, 3, 7, 8, WWA 1, 2, 3, 4, 5, 6, 7, 8, SCI 1, 2
  Inshore – BNS 1, 2, 3, 7, 8, BYX 1, 2, 3, 7, 8, ELE 1, 2, 3, 5, 7, FLA 1, 2, 3, 7 , GMU 1, GUR 1, 2, 3, 7, 8, HPB 1, 2, 3, 4, 5, 7, 8, JDO 1, 2, MOK 1, 3, RCO 1, 2, 3, 7, RIB 1, 2, 3, 4, 5, 6, 7, SCH 1, 2, 3, 4, 5, 7, 8, SNA 1, 2, 7, 8, SPO 1, 2, 3, 7, 8, STA 1, 2, 3, 4, 5, 7, 8, TAR 1, 2, 3, 4, 5, 7, 8, TRE 1, 2, 7, SPD
  Pelagic – JMA 1, 3, 7, EMA 1, 2, 3, 7, KAH, KIN 1, 2, 3, 4, 7, 8, RBM, STN, BIG, YFN
- F(CR) Rules: Item 4 (100% industry) (Note a contribution from the Department of Conservation and Southern Seabird Solutions of approximately $16,000 to this project).
- Project Costing: $40,000

2.3.3. Mitigating incidental capture of the New Zealand sea lion (*Phocarctos hookeri*) in the southern trawl fishery

Reference: MIT 2004/5

Objectives

1. To review research on devices aiming to mitigate interactions between the New Zealand sea lion and the southern squid trawl fishery.
2. EITHER: To extend previous research on exclusion devices to demonstrate their efficacy in excluding viable sea lions from nets used in the southern squid trawl fishery,
   AND/OR: To develop and test novel methods that will significantly reduce the incidental mortality of sea lions in the southern squid trawl fishery.

Term of project

- 1 July 2004 – 30 June 2006

Rationale

- ISS Policy 1: Prioritisation for conservation services work on seabird and marine mammal species will be determined through the evaluation of:
  (a) Threat status[42]; and
  (b) Level of fisheries interaction in New Zealand fisheries waters

  ISS Policy 11: High priority will be given to projects that contribute to the research, development and conveying research results of effective mitigation methods

- The endemic New Zealand sea lion (*Phocarctos hookeri*) is classified as a threatened species that is range restricted[43]. This sea lion is incidentally caught in New Zealand fishing operations, notably the southern trawl fishery focussing on squid around the Auckland Islands[44]. Since the 1990s, work has been conducted on devices aiming to reduce the number of New Zealand sea lions incidentally killed in the squid trawl

[42] Threat status will be determined in accordance with Molloy et al. (2002) *Classifying species according to threat of extinction – A System for New Zealand* Threatened Species Occasional Publication 22, Department of Conservation, and R Hitchmough (compiler) (2002) *New Zealand Threat Classification Systems Lists*, Threatened Species Occasional Publication 23, Department of Conservation.
http://www.doc.govt.nz/publications/004%7escience-and-research/Biodiversity-Recovery-Unit/index.asp#occ-pub
Note that for species classified as vagrant, migrant and coloniser in accordance with Molloy et al. (2002), the IUCN classification system will be used to determine threat status. Further analysis will be required on how threat status of protected species classified using Molloy et al. (based on New Zealand populations) will be rationalised with threat status derived from IUCN criteria (vagrants, migrants, colonisers based on global populations) for the purposes of prioritisation. This will be undertaken to inform the Strategic Plan.

[43] Hitchmough, R. (comp.) 2002. New Zealand Threat Classification System Lists – 2002. Threatened Species Occasional Publication 23, 210 pp. Department of Conservation, Wellington.
Molloy, J, Bell, B., Clout, M., deLange, P, Gibbs, G., Given, D., Norton, D., Smith, N. and Stephens, T. 2002. Classifying species according to threat of extinction: a system for New Zealand. Threatened Species Occasional Publication 22, 26 pp. Department of Conservation, Wellington.

[44] Baird, S.J. and Doonan, I.J. submitted. *Phocarctos hookeri* (Hooker's sea lions): incidental captures in New Zealand commercial fisheries 2000/01 and within-season estimates of captures during squid trawling in SQU6T in 2002. New Zealand Fisheries Assessment Report.

fishery[45]. This has focussed on the development of exclusion devices that provide an opportunity for escape to sea lions entering trawl nets. Although exclusion devices are reported to eject sea lions effectively[46], sea lion viability after exclusion is yet to be conclusively demonstrated, and has been the subject of much controversy.

This project will focus on the review and then development and testing of effective mitigation measures aimed at reducing the incidental mortality of sea lions in the southern squid trawl fishery. Progressing previous work including demonstrating the efficacy of exclusion devices is possible within the scope of this project, as is research investigating and applying novel methodologies. It will commence with a workshop to refine the scope of this project and identify the role of industry.

Outputs

- A workshop to refine the scope of this project and identify the role of industry
- Final report detailing background and development processes
- Recommendations for implementation and future refinement of the techniques developed.

Cost recovery information

- Fish stock: SQU6T
- F(CR) Rules: Item 4 (100% industry)
- Project Costing: $60,000-$70,000 (may be extended a year).

[45] Gibson, D. and Isakssen, B. 1998. Functionality of a full-sized marine mammal exclusion device. Science for Conservation 81. Department of Conservation, Wellington.

[46] Hilborn, R. and Starr, P. 2000. Estimating the effectiveness of sea lion excluder devices (SLEDs). Working paper for discussions on decision rules for deployment of marine mammal exclusion devices, MMEDs, produced for the Squid Fishery Management Company Ltd., March 2000.
MacKenzie, D. I. 2003. Research on sea lion exclusion device efficiency: final report. Final Research Report for Ministry of Fisheries Research Project MOF2002/01D.

Appendix One: Research Costs and Cost Allocation

Project	Research costs[47]	Admini-stration costs	Depart-mental contribution	Nett cost	Fisheries (Cost Recovery) Rules	Industry cost	Crown cost	Fish stocks to be levied	
Fishing interactions								**QMS species**	**Other Species**
Observer project	$766,309	$71,425	$0	$837,554	Item 8 (100% industry)	$837,554	$0	See other table for details	
Seabird autopsy project	$90 000	$19,469	$0	$109,469	Item 4 (100% industry)	$109,469	$0	SQU6T, LIN ,2,3,4,5,6,7 HOK 1, JMA 3,7, SNA1,	BIG, STN, YFN, SCI
Electronic monitoring trial in fisheries in which observer coverage is difficult to achieve	$37,000	$8,004	$45,004	$0	Item 4 (100% industry)	$0[48]	$0 (other than departmental contribution)		
CSP observer and marine mammal autopsy project data review	$30 000	$6,490	$0	$36,490	Item 4 (100% industry)	$36,490	$0	SQU6T, LIN ,2,3,4,5,6,7 HOK 1, JMA 1,7, SBW 6A, 6B, 6I, 6R EMA 1, 7, KAH 1, 8	BIG, STN, YFN, SKJ, SCI
Population studies									
Sea lions	$250 000	$54,082	$0	$304,082	Item 2 (90% industry)	$273,674	$30,408	SQU6T	

[47] Cost ranges for some projects have been estimated (see project descriptions). This table shows the indicative costs used in the levy cost allocation model.
[48] See project description.

