Signed-off version

Department of Conservation

Nature and Extent of Conservation Services for the 1995/96 Financial Year

5.7 Conservation Services

5.7.1 Introduction

The Fisheries Act 1983, in section 107EA(1), allows the Crown to recover its costs in respect of the provision of conservation services being:-

i) Research relating to the effects on any species protected by any enactment specified in the First Schedule to the Conservation Act 1987 of by-catch resulting from commercial fishing:

ii) The management measures necessary to avoid, remedy or mitigate the adverse effects of commercial fishing on any species referred to paragraph (i) of this paragraph:

iii) Any other research or management measures necessary to enable the Minister of Conservation to perform his or her functions and duties under any enactment, where the research or management arises because of the existence of commercial fishing.

These services are known in the Act as 'Conservation Services'.

The Minister of Fisheries is obliged to consult with the Minister of Conservation if any levy is proposed in respect of the conservation services. Such a levy is proposed for the 1995/96 Fishing Year.

5.7.2 Conservation Services

The Minister of Conservation has indicated his intention to purchase the following Conservation Services during the 1995/96 fishing year.

5.7.2.1 Observer Programmes

5.7.2.1.1 Fisheries Observer Programme - additional observer seadays

Programme: The collection of statistically robust data by fisheries observers on the incidental take of protected marine species.

Project Code: CSL 1A (i)
Project Cost: $259,000
Start Date: 1 October 1995
Completion Date: Ongoing - subject to annual review

Project Objectives:
To obtain statistically reliable information on the number of protected species incidentally taken in a number of commercial fisheries;

To verify the accuracy of reporting by commercial fishers of protected species bycatch;

To identify possible means for mitigating the incidental take of protected species;

To collect other biological information on protected species bycatch.

Objectives for 1995/96:
To meet the project objectives, above, in a number of commercial fisheries where the bycatch of protected marine species occurs vis:

Trawl fisheries for: hoki, southern blue whiting, jack mackerel, hake and squid;
Pelagic longline fisheries for tuna; and,
Commercial inshore gill net fisheries.

To initially implement a level of observer coverage in each fishery to provide a coefficient of variation of 20% in the reliability of the data provided.

Fishery	HOK	SBW	JMA	HAK	NF BY-CATCH	TUNA LL	SCI	OTHER	GILL NET	Total
	Hoki	Southern Blue Whiting	Jack Mackerel	Hake	Non Fish By-catch squid trawl	Tuna Longlining	Scampi	Orange roughy, oreos, long lining	Commercial Inshore	
Additional CSL funding of Observer Programme (sea days)	Amended 200 / 200	97 / 97	66 / 66	30 / 30	196 / 106	98 / 195	— / 0	— / 0	— / 107	801

Observers will be required to treat the collection, packaging and storage of protected species by-catch animals and associated data as a primary task. Inclusion of an observer programme within the Conservation Services Levy (CSL) will allow for increased observer coverage to provide a more statistically reliable assessment of the numbers of protected species incidentally taken.

Cost Estimate:

Observer Costs (including salary, travel, overheads @ $305/day)	244,305
DOC Administrative Costs (@ 6% of total)	14,695
TOTAL	**$259,000**

Background:
The Minister of Conservation intends to purchase adequate observer coverage during fishing year 1995/96 in those fisheries known to incur a significant incidental take of protected marine species to meet his statutory requirements outlined in section 107EA(1) of the Fisheries Amendment Act 1994.

The proposed additional number of observer days to be purchased from the Observer Programme through CSL funding for 1995/96 and their allocation between specific fisheries are shown in the table above.

Final deployment of observer coverage in individual fisheries will be determined following approval by the Minister of Fisheries of the funding level for this project and discussion with the Observer Programme and industry to maximise observer coverage where possible by pairing with industry observers.

The department will advocate for the deployment of observers in the fisheries described to provide an acceptable level of confidence that the observed level of incidental take of protected species is representative of the incidental take rate of the whole fleet.

This programme will be incorporated into the existing Ministry of Fisheries Scientific Observer Programme.

5.7.2.1.2 Fisheries Observer Programme - analyses of coverage required

Programme: To verify the level of observer coverage required for commercial fisheries in project code CSL 1A (i) to enable the collection of statistically robust data on the incidental take of protected marine species.

Project Code: CSL 1A (ii)
Project Cost: $30,000
Start Date: 1 October 1995
Completion Date: 31 January 1996

Project Objectives:
The analysis of existing bycatch data of protected marine species on a fisheries basis to predict the observer coverage required per fishery to provide a coefficient of variation of 20% in the reliability of data provided.

