

Conservation Services Annual Plan 2008/2009

Marine Conservation Services
Marine Conservation Unit
Department of Conservation
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June 2008

Statement on Conservation Services

The commercial fishing industry is a very dynamic and important industry in New Zealand. The past year has been one with significant issues, challenges, and progress as the government works with industry towards improved outcomes. The Conservation Services Programme's Annual Plan is one way in which I am involved in this industry, in the context of monitoring and researching protected species interactions with commercial fishing operations. The vision of the Conservation Services Programme is for commercial fishing that does not compromise the protection and recovery of protected species in New Zealand fisheries waters. Understanding the effects of fishing on protected species and working with those in the industry to implement measures that will reduce those effects are integral to that vision. Like the industry itself, protected species interactions are dynamic – current issues are resolved and new issues emerge through time. Our challenge is to continue to make good progress on these issues as efficiently as possible, with the involvement of all interested.

In the Fisheries Act 1996, Conservation Services are defined 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.

The ongoing commitment of industry leaders is to be welcomed, and I look forward to following the progress and hearing about the outcomes of these projects, as well as seeing them contribute to commercial fisheries management that continues to reduce our impacts on marine protected species.

Hon Steve Chadwick
Minister of Conservation

Director-General's Introduction

The Department of Conservation is significantly involved in the conservation of protected species in the marine environment, including those species that interact with commercial fisheries. The context of protected species interactions with commercial fishing operations is always changing. In the last year for example, the government progressed several key consultation documents relating to the management of protected species which are bycaught and introduced new regulated measures to reduce seabird bycatch. In parallel, voluntary measures are being developed or improved in some sectors of the fishing industry. The Conservation Services Programme is a key avenue through which the Department engages with conservation in the commercial fishing environment. The projects in this Conservation Services Programme Annual Plan will deliver information to be used in fisheries management, specifically as it relates to protected species. This work directly contributes to identifying options for better fishing practices.

Fisheries management is a challenging environment in which divergent goals are being reconciled. I look forward to seeing continued progress in this industry in reducing environmental impacts, especially those on protected species, through consolidating existing initiatives, as well as developing and implementing new ideas. The Department is committed to working with you all to this end.

Al Morrison
Director-General of Conservation

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1. Overview of the 2008/2009 Conservation Services Annual Plan

1.1. Introduction

The 2008/2009 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. For a summary of the legal basis of this draft Annual Plan, refer to the *Conservation Services Strategic Plan 2005-2010* (<http://www.doc.govt.nz/upload/documents/conservation/marine-and-coastal/fishing/csp-approved-strategic-plan-2005-2010.pdf>).

This Strategic Plan also describes the Programme's policy framework for the five-year period 2005/06 – 2009/10. The Programme's objectives are:

1. To understand the nature and extent of adverse effects from commercial fishing activities on protected species in NZ fisheries waters.
2. To develop effective solutions to mitigate adverse effects of commercial fishing on protected species in NZ fisheries waters.

Note that research into effects can include:

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

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;
- ii. Development of population management plans.

Key policies relevant to the draft Conservation Services Annual Plan 2008/09 are described in the CSP Strategic Plan (at [www](#) link above). Further, there are four key documents being progressed through consultation processes currently that may affect the approach to protected species work relating to commercial fisheries. These are the Hector's and Maui's Dolphin Threat Management Plan; the Population Management Plan for New Zealand sea lions; the review of the National Plan of Action – Seabirds; and the Seabird Standard. Fisheries Plans may also bring about new or different requirements for Conservation Services. Finally, when resumed, the government's review of the framework for cost recovery may affect the cost recovery framework of Conservation Services. Hence, the CSP operating environment is highly dynamic, and the Strategic Plan will require review as significant legislative and policy changes are made.

1.2. Format

The format used to specify the conservation services in this Annual Plan includes an outline of the objectives and rationale for each project, and the outputs that are anticipated to be produced. The project specifications indicate cost recovery information, i.e. project costings (excluding administration costs) and identification of the relevant provisions within the Fisheries (Cost Recovery) Rules 2001 that are proposed to determine cost allocation. Costs are summarised in Appendix One. All financial amounts appearing in this document are

exclusive of GST. Projects consulted on in previous years, for multiple year terms, are included for completeness and clarification of costs.

1.4 Conservation Services Levy

The details of the conservation services levy are provided in tables in Appendix One. These details will be used to derive the provisional levies. 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 (approved) Plan. Administration costs include CSP staff time, computer charges and facilities, office supplies and support services.

Levied amounts are determined using the Fisheries Cost Recovery Rules (2001). These Rules are supported by the Cost Recovery Principles (Fisheries Act s.262), however the relationship between the Principles and the Rule Items is not always clear, e.g. in the matter of costs relating to the public interest component of research. In theory, all Cost Recovery Principles have been used to develop the Cost Recovery Rules. However, the Services in this Plan are generally most closely aligned with s. 262(d).

1.5 Consultation processes

The following processes and documents contributed to the development of the 2008/09 Annual Plan:

- | | |
|----------------------|--|
| 21 September 2007 | Combined Meeting of Conservation Services Programme Technical Working Group, MFish Aquatic Environment Research Planning Group, and National Plan of Action for Seabirds Technical Working Group to review the NPOA-Seabirds Research Plan and the MFish Aquatic Environment Medium Term Research Plan and to consider and prioritise proposed research projects for 2008/09 |
| 5 December 2007 | Draft 2008/2009 Conservation Services Annual Plan circulated to stakeholders for submissions |
| 8 February 2008 | Submissions received from stakeholders on Draft 2008/2009 Conservation Services Annual Plan |
| 15 February 2008 | Submissions made available to stakeholders |
| 18 April 2008 | Small meetings to discuss submissions held with different stakeholders who requested them |
| 13 May 2008 | Revised Draft 2008/2009 Conservation Services Annual Plan forwarded to SeaFIC for finalisation of allocation of project costs to fisheries |
| 31 May 2008 (approx) | Director General conveys Annual Plan to Minister of Conservation for her consideration and agreement |

2. Fishing interactions projects

2.1 Purpose

The fishing interaction projects aim to understand the nature and extent of protected species interactions with commercial fishing activities so that management measures undertaken to avoid, remedy or mitigate adverse effects on protected species can be evaluated.

2.2 Background

Understanding the nature and extent of interactions between commercial fisheries and protected species is the foundation of the Conservation Services Programme. This information can identify where the most significant interactions are occurring and can inform development and application of strategies to minimise adverse effects. Over the last few years protected species interactions with some fisheries have become well understood, although sometimes rarely quantified, while interactions with other fisheries are less well understood, especially inshore fisheries.

Research into fishing interactions includes investigations of direct and indirect adverse effects. Direct impacts on individuals of species include mortality following interactions with fishing equipment such as trawl nets and warps, longlines or set nets. Commercial fishing may also have indirect effects on protected species. Indirect effects include adverse impacts on individuals or populations of protected species other than incidental mortality. Indirect effects may occur where fishing:

- Depletes the food of protected species;
- Modifies habitat important for all or part of the life cycle of the protected species; or
- Modifies the behaviour of protected species.

Direct impacts may represent a more tangible adverse impact for many protected species populations than indirect effects, in which case research into indirect effects will be a secondary priority. However, for some species indirect impacts may represent a significant impact on the population over time and therefore represent an equal or greater priority.

2.3 Related policy

The current policy context for projects on fisheries interactions with protected species conducted through CSP is outlined in the Conservation Services Programme Strategic Plan 2005-2010 (see Policy 12 for an overview):

<http://www.doc.govt.nz/upload/documents/conservation/marine-and-coastal/fishing/csp-approved-strategic-plan-2005-2010.pdf>

Policy 12 of the CSP Strategic Plan states that the observer project will:

- a) Provide a baseline level of observation of fisheries where interactions are thought to be generally identified;
- b) Enhance observations in unobserved fisheries or, where interactions are not understood;
- c) Gather information that will facilitate understanding of the nature of fisheries interactions and lead to the development of mitigation techniques;
- d) Support the development and testing of mitigation techniques, and assist in the evaluation of the effectiveness of mitigation methods; and
- e) Encourage and audit the self-reporting by fisheries of their interactions with protected species.

Further, there are four key documents being progressed through consultation processes currently that may affect the approach to observer services for protected species monitoring when completed. These are the Hector's dolphin Threat Management Plan, the Population Management Plan for New Zealand sea lions, and the review of the National Plan of Action – Seabirds, and the Seabird Standard.

2.4 Monitoring protected species interactions with New Zealand fisheries

Project Code: INT 2008/01

Start Date: 1 July 2008

Completion Date: 30 June 2009

Overall objective:

To understand the nature and extent of protected species interactions with New Zealand commercial fishing activities.

Specific objectives:

1. To identify, describe and, where possible, quantify protected species interactions with commercial fisheries;
2. To identify, describe and, where possible, quantify measures for mitigating protected species interactions;
3. To collect other relevant information on protected species interactions that will assist in assessing, developing and improving mitigation measures.

Term of project:

Ongoing (reviewed annually)

Rationale

The management approach

Understanding the nature and extent of interactions between commercial fisheries and protected species can identify where the most significant interactions are occurring and can be used to inform development of ways to mitigate those interactions and adverse effects. Such data contribute to assessments of whether protected species mortality is sustainable and whether mitigation strategies employed by fishing fleets are effective at reducing protected species captures.

The Conservation Services Programme will continue to purchase baseline services from Ministry of Fisheries Observer Services given the scale of the operation, which allows observers to be placed strategically across New Zealand fisheries.

Research Approach

To date, the bulk of publicly available information on at-sea interactions between fishing vessels and protected species in New Zealand waters has been collected by Government (Department of Conservation / Ministry of Fisheries) observers.

The allocation of observer coverage across fisheries will be made in relation to:

- Historic mortality of protected species;
- Fishing effort;
- Past observer coverage;

- The status of particular threatened protected species; and
- Current level of information.