Project	Research costs	Admini-stration costs	Depart-mental contribution	Nett cost	Fisheries (Cost Recovery) Rules	Industry cost	Crown cost	Fish stocks to be levied	
Gibson's wandering albatross	$122 000	$26,392	$0	$148,392	Item 3 (50% industry)	$73,196	$73,196	LIN 2,3,4,5,6	STN, BIG, YFN
Antipodean wandering albatrosses	$128,000	$27,690	$0	$155,690	Item 3 (50% industry)	$77,845	$77 290	LIN 2,3,4,5,6	STN, BIG, YFN
Black petrels	$50,000	$10,816	$60,816	$0	Item 3 (50% industry)	$0	$0 (other than departmental contribution)	NA	NA
Population Management Tools									
No projects are currently proposed[49]									
Research into mitigation									
Development and testing of discard management technologies	$50,000 (each year for two years)	$10,816	$0	$60,816	4 (100% industry)	$60,816	$0	Deep water, middle depths and inshore species[50]	

[49] No population management projects are proposed to be levied for in 2004/05, but population management plans may be developed using existing funds, depending on the outcome of a review of the appropriateness of these instruments.

[50] **Deep Water** – OEO 1, 3A, 4, 6, ORH 1, 2A, 2B, 3A, 3B, 7A, 7B; **Middle Depths** – BAR 1, 4, 5, 7, CDL 1, 2, HAK 1, 4, 7, HOK 1, LIN 1, 2, 3, 4, 5, 6, 7, RBY 1, 2, SBW 6A, 6B, 6I, 6R, SKI 1, 2, SQU 1T, 6T, SWA 1, 3, 4, WAR 1, 2, 3, 7, 8, WWA 1, 2, 3, 4, 5, 6, 7, 8, SCI 1, 2; **Inshore –** BNS 1, 2, 3, 7, 8, BYX 1, 2, 3, 7, 8, ELE 1, 2, 3, 5, 7, FLA 1, 2, 3, 7, GMU 1, GUR 1, 2, 3, 7, 8, HPB 1, 2, 3, 4, 5, 7, 8, JDO 1, 2, MOK 1, 3, RCO 1, 2, 3, 7, RIB 1, 2, 3, 4, 5, 6, 7, SCH 1, 2, 3, 4, 5, 7, 8, SNA 1, 2, 7, 8, SPO 1, 2, 3, 7, 8, STA 1, 2, 3, 4, 5, 7, 8, TAR 1, 2, 3, 4, 5, 7, 8, TRE 1, 2, 7, SPD

Project	Research costs	Admini-stration costs	Depart-mental contribution	Nett cost	Fisheries (Cost Recovery) Rules	Industry cost	Crown cost	Fish stocks to be levied	
Global review of mitigation methods and research	$30,000	$6,490	$16,000	$20,490	4 (100% industry)	$20,490	$0 (other than departmental contribution)	Deep water, middle depths, inshore and pelagic species[51]	
Sea lion mitigation	$62 500 (each year for two years)	$12 874	$0	$75,374	4 (100% industry)	$75,374	$0	SQU6T	
Estimated Totals	$1,615,309	$254,907	$121,820	$1,748,396		$1,565,947	$182,449 (plus departmental contributions)		

[51] **Deep Water** – OEO 1, 3A, 4, 6, ORH 1, 2A, 2B, 3A, 3B, 7A, 7B; **Middle Depths** – BAR 1, 4, 5, 7, CDL 1, 2, HAK 1, 4, 7, HOK 1, LIN 1, 2, 3, 4, 5, 6, 7, RBY 1, 2, SBW 6A, 6B, 6I, 6R SKI 1, 2, SQU 1T, 6T, SWA 1, 3, 4, WAR 1, 2, 3, 7, 8, WWA 1, 2, 3, 4, 5, 6, 7, 8, SCI 1, 2, **Inshore –** BNS 1, 2, 3, 7, 8, BYX 1, 2, 3, 7, 8, ELE 1, 2, 3, 5, 7, FLA 1, 2, 3, 7, GMU 1 GUR 1, 2, 3, 7, 8, HPB 1, 2, 3, 4, 5, 7, 8, JDO 1, 2, MOK 1, 3, RCO 1, 2, 3, 7, RIB 1, 2, 3, 4, 5, 6, 7, SCH 1, 2, 3, 4, 5, 7, 8, SNA 1, 2, 7, 8, SPO 1, 2, 3, 7, 8, STA 1, 2, 3, 4, 5, 7, 8 TAR 1, 2, 3, 4, 5, 7, 8, TRE 1, 2, 7, SPD, **Pelagic –** JMA 1, 3, 7, EMA 1, 2, 3, 7, KAH, KIN 1, 2, 3, 4, 7, 8, RBM, STN, BIG,YFN.,

Observer project cost allocation

Fishery	At sea cost	Direct staff costs	Admini-stration costs	Total	Fish stock to be levied QMS code	Species code
Snapper	$75000	$18187	$8664	$101851	SNA1	
Inshore ling	$100000	$24250	$11552	$135801	LIN 1,2,3 &7	
Deep sea ling	$7500	$1819	$866	$10185		
	$78750	$19096	$9097	$106943	LIN 4,5 &6	
Domestic Tuna	$75000	$18187	$8664	$101851		STN,BIG,YFN
Charter tuna	$10000	$2425	$1155	$13580		STN,BIG,YFN
Hoki	$57500	$13943	$6642	$78086	HOK 1	
Squid trawl	$60000	$14550	$6931	$81481	SQU6T	
Jack mackerel	$15000	$3637	$1733	$20370	JMA7	
Sthn blue whiting	$35000	$8487	$4043	$47530	SBW6A, 6B, 6I, 6R	
Scampi	$50000	$12125	$5776	$67901		SCI 6A, 6B
Purse seine tuna	$3000	$727	$347	$4074	JMA1, EMA1	SKJ, KAH 1, 8
Inshore set net	$50000	$12125	$5776	$67901	SCH 3, 5, 7, SPO 3, 7, ELE 3,5, 7	SPD 3,5, 7
Total	**$616750**	**$149559**	**$71245**	**$837554**		

Appendix Two: Interim Strategic Statement

Conservation Services Programme
Marine Conservation Unit
Department of Conservation
8 March 2004

1. Overview

1.1. *Purpose of Interim Strategic Statement*

The purpose of this Interim Strategic Statement is to provide guidance for the Department's formulation of the 2004/2005 Conservation Services Annual Plan.