Objectives for 1995/96:
To analyse the existing bycatch data from the hoki, squid trawl and tuna longline fisheries to predict the level of observer coverage required to provide a coefficient of variation of 20% in the reliability of the data provided (NB The southern blue whiting, jack mackerel and hake fisheries will also be analysed if the 1995/96 CSL 1A (ii) resources cover this work).

Cost estimate:

Salaries/operating	28,200
DOC Administrative Costs (@6% of total)	1,800
TOTAL	**$30,000**

Background:
A number of commercial fisheries in New Zealand have been identified by the Non-Fish Interactions Working Group as incurring an incidental take of protected species of marine mammals and seabirds in CSL 1A (i).

Adequate levels of observer coverage of these fisheries will be necessary to enable the Ministers of Conservation and Fisheries to fulfil their statutory obligations. Inadequate observer coverage may result in decisions being taken to impose management controls on fisheries before maximum-allowable levels of fishing-related mortality of protected species are achieved (Type I errors), or conversely, may result in fishing operations continuing after maximum-allowable levels of fishing-related mortality have in fact been exceeded (Type II errors).

This project will provide the funding for a qualified statistician to review the available databases, to assess the levels of observer coverage that would be required to provide statistically robust data on the incidental take of protected species by the commercial fleet. The main objective of the analysis will be to predict the observer coverage levels required to provide a coefficient of variation of 20% in the reliability of observer data for the commercial fisheries listed in CSL 1A (i) to enable reliable estimates of incidental take by the entire fleet to be calculated.

This programme will be contestable.

5.7.2.1.3 Processing and analyses of fisheries observer programme data

Programme: Processing and analyses of fisheries observer data on bycatch of protected marine species.

Project Code: CSL 1B
Project Cost: $30,000
Start Date: 1 February 1996
Completion Date: 30 September 1996

Project Objectives:
To develop statistically reliable estimates of the bycatch of protected species from observer data, and to identify factors which may influence this bycatch and its mitigation.

Analysis of the data generated by the Scientific Observer Programme will provide information on protected marine species bycatch rates and the factors affecting the incidental take of these species which include: operational and environmental factors; area and vessel effects; and the effectiveness of mitigation measures.

Objectives for 1995/96:
To process and analyse the 1994/95 and 1995/96 fishing year data on protected marine species bycatch data, as well as further analysing existing data to establish:

Annual estimates of protected marine species bycatch by species on a fisheries basis; and where possible:

Annual estimates of protected marine species bycatch by fishing area on a fisheries basis;

Analyses of the factors which influence the bycatch of protected marine species;

Analyses of the effectiveness of mitigation measures on a species/fisheries basis.

Cost Estimate:

Salaries (0.33 FTE)	24,110
Operating (Computing, office overheads)	5,537
DOC administration costs (@ 6% of total)	353
TOTAL	**$ 30,000**

Background:
A number of commercial fisheries in New Zealand have been identified by the Non-Fish Interactions Working Group as incurring an incidental take of protected species of marine mammals and seabirds in CSL 1 A (i).

Adequate levels of observer coverage of these fisheries will be necessary to enable the Ministers of Conservation and Fisheries to fulfil their statutory obligations. Inadequate observer coverage may result in decisions being taken to impose management controls on fisheries before maximum-allowable levels of fishing-related mortality of protected species are achieved (Type I errors), or conversely, may result in fishing operations continuing after maximum-allowable levels of fishing-related mortality have in fact been exceeded (Type II errors).

This programme will provide the funding for a qualified statistician to analyse the data generated through programme CSL 1A (i), to provide estimates, with confidence intervals, of the incidental take of protected species of marine mammals and seabirds in the fisheries listed (see table CSL 1A (i)) during fishing year 1995/96.

This programme will be contestable.

5.7.2.1.4 Marine mammal carcass recovery programme

Programme: The collection of biological data on protected marine mammal species incidentally caught in commercial fisheries.

Project Code: CSL 1C
Project Cost: $73,500
Start Date: 1 October 1995
Completion Date: Ongoing - subject to annual review

Project Objectives:
To collect specimens of marine mammal incidentally taken in fishing operations for the analyses of:

- species;
- age;
- sex;
- reproductive status;
- stomach contents; and,
- general condition.

To analyse the above data to establish a population profile of those species caught incidentally as bycatch.

Objectives for 1995/96
To collect, and return to port for autopsy by qualified personnel, up to 200 marine mammal bycatch specimens.

Autopsy to examine species, age, sex, reproductive status, stomach contents and general condition of the specimens to establish a population profile for those species caught as bycatch.