The duties of an observer in respect of the Conservation Services Programme can be summarised as:

- Monitoring and recording the interactions of protected species with fishing operations;
- Reporting on the efforts made to mitigate the adverse effects of commercial fishing on protected species;
- Recording, photographing, tagging all protected species bycatch;
- Recovering and retaining the bodies of dead protected species for autopsy ;
- Recording at least on a daily basis the numbers, and the behaviour of, marine mammal and seabird species seen around the fishing vessel; and
- Carrying out other tasks (e.g. making observations on discard and offal discharge) as required.

Information collected includes:

- Type and position of vessel;
- Environmental conditions (e.g. sea state);
- Fish species being targeted;
- Fishing methods (including a description of gear employed) and operations;
- Processing waste management practices
- Abundance and behaviour of protected species in vicinity of vessel;
- Mitigation practices adopted;
- Knowledge and approach of crew; and
- Interactions between protected species and fishing gear

It is important to note that observer programmes typically have high spatial and temporal variation, as well as multiple priorities for information collection, which can make the data challenging to interpret and extrapolate to estimate actual bycatch rates by fishery, location, or other desired variables. Data accuracy and relevance can be affected by inter-observer variability, weather conditions and access to vessels, while precision is affected by the observer sampling design. Data quality may also be biased by the opportunistic allocation of observers to vessels, as it is not always possible to place observers on vessels randomly. Nevertheless, the use of fisheries observers is currently considered to be the most reliable and flexible means of acquiring data on protected species interactions.

Application of observer coverage by fishery in 2008/09:

When CSP and the Ministry of Fisheries observer days are shared, CSP time is typically costed at 15% of the total days, which reflects the time that observers are likely to spend on protected species tasks. In recent years CSP has paid for 100% of days in inshore fisheries (bottom longline, setnet and trawl). In 2008/09 the Ministry will contribute to a portion of days in these fisheries to gather catch effort information. The focus for inshore days will continue to be monitoring protected species interactions.

In order to set observer days for the period 1 July 2008 – 30 June 2009 (see Table 1), effort data from 1 July 2006 – 30 June 2007 is examined, as this is the most recent period for which data are available.

All time periods are based on 1 July - 30 June in line with the period that observer coverage runs (i.e. not the fishing year). Protected species bycatch data for the period 1 July 2006 to 30 June 2007 is incomplete as not all data has been entered yet. Data available to date are summarised in the tables below.

Fisheries Management Areas are referred to by three letter codes as follows:

AKE	FMA 1	East North Island from North Cape to Bay of Plenty
CEE	FMA 2	East North Island from south of Bay of Plenty to Wellington
SEC	FMA 3	East coast South Island from Pegasus Bay to Catlins
SOE	FMA 4	Chatham Rise
SOU	FMA 5	South Island from Foveaux Strait to Fiordland
SUB	FMA 6	Subantarctic including Bounty Island and Pukaki Rise
SOI	FMA6A	Southern offshore islands – Auckland and Campbell Islands
CHA	FMA 7	West Coast South Island to Fiordland including Kaikoura
CEW	FMA 8	West North Island from South Taranaki Bight to Wellington
AKW	FMA 9	West North Island from North Cape to North Taranaki Bight
KER	FMA 10	Kermadec

Table 1. Summary of observer days planned for 2008/09

Method / Fishery	Target	Proportion CSP day	% coverage	No. observer days
Inshore fisheries	Setnet	0.85	n/a*	250
	Inshore trawl	0.85	n/a*	250
	Inshore bottom longline	0.85	n/a*	250
Longline fisheries	Domestic tuna and swordfish	0.15	20%	69
	Charter tuna	0.15	100%	52
	Deep sea LIN	0.15	30%	16
Pelagic trawl	JMA, EMA, BAR	0.15	25%	82
Middle depth trawl ⁺	HAK, HOK, SWA	0.15	25%	125
	HAK, HOK, SWA	0.15	20%	91
	SCI	0.15	15%	30
	SBW	0.15	30%	13
	SQU	0.15	30%	135
Deep water trawl [%]	ORH, OEO	0.15	50%	82
	ORH, OEO	0.15	30%	30
				1475

* Distribution of observer days and coverage levels by area to be discussed with stakeholders

⁺Table 4

[%]Table 19

MIDDLE DEPTH TRAWL FISHERIES

Hoki, hake, silver warehou middle depth trawl

Historically, observer coverage of middle depth trawl fisheries has been split between hoki and hake (see Tables 2 & 3), even though vessels operating in these fisheries often change target species within a trip. For protected species interactions, the method, location and timing of fishing are all of high importance, with the mix of target species being of less importance. As such, observer coverage in 2008/09 will be focussed on middle depth trawl fisheries targeting hoki, hake or silver warehou. While additional stocks are also targeted (e.g. ling), hoki, hake or silver warehou have the greatest targeted effort and higher number of protected species interactions relative to those other species.

Coverage in these middle depth trawl fisheries can be split into the 'hoki season' and the 'out of hoki season', which operated during different months and fisheries areas. The 'hoki season' is focused on the west coast of the South Island (CHA) and the Cook Strait (CEE, CHA), where both hoki and hake are predominantly targeted from June to September. During the 'out of hoki season' from September until June, hoki, hake and silver warehou are targeted, mostly in SOE and SUB, with some coverage in SEC and SOU.

In line with Policy 12 (a) of the CSP strategic plan, observer coverage will be maintained in order to provide a baseline level of observations in this fishery where interactions are thought to be generally understood. Observer time will be focussed on monitoring and recording interactions with fur seals, sea lions and seabirds including captures and behaviour of protected species around the vessel. The landing of protected coral will also be recorded and sub-samples will be taken for identification.

Observers record information on which mitigation techniques are employed in this fishery. Mitigation techniques employed include offal and discard management, and the use of bird scaring devices (legally required for larger vessels).

Table 2. Observer coverage in hoki trawl fishery (2004/05 – 2007/08)

Year	CSP Percent Coverage Level	Percent Observer Day	Charged Day	Achieved
2004/05	Not stated	20	115	115
2005/06	15	20	214	201
2006/07	25	15	177	149
2007/08	25	15	149	109*

(*as at 31 October 2007)

Table 3. Observer coverage in hake trawl fishery (2004/05 – 2007/08)

Year	CSP Percent Coverage Level	Percent Observer Day	Charged Day	Achieved
2004/05	Not stated	0	0	0
2005/06	15	20/100	86	86
2006/07	15	15/100	76	34
2007/08	15	15	17	17*

(*as at 31 October 2007)

Observer coverage for 2008/09

Observer coverage from July to September will be focused in CEE, CHA and SEC (Table 4). Fishing effort during 2006/07 indicates there were 3356 fishing days during this period in those areas. Observer coverage for the period October to May will be spread across SEC, SOE, SOU and SUB.

Table 4: Observer coverage planned for middle depth trawl (HAK, HOK, SWA) in 2008/09

	No. fishing days 06/07	Fishery Management Areas	Target coverage	No. observer days
Hoki season	3356	CEE, CHA, SEC	25%	125
Out of hoki season	3207	SEC, SOE, SOU, SUB	20%	91

Observed protected species interactions

Protected species interactions observed in hake, hoki and silver warehou over the last three observer years are shown in Table 5. In recent years, the majority of fur seal captures have been recorded during the 'hoki season' in CEE and CHA from July to September. Captures have also been recorded in SEC from August to March. Fewer captures occur in SOE, SOU and SUB.

Seabird captures tend to be higher from September to June in the 'out of hoki season' fisheries, particularly in SEC. Captures have also been recorded in CEE, SOE, SOU and SUB during this period and in CHA from July to September.

Table 5: Protected species incidental catch in fisheries targeting hake, hoki or silver warehou using the method of mid-water trawl.

Species	2004/05		2005/06		2006/07*		Total
	D	A	D	A	D	A	
Black bellied storm petrel				1			1
Black petrel		2					2
Black-browed albatross		1				2	3
Campbell albatross	2		1				3
Cape pigeon	1	35	1	11	1	4	53
Common diving petrel			1	3	1		5
Common dolphin			1				1
Fur seal	49	8	118	11	66	10	262
Grey petrel		1		1			2
Grey-backed storm petrel			1			1	2
Salvin's albatross	10	2	7	1	6	2	28
Seabird				2			2
Seabird large		7	3				10
Seabird small		16					16
Shy albatross		1	2				3
Snares cape pigeon	1	1					2
Sooty shearwater		3	85	9	9	4	110
Southern black-browed albatross	1				1		2
Southern Buller's albatross	11		7				18
Southern cape pigeon			1	3			4
Southern giant petrel				1			1
Storm petrel		1		1			2
Unidentified albatross		16	3				19
Unidentified petrel		1		1			2
Unidentified prion		1		3			4
Unidentified whale						1	1
Wandering albatross		1					1
Westland petrel	1	3					4
White-capped albatross	8	2	22	7	1		40
White-chinned petrel	2		5	1	5		13
Total captures	86	102	258	56	90	24	616

* Data for this time period is incomplete

Southern Blue Whiting

The southern blue whiting fishery operates in specific areas (SOI and SUB) during August and September. Over the past three observer years, observer coverage has been planned to cover 30% of fishing effort (see Table 6).

Fur seals and sea lions have been recorded incidentally caught in this fishery. Seabird interactions tend to be lower than other trawl fisheries. Coral has been landed in this fishery. Observer coverage is undertaken in August and September in SUB, including coverage in SOI to monitor interactions with pinnipeds and seabirds.

In line with Policy 12 (a) of the CSP strategic plan, observer coverage levels are maintained to monitor interactions in this fishery, which are thought to be generally understood. Observer time will be focussed on monitoring and recording interactions with fur seals and sea lions. Data is also collected on seabird interactions and behaviour due to the location of this fishery and its close vicinity to many seabird breeding islands. The landing of protected coral will also be recorded and sub-samples will be taken for identification.

