Approved Conservation Services Plan 2003/2004

AS APPROVED BY Hon. Chris Carter, Minister of Conservation, on 20th March 2003.
AS AMENDED BY Hon. Marian Hobbs, Associate Minister of Conservation on 18th June 2003.

Department of Conservation
PO Box 10 420
Wellington

Statement on Conservation Services

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

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

Section 263 of the Fisheries Act 1996 sets out procedures for promulgating cost recovery rules. On 10 September 2001 the Governor-General pursuant to section 263 made the Fisheries (Cost Recovery) Rules 2001, which provides for the apportionment of costs of conservation services as follows:

(a) Research relating to protected species populations where risk to those populations by human intervention has been estimated - percentage of costs to be borne by industry is calculated using the formula: A over B, expressed as a percentage, where-
   - A is the risk to the populations posed by commercial fishing in the EEZ of New Zealand
   - B is the total risk of human interventions on the populations

(b) Research relating to protected species populations where risk to those populations by human intervention has not been estimated - 50% of costs to be borne by industry.
(c) Services (including research) provided to avoid, remedy, or mitigate that portion of the risk to, or adverse effect on, the aquatic environment or biological diversity of the aquatic environment caused by commercial fishing - 100% of costs to be borne by industry.
(d) Observer coverage to support stock assessment process and conservation services - 100% of costs to be borne by industry.
(e) Aquaculture services - 100% of costs to be borne by industry.

After consultation with 'interested parties' which includes individuals and representatives of Maori, non government organisations and commercial fisheries, I hereby approve the attached Conservation Services Plan 2003/04.

Hon Chris Carter
Minister of Conservation

Table of Contents

1. Overview of the Draft 2003/2004 Conservation Services Plan

Conservation Services are services required by the Minster of Conservation and the Director General of the Department of Conservation as a consequence of the impacts of commercial fishing on protected species. A summary of the legal basis of the Plan can be found in the section of the Plan entitled "Legislation and Guidelines used for the Formulation of this Plan".

The format used to specify the conservation services follows the research brief specifications used by the Department of Conservation, Science and Research Unit. This is because the services are administered within the Science and Research Unit and use the same research and contract control systems. An explanation of the template used can be found in the section of the Plan entitled 'Interpreting the template used to specify conservation services'.

The overall objective of 'conservation services' is 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.

For the 2003/2004 year the objectives are:

- *to ensure adequate bycatch data is collected, verified and analysed to give an 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 statutory duties;*
- *to research the status and population demography of protected marine species so as 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 statutory duties;*
- *on a species specific basis to assess fisheries related mortality and the spatial and temporal aspects of commercial fisheries interactions, to provide information on the 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 statutory duties.*

Conservation services can be consulted on the understanding that they will be run over more than one year, although all costs given here and in previous Conservation Services Plans refer to annual expenditures. Services, which were previously consulted in 2001/2002 and 2002/03 to run over multiple years are not being consulted on this year. However, because these previously consulted services impact on 2003/2004 finances, they are included in the project summary tables where they are denoted by an asterisk. Information on these previously consulted projects (autopsies of seabirds and marine mammals subject to incidental take, interaction and sustainability research on wandering albatross and studies into the impact of fisheries bycatch on the New Zealand Sea Lion – Auckland Islands) is included for reference purposes as Appendix 1.

This plan shows a reduced project portfolio from previous years. This reflects the discussions during a CSL stakeholder meeting on 11 December 2002 which focused on developing a path forward and identified benefits from a planning and priority analysis period for CSL programmes over the 2003/04 period.

The 2002/03 Conservation Services Plan detailed services totalling $3,063,600. The 2003/04 plan has conservation services totalling $2,474,541; the subsequent amended plan totals $2,336,241. The draft 2003/04 plan had services totalling $2,588,922. The decrease from 2002/03 is principally due to no new projects being introduced to allow for a year of planning.

Administrative Support

The slight reduction in the number of projects means that CSL administration charges become by default a higher proportion of the total cost of the conservation services plan. This plan has also introduced a change from previous plans in that the costs of the CSL briefing officers (1.8FTE) and direct costs associated with their running of the CSL observer programme have been separated and directly charged against the observer programme. This has been done to more accurately cost programmes for levying purposes. There is an increase in DoC costs of $39,252. Reasons for the increase in costs are a new requirement for CSL to pay a DoC corporate overhead of $25,000 and minor variations to salary and operating costs.