This Interim Strategic Statement:
- Identifies the vision and objectives for the Conservation Services Programme;
- Establishes criteria and a framework for the determination of priority projects to be undertaken for the 2004/2005 year; and
- Provides guidance for administration of levied projects.

A comprehensive Strategic Plan and a Five-year Research Plan will be prepared and consulted on, to guide the development of the 2005/06 and subsequent annual plans. The development of a Strategic Plan will also address the Office of the Auditor General recommendation 8.7 that a strategic plan be prepared by the Department of Conservation for the Conservation Services Programme[52]. This recommendation was one of a number of findings that resulted from a process initiated under the Public Audit Act 2001.

1.2. *Scope*

Commercial fishing activities are among those human activities which may result in adverse impacts on protected species, for example, injury and/or death due to physical trauma or drowning. Commercial fishing may also result in habitat modification/displacement, food competition and behaviour modification. Section 63B Wildlife Act 1953 and sections 26(4) and 16 of the Marine Mammals Protection Act 1978, however, provide defence for the incidental and accidental death or injury to protected species. The Department is primarily responsible for protected species. The Fisheries Act 1996 allows for the Crown to cost recover for conservation services addressing adverse effects on protected species. The Fisheries Act defines protected species with reference to the Wildlife Act 1953 and Marine Mammals Protection Act 1978[53].

[52]Brady, K.B. (2002). A Review of the Administration of the Conservation Services Programme. Office of the Auditor-General.
[53] Protected species are defined in S. 2 Fisheries Act 1996 as
(a) Any marine wildlife as defined in section 2 of the Wildlife Act 1953 that is absolutely protected under section 3 of that Act:
(b) Any marine mammal as defined in section 2(1) of the Marine Mammals Protection Act 1978:

The scope of the Interim Strategic Statement is restricted to the consideration of those projects that are by definition 'conservation services'. Conservation services are defined in S.2 of the Fisheries Act 1996 as:

> *Outputs produced in relation to the adverse effects of commercial fishing on protected species, as agreed between the Minister responsible for the administration of the Conservation Act 1987 and the Director-General of the Department of Conservation, including—*
> *(a) Research relating to those effects on protected species:*
> *(b) Research on measures to mitigate the adverse effects of commercial fishing on protected species:*
> *(c) The development of population management plans under the Wildlife Act 1953 and the Marine Mammals Protection Act 1978.*

For clarification, conservation services may include research undertaken on measures to avoid, remedy or mitigate adverse effects of commercial fishing on protected species. This interpretation is consistent with cost recovery principles (S.262 (d) Fisheries Act 1996) and the non exclusive definition of conservation services (S.2 Fisheries Act 1996).

Hence, the scope of the Interim Strategic Statement is limited to addressing activities that:
- are undertaken by the commercial fishing industry,
- occur within New Zealand's fisheries waters[54], and
- have adverse effects on protected species.

The Department of Conservation undertakes wider protected species and environmental management initiatives but these are beyond the scope of the Conservation Services Programme mandate, and therefore the Interim Strategic Statement does not intended to provide direction or guidance in this area. As an interim statement with a one-year timeframe, guidance is limited to conservation services programme research/projects to be undertaken in the immediate future (2004/2005 year). Due to the limited timeframe, guidance is not provided on matters such as process issues and research planning cycles. Further guidance will be provided on consultation policy in the Strategic Plan. Development of the Strategic Plan will occur in time to guide the formulation of the 2005/2006 Annual Plan, replacing this Interim Strategic Statement.

Section 5 of the Fisheries Act specifies obligations with respect to provisions in the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 requiring consistency with the latter Act. The Department of Conservation must also *give effect to the principles of the Treaty of Waitangi* under s.4 of the Conservation Act 1987[55]. The Ngai Tahu Claims Settlement Act 1998 also contains consultation provisions (s.293) that must be adhered to when managing protected species that Ngai Tahu has identified as taonga species.

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[54] New Zealand fisheries waters means—
(a) All waters in the exclusive economic zone of New Zealand:
(b) All waters of the territorial sea of New Zealand:
(c) All internal waters of New Zealand:
(d) All other fresh or estuarine waters within New Zealand where fish, aquatic life, or seaweed that are indigenous to or acclimatised in New Zealand are found (Fisheries Act 1996 S.2)

[55] However, if principles of the Treaty conflict with conservation principles, conservation principles will prevail (Ngai Tahu Trust Board vs Director General of the Department of Conservation [1995 – NZLR 553]).

1.3. *Relationships with other initiatives*

The Conservation Services Programme exists in a wider context. Provisions that exist or related areas to this work include:

i. Government policy initiatives, such as:
   - The Oceans Policy (multi-agency initiative)
   - The Biodiversity Strategy (with the Ministry for the Environment)
   - National Plan of Action to Reduce the Incidental Catch of Seabirds in New Zealand Fisheries (with the Ministry of Fisheries);

ii. Associated policy work within the Department of Conservation , such as:
   - The Department of Conservation Statement of Intent 2002 – 2007;
   - New Zealand sea lion and Hoiho species recovery plans;
   - Chatham Island Threatened Birds Recovery and Management Plans;
   - Action Plan for Seabird Conservation in New Zealand;
   - Draft General Policy for Conservation Act and Related Legislation;
   - Draft Marine Mammals Action Plan;

iii. Non Conservation Services Programme funded research programmes being run through the Department of Conservation's Science and Research Unit and conservancy based research;

iv. Research programmes run by the Ministry of Fisheries, coordinated by its Aquatic Environment Working Group;

v. Other government funded research, such as through the Foundation for Research, Science, and Technology;

vi. Industry-led initiatives;

vii. Joint initiatives, such as Southern Seabird Solutions;

viii. Conservation projects lead by environmental groups;

ix. International conventions New Zealand has become signatory to[56].

Building an understanding of the context within which Conservation Services Programme operates in relation to other initiatives is a clear priority and will be developed as part of the Strategic Plan. In particular, work is being undertaken to consider the role of the Conservation Services Programme in the implementation of the seabird National Plan of Action, and with the aquatic environment team within the Ministry of Fisheries to coordinate industry funded research.

1.4. *Department of Conservation Policy for Protected Species Management*

The Department of Conservation policy for protected marine species is as follows[57]:

Protected marine species will be managed to provide for their long term viability and recovery throughout their natural range.