Cost Estimate:

Packaging and labelling @ $10/bag	2,000
Transport from wharf @ $250/pallet/tonne	15,000
Storage @$40/pallet/month	2,400
Autopsy costs	50,000
DOC administrative costs (@ 6% of total)	4,100
TOTAL	**$ 73,500**

Background:
At present, the bodies of most of the marine mammals incidentally taken in commercial fishing operations are dumped at sea, thus losing the opportunity to collect a considerable amount of valuable biological data related to species, age, sex, reproductive status and other physiological parameters. This project will provide for the return to port, storage, transport and autopsy of up to 200 marine mammals incidentally taken during the 1995/96 fishing year by vessels carrying Ministry of Fisheries or industry observers. The data collected will provide a profile of the population taken as bycatch, and will generate essential information on the impact of commercial fishing on marine mammals.

This programme will be contestable.

5.7.2.1.5 Seabird carcass recovery programme

Programme: The collection of biological data on protected seabird species incidentally caught in commercial fisheries.

Project Code: CSL 1D
Project Cost: $6,000
Start Date: 1 October 1995
Completion Date: Ongoing -subject to annual review

Project Objectives:
To collect specimens of protected seabirds incidentally taken in fishing operations for the analyses of:
- species;
- age;
- sex;
- reproductive status;
- stomach contents; and,
- general condition.

To analyse the above data to establish a population profile of those species caught incidentally as bycatch.

Objectives for 1995/96:
To collect, and return to port for autopsy by qualified personnel, up to 300 seabird bycatch specimens.

Autopsy to examine species, age, sex, reproductive status, stomach contents and general condition of the specimens to establish a population profile for those species incidentally taken as bycatch.

Cost Estimate:	
Packaging and labelling @$2/bag	600
Storage @ $40/pallet/month	960
Autopsy (quote MONZ)	4,300
DOC administration costs (@ 6% of total)	140
TOTAL	**$ 6,000**

Background:
At present, the bodies of many of the seabirds incidentally taken in commercial fishing operations are dumped at sea, thus losing the opportunity to collect a considerable amount of valuable biological data related to species, age, sex, reproductive status and other physiological parameters. This project will provide for the return to port, storage, transport and autopsy of up to 300 seabirds incidentally taken during the 1995/96 fishing year by vessels carrying Ministry of Fisheries or industry observers. The data collected will provide a profile of the population taken as bycatch, and will generate essential information on the impact of commercial fishing on seabirds.

This programme will be contestable.

5.7.2.2 Mitigation devices to minimise by-Catch

5.7.2.2.1 Seabirds

Programme: The research, design and development of mitigation measures to minimise the incidental take of seabirds protected under the First Schedule of the Conservation Act 1987, and the Wildlife Act 1953.

Project Code: CSL 2A
Project Code: $100,000
Start Date: 1 October 1995
Completion Date: Ongoing - subject to annual review

Project Objectives:
To research, develop and evaluate operational methods and devices to avoid, remedy or mitigate the incidental take in commercial fishing operations of protected seabirds.

Objectives for 1995/96:
To evaluate the effectiveness of tori lines, including their design, as mitigation devices;

To research, develop and prototype other mitigation measures, e.g. weighted lines/hooks; Codes of Practice, bird scarers, gear modifications etc. as collected through a qualitative analysis of fishing practices.

Cost Estimate:	
Salary	50,500
Operating (travel, equipment, prototyping)	43,500
DOC administration costs (@ 6% of total)	6,000
TOTAL	**$100,000**

Background:
Attempts to mitigate the incidental take of seabirds in commercial fishing have been made both through changes in operational procedures (e.g. code of practice, setting pelagic longlines at night) and through the development of mitigation devices (e.g. tori lines).

This programme will provide for the evaluation of tori lines and the qualitative analyses or assessment of other suggested mitigation measures and operational procedures. These mitigation measures may then be researched, developed and prototyped. Close cooperation between the contractor and the industry will be essential, and a substantial sum of funding is proposed to allow for the qualitative analyses of fishing practices as well as the research, design and the development of initial mitigation prototypes.
This programme will be contestable.

5.7.2.2.2 Marine mammals

Programme: Mitigation of the incidental take of marine mammals in commercial fishing operations

Project Code: CSL 2B
Project Cost: $32,000
Start Date: 1 October 1995
Completion Date: Ongoing - subject to annual review

Project Objectives:
To develop and evaluate operational methods and devices to mitigate the incidental take of marine mammals in commercial fishing operation

Objectives for 1995/96:
Evaluation of the Code of Practice for the jack mackerel trawl fishery in the Taranaki Bight;

Testing a prototype Seal Escape Device (SED) in the flume tank, Launceston, Tasmania;
Investigation of the effectiveness of acoustic warning devices (pingers) on gillnets.

Cost Estimate:	
Salary	20,000
Operating (Travel to Launceston for trials)	3,000
Development and building test equipment	5,000
Consultants sea time	2,000
DOC Administration costs (@ 6% of total)	2,000
TOTAL	**$ 32,000**

Background:
Attempts to mitigate the incidental take of marine mammals in commercial fishing have been made through both changes in operational procedures (eg. the fishing industry's Code of Practice) and overseas, through the development of mitigation devices (eg. acoustic pingers on gillnets).