Changes made to the Draft 2003/04 Plan released 20/12/03 include:

- Reducing the demersal ling longline levy to take into account Fishery Service Levy days and prognosed unused days for the deepwater ling fishery this year. The days allocated for the ling deepwater are also provisional and subject to change as a result of statistical modelling of the required coverage.

- The daily Ministry of Fisheries costs of the observer programme are also provisional subject to an outcome of a current review of daily charges being undertaken by Mfish.
- Introduction of the Parkinson's petrel project which is 100% crown funded as a record of the work to be undertaken

Please note: All financial amounts appearing in this document are exclusive of GST.

PROJECT SUMMARY TABLE 1 - COST ALLOCATION BETWEEN CROWN AND INDUSTRY Conservation Services Plan 2003/2004 – Department of Conservation						
Code	**Project**	**Cost recovery item used[1]**	**% of costs to be borne by industry**	**Costs [$]**	**Crown contribution [$]**	**Industry contribution [$]**
1. Observer Programme				**1,476,838**	**NIL**	**1,476,838**
OBS 2001/3*	Marine Mammal Carcass Recovery Project	8	100%	61,915	NIL	61,915
OBS 2001/4*	Seabird Carcass Recovery Project	8	100%	91,570	NIL	91,570
OBS 2003/1	Fisheries Observer Programme – observer sea days	8	100%	1,323,353	NIL	1,323,353
2. Bycatch Mitigation				**101,584**	**NIL**	**101,584**
MIT 2002/2*	Advisory Services for the Snapper Longline Fishery	4	100%	101,584	NIL	101,584
3. Interaction and Sustainability Research				**757,819**	**228,326**	**529,493**
BRD2001/1*	Evaluation of the Impact of Fisheries Bycatch on Gibson's (Auckland Island Wandering) Albatross	3	50%	162,894	81,447	81,447
BRD2001/2*	Evaluation of the Impact of Fisheries Bycatch on the Antipodes Island Wandering Albatross	3	50%	181,418	90,709	90,709
BRD 2003/1	Evaluation of the Impact of Fisheries Bycatch on the Parkinson's Petrel of great Barrier Island	n/a	0%	56,170	56,170	0
MAM 2002/1*	The Impact of Fisheries Bycatch on the New Zealand Sea Lion – Auckland Islands	2	100%	357,337	NIL	357,337
Please note: All financial amounts appearing in this table are exclusive of GST. TOTAL				**$2,336,241**	**$228,326**	**$2,107,915**

* Denotes previously consulted project.

[1] Number refers to the numbered items in the schedule to the Fisheries (Cost Recovery) Rules 2001.

PROJECT SUMMARY TABLE II – PROJECT COSTINGS Conservation Services Plan 2003/2004 – Department of Conservation					
Code	**Project**	**Total costs [$]**	**Administrative support costs [$]**	**Research costs [$]**	**Other costs [$]**
1. Observer Programme					
OBS 2001/3*	Marine Mammal Carcass Recovery Project	61,915	10,108	51,807	
OBS 2001/4*	Seabird Carcass Recovery Project	91,570	14,949	76,621	
OBS 2003/1	Fisheries Observer Programme – observer sea days	1,323,353	200,162	1,025,900	97,291
2. Bycatch Mitigation					
MIT 2002/2*	Advisory Services for the Snapper Longline Fishery	101,584	16,584	85,000	
3. Interaction and Sustainability Research					
BRD2001/1*	Evaluation of the Impact of Fisheries Bycatch on Gibson's (Auckland Island Wandering) Albatross	162,894	26,594	136,300	
BRD2001/2*	Evaluation of the Impact of Fisheries Bycatch on the Antipodes Island Wandering Albatross	181,418	29,618	151,800	
	Evaluation of the impact of fisheries bycatch on the Parkinson's Petrel of Great Barrier Island	56,170	9,170	47,000	
MAM 2002/1*	The Impact of Fisheries Bycatch on the New Zealand Sea Lion – Auckland Islands	357,337	58,337	299,000	
Please note: All financial amounts appearing in this table are exclusive of GST. TOTAL		**$2,336,241**	**$365,522**	**$1,873,428**	**$97,291**

2. Legislation and Guidelines used for the Formulation of this Plan

The outline below is a summary designed to orientate readers of this plan.