Observers are tasked with recording information on which mitigation techniques are employed on vessels to better understand interactions between fishing gear and captures of protected species. Mitigation techniques employed in this fishery include offal and discard management and the use of bird scaring devices.

Table 6. Observer coverage in the southern blue whiting fishery (2004/05 – 2007/08)

Year	CSP Percent Coverage Level	Percent Observer Day	Charged Day	Achieved
2004/05	Not stated	20	70	62
2005/06	30	20	16	16
2006/07	30	15	9	9
2007/08	30	15	13	13*

(*as at 31 October 2007)

Observer coverage for 2008/09

Observer coverage for 2008/09 will be focused in SOI and SUB and will aim to cover 30% of fishing effort (Table 7).

Table 7: Observer coverage planned for the southern blue whiting fishery in 2008/09

No. fishing days 06/07	Fishery Management Areas	Target coverage	No. observer days
296	SOI, SUB	30%	13

Observed protected species interactions

Protected species interactions observed in southern blue whiting over the last three observer years are shown in Table 8. All captures occur in August or September in either SOI or SUB. Sea lion captures have been recorded in September each year: one in 2004, two in 2005, three in 2006 and six in 2007 (not shown above as data is for 1 July 2006 to 30 June 2007). Historically, a few vessels operating in this fishery have contributed to the majority of capture events, particularly for fur seals.

Table 8: Protected species incidental catch the southern blue whiting fishery.

Species	2004/05		2005/06		2006/07*		Total
	D	A	D	A	D	A	
Cape pigeon				1			1
Fur seal	12	5	32	1	52		102
Grey petrel		1	1	1	1	2	6
Grey-backed storm petrel	1						1
Leopard seal			1				1
NZ sea lion	1		2		3		6
Salvin's albatross						1	1
Total captures	14	6	36	3	56	3	118

* Data for this time period is incomplete

Scampi

CSP observer coverage in the scampi fishery has mostly been in SOE from July to December and SOI from January to April, with lesser coverage in AKE and CEE. Observations are undertaken to monitor interactions with seabirds and NZ sea lions. Moderate interactions with seabirds have been recorded in this fishery as well as occasional interactions with sea lions in the southern scampi fishery. Coral has occasionally been landed in this fishery.

In line with Policy 12 (a) of the CSP strategic plan, observer coverage levels are maintained to monitor interactions in this fishery (Table 9), which are thought to be generally understood. The priority for observers will be to monitor interactions with New Zealand sea lions. The landing of protected coral will also be recorded and samples will be taken for identification.

Data is also collected on seabird interactions and behaviour around vessels. Observers record information on which mitigation techniques are employed in this fishery, including offal and discard retention and the use of bird scaring devices.

Table 9. Observer coverage in the scampi fishery (2004/05 – 2007/08)

Year	CSP Percent Coverage Level	Percent Observer Day	Charged Day	Achieved
2004/05	Not stated	100	100	87
2005/06	10	100	147	141
2006/07	15	100	150	136
2007/08	10	15	30	0*

(*as at 31 October 2007)

Observer coverage for 2008/09

Observer coverage in 2008/09 (see Table 10) will be focused in AKE and SOI with additional coverage in FMA 4 if possible. Coverage will mostly be from November to December and March to June. Total fishing days in 2006/07 for those fisheries was 1742 days.

Table 10: Observer coverage planned for the scampi fishery in 2008/09

No. fishing days 06/07	Fishery Management Areas	Target coverage	No. observer days
1742	AKE, SOI	15%	30

Observed protected species interactions

Seabird interactions (Table 11) have been recorded in most areas where there has been coverage. New Zealand sea lions were recorded caught in November 2005 and February 2007 in SOI.

Table 11: Protected species incidental catch in the scampi fishery.

Species	2004/05		2005/06		2006/07*		
	D	A	D	A	D	A	
Black-browed albatross			1				1
Chatham albatross	1						1
Common diving petrel				6			6
Flesh-footed shearwater		2	8		5	1	16
Giant petrel					1		1
NZ sea lion			1		1		2
Pacific albatross						1	1
Salvin's albatross	3	2					5
Sooty shearwater					14		14
Southern Buller's albatross	2				1		3
Storm petrels				10			10
Unidentified albatross			1		1		2
Unidentified petrel			1		1		2
White-capped albatross				2	2		4
White-chinned albatross	1						1
White-headed petrel				1			1
Total captures	7	4	12	19	26	2	70

* Data for this time period is incomplete

Squid

Observer coverage in the squid fishery has been managed by the Ministry of Fisheries from 2005/06 until present (see Table 12). In 2008/09, CSP will contribute to 15% of days planned for the squid fishery to monitor interactions with protected species and measures to reduce those interactions. Particular areas of CSP interest in this fishery include targeted research on offal and discard management and captures of seabirds in trawl nets. In addition, sub-samples of any protected corals landed will be taken for identification.

Table 12. Observer coverage in the squid fishery (2004/05 – 2007/08)

Year	CSP Percent Coverage Level	Percent Observer Day	Charged Day	Achieved
2004/05	Not stated	20	120	120
2005/06 - 2007/08	Delivered by Ministry of Fisheries			

Observer coverage for 2008/09

Observer placement in 2008/09 (see Table 13) will be focussed in the Squid 6T fishery to monitor interactions with sea lions and seabirds from January to May. Total coverage for the fishery is set at 900 days, of which CSP contributes 15% (135 days). Additional coverage will be sought on the Stewart-Snares shelf and in FMA 3 off Banks Peninsula.

Table 13: Observer coverage planned for the squid fishery in 2008/09

No. fishing days 06/07	Fishery Management Areas	Target coverage	No. observer days
3045	SOI, SOU	30%	135

Observed protected species interactions

Protected species interactions observed in squid fisheries over the last three observer years are shown in Table 14. The majority of seabird captures in the squid fishery occur in SOU and SOI between January and May each year, where the bulk of observer coverage has been focussed. Fewer captures occur in SEC. Most pinniped captures occur between January and March in SOU and SOI.

Table 14: Protected species incidental catch in squid fisheries.

Species	2004/05		2005/06		2006/07*		Total
	D	A	D	A	D	A	
Black bellied storm petrel				1			1
Black petrel				2			2
Black-browed albatross		2				1	3
Cape pigeon						1	1
Common diving petrel	1	2	1	1			5
Fairy prion		1					1
Fur seal	14	2	1	3	3		23
Giant petrel		1		1			2
NZ sea lion	13		7		8		28
Salvin's albatross	9		1	1	3		14
Seabird large	5		1				6
Shy albatross	8	3	1		7	1	20
Sooty shearwater	51	20	48	21	35	4	179
Southern black-browed albatross	1						1
Southern Buller's albatross	7	3	2	1	1		14
Southern royal albatross	1	1	1				3
Storm petrel		3					3
Unidentified albatross	1		6				7
Unidentified prion	2	22	2	1		3	30
White-capped albatross	207	18	54	2	30	2	313
White-chinned petrel	38	10	36	24	16	13	137
Total captures	358	88	161	58	103	25	793

* Data for this time period is incomplete

PELAGIC TRAWL FISHERIES

Jack Mackerel, Barracouta and English Mackerel

Historically, CSP observer coverage in the Jack Mackerel fishery (see Table 15) has been in SEC, CHA, CEW and AKW, with the majority of coverage in CHA and CEW to monitor interactions with common dolphins. In order to better reflect the suite of target species caught by the method of pelagic trawl, coverage will include barracouta and English mackerel.

High numbers of common dolphins have been recorded caught in the Jack Mackerel fishery including the capture of 17 dolphins by three vessels off west Auckland in November 2004. Dusky dolphins, fur seals and seabirds have also been recorded caught in pelagic trawl fisheries. The majority of observer coverage is from October to December with some coverage from April to July. Although fewer dolphins had been reported caught in recent years up to October 2007, coverage will continue, but at a lower percentage of total effort, in order to monitor common dolphin interactions. Observer time will be focussed on recording protected species interactions and the behaviour of cetaceans, pinnipeds and seabirds around the vessel.

Observers will also record information on which mitigation and avoidance techniques are employed in this fishery. Vessels can employ several techniques aimed at reducing the likelihood of interacting with dolphins, including not fishing during hours of the day when dolphin interactions are more likely, not shooting nets when dolphins are sighted, and avoiding targeting small mackerel, which appear to be the dolphins target prey.

Table 15. Observer coverage in the jack mackerel fishery (2004/05 – 2007/08)

Year	CSP Percent Coverage Level	Percent Observer Day	Charged Day	Achieved
2004/05	Not stated	20	30	34
2005/06	50	20	138	138
2006/07	50	15	57	55
2007/08	50	15	57	21*

(*as at 31 October 2007)

Observer coverage for 2008/09

Based on effort in SEC, CHA, CEW and AKW for all BAR, EMA and JMA, 82 observer days are planned for pelagic trawl fisheries (Table 16), mostly from October to December and April to June.

Table 16: Observer coverage planned for pelagic trawl fisheries in 2008/09

No. fishing days 06/07	Fishery Management Areas	Target coverage	No. observer days
2246	AKW, CHA, CEW, SEC	25%	82

Observed protected species interactions

Protected species interactions observed in pelagic trawl fisheries are shown in Table 17. Most dolphin captures have been recorded in CHA (seven captures) and AKW (25 captures) and one capture was recorded in SEC.

Table 17: Protected species incidental catch in pelagic trawl fisheries

Species	2004/05		2005/06		2006/07*		
	D	A	D	A	D	A	
Bottlenose dolphin	1						1
Cape pigeon		1		1			2
Common dolphin	22		2		8		32
Dusky dolphin			1				1
Fairy prion	2		1	1			4
Fur seal	6		2		3	1	12
Seabird large	1						1
Sooty shearwater		1					1
Storm petrel		2					2
Unidentified petrel		2					2
Unidentified prion	1						1
Total captures	33	6	6	2	11	1	59

* Data for this time period is incomplete

DEEP WATER TRAWL FISHERIES

Orange Roughy and Oreo

The majority of CSP coverage (see Table 18) has been in SOE (December to June) and SUB (October to December and February to May) with lesser coverage in AKE, SEC, SOU and AKW from May to July. A particular focus of observer coverage in this fishery is to monitor impacts of deepwater trawling on protected corals, particularly in SOE. Seabird interactions and behaviour around vessels are also monitored.