This project will provide for the evaluation and development of both changes in established fishing operational procedures (Code of Practice) and the evaluation of mitigation measures (SED and pingers). Close cooperation between the contractor and the industry will be essential.

Should the flume tank tests prove successful, further testing of the SED in a commercial fishing situation to assess whether or not it has any impact on operational efficiency or fish quality will be suggested for implementation. As research has already be done overseas on the effectiveness of acoustic warning devices on gillnets, liaison with overseas experts will be implemented to investigate this mitigation measure.

This programme will be contestable.

5.7.2.3 By-Catch species research programmes

5.7.2.3.1 Monitoring of protected seabird by-catch

Auckland Island wandering albatrosses

Programme:	Evaluation of the impact of fisheries bycatch on the Auckland Island wandering albatross.
Project Code:	CSL 3A (i)
Project Cost:	$52,000
Start Date:	October 1995
Completion Date:	Ongoing - subject to annual review

Project Objectives:
To determine the present size and population trends of the Auckland Island wandering albatross (*Diomedea exulans gibsoni*) through annual census of nesting pairs on Adams Island.

To determine annual adult survival and recruitment.

To determine which areas of ocean are important Auckland Island wandering albatross foraging areas and to assess whether conflict between long-line fisheries and albatross can be reduced through zoning.

To collect population data for the development of a Population Management Plan and the calculation of a maximum fishing-related mortality (ABR).

Objectives for 1995/96:
To census the wandering albatross breeding population on Adams Island in 1996.

To band as many fledglings as possible in the study population on Adams Island, and to determine survival of adults banded in 1991.

To band as many other wandering albatrosses as possible.

Cost Estimate:

Boat charter	28,000
Airfares	1,400
Salary (6 weeks field for 2 weeks, 30 days reporting etc.)	17,100
Equipment/allowances	3,000
DOC administration costs (@ 6% total)	2,500
TOTAL	**$ 52,000**

Background:
MAF observer data between 1987 and 1992 in New Zealand's EEZ found wandering albatrosses were a frequent bycatch in longline tuna fisheries. Studies of wandering albatrosses elsewhere have implicated bycatch as a factor in the decline of the species. Because wandering albatross are such a long lived and slow reproducing species, on the Crozet Islands, a fisheries induced reduction of adult survival by 1% led to a 50% decline in the population over 20 years (Weimerskirch, H. 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.).

No reliable population data exists for the NZ subspecies of wandering albatross. Before a maximum level of fishing related mortality can be set (also known as an ABR - allowable biological removal), survival, recruitment and population size must be known. To allow reduction of conflict between albatross and the longline fisheries, the most important albatross foraging grounds need to be identified.

The planned research programme focuses on banding and recovery of both juvenile birds and adult breeding pairs during annual visits to the Auckland Islands, plus annual census of the breeding population. Satellite telemetry will be used to determine which parts of the ocean are most used by Auckland Island Wandering Albatrosses, particularly during vulnerable periods of the birds life cycle.

Antipodes Island wandering albatrosses

Programme: Evaluation of the impact of fisheries bycatch on the Antipodes Island wandering albatross

Project Code: CSL 3A (ii)
Project Cost: $83,000
Start Date: 1 October 1995
Completion Date: Ongoing - subject to annual review

Project Objectives:
To determine the present size and population trends of the Antipodes Island wandering albatross (*Diomedea exulans antipodensis*) through annual census of nesting pairs on Antipodes Island.

To determine annual adult survival and recruitment.

To determine which areas of ocean are important Antipodes Island wandering albatross foraging areas, and to assess whether conflict between long-line fisheries and albatross can be reduced through zoning.

To collect population data for the development of a Population Management Plan and the calculation of a maximum fishing-related mortality (ABR).

Objectives for 1995/96:
To census the wandering albatross breeding population on Antipodes Island in 1996.

To band as many fledglings as possible in the study population on Antipodes Island, and to determine survival of adults banded in 1994.

To band as many other wandering albatrosses as possible.

To track, using satellite telemetry, the foraging flights of a sample of breeding birds nesting on Antipodes Island in 1996.

Cost Estimate:

Boat charter (2 return trips)	28,000
Airfares	1,200
Salary (60 days field for 2 people, 30 days reporting etc)	22,500
Equipment/allowances	26,500
DOC administration costs (@ 6% of total)	4,800
TOTAL	**$ 83,000**

Background:

MAF observer data between 1987 and 1992 in New Zealand's EEZ found wandering albatrosses were a frequent bycatch in longline tuna fisheries. Studies of wandering albatrosses elsewhere have implicated bycatch as a factor in the decline of the species. Because wandering albatross are such a long lived and slow reproducing species, on the Crozet Islands, a fisheries induced reduction of adult survival by 1% led to a 50% decline in the population over 20 years (Weimerskirch, H. 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.).