There are three parts to the 'purpose and principles' (Part II) of the Fisheries Act 1996. These three sections are 'purpose and principles', 'environmental principles', and 'information principles'. All of them apply to the Conservation Services Plan.

The first (section 8) states that the purpose of the Act "*is to provide for the utilisation of fisheries resources while ensuring sustainability.* Section 9, the 'environmental principles', of the Act states that:

(a) Associated or dependant species shall be maintained above a level that ensures their long-term viability;
(b) Biological diversity of the aquatic environment should be maintained;
(c) Habitat of particular significance for fisheries management should be protected.

The information principles (section 10) state that:

(a) Decisions should be based on the best available information:
(b) Decision makers should consider any uncertainty in the information available in any case:
(c) Decision makers should be cautious when information is uncertain, unreliable or inadequate:
(d) The absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of this Act.

Part XIV of the Fisheries Act 1996 deals with cost recovery issues. This part was replaced by the Fisheries Act 1996 Amendment Act 1999, which now becomes part of the principal act. Under section 261 the Crown can impose levies to recover costs in respect of the provision of conservation services. These services are defined in the definitions of the Fisheries Act 1996 Amendment Act ("the Act") 1999 as:

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

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

Section 262 of the Act sets out cost recovery principles:

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

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

1) The Governor-General may from time to time, by Order in Council made on the recommendation of the Minister, make rules relating to the imposition of levies under this Part.
2) The rules may-
(a) Prescribe the portion of costs of conservation services and fisheries services to be recovered as levies:
(b) Prescribe who must pay levies:
(c) Prescribe how costs are to be apportioned between persons who must pay the levies.

3) Without limiting anything in subsections (1) and (2), different rules may apply in respect of different classes of persons, stocks, quota management areas, fishery management areas, conservation services, fisheries services, or any combination of them.

4) Before making a recommendation under subsection (1), the Minister must-

(a) Be satisfied that the rules to which the recommendation relates comply with the cost recovery principles in section 262; and

(b) Have regard to the extent to which conservation services or fisheries services are wholly or partly purchased or provided by persons other than the Crown.

5) Without limiting the Acts Interpretation Act 1924, no order made under this section is invalid because it leaves any matter to the discretion of any person.

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

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

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

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

3. Interpreting the template used to specify Conservation Services

CSL Programme Section: *CSL projects are grouped into a larger "Programme Section".*

Title: *Project title*

Science Portfolio: *This grouping locates CSL projects within the broader context of the Department's guiding strategic documents. These include the Department's annual "Statement of Intent" document presented to the House of Representatives and "Restoring the Dawn Chorus 2001-2004[1]". These documents set the Department's 10-year 'National Priority Outcomes' and it's 3-year Strategic Directions. The CSL programme forms part of the Science and Research Unit, managed within the Department's Science, Technology & Information Services Group. The work of this group supports a number of the Department's Strategic Directions. The CSL work programme is part of the "Aquatic protection and restoration" portfolio, one of five portfolios managed by the Science and Research Unit.*

State the Priority Action: *This statement links each CSL project with one of the seven Priority Actions for the "Aquatic protection and restoration" Science Portfolio. For more information see the Science and Research Unit's strategic planning document "Science Counts! - National strategic science & research portfolios, programmes, priority actions - 2003/04 and Beyond"[1].*

Investigation ID:	*Allocated once the project has ministerial approval.*	**Fisheries involved:**	*This is the Department's **preliminary** determination of how costs should be attributed. The Ministry of Fisheries consultation process and "cost allocation" plenary is where these indicative determinations are expressed in terms of fish stocks.*
DOC Key Output:	*Allocated once the project has ministerial approval.*	**CSL contact person:**	*The DOC contact person who will be responsible for project **management** once the project has ministerial approval. See below for the person to contact about technical aspects of this proposal.*
Project reference:	*A new reference number is allocated each time a project is proposed as part of the annual consultation process for conservation services.*	**Consultation period for levy:**	*Not necessarily the end date for the project, but rather the project 'run-time' before it is next consulted on.*
Conservation problem:	*This is a description of the problem to be solved and the information or tools required.*		
Project objectives:	*This section sets out the long-term objectives for the project.*		
Objectives for 2003/2004:	*Priority tasks to be carried out during the current consultation period for the levy (2003/2004 or as listed above).*		

Relevant existing information and tools to be taken into account:
What do we know about the conservation problem described above? This section is particularly relevant to new proposals. For projects which are ongoing, more information is given in the 'project outputs' box below

Recommended design and methods:
An overview of how the project will be designed, and what methods will be used to address the project objectives. This section again is particularly relevant to new project proposals. For ongoing projects see the 'project outputs' box below.