[56] For example: United National Convention of Environment and Development 1992 (Rio Declaration), including Agenda 21, Convention on Biological Diversity 1992 (CBD), Convention on the Conservation of Migratory Species of Wild Animals 1979, Agreement on Conservation of Albatross and Petrels 2001, United Nations Convention on the Law of the Sea 1982 and Convention for the Conservation of Antarctic Marine Living Resources.

[57] Department of Conservation (August 2003): Draft General Policy Conservation Act and Related Legislation Policy 4.4.2 (a)

This policy reflects the Department's obligations relative to the broad management of protected species. The Conservation Services Programme is not responsible for species management *per se*, but is focused on specific interactions with commercial fishing. The Conservation Services Programme administered by the Department must therefore be consistent with, and contribute towards the overall goal for protected species management. The Conservation Services vision, however will be more narrowly focussed than the Department's overarching policy. Where protected species populations do not require 'recovery', ongoing protection remains important to ensure their long term viability.

1.5. *Vision for Conservation Services Programme*

Commercial fishing undertaken in a manner that does not compromise the protection and recovery of protected species in New Zealand fisheries waters.

Fishing activities may cause a variety of adverse effects on protected species, such as through drowning in trawls or set nets or through being entangled on longlines. These species include seals and sea lions, dolphins and whales, albatrosses, petrels and penguins. Impacts on some of these species may threaten their long term survival. The commercial fishing industry is not however, solely responsible for impediments to the protection and recovery of protected species within New Zealand fisheries waters. International fishing affects some species of seabirds (principally albatross and petrel species) occurring in waters beyond the EEZ. Recreational fishing causes the deaths of protected species (such as in set nets), and natural disease and other events may also prevent the full recovery of protected species. Any adverse effects of commercial fishing within the New Zealand fisheries waters must, however, be addressed and not unduly prevent protection and recovery of these species to levels and distribution that provide for their long term viability.

1.6. *Objectives for the Conservation Services Programme*

1. The nature and extent of any adverse effects from commercial fishing activities on protected species in NZ fisheries waters are understood.

Understanding the adverse effects themselves is fundamental to inform the research into development of appropriate mitigation responses and is valuable in the formulation of other solutions such as population management tools.

2. Effective solutions are developed to mitigate any adverse effects of commercial fishing on protected species in NZ fisheries waters.

Effective solutions may include a range of tools including mitigation techniques, such as equipment or fishing practices that prevent or reduce adverse effects on protected species from commercial fishing activities. In some circumstances, population management plans may be used to address adverse effects.

1.7. *Policy framework for Conservation Services Programme*

1.7.1. Conservation Services Programme mandate

The work mandated by the Conservation Services Programme (see section 1.2) may be grouped into two distinct but related categories:

(a) research into adverse effects of commercial fishing on protected species; and
(b) research and development of measures to mitigate the adverse effects of commercial fishing on protected species.

Note that this framework considers the development of population management tools (including population management plans and collection of population data and development of population models to support and inform the population management plan) to be one of a range of solutions to address these adverse effects. Accordingly, the Interim Strategic Statement has utilised this framework in the development of objectives and policies. Objective 1 focuses on research relating to adverse effects and objective 2, research into, and development of solutions. The relationship between these two areas of work is illustrated diagrammatically in Figure 1.

Research into effects includes:

i. research into fishing interactions (direct and indirect impacts) on individuals of a protected species; and
ii. research into the adverse effects of commercial fishing on protected species populations.

This research collectively contributes to understanding the nature and extent of adverse effects of commercial fishing on protected species respectively.

Research and development of measures to mitigate the adverse effects of commercial fishing on protected species includes:

i. research into, and development of mitigation methods, e.g. alternative fishing techniques, practices, equipment;
ii. development of population management tools, including population management plans and population models.

While research into adverse effects is an intrinsic component of the Conservation Services Programme, this research should also inform, and contribute to, the development of solutions to address the adverse effects that are occurring. The relationship between research into effects and development of solutions is illustrated in Figure 1 by arrows indicating how 'effects' research informs the development of solutions. For example, understanding the nature of the fishing interaction is a prerequisite to the development of effective mitigation solutions, understanding the impact on the total population, of that interaction is not. An understanding of the severity of the impact will guide the policy response, such as whether regulation is needed but effective research into mitigation measures ensures the resolution of the issue. Figure 1 also illustrates feedback loops where solutions such as population management tools, will inform the research initiatives related to understanding effects.

Conveying the results of research and development is an important component of the research cycle of investigation into effects and solutions and is an important part of the Conservation

Services Programme. However, implementation of the results of this Programme is the responsibility of other agencies and processes. For example, while mitigation methods may be developed and trialed through the Conservation Services Programme, implementation will be voluntary by industry or required through regulations or management actions under various legislation.

1.7.2. Conservation Services Programme Prioritisation

Due to the diversity of projects that may be undertaken within the Conservation Services Programme, clear priorities are required to develop a cohesive and cost-effective programme.

Priorities between protected species will first be established to determine where effort should be concentrated. Then, priorities will be established for the type of projects to be undertaken in relation those species (fishing interaction, population studies, mitigation or population management tools).

Hence, two levels of prioritisation policy have been developed in the Interim Strategic Statement. Species prioritisation (Policy section 2.1) will be undertaken primarily for each of the following broad groups:

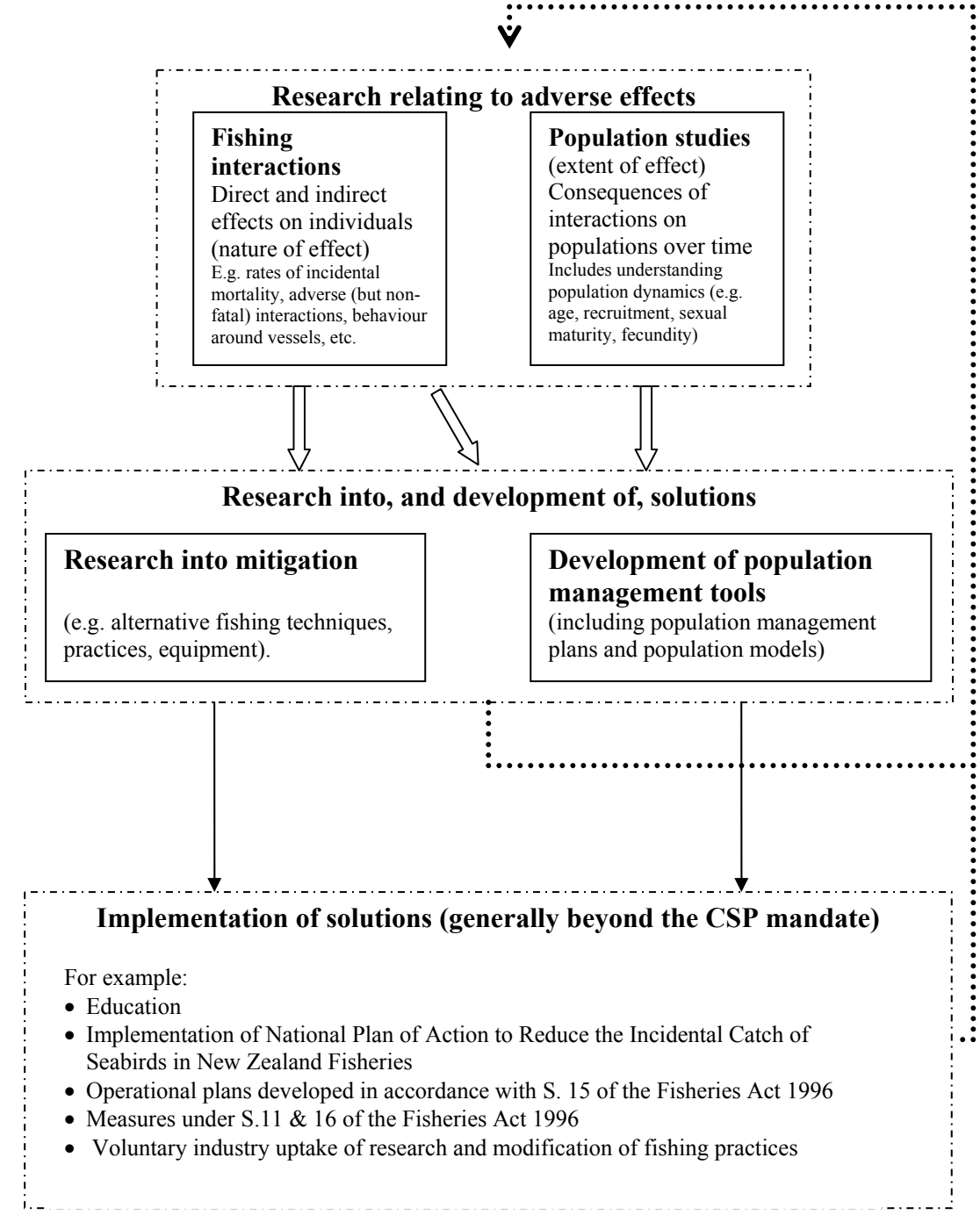
a) seabirds;
b) marine mammals - cetaceans (whales & dolphins/porpoises) and pinnipeds (seals[58]); and
c) coral, reptiles and black spotted grouper.

A complete system for prioritisation between these species groups has not been developed, but some direction is provided.

Following the identification of priority species, decisions on areas of research most appropriately undertaken will be made in accordance with Policy section 2.2.

[58] For clarification, seals means all seal species and includes New Zealand Sea lion.

Figure 1: Illustration of the components of the Conservation Services Programme



⇨ illustrates that research into adverse effects informs research into, and development of, solutions.

⇢ illustrates that the results of research into, and development of, solutions and their implementation will in turn inform ongoing research relating to adverse effects.

→ illustrates implementation of results of research which is generally beyond the Conservation Services Programme.

2. Priorities for the 2004/2005 Annual Plan

Given the diversity of protected species within New Zealand fisheries waters and the range of possible adverse effects of commercial fishing on these marine protected species, identifying clear priorities for the Conservation Services Programme is critical.

Priorities are addressed at two levels:
- the protected species where effort should be focused;
- the type of research to be undertaken on priority species.

2.1. *Species prioritisation*

The vision and objectives for the Conservation Services Programme focus on the impact of commercial fishing on protected species in New Zealand fisheries waters. Consistent with this approach, prioritisation will initially be undertaken on the basis of species.

Policy 1: Prioritisation for conservation services work on seabird and marine mammal species will be determined through the evaluation of:

(c) threat status[1]; and

(d) level of fisheries interaction in New Zealand fisheries waters;

in accordance with methodology specified in section 4.

Policy 2: Following the initial identification of priority seabird and marine mammal species, consideration will be given to elevating the priority for specific species where:

(a) the species under consideration is, in order of priority:
   i. endemic to New Zealand or
   ii. a migratory species where significant annual proportions or key parts of the life cycle are spent in New Zealand fisheries waters

(b) knowledge of the level of fishing interaction is limited; and species behaviour and commercial fishing activity indicates that interaction is plausible;

(c) statutory or government priorities indicate a higher level of prioritisation is required.

[1] Threat status will be determined in accordance with Molloy et al. (2002) *Classifying species according to threat of extinction – A System for New Zealand* Threatened Species Occasional Publication 22, Department of Conservation, and R Hitchmough (compiler) (2002) *New Zealand Threat Classification Systems Lists*, Threatened Species Occasional Publication 23, Department of Conservation. http://www.doc.govt.nz/publications/004%7escience-and-research/Biodiversity-Recovery-Unit/index.asp#occ-pub
Note that for species classified as vagrant, migrant and coloniser in accordance with Molloy et al. (2002), the IUCN classification system will be used to determine threat status. Further analysis will be required on how threat status of protected species classified using Molloy et al. (based on New Zealand populations) will be rationalised with threat status derived from IUCN criteria (vagrants, migrants, colonisers based on global populations) for the purposes of prioritisation. This will be undertaken to inform the Strategic Plan.

Policy 3: The following species will not initially be considered a priority for research:

(a) Black coral: all species in the Order Antipatharia;
(b) Red coral: all species;
(c) Black spotted grouper (*Epinephelus daemelii*); and
(d) marine reptiles.

Note that while the Conservation Services Programme is unable to address the adverse effects of commercial fishing on the seabed and benthos generally, black coral and red coral fall within the scope of the Conservation Services Programme.

2.2. *Research/Project Prioritisation*

Once higher, medium and lower level priority species have been identified in accordance with species prioritisation policy, work will be directed to the following key areas:

a) The adverse effects of commercial fishing on protected species,
   i. research relating to fishing interactions (direct and indirect effects on individuals); and
   ii. research relating to effects on populations (long term).

b) The development of solutions; including:
   i. the mitigation of adverse effects; and
   ii the development of population management tools.

Policy in this section has been grouped into two categories:

- general policy that applies across all research areas identified in (a) and (b) above
- specific policy for each research area to prioritise research effort amongst the four broad research areas.

2.2.1 General Research and Project Prioritisation Policy

Undertaking research is often a resource and time intensive exercise. Therefore, regardless of the nature of study, research should be undertaken in a manner that maximises the utility of data gathered and with some consideration of relative value.