Although this fishery has been observed for some time, observer coverage for protected species is being enhanced in line with Policy 12 (b) of the CSP Strategic Plan which states that the Observer Programme will enhance observations in unobserved fisheries or where interactions are not understood. The extent to which this fishery interacts with protected coral species is not well understood, and targeted CSP coverage to investigate seabird interactions has also been sparse in the past.

Observer time will be focussed on assessing the extent of protected coral landed on vessels as well as monitoring and recording interactions and behaviours of seabirds. Sub-samples of corals will be taken for identification. The duties of observers and the level of coverage in this fishery may be revised following the completion of coral identification work currently underway (INT2007/03). Mitigation techniques employed in this fishery include offal and discard management, the use of bird scaring devices and trawling known tracks to avoid catching deep sea invertebrates.

Table 18. Observer coverage in orange roughy and oreo fisheries (2004/05 – 2007/08)

Year	CSP Percent Coverage Level	Percent Observer Day	Charged Day	Achieved
2004/05	0	0	0	0
2005/06	25 ^{ORH}	10	32	53
	30 ^{OEO}	10	22	13
2006/07	30	15	193	157
2007/08	40	15	119	30*

(*as at 31 October 2007)

Table 19: Observer coverage planned for deepwater trawl fisheries in 2008/09

No. fishing days 06/07	Fishery Management Areas	Target coverage	No. observer days
1093	SOE, SUB	50%	82
640	AKE, AKW, CEE, SEC, SOU	30%	30

Observed protected species interactions

Protected species captures observed in deep water trawl fisheries are shown in Table 20 and deepwater coral landed on vessels is shown in Tables 21 (by FMA) and 22 (by taxa). Many of the live seabird captures recorded in the 2004/05 observer year were deck strikes in SOE.

Fewer seabird captures have been recorded in recent years. All fur seal interactions occurred in SUB.

Table 20: Protected species incidental catch in orange roughy and oreo fisheries

Species	2004/05		2005/06		2006/07*		Total
	D	A	D	A	D	A	
Black bellied storm petrel						1	1
Broad-billed prion						1	1
Cape pigeon	1	14		1			16
Chatham albatross		1					1
Common diving petrel		1					1
Fairy prion		8					8
Fluttering shearwater		1					1
Fur seal	1	3		1	2	1	8
Grey petrel	1	2					3
Grey-backed storm petrel		3					3
Northern giant petrel		1					1
Northern royal albatross	1						1
Salvin's albatross	1	1					2
Seabird large		2					2
Seagull		1					1
Shy albatross				1			1
Southern Buller's albatross			2				2
Southern royal albatross					1		1
Storm petrel		5				2	7
Unidentified albatross			1				1
Unidentified petrel						1	1
Wandering albatross				1			1
White-chinned petrel				1		2	3
Total captures	5	43	3	5	3	8	67

* Data for this time period is incomplete

Table 21: Estimated weight of corals landed on vessels in orange roughy and oreo fisheries by Fisheries Management Areas for the period 1 July 2006 until 30 June 2007

FMA	Weight (kg)*
AKE	37
AKW	852
SEC	355
SOE	11440
SOU	2
SUB	5139
Total weight	17825

Table 22: Estimated weight of corals landed on vessels in orange roughy and oreo fisheries by taxa for the period 1 July 2006 until 30 June 2007

Species code	Weight (kg)*
Bamboo coral	6
Coral rubble	11144
Coral rubble - dead	2038
Golden corals	14
Precious corals	1
Black corals	77
Flabellum cup corals	13
Red coral	23
Coral (unidentified)	818
Crested cup coral	13
Deepwater branching coral	5
Red hydrocorals	6
Bushy hard coral	2375
Hydroids	2
Bamboo corals	181
Spiny white hydrocorals	2
Bubblegum coral	1062
Long polyp soft corals	45
Total weight	17825

INSHORE FISHERIES

As there is a large amount of inshore fishing effort throughout the EEZ, it is difficult to achieve coverage levels that would enable an estimation of total bycatch in these fisheries. In order to enhance the likelihood of achieving such coverage levels, observer coverage is focussed in specific areas where protected species interactions may be occurring and such coverage is rotated through different areas between years. In addition, observer coverage is aimed at describing the fishing methods employed and identifying whether any protected species interactions are occurring and, if so, how those interactions might be mitigated. CSP will also be investigating the feasibility of introducing electronic monitoring as an alternative to human observers.

For each of the inshore ‘fisheries’ (trawl, bottom longline and setnet), 250 observer days have been planned. The distribution of coverage in time and space will be discussed with the Ministry of Fisheries and stakeholders prior to the commencement of the observer year.

Inshore trawl

The extent to which inshore trawl vessels interact with protected species is extremely poorly known due to minimal historic observer coverage. Observer coverage of the inshore trawl fishery in the Pegasus Bay – Canterbury Bight area in 1997-1998 reported the capture of one Hector’s dolphin. Prior to observing this fishery, five dolphins were known to have been caught by trawlers off the east coast of the South Island. Hector’s dolphins have also been recorded caught on unobserved inshore trawl vessels operating on the west coast of the South Island in the late 1980s. Since 1997-1998, four dolphin mortalities have been caused by inshore trawlers including three animals caught in one trawling event in April 2006. This fishery is therefore being monitored in line with Policy 12 (b) of the CSP Strategic Plan which states that the Observer Programme will enhance observations in unobserved fisheries or where interactions are not understood.

Observations aboard inshore trawl vessels (Table 23) began in the 2006/07 fishing year with coverage undertaken in AKE to monitor seabird interactions, CHA to monitor Hector’s dolphin and seabird interactions and in CEW and AKW to monitor Maui’s dolphin interactions. The landing of protected coral will also be recorded and sub-samples will be taken for identification. A total of nine vessels were observed during the 2006/07 observer year, during which 106 observer days were achieved.

For the current observer year (2007/08), coverage is planned for AKE (Statistical Areas 003, 008 and 009) to monitor interactions with seabirds, SEC (018, 022, 024 and 026) to monitor interactions with Hector’s dolphins and seabirds, SOU (025 and 030) to monitor interactions with penguins, shearwaters, shags and Hector’s dolphins, CHA (034, 035 and 038) to monitor interactions with Hector’s dolphins and AKE to monitor potential interactions with Maui’s dolphins.

Monitoring priorities include collecting data on protected species interactions and behaviours and the mitigation and offal management techniques employed aboard inshore trawl vessels.

Table 23. Observer coverage in inshore trawl fisheries (2004/05 – 2007/08)

Year	CSP Percent Coverage Level	Percent Observer Day	Charged Day	Achieved
2004/05	Not stated	0	0	0
2005/06	0	0	0	0
2006/07	10	100	250	106
2007/08	10	100	258	60*

(*as at 31 October 2007)

Protected species interactions

During the 2006/07 observer year, 302 tows were observed across nine inshore trawl vessels. Coverage and protected species interactions during the 2006/07 observer year are summarised in Table 24. It should be noted that observers working in 034 and 035 noted warp strikes occurring but were not specifically tasked with undertaking warp strike observations. Observers working in the current observer year are undertaking warp strike observations on inshore trawl vessels.

Table 24. Summary of inshore trawl observer coverage from 1 July 2006 until 30 June 2007

Vessel	Month	Statistical Areas	No. tows	Protected species bycatch (alive)	Protected species bycatch (dead)
1	Jul 06 - Aug 06	014, 015	14		2 white-capped albatrosses
		035, 036	16		
2	Oct-06	042, 045	24		
	Oct-06	045, 046	14		
3	Feb-07	033	30		
4	Feb-07	045, 046	16		
5	Feb-07	033, 034	14		
	Feb-07	032	4		
6	Mar 07 - Apr 07	034, 035	26		4 white-capped albatrosses
7	Mar-07	008, 009	15		2 petrels
	Mar 07 - Apr 07	005, 006	63		
8	Mar 07- Apr-07	002, 003, 008	47	Shearwater	
	Apr-07	047	5		
9	Mar-07	042, 045, 046	14		
Total tows:			302		

Up to 400 white-capped albatrosses were seen attending inshore trawl vessels on the west coast of the South Island, and up to 200 petrels attended vessels in AKW. Hector's dolphins were seen on three trips, all on the west coast of the South Island.

Observer coverage for 2008/09

Two hundred and fifty observer days are planned for 2008/09. In the 2006/07 observer year, 250 days were also planned and less than 50% of days were achieved. As such, coverage levels for 2008/09 will not be increased until 250 days can be achieved in inshore trawl fisheries. Areas of interest for coverage in 2008/09 include (STAs in brackets):

- AKE (003, 004, 005, 006, 007)
- SEC (018, 020, 022, 024, 026)
- SOU (030)
- CHA (033, 034, 035)
- CEW (040, 041)
- AKW (042, 045, 046).

Inshore bottom longline (ling, blue nose, hapuku & bass, snapper)

Inshore longline observations in 2008/09 will encompass multiple stocks in order to enhance coverage levels through enabling greater flexibility in observer placement.

Historically, CSP observer coverage in the inshore LIN, BNS, HPB fisheries (Table 25) has been focussed in AKE, CEE, SOE and SOU. Observations in the snapper fishery (Table 26) were undertaken in AKE to monitor interactions with seabirds, particularly black petrels.

In line with Policy 12 (b) of the CSP strategic plan, observer coverage of inshore longline fisheries will be maintained as interactions are not well understood. Observer time has been focussed on monitoring and recording interactions with seabirds including captures and behaviour around the vessel. Of particular interest will be increased observer effort in AKE and SOE to monitor interactions with seabirds, particularly following the large seabird bycatch event in SOE in September 2007.