Project outputs:
For ongoing projects only – this is a list of all significant project outputs from the project to date. Outputs can include published papers or reports, scientific papers or reports in preparation or in press, databases, popular articles, seminars, workshops, public lectures, conference oral or poster papers, and any specialised equipment or software to be developed. Outputs from earlier, now completed CSL projects are included here in cases where the current work is an extension of earlier CSL projects.

Outputs required for 2003/2004:
List of all significant project outputs for the current consultation period for the levy. Outputs can include written advice to the Minister, advice required under statute by a Minister, published papers or reports, scientific papers or reports in preparation or in press, databases, popular articles, seminars, workshops, public lectures, conference oral or poster papers, and any specialised equipment or software to be developed.

Expected timeframe for the work and any special operational or reporting requirements:
This is not the same as the "consultation period for levy" dates box at the top of this form. This timeframe is the period over which the Department believes the existing project objective will run before the project will be reviewed (for example by the Bird or Marine Mammal Working Groups). Therefore the later of the two dates is not necessarily the project 'end date'.

Resources required 2003/2004:
Project cost (exclusive of GST) for the current (2003/2004) financial year.

Science providers to be approached for expressions of interest, or indicate if open tender is proposed: *All projects are 'open tender' except in cases where issues of quality, availability, continuity (e.g. methodologies, databases etc.) may compromise achieving project objectives. For example: for ongoing projects, continuing with an existing contractor or 'in-house' researcher; or, for new projects where the proposal is to extend existing work; to commission new work where value-added benefits are clear.*	**DOC contacts for advice on proposal:** *The DOC contact person for **technical** advice.*

[1] Copies of this document available from DOC Science Publishing - science.publications@doc.govt.nz

4. Specifications of Conservation Services

CSL Programme Section: Observer Programme			
Title: Observer Sea Days			
Science Portfolio: Aquatic Protection & Restoration			
State the Priority Action: Identify critical factors limiting the viability of populations of threatened freshwater, estuarine and marine species, communities, ecosystems and ecological processes. Test ways to mitigate such threats and biosecurity risks.			
Investigation ID:		**Fisheries involved:**	See Tables 1 and 2 below.
DOC Key Output:		**CSL contact person:**	Reg Blezard CSL Programme
Project reference:	**OBS 2003/1**	**Consultation period for levy:**	One financial year commencing 1 July 2003.
Conservation problem:	Because of inter-annual ecological and environmental fluctuations, changing fishing practices and changing fishing areas, ongoing monitoring of fishing operations is required to provide reliable information on the levels of interactions between commercial fishing and protected species.		
Project objectives:	– To obtain statistically reliable information on the number of protected species incidentally taken in commercial fisheries; – To identify possible means for mitigating the incidental take of these protected species; – To collect other biological information on protected species bycatch that will assist in assessment of bycatch mitigation.		
Objectives for 2003/2004:	– To monitor fisheries that are known to interact with protected species that will either: • Enable estimates of protected species captures to be determined • Provide indicative information about the capture of protected species where observer coverage has been absent or negligible, but where captures are likely given the fishing method and areas fished (i.e. 'exploratory' observer coverage) – To debrief all observer trips made by Ministry of Fisheries observers in order to keep a watching brief on protected species interactions in these fisheries.		

Relevant existing information and tools to be taken into account:
Historical patterns of interaction exist from previous years of observer coverage as part of the bycatch databases held by the Ministry of Fisheries.

Recommended design and methods:
The observer days listed below are those required by the Department of Conservation to collect quantitative estimates and other qualitative information on commercial fishing interaction with protected species. This draft plan shows no change from the previous year. It is intended to continue exploratory monitoring of interactions of protected species in the demersal snapper longline fleet and the demersal ling longline inshore fleet and to continue the same level of monitoring of other fisheries.