Policy 4: Priority will be given to research and project proposals that:
(a) utilise opportunities for multi-species initiatives to enhance the application and cost-efficiency of research, and to provide for integrated management; or
(b) address information gaps for the species where this knowledge will significantly enhance the value or application of existing knowledge (leverage).

Consideration of commencing new long term studies (3 years or longer) will be deferred until 2005/2006 in order to avoid any compromise to the Strategic and Research Plans.

Policy 5: Any new long term research projects will only be commenced following approval of the Strategic Plan.

2.2.2 Fisheries Interactions

Research into effects of fishing interactions is a core aspect of the Conservation Services Programme and also assists delivery of other conservation services such as research into mitigation of those effects and the development of population management plans.

Research into fishing interactions may include investigation of direct and indirect adverse effects. Direct impacts on individuals of species may include incidental mortality events that occur following interaction with fishing equipment such as trawl nets and warps, longlines or set nets. Indirect effects may occur where fishing depletes the food of protected species or it may result in the modification of habitat critical for all or part of the life cycle of the protected species.

(a) Direct effects on individuals

Part 12 of the Fisheries Act 1996 contains provisions for the establishment of an observer programme to carry out conservation and fisheries services. The Conservation Services Observer Project, using Ministry of Fisheries observers, is the main source of information on the impacts of fisheries on protected species. The objectives and implementation of the Conservation Services Observer Project are currently being reviewed (in parallel with the Ministry of Fisheries review of its Observer Programme). The results of these reviews will be incorporated into the Conservation Services Programme Five-year Research Programme.

The two main elements of the current Project include:
- Monitoring: understanding fisheries effects on particular species;
- Research investigation: projects investigating specific fisheries/species interactions.

Some base level of monitoring is required to establish changes in fishing practices and interactions with protected species. The Conservation Services Programme now has a reasonably good understanding of the interactions in certain fisheries and methods, such as longline fisheries, but have limited understanding of the nature of interactions with others, especially the inshore, small boat fisheries. New technologies, such as video monitoring, show considerable potential for increasing the effectiveness, and reducing the cost of monitoring.

Policy 6: The Conservation Services Observer Project will seek to: (a) provide an appropriate level of observation of fisheries where interactions are thought to be generally identified; (b) enhance observations in fisheries where observations have not been undertaken historically or, where understanding of interactions has not yet been obtained;

(c)	gather data that will facilitate understanding of nature of fisheries interactions and lead to development of mitigation techniques; and
(d)	support the development and trialing of mitigation techniques, and evaluation of the effectiveness of mitigation methods.

Policy 7: The development, implementation, and verification of new monitoring methodologies will be supported.

A considerable amount of data has been collected by the Conservation Services Programme since it commenced in 1995/96. The utility of previously collected datasets should be maximised.

Policy 8: Emphasis will, at this stage, be given to projects that analyse and publish existing observer data.

(b) Indirect effects on individuals

Commercial fishing may also have indirect effects on protected species. The role of the Conservation Services Programme in researching indirect effects on protected species will be identified through the Strategic Plan.

Policy 9: Research into the indirect effects of fishing on protected species will only be commenced following approval of the Strategic Plan.

For the purposes of this policy "indirect effects" are considered to include adverse impacts on individuals or populations of protected species other than incidental mortality and includes habitat modification/displacement, food competition and behaviour modification.

2.2.3 Population Studies

Estimating the effects of commercial fishing on populations of protected species includes analysis of the cumulative loss of individuals through incidental mortality as a result of direct commercial fishing interactions and indirect impacts such as food competition, behaviour modification, and habitat modification.

While population studies are important for the management of threatened populations, in isolation they cannot confirm whether, or the extent to which, commercial fishing is having impacts, as compared to other impacts or natural events. Population studies do not necessarily link fisheries interactions with population trends. Other studies are needed to provide that linkage. Population studies do, however, provide important baseline information upon which management decisions are based.

Policy 10: Population studies will be limited to those situations where results, either:
(a) assist in the development of population management tools; and/or
(b) assist in implementation of the National Plan of Action[2]; and/or
(c) assist in assessing the extent to which NZ commercial fishing interactions are causing an adverse effect on the population.

2.2.4 Research into mitigation

Understanding the effects of commercial fishing on protected species is critical but, on its own, will not contribute to a reduction of those impacts. Effort must be made to mitigate adverse effects such as through utilising best practice, including alternative ways of fishing or refining existing methods to reduce adverse effects, for example, tori lines to scare birds away when longlines are being set or retrieved, offal management and night setting.

Policy 11: High priority will be given to projects that contribute to the research, development and conveying research results of effective mitigation methods.

2.2.5 Development of population management tools

The Fisheries Act specifically defines the development of population management plans (PMPs) as a "conservation service". Work has previously been commenced on the development of population management plans for three protected species:

- Hector's dolphin;
- New Zealand sea lion; and
- Wandering albatross.

The process of preparing effective PMPs is not straight forward given the wider context. By contrast, the absence of a PMP for New Zealand sea lions has generated additional difficulties and led to the necessity to develop an operational plan for the managing the interaction of these sea lions with fishing operations in the Squid 6T quota management area.

Policy 12: Levies for development of population management tools will only be commenced following approval of the Strategic Plan.

2.3. *Conveying Research Results*

With the core focus of the Conservation Services Programme consisting of research, both into effects on commercial fishing on protected species, and methods to mitigate these adverse effects, conveying the results of research becomes an important part of the programme.

[2] National Plan of Action to Reduce the Incidental Catch of Seabirds in New Zealand Fisheries

Advising interested parties of the results of research fulfils several functions:

(a) a level of accountability to demonstrate the delivery of purchased services is provided;
(b) a greater level of understanding of interactions, species, and mitigation techniques is provided; and
(c) understanding implementing mitigation techniques are facilitated.

The type of reporting used for each of these functions will vary. For example, a researcher presenting scientific findings of research/publications at a technical working group, is an important way of conveying information and would address (a) and (b) above. However, interpreting research results and conveying this message to fishers to assist uptake of mitigation practices will require an alternative approach to delivery of this information, for example, through the use of Advisory Officers.

Both processes conveying the results of research are an important part of the Conservation Services Programme.

Policy 13: The Conservation Services Programme will ensure that the outputs of funded projects are conveyed effectively to the appropriate audience in a timely manner, either as part of the funded project or through collective reporting mechanisms.

3 Administration

Administration of the Conservation Services Programme is quite complex. Funding is received indirectly from:

- fisheries levies on industry;
- contributing Crown research funding; and
- a Crown contribution for administration.

The nature of environmental research means that projects will often run for more than one year and some funding may need to be carried over from year to year. Much of the conservation services funding is targeted to specific projects.