No reliable population data exists for the NZ subspecies of wandering albatross. Before a maximum level of fishing related mortality can be set (also known as an ABR - allowable biological removal), survival, recruitment and population size must be known. To allow reduction of conflict between albatross and the longline fisheries, the most important albatross foraging grounds need to be identified.

The planned research programme focuses on banding and recovery of both juvenile birds and adult breeding pairs during annual visits to Antipodes Island, plus annual census of the breeding population. Satellite telemetry will be used to determine which parts of the ocean are most used by Antipodes Island Wandering Albatross, particularly during vulnerable periods of the birds life cycle.

Black petrel - Great Barrier Island

Programme: Evaluation of the impact of fisheries bycatch on the black petrel of Great Barrier Island

Project Code: CSL 3A (iii)
Project Cost: $15,000
Start Date: 1 October 1995
Completion Date: Ongoing - subject to annual review

Project Objectives:
To undertake a census of black petrel (*Procellaria parkinsoni*) on Great Barrier Island via burrow monitoring and the banding of adults and fledglings, initially over four consecutive breeding seasons to establish adult mortality, breeding success and recruitment.

Objectives for 1995/96:
To monitor a sample of black petrel breeding burrows (minimum 50, maximum 100) on Great Barrier Island.

To band all adults in the study area.

To band all fledglings in the study area during the 1995/96 breeding season.

To band as many other black petrel as possible.

Cost Estimate:

Salary	11,100
Operating (transport, camp accommodation, incidentals, food)	3,000
DOC administration costs (@ 6% total)	900
TOTAL	**$ 15,000**

Background:
The total population of black petrels (*Procellaria parkinsoni*) numbers about 5000 birds. This species is endemic to New Zealand and confined to Great and Little Barrier Islands. Great Barrier is the stronghold. Scavenging from fishing vessels is common, and this makes the black petrel vulnerable to bycatch. A domestic longline vessel, fishing within New Zealand's EEZ, reported catching six black petrel on a single set during 1993, and others have been reported caught since. No reliable population data exists for the black petrel. Before a maximum level of fishing related mortality can be set (also known as an ABR - allowable biological removal), survival, recruitment and population size must be known. This study will investigate adult mortality, breeding success and recruitment in relation to fisheries interactions.

Light mantled sooty albatross

Programme:	Monitoring population trends of light mantled sooty albatross on Campbell Island
Project Code:	CSL 3A (iv)
Project Cost:	$16,000
Start Date:	1 October 1995
Completion Date:	Ongoing - subject to annual review

Project Objectives:
To undertake: a census of light mantled sooty albatross (*Phoebetria palpebrata*) on Campbell Island via nest and vantage point counts; and the banding of adults and fledglings in a study area, initially over the 1995/96 breeding season and then annually to establish adult mortality, breeding success and recruitment rates.

Objectives for 1995/96:
To establish a study area containing approximately 100 nests.

To determine the present size and population trends of light mantled sooty albatross on Campbell Island through a census of nesting pairs.

To band as many light mantled sooty albatrosses as possible.

To determine annual adult survival and recruitment.

To collect population data for the development of a Population Management Plan and the calculation of a maximum fishing-related mortality (ABR).

NB The experimental design may require review if a sufficient sample of accessible nests cannot be identified, or if continued access to study nests causes unacceptable damage to the steep nesting habitat preferred by the albatrosses. To achieve a large enough sample size, the programme may need to be extended to the Auckland Islands.

Cost Estimate

Salary	10,400
Operating	4,100
DOC administration costs (@ 6% total)	1,300
TOTAL	**$ 16,000**

Background:
Light mantled sooty albatrosses (*Phoebetria palpebrata*) are particularly vulnerable to fisheries bycatch as their productivity is very low. No accurate information on population size and trends, or mortality and recruitment rates exists. This study will investigate adult mortality, breeding success and recruitment in relation to fisheries interactions.

The planned research programme focuses on banding and recovery of both juvenile birds and adult breeding pairs during annual visits to Campbell Island, plus an annual census of breeding pairs within a study area.

5.7.2.3.2 Monitoring marine mammal by-catch

New Zealand sea lion (Phocarctos hookeri)

Programme: Evaluation of the impact of fisheries bycatch on the New Zealand sea lion

Project Code: CSL 3B
Project Cost: $90,000
Start Date: 1 October 1995
Completion Date: Ongoing - subject to annual review

Project Objectives:
To measure annual pup production as an index of population status for the New Zealand sea lion (*Phocarctos hookeri*) on the Auckland Islands and investigate the foraging ecology of the sea lion in so far as it directly relates to the Auckland shelf squid trawl fishery for a period of at least 5 years.