Monitoring priorities for 2008/09 will include collecting data on protected species interactions and behaviours and the mitigation and offal management techniques employed.

Table 25. Observer coverage in inshore bottom longline fisheries targeting snapper (2004/05 – 2007/08)

Snapper longline				
Year	CSP Percent Coverage Level	Percent Observer Day	Charged Day	Achieved
2004/05	Not stated	100	150	149
2005/06	Not stated	100	100	58
2006/07	0	0	0	-
2007/08	0	0	0	-

Table 26. Observer coverage in inshore bottom longline fisheries targeting ling, blue nose, hapuku or bass (2004/05 – 2007/08)

Ling, blue nose, hapuku and bass				
Year	CSP Percent Coverage Level	Percent Observer Day	Charged Day	Achieved
2004/05	Not stated	100	200	13
2005/06	Not stated	100	50	33
2006/07	15	100	151	68
2007/08	20	100	251	130*

(* as at 31 October 2007)

Observer coverage for 2008/09

Coverage levels for 2008/09 are set at 250 days and will not be increased until 250 days can be achieved in inshore bottom longline fisheries.

Inshore bottom longline coverage in 2008/09 will be in AKE (150 days) and SOE (100 days) in order to monitor seabird interactions in both areas and potential turtle interactions in AKE.

Observed protected species interactions

Most captures recorded to date (Tables 27 and 28) have been in AKE and SOE. Of particular note was the capture of 12 Chatham albatrosses and 22 Salvin's albatrosses on one trip in SOE in September 2007.

Table 27: Protected species incidental catch in inshore bottom longline fisheries targeting snapper

SNA	2004/05		2005/06		Total
	D	A	D	A	
Black petrel	1		2		3
Buller's shearwater				4	4
Flesh-footed shearwater	4	5			9
Gannet		1			1
Green turtle				1	1
Small seabird		1			1
Unidentified petrel		2		6	8
Total captures	5	9	2	11	27

Table 28: Protected species incidental catch in inshore bottom longline targeting ling, blue nose, hapuku or bass

Species	2004/05		2005/06		2006/07*		Total
	D	A	D	A	D	A	
Black petrel						4	4
Cape pigeon	1						1
Salvin's albatross			1				1
Storm petrels	1						1
Wandering albatross		1					1
White-chinned petrel			8	2		1	11
Total captures	2	1	9	2	0	5	19

* Data for this time period is incomplete

Setnet

The extent to which commercial setnet fishing activities interact with protected species is largely unknown due to very low historic achievement of observer coverage. Despite historic intent to collect observer data, this fishery has been difficult to observe because, as with other inshore fisheries, it encompasses smaller vessels carrying out short trips, less predictable operations and there are practical difficulties notwithstanding the legal requirement to take government fisheries observers. The Pegasus Bay-Canterbury Bight setnet fishery (Statistical Areas 020 and 022) was observed during the 1997-1998 fishing year, during which time eight Hector's dolphins were observed caught in setnets, of which two were released alive. This fishery is therefore being monitored in line with Policy 12 (b) of the CSP Strategic Plan which states that the Observer Programme will enhance observations in unobserved fisheries or where interactions are not understood.

Observations aboard commercial setnet vessels in the 2005/06 fishing year (see Table 29) were undertaken in Southland (SOU) and the Nelson / Marlborough region (CHA) to monitor interactions with Hector's dolphins and seabirds. During the 2005/06 fishing year, a small number of fur seals and shags were recorded caught. Setnet fisheries were also observed in the 2006/07 fishing year (see Table 29) in Kaikoura (SEC), Nelson (CHA) and in Southland (SOU). Protected species mortalities during 2006/07 included one dusky dolphin, one Hector's dolphin, one fluttering shearwater and two yellow-eyed penguins, all as separate incidents.

Observations of commercial setnet fishing in 2007/08 are planned for SEC (Statistical Areas 018, 022 and 024) to monitor interactions with Hector's dolphins and seabirds, SOU (025 and 030) to monitor interactions with penguins, shearwaters, shags and Hector's dolphins, CHA (034, 035 and 038) to monitor interactions with Hector's dolphins and CEE and CEW to monitor interactions with seabirds in the North Island.

Monitoring priorities for 2008/09 will include collecting data on protected species interactions and behaviours and the mitigation and offal management techniques employed by individual vessels.

Table 29. Observer coverage in setnet fisheries (2004/05 – 2007/08)

Year	CSP Percent Coverage Level	Percent Observer Day	Charged Day	Achieved
2004/05	Not stated	100	100	0
2005/06	Not stated	100	100	83
2006/07	n/a	100	165	116
2007/08	n/a	100	233	0*

(*as at 31 October 2007)

Observer coverage for 2008/09

Areas of interest for coverage in 2008/09 include (STAs in brackets):

- CEE (014, 015)
- SEC (020, 022, 024, 026)
- CHA (034, 035)
- CEW (040, 041)
- AKW (044)

Observed protected species interactions

Coverage and protected species interactions during the 2005/06 and 2006/07 observer years are summarised in Table 30.

Table 30. Summary of setnet observer coverage and protected species interactions from 1 July 2005 until 30 June 2007

	Port	Sets observed	STA	Protected species (alive)	Protected species (dead)	
2005/06	Nelson	10	037			
		124	038		2 spotted shags and 1 pied shag	
		6	040			
	Southland	24	025			
		6	027			
	8	030		3 fur seals		
	Otago	17	024			
	Total:	195				
2006/07	Kaikoura	122	018	3 cape pigeons Sooty shearwater Seagull	Dusky dolphin Hector's dolphin	
		Southland	40	025		2 yellow-eyed penguins
			3	027		
	24		030			
		4	031		Fur seal	
	Nelson	39	037			
		53	038	6 shags	Fluttering shearwater	
	Otago	7	024			
	Total:	292				

SURFACE LONGLINE FISHERIES

Charter tuna

CSP observer coverage of charter tuna vessels (Table 31) has mostly been in SOU and CHA from March until July, with some coverage in CEE and KER. This fishery has historically had high captures of seabirds (including a variety of albatrosses and petrels), and while captures were lower during the 04/05 and 05/06 observer years, high seabird captures were recorded during 06/07. Fur seals and sea turtles are occasionally caught on hooks or entangled in lines, but are usually released alive after being cut free.

In line with Policy 12 (a) of the CSP strategic plan, observer coverage will be maintained in order to provide a baseline level of observations in this fishery where interactions are thought to be generally identified. Observer time will be focussed on monitoring and recording interactions with seabirds and sea turtles, including captures and behaviour of protected species around the vessel.

Observers record information on which mitigation techniques are employed in this fishery which can include the use of tori lines, night setting, weighted lines and offal and discard management.

Table 31. Observer coverage in the charter surface longline fishery (2004/05 – 2007/08)

Year	CSP Percent Coverage Level	Percent Observer Day	Charged Day	Achieved
2004/05	Not stated	10	20	14
2005/06	50	20	37	30
2006/07	100	15	28	28
2007/08	100	15	26	8*

(*as at 31 October 2007)

Observer coverage for 2008/09

Observer coverage in 2008/09 (see Table 32) will be dependent on where charter tuna vessels focus fishing effort. As there were 351 fishing days in 2006/07, CSP will aim to cover 15% of fishing days. Coverage is expected to be during the months March to July.

Table 32: Observer coverage planned for the charter surface longline fishery in 2008/09

No. fishing days 06/07	Fishery Management Areas	Target coverage	No. observer days
351	CEE, CHA, KER, SOU	15% of total effort in 06/07	52

Observed protected species interactions

During the 2006/07 observer year, seabirds were caught between March and May mostly in SOU and CHA with some captures in CEE. Two of four vessels were observed during 2006/07 (see Table 33).

Table 33: Protected species incidental catch in the charter surface longline fishery

Species	2004/05		2005/06		2006/07*		
	D	A	D	A	D	A	
Antipodean albatross					1		1
Campbell albatross			4		1		5
Fur seal	2	14		8	1	4	29
Grey petrel			2				2
Leatherback turtle		1					1
Shy albatross					2		2
Sooty shearwater						1	1
Southern Buller's albatross	6	14	4	6	34	15	79
Southern giant petrel			2				2
Southern royal albatross				1			1
Unidentified albatross		2			1		3
Unidentified petrel					2		2
Unidentified whale		1					1
Wandering albatross					1		1
White-capped albatross	2	1	1		26	1	31
White-chinned petrel	2		1		1		4
Total captures	12	33	14	15	70	21	165

* Data for this time period is incomplete

Domestic tuna and swordfish

Historically, there has been difficulty placing observers on smaller domestic tuna vessels and, therefore, further data is required to assess protected species interactions. In addition, the recent introduction of swordfish into the quota management system provides further impetus to continue monitoring this fishery, particularly following the large bycatch event of 58 albatrosses and petrels during one trip in November 2006. Subsequent regulations introduced by the Ministry of Fisheries in January 2007 require all fishers using surface longlines to provide notice of departure to the Ministry of Fisheries observer programme. This should facilitate observer placement in this fishery. For these reasons, observer coverage will be maintained at a similar level to previous years.

During the 2006/07 observer year, the majority of coverage (see Table 34) was in CEE from February to July, KER from September to December and March, April and in AKE from November to March and June, July. Additional coverage has been achieved in CHA, CEW and AKW. During the 2005/06 observer year, the majority of coverage was in CEE throughout the year, followed by AKE.

Monitoring priorities for 2008/09 will include collecting information on protected species interactions, mitigation techniques and offal management practices employed in the fishery.

Table 34. Observer coverage in the domestic surface longline fishery (2004/05 – 2007/08)

Year	CSP Percent Coverage Level	Percent Observer Day	Charged Day	Achieved
2004/05	Not stated	25	150	67
2005/06	Not stated	100	100	38
2006/07	20	15	73	30
2007/08	20	15	75	29*

(*as at 31 October 2007)

Observer coverage for 2008/09

Observer coverage in 2008/09 (see Table 35) will be in AKE, CEE, AKW, KER to monitor interactions with seabirds and turtles. Coverage will be throughout the year.