It is critical that the administration of the Programme is both transparent and efficient.

A review of the administration of the Conservation Services Programme by the Office of the Auditor-General in December 2002[3] made a number of recommendations. The Department of Conservation's is committed to implementing these recommendations, and it progress will be reported separately and implemented through the Strategic Plan.

3.1. *Cost recovery*

The cost recovery regime is administered under Part 14 of the Fisheries Act 1996. Under s.261, the Crown has the power to recover its costs in respect of the provision of conservation services. Cost recovery must be consistent with cost recovery principles stipulated in s.262 of the Act and the Fisheries (Cost Recovery) Rules 2001 have been established to guide cost recovery. The actual recovery of costs of conservation and fisheries services is undertaken through mechanisms administered by the Ministry of Fisheries.

Regulations provide that the percentage of costs to be borne by industry for:

- research into protected species populations: the proportion of the risk to populations by commercial fishing compared to other human sources of risk;
- research into protected species populations where the relative risk has not been estimated: 50/50 of the costs;
- services to avoid, remedy or mitigate these effects: 100%;
- observer coverage: 100%;
- aquaculture services: 100%

The Auditor-General noted that "the cost recovery rules do not constitute a good basis for reaching agreement [on the risk posed by commercial fishing]. There is an apparent assumption that risks to populations can be estimated without undue uncertainty and dispute. That is clearly not the case."[4] Policy guidance on cost allocation will be developed in the Strategic Plan which will include clarification about 'adverse effects' and the division between research appropriately levied for under the conservation services programme, and

[3] Brady, K.B. (2002). A Review of the Administration of the Conservation Services Programme. Office of the Auditor-General.
[4] Brady (2002:41).

research more appropriately undertaken as public good research. The application of this policy will be through subsequent annual Conservation Services Plans.

The Auditor-General also recommended that DoC improves guidance on the methodology for estimating risk to protected species population from human interventions. The Conservation Services Programme will investigate options for estimating risk to protected species populations from human interventions in the policy work leading to the Strategic Plan.

3.2. *Consultation processes*

Conservation Services stakeholders were advised on 19 December 2003 of the timetable for the development of the 2004/05 Conservation Services Annual Plan as follows:

16 January 04	Interim Strategic Statement and outline of projects released to stakeholders
11 February 04	Workshop on Interim Strategic Statement and outline of projects
8 March 04	Draft 2004/2005 Conservation Services Annual Plan released to stakeholders
9 April 04	Stakeholder submissions on Draft Annual Plan due
21 April 04	Meeting with stakeholders to discuss submissions and for the Department to seek clarification and respond to matters raised.
14 May 04	Final 2004/2005 Conservation Services Annual Plan forwarded to Minister of Conservation
31 May 04	Minister of Conservation advises Minister of Fisheries details of the 2004/2005 Conservation Services Annual Plan for levy purposes.

The Conservation Services Programme will report regularly on research budgets, timetables and progress.

3.3. *Tendering*

The Conservation Services Programme tendering process will follow government procurement guidelines[5]. These guidelines require government departments to:

- notify the New Zealand Industrial Supplies Office (NZISO) of intention to contract for supplies of goods or services valued at over $50,000 (excluding GST), whether by open or closed tender;
- consult the NZISO when reviewing preferred supplier lists for purchases over $50,000 (excluding GST); and
- notify the NZISO of any intended purchases which are to be the subject of a public call for tender or registration of interest. These are posted on the NZISO's Government Electronic Tenders Service (GETS), in addition to other advertising

[5] Refer http://www.med.govt.nz/irdev/gov_pur.html

Tendering for Conservation Services Programme projects will be undertaken in accordance with Department of Conservation tendering policy which provides that for services between $5000 - $15000 requirements to tender are discretionary. Generally, for services of $15 000 and over, an open tender process will be followed.

3.4. *Changes to the Annual Plan*

There are a variety of ways in which the Conservation Services Plan may change in the course of the year, such as where difficulties arise in obtaining suitable providers for projects that have been specified in the Plan and levied accordingly; or where the cost of delivery of projects may vary from those levied for in accordance with the Annual Plan.

This may lead to an over recovery where levied services have not been delivered, or were delivered at a lower cost than projected, and potentially under recovery where cost of projects were underestimated or new/additional services are needed. This raises issues of consultation regarding changes to the work programme and accounting for changed expenditure. In 2003, the Government and the fishing industry agreed to a resolution of past under and over recovery. Further information can be found at: http://www.fish.govt.nz/current/cost-recovery/index.html.

3.4.1. Consultation

Where significant changes to a project are proposed, changes will be required to be consulted on in accordance with the agreement formed between the Ministry of Fisheries, New Zealand Seafood Industry Council and the Department of Conservation on management of under and over recovery of cost recovery levies. Principles for Management of Under and Over Recovery of Cost Recovery Levies – effective post 1st July 2002 stipulates the materiality threshold and the consultation requirement for each type of service levied for.

Generally, where an under or over recovery has occurred relating to expenditure, a two week consultation turnaround is required. Consultation timeframes have not been specified for scenarios where new outputs were produced that had not been previously identified in the Annual Plan. The level at which the materiality threshold is triggered varies from nil variance to internal estimates, to the lesser of: $100 000 (excl GST); or 25% estimated cost of the project; or 15% of annual levy for relevant fish stocks, depending on the type of service which is experiencing variance.

3.4.2. Accounting for changed expenditure

While the resolution of over- and under-recovery is likely to occur at the end of each financial year, there is also an option of correcting over and under recovery through levy regulations promulgated in April of each year.

Administration of the project will endeavour to effect financial changes that occur in the first half of the year through the April levy regulations, otherwise amendment will be made in line with the by the Principles for Management of Under and Over Recovery of Cost Recovery Levies.

4. Species prioritisation

4.1 Seabirds

The two groups of factors are multiplied to produce a final ranking. Rankings are currently assessed with 0 as highest priority for research.

1. Threat Classification Ranking – Molloy et al. 2002

Threat Classification	Rank
Nationally Critical	0.5
Nationally Endangered	0.75
Nationally Vulnerable	1
Serious Decline	2
Gradual Decline	3
Range Restricted	4
Sparse	5
Non Threatened	6

2. Fishery Factor 1. Number of fisheries in which the species is recorded caught (NPOA Appendix)

Number of Fisheries	Rank
1 Fishery	1
2 Fisheries	0.75
3 or more Fisheries	0.5

3. Number of individuals of a species caught (Robertson compendium of 1996 – 2001 autopsies).

Total Number of Individuals Caught (5 year period)	Rank
Ones (between 1-10)	2.5
Tens (10 – 100)	2
Hundreds (>100)	1

4. Population size (various sources)

Number of pairs	Rank
<750	0.25
<1,250	0.5
<2,500	0.75
<5,000	1
<10,000	2
<40,000	3
<100,000	4
<500,000	5
>1,000,000	6

Output:
Rather than the system being a black box producing 'answers', this model will be used to sort out groups of 'higher', 'medium' and 'lower' priority species for research.