Objectives for 1995/96:
To measure pup production on the Auckland Islands.

To investigate the foraging ecology as it relates to the Auckland shelf squid trawl fishery.

To statistically model fisheries impacts.

Cost Estimate

Salary (technician @ 1 FTE)	35,000
Vessel charter and field operations (this is costed at 50% of known costs)	25,000
Foraging ecology equipment (this is costed at 50% of known costs)	25,000
DOC administration costs (@ 6% of total)	5,000
TOTAL	**$ 90,000**

Background:
The New Zealand sea lion is a species endemic to an area between Cook Strait, Campbell Island, Macquarie Island, and the southwest of the South Island. The range for this species is centred on the Auckland Islands, with the main breeding colonies on Dundas, Enderby and the Figure of Eight Islands. Population estimates for the sea lion are calculated from pup population counts. Fishery interaction occurs as a result of the overlap of the southern squid trawl fishery and the sea lion's foraging areas around the Auckland shelf. This programme will determine an index of population status for the sea lion, investigate foraging ecology and the behaviour of sea lions around fishing vessels.

The research into the foraging ecology of the New Zealand sea lion will be managed by a senior DOC scientist. The costs of this scientists time on this work will continue to be covered by existing DOC funding. Furthermore, significant costs of capital equipment such as anaesthetic machines and other capture and handling equipment would not be proposed for CSL funding. As a significant proportion of this work is necessary as a direct consequence of the squid fishery, funds from CSL are required to fund the acquisition of 50% of the remote tracking devices and data loggers associated with this work as well as 1 FTE technician. Technical support will cover all aspects of the work directly related to the bycatch of sea lions. This will include population monitoring, foraging ecology and investigations from fishing vessels into the behaviour of sea lions around vessels.

5.7.2.3.3 Population Management Plans

Programme: The development of Population Management Plans and the calculation of maximum fishing-related mortality (ABR).

Project Code: CSL 4A
Project Cost: $40,000
Start Date: 1 October 1995
Completion Date: Ongoing - subject to annual review

Project Objectives:
The development of Population Management Plans (PMP's) for protected species of marine wildlife containing all or any of the following:

An assessment of the biology and status of threatened species or other marine wildlife;

An assessment of any known fisheries interaction with marine wildlife;

The degree of risk caused by fishing related mortality and other human induced sources of mortality to threatened and other marine wildlife whether within the territorial waters of New Zealand or New Zealand Fisheries waters or elsewhere within the range of the species;

An estimate of the range of human induced mortality for threatened and other species of marine wildlife within which the criteria specified below will be met;

An estimate of the range of fishing related mortality for threatened species and other marine wildlife within which the criteria specified below will be met;

The maximum allowable level of fishing related mortality for threatened species and other marine wildlife within which the criteria specified below will be met;

Recommendations to the Minister of Fisheries on measures to mitigate the fishing related mortality of threatened species and other marine wildlife;

Recommendations to the Minister of Fisheries on the level of information to be collected on fishing related mortality.

The criteria to be met in determining a maximum level of fishing related mortality is:

In the case of threatened species, the level of fishing related mortality should not prevent the species achieving a non-threatened stratus as soon as reasonably practicable, and in any event within a period not exceeding 20 years.

In the case of any other marine wildlife, the level of fishing related mortality should neither cause a net reduction in the size of the population nor seriously threaten the reproductive capacity of the species.

Objectives for 1995/96:
To develop a PMP for the New Zealand sea lion.

To develop a PMP for the wandering albatross *Diomedea exulans gibsoni.*

Cost Estimate:	
Salary/operating	37,600
DOC administration costs (@ 6% of total)	2,400
TOTAL	**$ 40,000**

Background:
Population Management Plans (PMP's) will be prepared in consultation with the fishing industry, environmental organisations, Conservation Boards affected by the plan, and any other persons that the Director General of Conservation (DG) considers represent environmental, commercial, iwi and recreational interests. Notice of any draft plan shall be published at least once in each of the daily newspapers published in Auckland, Wellington and Dunedin. Every notice shall state that the draft plan is available for inspection and that any persons interested in lodging a submission on the draft may do so by a specified date.

Submitters who wish to be heard in support of a submission must advise the DG of their intent. The DG may hear submissions from any person or organisation consulted in the draft plan. The DG will prepare a summary of the submissions received on the draft and public opinion made known on the draft. After considering submissions, the DG may revise the draft. The DG shall send the draft PMP to the Minister of Fisheries and the New Zealand Conservation Authority (NZCA) along with the summary of submissions. The NZCA may comment on the draft PMP.