Table 35: Observer coverage planned for the domestic surface longline fishery in 2008/09

No. fishing days 06/07	Fishery Management Areas	Target coverage	No. observer days
2222	AKE, CEE, CHA, KER	20%	69

Observed protected species interactions

Protected species interactions observed in the domestic surface longline fishery are shown in Table 36. Seabird captures have been recorded in CEE from February to July, in AKE from November to December and in KER from October to December (including one large capture event). Fur seals have most frequently been caught in CEE during June or July. One leatherback turtle was caught during the 2004/05 observer year in CEE in July. Four leatherbacks were caught during the 2006/07 observer year; one in March in CEE and three in KER from September to December.

Table 36: Protected species incidental catch in the domestic surface longline fishery

Species	2004/05		2005/06		2006/07*		Total
	D	A	D	A	D	A	
Black-browed albatross			2		2		4
Campbell albatross			4				4
Flesh-footed shearwater		1		4		3	8
Fur seal	1	10		3		2	16
Gibson's albatross			1				1
Green turtle		1					1
Grey petrel	1		6		3		10
Grey-faced petrel					1		1
Leatherback turtle		1				4	5
Pacific albatross			1				1
Pilot whale		1					1
Seabird large					5		5
Seabird small					1		1
Shy albatross					1		1
Sooty shearwater					1		1
Southern Buller's albatross	2	1	1	1	1		6
Unidentified albatross					32	2	34
Unidentified petrel					3		3
Wandering albatross	1			2	7	17	27
White-capped albatross			1				1
White-chinned petrel	1				2		3
Total captures	6	15	16	10	59	28	134

* Data for this time period is incomplete

BOTTOM LONGLINE FISHERIES

Deep-sea ling

Previous data collected through the observer programme has shown that deep sea ling longliners have killed high numbers of seabirds, including white-chinned petrels and Salvin's albatrosses. In line with Policy 12 (a) of the CSP strategic plan, observer coverage will be maintained to monitor this fishery in which interactions are thought to be generally understood. Observer time will be focussed on monitoring and recording interactions with seabirds including captures and behaviour around the vessel.

During the 2006/07 observer year, the majority of observer coverage was in SOU from August to October with some coverage in CEE and SEC. In previous years, there has been more even coverage, in terms of days, spread between CEE, SOE, SOU and SUB. Observer coverage is from May to June and August to October.

Observers record information on which mitigation techniques are employed in this fishery, including the use of tori lines and line weighting regimes.

Table 37. Observer coverage in the deep-sea ling bottom longline fishery (2004/05 – 2007/08)

Year	CSP Percent Coverage Level	Percent Observer Day	Charged Day	Achieved
2004/05	Not stated	10	15	160
2005/06	30	20	37	35
2006/07	30	15	23	21
2007/08	30	15	15	3*

(*as at 31 October 2007)

Observer coverage for 2008/09

Observer coverage in 2008/09 (Table 38) will be focussed on SOE and SOU to monitor seabird interactions during September, October, May and June.

Table 38: Observer coverage planned for the deep-sea ling bottom longline fishery in 2008/09

No. fishing days 06/07	Fishery Management Areas	Target coverage	No. observer days
349	SOE, SOU	30%	16

Observed protected species interactions

Seabird captures have been recorded in SOE and SOU from October to November and in CEE from April to May (see Table 39).

Table 39: Protected species incidental catch in the deep-sea ling bottom longline fishery

Species	2004/05		2005/06		2006/07*		Total
	D	A	D	A	D	A	
Black-browed albatross		1					1
Broad-billed prion			1				1
Cape pigeon		1	1			2	4
Chatham albatross			2				2
Common diving petrel	1	12	3	3			19
Fur seal			1				1
Grey petrel	1			2			3
Northern giant petrel							0
Sooty shearwater	2	1	4	2	1		10
Storm petrel				4			4
Unidentified albatross			1				1
Unidentified prion				1	1		2
Wandering albatross				1			1
white-capped albatross				1			1
White-chinned petrel	10		4	1	13		28
Total captures	14	15	17	15	15	2	78

* Data for this time period is incomplete

Purse Seine

The tuna purse seine fishery has not been observed by CSP in recent years (Table 40) due to the low number of protected species interactions. Observers have noted black petrels attending vessels on several trips in the past.

Table 40. Observer coverage in the tuna purse seine fishery (2004/05 – 2007/08)

Year	CSP Percent Coverage Level	Percent Observer Day	Charged Day	Achieved
2004/05	Not stated	20	6	5
2005/06	Not stated	20	14	15
2006/07	0	0	0	0
2007/08	0	0	0	-

Outputs

- A summary of observer data will be provided to stakeholders on a 6 monthly basis.
- Specific information can be requested from CSP at any time and will be delivered within a reasonable timeframe (usually within 21 working days).
- All seabirds are returned for identification and autopsy (see project INT 2007/02: Identification of seabirds captured in NZ fisheries).
- All protected corals (or corals that can not be correctly identified) are returned for identification (see project INT 2008/02: Identification of protected corals).

Project costing

Research cost: \$999,600

Cost Recovery: F(CR) Item 8: 100% Industry

See Appendix 1

Note: The following project, INT 2007/02, is included for completeness. This project was consulted on in 2007/08.

2.5 Identification of seabirds captured in New Zealand fisheries

Project Code: INT 2007/02

Start Date: 1 October 2007

Completion Date: 30 June 2011

Seabirds recovered during the 2007/08, 2008/09 and 2009/10 fishing years are to be autopsied, with final reports produced annually in June of the following calendar year (e.g. for the fishing year 1 October 2007 to 30 September 2008 the final report will be due in June 2009).

Note: This project is funded in annual terms. Continuation to 30 June 2011 is subject to annual review and Ministerial approval.

Overall Objective

- To determine which seabird species are captured in fisheries and the mode of their capture.

Specific Objectives¹

1. To determine, through examination of returned seabird specimens, the taxon, sex, and where possible age-class and provenance of seabirds captured in New Zealand fisheries.
2. To detail the injuries, body condition and stomach contents of returned seabirds and, where possible, the likely cause of mortality.
3. To report any changes in the protocol used for the necropsy of seabirds.

Rationale

The management approach

Large numbers of seabirds frequent New Zealand commercial fishing waters. Birds with significant differences in conservation status can appear morphologically similar. The accurate determination of the taxon of seabirds captured in New Zealand fisheries is vital for examining the potential threat to population viability posed by incidental fisheries captures. Government observers on commercial vessels are not always able to identify seabirds at sea with high precision. Further, the assessment of the age-class, sex and provenance of captured individuals requires autopsy in the majority of cases.

Information gained through this project will inform ongoing research and modelling of the effects of fisheries removals for selected populations of high risk seabirds, and links to MFish projects and databases. Further, the mode of capture and associated information about condition of the birds will enable robust analyses to be made of the factors contributing to seabird capture events.

Examining the causes of mortality and types of injuries suffered by individual seabirds returned from fisheries is necessary to help reduce future seabird captures in New Zealand fisheries by identifying areas of risk. Linking this information to the species, age- and sex-class helps identify if different groups of seabirds are vulnerable to different risks in fishing

¹ Specific objectives will be reviewed annually through a Working Group process.

interactions. Information about body condition and breeding status is necessary to examine other factors that can influence the probability of fisheries mortalities for seabirds.

Research approach

Birds returned by government observers will be delivered, suitably packaged and labelled, to the contractor. Observers make note of the circumstances of capture and provide a tentative identification.

Seabirds returned from the government observers and voluntarily submitted by fishers will be examined to determine the following:

- Species identification and classification;
- Sex and age;
- Subcutaneous fat score as an index of body condition;
- Stomach and gizzard contents;
- Moulting and brood patch development as a partial indicator of breeding status;
- General body condition including any signs of injury and cause of death (where possible); and
- Provenance (origin) (where possible)

These data will be reported by species, fishery stratum (method, area and where possible target species). The methodologies used in examining the specimens and categorising them into different groups shall be fully described. Differences in research protocols compared to previous necropsy research on New Zealand seabirds returned from fisheries shall be discussed.

Relevant CSP Strategic Plan policies include: 2, 24.

Outputs

- A summary of seabird autopsy data will be provided to stakeholders on a 6 monthly basis.
- Specific information can be requested from CSP at any time and will be delivered within a reasonable timeframe (usually 21 working days).
- Annual reports and a final 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. Data will be presented by fishery according to target species and gear type.

Project costing

Research cost: \$72,000

Cost Recovery: F(CR) Item 4 (100% Industry)

Fish stocks: HOK1; SBW6A, SBW6R, SBW6I, SBW6B; HAK1, HAK7, HAK4; JMA1, JMA3, JMA7; SCI1, SCI2, SCI3, SCI4A, SCI 6B, SCI 6A, 12; BAR1, BAR4, BAR5, BAR7, RSK1, RIB1, PAR1, PAR9, POR1, RCO1, SCH1, SNA1, SNA8, TAR1, JDO1, GUR1, GUR 8, TRE 1, GSP1, BNS1, FLA1, FRO1, FRO2, GUR2, JDO2, LEA1, LEA2, RCO2, SNA2, KIN1, KIN2, KIN8, FRO9, LEA2, LEA3, GSH3, ELE3, FLA3, RSK3, RIB2, RIB3, SCH 3, GUR3, SPE3, RCO2, SPE2, TAR2, TRE2, RCO3, FLA3, TAR3, SPO3, ELE5, SCH5, RIB5, TAR5, GSP5, FRO7, FRO8, FLA7, GSH2, GSH7 GSP7 GUR7, JDO7, RIB7, RCO7, RSK7,

TAR7, SCH7, SCH8, STA7, SPE7, SNA 8; STN1, BIG1, YFN1, SWO1; LIN2, LIN3, LIN 4,
LIN5, LIN6, LIN7; ORH1, 2A, 2B, 3A, 3B, 7B; OEO1, 3A, 4, 6; SQUIT,6T; SWA3,4; WAR3

2.6 Identification of protected corals

Project Code: INT 2008/02

Start Date: 1 October 2008

Completion Date: 31 March 2010

Overall Objective

- To identify sub-samples of corals returned through the CSP observer programme.