In some cases the Ministry of Fisheries requires more observer days for a specific fishery. Where the Ministry of Fisheries intends greater coverage than that required by Conservation Services Plan the procedure is to expend all CSL days before FSP days. Note that the number of observer days in the demersal Ling longline fishery reflects the need to have two observers present on a vessel so that 24 hr fishing operations can be constantly monitored i.e. the actual number of fishing days observed is half the number given in Tables 1 and 2 below.

For observer days required under the Conservation Services Plan the Department of Conservation sets the observers' work priorities, whereas the Ministry of Fisheries sets priorities for observer days levied under the Fisheries Services Plan. There is active co-operation between the Department of Conservation and the Ministry of Fisheries to ensure that maximum value is extracted from all at sea observer days.

Qualitative data is captured by having the CSL Science Officer (Briefing) brief and debrief all observed trips in the Ministry of Fisheries Observer Programme. Numerical estimates of bycatch are made under contracts issued by the Ministry of Fisheries after consultation with the Department of Conservation and thus are detailed in the Ministry of Fisheries Services Plan.

Table 1 Observer coverage for 2003/2004

FISHERY	CSL FUNDED 12 hr DAYS		OF CONCERN	
	Target 2002/2003	Target 2003/2004	Protected species	Fisheries involved
Hoki Trawl	200	200	Fur seals Seabirds	Hoki nation-wide
Southern Blue Whiting Trawl	100	100	Fur seals Sea lions	FMA6
Hake Trawl	30	30	Fur seals & seabirds	FMA7
Squid Trawl	200	200	Sea lions, fur seals & seabirds	SQU6T, SQU1T
Chartered Pelagic Tuna Longline	120	120	Seabirds Fur seals	FMA1, FMA2 FMA5, FMA7
Domestic Pelagic Tuna Longline	250	250	Seabirds & turtles	FMA1, FMA2
Demersal Ling Deep Sea		650		
Demersal Ling Inshore	1,600	200	Seabirds	Ling nation-wide
Demersal Snapper Longline	150	150	Seabirds & turtles	FMA1
TOTAL DAYS	**2,650**	**1,900**		

CSL Project outputs:

Blezard, R.H, Burgess, J. 1999. Observer Reports from squid-jigging vessels off the New Zealand coast 1999. DOC, Conservation Advisory Science Note 255. 7p

Blezard, R.H. 2002. Observations of set-net and inshore trawl fishing operations in the South Canterbury Bight, 2001. DoC Science Internal Series 85.,20p

Blezard, R. H. In prep. Observations of snapper long-line vessels in the outer Hauraki Gulf, 2002.

Blezard, R. H. In prep. Report on protected species by-catch in the New Zealand scampi fishery 1996-2000.

Blezard, R. H. In prep. Report on the New Zealand/Japan joint venture tuna long-line fishery 1999.

Fairfax, D. P. 2002. Observations of inshore trawl fishing operations in Pegasus Bay and the Canterbury Bight, 2002. DoC Science Internal Series 86., 12p.

Fairfax, D.P. In prep. Observations of the New Zealand/Japan Joint-Venture Long-line Tuna Fishery, March to June 2002.

Manly, B., Cameron, C. and Fletcher, D. 2002. Longline bycatch of birds and mammals in New Zealand fisheries, 1990/91 – 1995/96, and observer coverage. DOC Science Internal Series 43. 51p.

Manly, B., Seyb, A. and Fletcher, D. 2002. Bycatch of sea lions (*Phocarctos hookeri*) in New Zealand fisheries, 1987/88 to 1995/96, and observer coverage. DOC Science Internal Series 42. 21p.

Manly, B., Seyb, A. and Fletcher, D. 2002. Bycatch of fur seals (*Arctocephalus forsteri*) in New Zealand fisheries, 1990/91 – 1995/96, and observer coverage. DOC Science Internal Series 41. 40p.

Reid, P., Reid, J. In prep. Observations of inshore set net and trawl fishing operations in Pegasus Bay and the Canterbury Bight, 1999-2000.