After the DG receives the NZCA comments on the draft PMP, the DG may amend the draft. A summary of the NZCA comments and a copy of the revised draft PMP will then be forwarded to the Minister of Conservation. After having regard to the provisions in the Wildlife and Marine Mammals Protection Act, the submissions, and any other matters the Minister considers relevant, the Minister may approve the PMP subject to the concurrence of the Minister of Fisheries.

The Minister of Fisheries may concur with the PMP after having regard to the impacts of implementing the maximum allowable level of fishing related mortality on the fishing industry and such other matters as the Minister considers relevant.

The approved plan will be available for public inspection. Any approved plan may be amended as necessary subject to further consultation and the process outlined above.

Department of Conservation, Fisheries Act 1983 - Conservation Services Levy 1995/6 Fishing Year.

Project Summary Table

Code	Project	Justification		Inputs	Outputs	Standards and specifications	Reporting and audit
	OBSERVER PROGRAMMES Total cost $398,500	Statutory	Other				
CSL 1A (i)	Fisheries Observer Programme - additional observer seadays	Fisheries Act 1983, Sec 107EA (1) (d) (i) (ii) (iii), Conservation Act 1987, 1st Schedule	Objective 1	$259,000	Collection of statistically reliable data by fisheries observers on the incidental take of protected marine species	See MAF standards FS8 Information Collection and Management Services	Non-fish and Fisheries Interactions Working Group
CSL 1A (ii)	Fisheries Observer Programme - analysis of coverage required	Fisheries Act 1983, Sec 107EA (1) (d) (i) (ii) (iii), Conservation Act 1987, 1st Schedule	Objective 1	$30,000	Statistical analysis of existing bycatch data to predict with known statistical precision, the observer coverage required for each fishery to achieve statistically reliable estimates of protected species bycatch.	To be specified in contract documentation	Non-fish and Fisheries Interactions Working Group
CSL 1B	Processing and analysis of fisheries observer programme data	Fisheries Act 1983, Sec 107EA. (1) (d) (i) (ii) (iii), Conservation Act 1987, 1st Schedule	Objective 1	$30,000	Statistical analysis of observer data for the 1995/6 fishing year	To be specified in contract documentation	Fisheries Data Working Group
CSL 1C	Marine mammal carcass recovery programme	Fisheries Act 1983, Sec 107EA. (1) (d) (i) (ii) (iii), Conservation Act 1987, 1st Schedule	Objectives 1, 4	$73,500	Biological data on marine mammal bycatch specimens recorded by fisheries observers and vessel operators	To be specified in contract documentation, also see MAF standards FS8 Information Collection and Management Services	Non-fish and Fisheries Interactions; Inshore 1; Inshore 2; Middle Depth; and Hoki Working Groups
CSL 1D	Seabird carcass recovery programme	Fisheries Act 1983, Sec 107EA. (1) (d) (i) (ii) (iii), Conservation Act 1987, 1st Schedule	Objective 1	$6,000	Biological data on seabird bycatch specimens recorded by fisheries observers and vessel operators	To be specified in contract documentation, also see MAF standards FS8 Information Collection and Management Services	Non-fish and Fisheries Interactions; and Pelagic Working Groups
	MITIGATION MEASURES Total Cost $132,000						
CSL 2A	Mitigation measures to minimise bycatch of seabirds	Fisheries Act 1983, Sec 107EA. (1) (d) (ii), Conservation Act 1987, 1st Schedule	Objective 2	$100,000	Research, design and development of measures and devices to mitigate seabird bycatch	To be specified in contract documentation	Non-fish and Fisheries Interactions; and Pelagic Working Groups
CSL 2B	Mitigation measures to minimise bycatch of marine mammals	Fisheries Act 1983, Sec 107EA. (1) (d) (ii), Conservation Act 1987, 1st Schedule	Objective 2	$32,000	Research, design and development of measures and devices to mitigate marine mammal bycatch	To be specified in contract documentation	Non-fish and Fisheries Interactions; and Middle Depth Working Groups

	RESEARCH PROGRAMMES Total cost $256,000						
CSL 3A	Monitoring of populations of protected seabird bycatch species	Fisheries Act 1983, Sec 107EA. (1) (d) (i) (iii), Conservation Act 1987, 1st Schedule	Objectives 3, 4	$166,000	Population status; breeding success; recruitment and mortality rates; and foraging zones of high priority seabird bycatch species	To standards set by DOC Science and Research Division	Non-fish and Fisheries Interactions Working Group
CSL 3B	Monitoring of populations of protected marine mammal bycatch species	Fisheries Act 1983, Sec 107EA. (1) (d) (i) (iii), Conservation Act 1987, 1st Schedule	Objectives 3, 4	$90,000	Measurement of New Zealand sea lion 1995/6 pup production at the Auckland Islands; statistically model fisheries impacts; and contribute to ongoing work on foraging ecology as it relates to fisheries	To standards set by DOC Science and Research Division	Non-fish and Fisheries Interactions Working Group
	POPULATION MANAGEMENT PLANS Total cost $40,000						
CSL 4A	Development of Population Management Plans (PMP's)	Fisheries Bill 1995	Objective 5	$40,000	Develop PMP's for the New Zealand sea lion and wandering albatross.	To standards set by DOC Science and Research Division	Non-fish and Fisheries Interactions Working Group
	OVERALL COST $826,500						