Specific Objectives

1. Sub-samples of corals returned by observers during the 2008/09 fishing year (1 October 2008 to 30 September 2009) to be identified to lower taxa (families, genera, species);
2. Update the observer database as necessary with correct identifications.

Rationale

Management approach

The Conservation Services Programme Observer Programme seeks to identify, monitor and, where possible, quantify protected species interactions with commercial fisheries. As such, CSP has requested that observers collect specimens of corals as an initial step to monitor and quantify the level of interaction between fisheries and protected corals. Fisheries of particular interest include orange roughy, oreo, hoki, scampi, squid and southern blue whiting. At present, we have minimal information on which species are being incidentally caught during trawling.

The sub-samples of corals returned by observers represent a valuable data source that could be better used to elucidate the relationships between invertebrates and commercial fishing activity. It will enable researchers and managers to help identify where corals and their associated fauna are at the highest risk of interactions with fishing gear.

The CSP Observer Programme provides an opportunity to collect and identify deep sea invertebrates, and specifically protected corals, impacted by trawling operations.

Policy 7 of the CSP Strategic Plan states that black coral (all species in the Order Antipatharia) and red coral (all species) will be considered priority species for research.

The group of organisms collectively known as ‘black corals’, (Cnidaria, Antipatharia) are currently protected under the Wildlife Act 1953. ‘Red corals’ are also listed as protected under the Wildlife Act 1953. At present only *Errina* species are being interpreted as protected species by the Ministry of Fisheries and Department of Conservation. The definition of ‘red corals’ is currently being clarified through the revision of Schedule 7A of the Wildlife Act and the definition may be extended to other species or groups, including bubblegum coral and precious corals.

“Red coral” has previously been used as a generic term by observers. Records of “red corals” may include any coral with pink to red or red to orange colouration and could include *Errina* spp., as well as gorgonian and Scleractinian stony corals. The Ministry of Fisheries species code used to record “red corals” (COR) may have also mistakenly been used as a generic code to record any corals. As *Errina* spp can easily be confused with other ‘red’ corals, observers are requested to return a sub-sample of all ‘red’ corals per station.

Research approach

Observers are requested to assess each haul for the presence of corals and to record presence and weight on the Benthic Materials Form. Coral specimens are photographed and one sample of each coral per species is returned for identification. Protected corals (or corals that can not be identified) are returned by government observers and delivered to the contractor for identification to lower taxa.

These data will be reported by species and fishery stratum (method, area and where possible target species). The methodologies used in examining the specimens and categorising them into different groups shall be fully described.

Outputs

1. A report describing the invertebrates returned by observers, presented according to species and fishery stratum (method, area and where possible target species).
2. Update the observer database once correct identification of corals is known;

Project costing

Research cost: \$40,000

This project will be Crown-funded in 2008/09

2.7 Protected species interactions with fisheries in FMA 2, Central (East)

Project Code: INT 2008/03

Start Date: 1 July 2008

Completion Date: 30 October 2009

Overall Objective

- To assess the nature and extent of protected species interactions with fisheries in Central (East) and identify measures to reduce interactions.

Specific Objectives

1. To assess and monitor interactions between protected species and inshore fishing vessels in Central (East);
2. To investigate gear types and discharge patterns occurring in selected fisheries in this FMA;
3. To assess current use of mitigation measures, and develop and facilitate the implementation of strategies to mitigate interactions identified in Specific Objective 1;
4. To consolidate future approaches to monitoring and managing protected species interactions in Central (East);
5. To determine the feasibility of using such approaches for monitoring protected species interactions with fishing vessels in other FMAs, particularly inshore fisheries.

Rationale

Interactions between protected species and smaller fishing vessels have long been difficult to assess, monitor, and quantify for a variety of reasons. This project will employ a variety of methods to assess the nature and extent of protected species interactions with fisheries in the Central (East) Fisheries Management Area, where such interactions are poorly understood. Areas of focus will be identifying interactions with particular gears, assessing discharge patterns (with an emphasis on trawler discharge), investigating the use of mitigation measures and developing others where needed, and developing and implementing robust and cost-effective approaches to monitoring. This project will involve close liaison with fishery managers in the area, and is presented as an alternative and broader approach to managing protected species interactions than fixing observer days in 2008/09.

Outputs

- A report or reports describing work undertaken under each specific objective, methods employed, and results found.
- A set of recommendations for future monitoring and management of protected species interactions in Central (East).
- A set of recommendations for other areas, to the extent that these can be drawn from the above work, with a focus on inshore fisheries.

Project costing

Research cost: \$50,000

Cost Recovery: F(CR) Item 4: 100% Industry

Fish stocks: BNS2; BUT2; GUR2; HPB2; JDO2; KAH2; KIN2; RCO2; SCH2; SKI2; SNA2;
SPD1; SPO2; TAR2; TRE2; WAR2

3. Population Studies

3.1 At-sea distribution and population dynamics of black petrels (*Procellaria parkinsoni*)

Project Code: POP2008/01

Start Date: 1 July 2008

Completion Date: 30 June 2009

Overall Objective:

1. To investigate at-sea distribution of black petrels; and,
2. To monitor population performance of black petrels on Great Barrier Island.

Specific Objectives:

1. To collect data on at-sea distribution and activities of black petrels;
2. To analyse data collected in (1), in relation to spatial and temporal fishing effort;
3. To identify areas where the black petrels are at highest risk of interactions with fishing gear;
4. To collect field data to allow estimation of population parameters relevant to population viability; and,
5. To analyse data collected in (4) to determine the population trajectory of black petrels on Great Barrier Island.

Background:

Knowledge of the at-sea range of black petrels is poor, including in areas where overlap with fishing is likely to occur. Preliminary work on at-sea range was completed in 2005/06, and extended in 2007/08. This involved deploying light and GPS loggers on breeding black petrels. Results from this work showed that deploying these devices was feasible for black petrels, and despite the relatively small number of loggers deployed, a significant body of data was obtained². This project will expand tracking efforts to cover a greater proportion of the year and age/sex classes of petrels, with the goal of developing a representative coverage of age/sex classes through the black petrel population. In addition to location loggers, activity loggers may be deployed. Data collected will be linked to spatial and temporal fisheries effort and fisheries management regimes. Because black petrels are thought to occur in ocean areas with historically low observer coverage, remote tracking provides an indirect method by which at-sea distribution information can be obtained for consideration in management.

To maximise the efficiencies of this project with respect to opportunities for data collection, population data will be obtained when field sites are accessed for tracking studies. To ensure representativeness, individuals of known age and stage will be required for tracking studies. Consequently, for minimal extra effort, population data can be attained from previously

² Bell et al. 2006. Quantifying the population parameters and distribution of the black petrel (*Procellaria parkinsoni*). Draft CSP report. Available at <http://www.doc.govt.nz/templates/MultiPageDocumentTOC.aspx?id=43099>

established study burrows. Population data will be generated from resights of previously marked individuals, with population parameters analysed and the population trajectory determined by incorporating 2007/08 data into databases built up from the inception of Great Barrier Island studies of black petrels.

Note that previous work on black petrels on Great Barrier Island has been completed under CSP projects including: POP2007/02, POP2005/04, POP2004/4, BRD2003/1, BRD2002/5, BRD2001/3. CSP did not undertake work on black petrels in 2006/07.

Outputs

- An understanding of high risk areas for black petrel interactions with fishing gear, which can be applied to fisheries management, and analysis of the black petrel population trajectory on Great Barrier Island. This information would be documented in a report or reports, which will include descriptions of the methodologies used to meet objectives. Data from this project will be linked with appropriate national and international initiatives, e.g BirdLife International's global seabird tracking database.

Project costing

Research cost: \$60,000

This project will be Crown-funded in 2008/09

Note: The following project, POP2007/01, was consulted on in 2007/08.

3.2 Demographic parameters and at-sea distribution of NZ sea lions breeding on the Auckland Islands

Project Code: POP2007/01

Start Date: 1 July 2007

Completion Date: 30 June 2010

Note: This project is funded in annual terms. Continuation beyond June 30 2008 is subject to Ministerial approval

Overall Objective:

- ◆ To inform management of the adverse effects of commercial fishing on the New Zealand sea lion by characterising demographic parameters and at-sea distribution of the population of this sea lion, on the Auckland Islands.

Specific Objectives:

1. To collect field data that will allow quantification and estimation of:
 - pup production,
 - survival of previously marked New Zealand sea lions,
 - reproduction by known-age female New Zealand sea lions;
2. To maintain and update the New Zealand sea lion database;
3. To conduct analyses to estimate demographic parameters;
4. To make available 2007/08 field data for relevant modelling work;
5. To characterise at-sea distribution of poorly known age and sex classes of New Zealand sea lions; and,
6. To analyse data collected in (5) in a fisheries context.

Rationale:

Sea lions are incidentally killed each year in commercial trawl fishing operations targeting species including squid, scampi and southern blue whiting. Population data on the New Zealand sea lion have been collected on the Auckland Islands since the mid-1990s, and have included pup counts and resights of marked animals. Such data have been used to generate estimates of fecundity, survival and other components of population dynamics. These data have been used extensively in the management of fisheries interacting with sea lions, including to develop models investigating fisheries management regimes as they relate to sea lion population trajectories (for example, various iterations of the 'Breen and Kim' model, which is to undergo revision starting in 2007). Maintaining up to date and informed fisheries management regimes requires the continued collection of data describing sea lion populations. At-sea distribution of sea lions has also been investigated, although information on juvenile and male distributions at sea is lacking. Such spatial and temporal data on at-sea distributions are key to developing robust fisheries management regimes.