4.2 Marine mammals

In contrast to seabirds, relatively few species of marine mammals interact directly with commercial fishing activities. Characteristics of these species and limitations on data availability (especially for cetaceans) render application of methodology outlined in 4.1 inappropriate for marine mammals.

Interim assessment of priorities for marine mammals will be based upon threat classification status of those mammals where a level of interaction with commercial fishing activities has been recorded.

Marine mammals with recorded interactions with commercial fishing activities

Species - Seals	**Threat Classification**	**Frequency of Interaction recorded[6]**
New Zealand Fur seal	Not threatened (recovering, secure overseas)	Frequent
New Zealand sea lion	Range restricted (conservation dependent, stable, human induced)	Frequent
Southern Elephant Seal	Nationally critical (threatened overseas, human induced)	Rare
Species - Whales		
Pilot Whale	Migrant (data poor)	Rare
Species - Dolphins		
Bottlenose Dolphin	Not threatened (secure overseas)	Rare
Common Dolphin	Not threatened (secure overseas)	Moderate
Dusky Dolphin	Not threatened (secure overseas)	Rare
Hector's Dolphin	Nationally vulnerable, (conservation dependent) [Note: Maui's dolphin: Nationally critical (conservation dependent, human induced)]	Rare

Similarly to that for seabirds, the prioritisation of marine mammals will be undertaken through consideration of the threat status of the species, and the level of fishing interaction recorded. The significance of the fisheries interactions (and therefore the priority for the species) cannot be derived from the frequency alone, but must be assessed in reference to the population size and threat status of the species. Prioritisation methodologies for marine mammals will be more fully considered for the Strategic Plan.

[6] Interactions as returned through the observer programme: frequent interactions = >50 animals/yr reported, moderate interactions = 10-50 animals/yr reported, rare = <10 animals/yr reported. Note that this figure does not in itself reflect the significance of the impact upon the species population.

Appendix Three: Legislation and Guidelines used for the Formulation of this Plan

The following is a summary of legislative provisions which guide the development and delivery of the 2004/2005 Conservation Services Plan.

Conservation services have been defined in the Fisheries Act 1996 as follows:

conservation services means outputs produced in relation to the adverse effects of commercial fishing on protected species, as agreed between the Minister responsible for the administration of the Conservation Act 1987 and the Director-General of the Department of Conservation, including—
(a) Research relating to those effects on protected species:
(b) Research on measures to mitigate the adverse effects of commercial fishing on protected species:
(c) The development of population management plans under the Wildlife Act 1953 and the Marine Mammals Protection Act 1978

For the purposes of the Fisheries Act, **protected species** have been defined as meaning:

(a) Any marine wildlife as defined in section 2 of the Wildlife Act 1953 that is absolutely protected under section 3 of that Act:
(b) Any marine mammal as defined in section 2(1) of the Marine Mammals Protection Act 1978:

The Crown is enabled to recover the costs of conservation and fisheries services in accordance with Part 14 of the Fisheries Act 1996. The **principles** under which costs may be recovered are specified in S262 as follows:

Cost recovery principles
The cost recovery principles under this Part are as follows:
(a) If a conservation service or fisheries service is provided at the request of an identifiable person, that person must pay a fee for the service:
(b) Costs of conservation services or fisheries services provided in the general public interest, rather than in the interest of an identifiable person or class of person, may not be recovered:
(c) Costs of conservation services or fisheries services provided to manage or administer the harvesting or farming of fisheries resources must, so far as practicable, be attributed to the persons who benefit from harvesting or farming the resources:
(d) Costs of conservation services or fisheries services provided to avoid, remedy, or mitigate a risk to, or an adverse effect on, the aquatic environment or the biological diversity of the aquatic environment must, so far as practicable, be attributed to the persons who caused the risk or adverse effect:
(e) The Crown may not recover under this Part the costs of services provided by an approved service delivery organisation under Part 15A.]

Section 263 of the Act sets out procedures for promulgating cost recovery rules:

(1) The Governor-General may from time to time, by Order in Council made on the recommendation of the Minister, make rules relating to the imposition of levies under this Part.
(2) The rules may—
(a) Prescribe the proportion of costs of conservation services and fisheries services to be recovered as levies:
(b) Prescribe who must pay levies:
(c) Prescribe how the costs are to be apportioned between the persons who must pay the levies.
(3) Without limiting anything in subsections (1) and (2), different rules may apply in respect of different classes of persons, stocks, quota management areas, fishery management areas, conservation services, fisheries services, or any combination of them.
(4) Before making a recommendation under subsection (1), the Minister must—
(a) Be satisfied that the rules to which the recommendation relates comply with the cost recovery principles in section 262; and
(b) Have regard to the extent to which conservation services or fisheries services are wholly or partly purchased or provided by persons other than the Crown.
(5) Without limiting the Acts Interpretation Act 1924, no order made under this section is invalid because it leaves any matter to the discretion of any person.

On 10 September 2001 the Governor-General made the Fisheries (Cost Recovery) Rules 2001 ("the Cost Recovery Rules"). Rule 4 deals with the status of rules. Rule 5 provides:

The proportion of costs to be recovered from the Commercial Fishing Industry for the fisheries or conservation services specified in the first column of the Schedule is the proportion set out in the second column of that Schedule."

Rule 6 provides who must pay the levies and the basis for the levy. The Schedule to the Cost Recovery Rules (extract below) provides for the apportionment of costs of fisheries and conservation services. Relevant parts of the Schedule are as follows:

Services	**Percentage of Costs to be Borne by Industry**	**Allocation Between Stocks**
2. Research relating to protected species populations where risk to those populations by human intervention has been estimated	A over B, expressed as a percentage, where- A is the risk to the populations posed by commercial fishing in the EEZ of New Zealand B is the total risk of human interventions on the populations	As in Rule 7(2) or (3)

Services	Percentage of Costs to be Borne by Industry	Allocation Between Stocks
3. Research relating to protected species populations where risk to those populations by human intervention has not been estimated	50%	As in Rule 7(2) or (3)
4. Services (including research) provided to avoid, remedy, or mitigate that portion of the risk to, or adverse effect on, the aquatic environment or biological diversity of the aquatic environment caused by commercial fishing	100%	As in Rule 7(2) or (3)
8. Observer coverage to support stock assessment process and conservation services	100%	As in rule 8
11. Aquaculture services	100%	As in rule 10