Main objective: To work in partnership with the New Zealand commercial fishing industry, Ministry of Fisheries, and other interested groups, to assess the impacts of fishing operations on protected marine species and to develop and investigate the effectiveness of mitigation measures which minimise the incidental take of protected marine species in interactions with the New Zealand commercial fishing industry. "Objectives" referenced in table above:

1. To ensure that during the 1995/6 Fishing Year, adequate bycatch data is collected, verified and analysed, to give a sufficiently reliable estimate of the numbers and characteristics of the incidental take of protected marine species in New Zealand commercial fisheries interactions, to enable the Minister of Conservation to carry out his/her statutory duties; (Projects CSL 1A(i), CSL 1A(ii), 1B, 1C, 1D)

2. In partnership with the Minister of Fisheries and sector groups, develop and test mitigation measures designed to minimise the incidental take of protected marine species; (Projects CSL 2A, 2B)

3. To research the status and population demography of protected marine species, to enable the Minister of Conservation to make informed decisions about the relative threat of New Zealand commercial fisheries interactions on individual species, and to carry out his/her statutory duties; (Projects CSL 3A, 3B)

4. On a species specific basis, assess fisheries related mortality, and the spatial and temporal aspects of commercial fisheries interactions, to provide information on the proportional impact of New Zealand commercial fishing interactions on protected marine species (as opposed to fisheries outside the EEZ, and the variety of other causes of mortality), to enable the Minister of Conservation to carry out his/her statutory duties; (Projects CSL 3A, 3B)

5. Develop in consultation with the Minister of Fisheries and the fishing industry two PMP's. (Project CSL 4A)

CSL#	Year	File #	SCO Series (Contracts)	Contractor	DoCFIN	Budget	Comments
1A(i)	95/96	SCO 3013	Mfish Observer Agreement	Ministry of Fisheries	15/6701/01	$244,305	
1A(ii)	95/96	SCO 3008	Analysis of Observer Coverage of Estimate Reliability	Uni. Otago (Bryan Manly)	15/6702/01	$28,200	
1B	95/96	SCO 3009	Analysis of Observer Coverage for Estimate Statistics	Uni. Otago (Bryan Manly)	15/6703/01	$29,647	
1C	95/96	SCO 3010	Autopsy of Marine Mammals	Uni. Otago (Steve Dawson)	15/6704/01	$69,400	
1D	95/96	SCO 3011	Autopsy of Seabirds	MONZ (Sandy Bartle)	15/6705/01	$5,860	
2A	95/96	SCO 3004	Underwater setting method for longliners	Akroyd Walshe	15/6705/01	$94,000	$45,000
2A	95/96	SCO 3005	Construction of tori lines for longliners	FIB (Kim Duckworth)	15/6705/01	(part above)	$12,000
2A	95/96	SCO 3006	Liaison with longline fishers	FIB (Don Nelson)	15/6705/01	(part above)	?
2A	95/96	SCO 3007	Underwater setting method for longliners	MS Engineering	15/6705/01	(part above)	$29,524
2B	95/96	SCO 3003	Marine Mammal Exclusion Device	Gibson Information Sciences	15/6706/01	$30,000	
3A(i)	95/96	SCO 3001	Auckland Island Wandering Albatross	Graeme Elliott	15/6707/01	$49,500	
3A(ii)	95/96	SCO 3002	Antipodes Island Wandering Albatross	Graeme Elliott	15/6707/01	$78,200	
3A(iii)	95/96	SCO 3012	Black petrels on Great Barrier Island	Elizabeth Bell	15/6708/01	$14,100	
3A(iv)	95/96	SCO 3016	Albatross on Campbell Island	NIWA (Sue Waugh)	15/6709/01	$14,700	
3A(iv)	95/96	SCO 3017	Albatross on Campbell Island	DoC (Peter Moore)	15/6709/01	(part above?)	
3B	95/96	SCO 3090	New Zealand Sea lion	DoC (Ian Wilkinson, Childerhouse, etc)	15/6710/01	$85,000	
4A	95/96	SCO 3014	Sea lion PMP	Akroyd Walshe	15/6711/01	$37,600	
4A	95/96	SCO 3015	Wandering Albatross PMP	Akroyd Walshe	-		