Previous CSP projects on sea lions include: POP2006/01, POP2005/01, POP2004/01, MAM2002/1, MAM2001/1, MAM2000/1. Outputs of these projects include DOC reports,

published papers, and unpublished CSP Technical Working Group reports. Note that an extensive list of publications including, but not limited to, the CSP-funded sea lion demographic research can be found at:

<http://www.doc.govt.nz/upload/documents/conservation/marine-and-coastal/fishing/cspstocktake.pdf>

Relevant CSP Strategic Plan¹ Policies include: 1, 2, 5, 14, 19

Outputs:

1. A database containing information collected through this project (i.e. data added to a database containing data collected previously through sea lion population work carried out through the Conservation Services Programme).
2. A technical report (or reports) describing methods used to address objectives, demographic parameters and at-sea distribution of the New Zealand sea lion population on the Auckland Islands. Reports are intended to guide fisheries management (e.g. inform any Population Management Plan and/or the SQU6T Operational Plan) and examine the extent to which fisheries are impacting on the New Zealand sea lion breeding on the Auckland Islands. Technical information will be suitable for incorporation in population models or management plans.

Project costing

Research cost: \$300,000

Cost Recovery: F(CR) Item 2: 90% Industry, 10% Crown

Fish stock: SQU6T

¹ <http://www.doc.govt.nz/upload/documents/conservation/marine-and-coastal/fishing/csp-approved-strategic-plan-2005-2010.pdf>

Note: The following project, POP2005/02, was consulted on in 2006/07.

3.3 A population and distributional study of white-capped albatross (Auckland Islands)

Project Code: POP2005/02

Start Date: 1 July 2006³

Completion Date: 30 June 2010

Overall Objective:

3. To provide population and distribution data relevant to managing the effects of commercial fishing on white-capped albatrosses of the Auckland Islands⁴.

Specific Objectives:

1. Collect data describing the at-sea distribution of the New Zealand white-capped albatross;
2. Collect field data to allow estimation of white-capped albatross population size, and population parameters relevant to population viability;
3. Analyse data collected in 1 and 2, including estimating population size, population parameters, and distribution of the New Zealand white-capped albatross with reference to spatial and temporal fishing effort.

Background:

The white-capped albatross is categorised as range restricted in New Zealand, with breeding occurring only on the Auckland Islands. The population was estimated at 70,000-80,000 pairs between 1972 - 1994. Despite the limitations on bycatch estimation imposed by the vagaries of fisheries observer coverage, reported incidental mortality of the white-capped albatross has been high in recent years. Autopsy reports confirm that white-capped albatrosses have been caught in fisheries since 1996 (876 returned for necropsy 1996/97-2004/05), with particularly high numbers returned from trawl fisheries (821 birds, 1996/97 – 2004/05, 167 birds in 2004/05).

The current paucity of knowledge of this species precludes an understanding of how to effectively manage its interactions with fisheries. Knowledge gaps include all aspects of population dynamics and breeding biology, distribution at sea including foraging range, and diet⁵. In 2005/06, CSP commissioned a one year feasibility study of white-capped albatrosses, which included objectives relating to identifying study sites and data collection methods appropriate to this species (see the CSP 2005/06 Annual Plan). This work was undertaken by NIWA. The NIWA team worked at South West Cape on main Auckland Island, because DOC did not support intensive ground-based studies of white-capped albatrosses being conducted on Disappointment Island. Disappointment Island is a very sensitive site which accommodates 96% of the breeding population of white-capped albatrosses. The team confirmed that the white-capped albatross was a species that could be very sensitive to human disturbance, and the location of successful nests on main Auckland Island was influenced by overlap with feral pigs. In this first exploratory field season, the

³ This project is a continuation of a project that commenced in 2005/06.

⁴ See Conservation Services Programme Strategic Plan 2005-2010, <http://www.doc.govt.nz/Conservation/Marine-and-Coastal/Fishing/010~Conservation-services-programme/pdf/CSP-Approved-Strategic-Plan-2005-2010.pdf>

⁵ Taylor (2000). Action Plan for Seabird Conservation in New Zealand Part A: Threatened Species,

NIWA team successfully tracked at-sea movements of white-capped albatrosses, banded adults and marked nests, in addition to refining their approach to field work as required due to the sensitivity of the species and its breeding locales. (See the CSP website for preliminary reports presented to the CSP TWG: <http://www.doc.govt.nz/templates/summary.aspx?id=33988>).

The NIWA team's experiences during the feasibility study led to recommendations on how to improve the project specification, and subsequent reconsultation on revised objectives. The proposed revised objectives were amended based on submissions received from stakeholders. The objectives now refocus field data collection efforts away from a 'robust design' approach, towards population estimates (e.g. using aerial and ground based counts, including photo counts) and distributional work, with mark-recapture work conducted to the extent possible given the species' sensitivity to disturbances. While detailed methods will be developed in consultation with DOC's Southland Conservancy, Southern Islands office, field work for this study need not be limited to South West Cape.

Relevant CSP Strategic Plan¹ Policies include: 1, 2, 5, 6, 14, 22,

Outputs

- An understanding of white-capped albatrosses population status, trend and distribution that can be applied to guide management of this species in a fisheries context. This information would be documented in annual reports and a final report, which will include descriptions of the methodologies used to meet objectives. Data from this project will be linked with appropriate national and international initiatives, e.g. BirdLife International's global seabird tracking database.

Project costing

Research cost: \$175,000

Cost Recovery: F(CR) Item 3: 50% Industry, 50% Crown

Fish stocks: BAR1,4,5,7; HOK1; JMA3,7; ORH3A,3B; SCI6A,6B,12; SQU1T,6T; SWA3,4; WAR3; LIN3,5,6,7; STN1,BIG1,YFN1

Appendix One: Research Costs and Cost Allocation

A: CSP Proposed 2008/09 Projects

Number	Project	Research	Admin	Total	Industry %	Industry	Crown	Fish stocks to be levied
INT2008/01	Observing commercial fisheries	\$999,600	\$156,132	\$1,155,732	100%	\$1,155,732	\$0	See individual project descriptions and Appendix 1
INT2007/02	Seabird autopsy project	\$72,000	\$11,246	\$83,246	100%	\$83,246	\$0	
INT2008/02	Identification of corals	\$40,000	\$6,248	\$46,248	0%	\$0	\$46,248	
INT 2008/03	Area 2 Protected Species Interactions	\$50,000	\$7,810	\$57,810	100%	\$57,810	\$0	
POP2007/01	Sea lion – Auckland Is	\$300,000	\$46,858	\$346,858	90%	\$312,173	\$34,686	
POP2008/01	Black petrels – at sea dist	\$60,000	\$9,372	\$69,372	0%	\$0	\$69,372	
POP2005/02	White-capped albatrosses	\$175,000	\$27,334	\$202,334	50%	\$101,167	\$101,167	
Totals		\$1,696,600	\$265,000	\$1,961,600		\$1,710,128	\$251,472	

B: CSP 2008/09 Observer Allocation

Method / Fishery	Target	Stocks to be levied	Proportion CSP day	% coverage	No. observer days	Per day cost	At-sea cost
Inshore fisheries	Setnet	BUT5, BUT7, ELE3, ELE5, ELE7, MOK1, MOK3, MOK5, SCH1, SCH3, SCH5, SCH7, SCH8, SPD3, SPD5, SPD7, SPD8, SPO3, SPO7, SPO8	0.85	n/a*	250	\$800	\$200,000
	Inshore trawl	BAR1, BAR5, BAR7, BCO3, ELE3, ELE5, ELE7, FLA1, FLA3, FLA7, GSH3, GSH5, GSH7, GUR1, GUR3, GUR7, GUR8, JDO1, JDO3, JDO7, LEA1, LEA3, LIN1, LIN3, LIN5, LIN7, MOK1, MOK3, MOK5, RCO3, RCO7, RSK1, RSK3, RSK7, SCH1, SCH3, SCH5, SCH7, SCH8, SNA1, SNA7, SNA8, SPD3, STA3, STA5, TAR1, TAR3, TAR5, TAR7 TAR8, TRE1, TRE3, TRE7	0.85	n/a	250	\$800	\$200,000
	Inshore bottom longline	LIN1, LIN2, LIN4, LIN3, LIN5, LIN7, HPB1, HPB2, HPB3, HPB 4, HPB5, HPB7, HPB8, BNS1, BNS2, BNS3, BNS 7, BNS8, SNA 1, SNA 8	0.85	n/a	250	\$800	\$200,000
Longline fisheries	Domestic tuna and swordfish	STN1, BIG1, YFN1, SWO1	0.15	20%	69	\$800	\$55,200
	Charter tuna	STN1, BIG1, YFN1, SWO1	0.15	100%	52	\$525	\$27,300
	Deep sea LIN	LIN2, LIN3, LIN 4, LIN5, LIN6, LIN7	0.15	30%	16	\$525	\$8,400
Pelagic trawl	JMA, EMA, BAR	BAR 1, BAR 5, BAR 7, EMA 1, EMA3, EMA 7, JMA1, JMA3, JMA7	0.15	25%	82	\$525	\$43,050
Middle depth trawl	HAK, HOK, SWA	HOK1, HAK1, HAK7, HAK4, SWA1, SWA3, SWA4	0.15	25%	216	\$525	\$113,400
	SCI	SCI1, SCI2, SCI3, SCI4A, SCI 6B,SCI 6A	0.15	15%	30	\$525	\$15,750
	SBW	SBW6A, SBW6R, SBW6I, SBW6B	0.15	30%	13	\$525	\$6,825
	SQU	SQU1T, SQU6T	0.15	30%	135	\$525	\$70,875
Deep water trawl	ORH, OEO	ORH1,2A,2B,3A,3B,7B; OEO1,3A,4,6	0.15	40%	112	\$525	\$58,800
Total					1475		\$999,600