Starr, P., Langley, A. 2000. Inshore Fishery Observer Programme for Hector's dolphins in Pegasus Bay, Canterbury Bight, 1997 / 1998. (Contract 3020) 28p. Printed in: Compendium of published CSL reports, 1995/1996 to 1999/2000 funded by Conservation Services Levy. Department of Conservation, Wellington 2000.

Related Outputs

Baird, S.J. 2001. Estimation of the incidental capture of seabird and marine mammal species in commercial fisheries in New Zealand waters, 1999/00. Draft New Zealand Fisheries Assessment Report. 56pp

Baird, S.J. 2001. Estimation of the incidental capture of seabird and marine mammal species in commercial fisheries in New Zealand waters, 1998-99. New Zealand Fisheries Assessment Report 2001/14. 43pp

Baird, S. and Bradford, E. 1999. Factors that may influence the bycatch of nonfish species in some New Zealand fisheries. Final Research Report for Ministry of Fisheries Research Project ENV9801 Objective 3.

Baird, S. 1999. Estimation of nonfish bycatch in commercial fisheries in New Zealand waters, 1997-98. Final Research Report for Ministry of Fisheries Research Project ENV9801 Objective 1.

Baird, S. 1998. Estimation of nonfish bycatch in commercial fisheries in New Zealand waters, 1990-91 to 1993-94. Final Research Report for Ministry of Fisheries Research Project ENV9701 Objective 1.

Bradford, E. 2001. Observer coverage and accuracy of catch estimates. Final Research Report for Ministry of Fisheries Research Project ENV2000/03, Objective 4. 33pp.

Doonan, I. 1998. Estimation of sea lion captures in southern fisheries in 1998. Final Research Report for Ministry of Fisheries Research project ENV9701, Objective 2. 6pp.

Outputs required for 2003/2004:

- Debriefing notes for each observed fishing trip.
- Special reports on particular fisheries interactions with protected species are issued as required.
- Data provided for inclusion in observer database held by MFish.

Expected timeframe for the work and any special operational or reporting requirements:
1 July 2003 to 30 June 2004 – ongoing.

Resources required 2003/2004:

Administrative support	200,162
CSL observer programme costs	97,291
External contract(s)	1,025,900
Total	**1,323,353**

CSL Levy contribution:	1,323,353
Crown contribution:	NIL
Total	**1,323,353**

Table 2 At sea cost for proposed observer coverage, 2003/2004.

Fishery	CSL days 2003/04	Daily rate charged by Mfish*	Cost at sea	CSL observer programme costs (pro rata on days)	CSL admin costs (pro rata on days)	Total Cost (per fishery)	Fisheries Involved
Hoki Trawl	200	461	92,200	10,241	21,070	123,511	Hoki nation-wide
Southern Blue Whiting Trawl	100	461	46,100	5,121	10,535	61,756	SBW6A, SBW6I
Hake Trawl	30	461	13,830	1,536	3,160	18,526	HAK7
Squid Trawl	200	461	92,200	10,241	21,070	123,511	SQU6T
Chartered Pelagic Tuna Longline	120	461	55,320	6,145	12,642	74,107	STN, BIG
Domestic Pelagic Tuna Longline	250	711	177,750	12,801	26,337	216,888	STN, BIG, YFN, SWO
Demersal Ling Longline: deep sea**	650	461	299,650	33,284	68,476	401,410	LIN3,4,5, & 6
Demersal Ling Longline: inshore	200	711	142,200	10,241	21,070	173,511	LIN 1,2, & 7
Demersal Snapper Longline	150	711	106,650	7,681	15,802	130,133	SNA1
TOTALS	**1,900**		**1,025,900**	**97,291**	**200,162**	**1,323,353**	

NOTE:

- The daily rate charged by MFish is a provisional rate based on last years charges. The Mfish observer programme is currently undergoing a review of the costs to provide a more accurate estimate for budget purposes. This review is due to be completed by May and the costs will be adjusted accordingly.
- The required days for the deepwater ling fishery are provisional and subject to the outcome of work to statistically design a programme of observer coverage to be undertaken over the next few months
- Deep sea ling expenses is provisionally reduced for this levy to include 150 Fishery Services days, 100 days credit from the Janas experiment and anticipated 200 days unused due to a late start in observer coverage in 2002/03 therefore levy of 650 days is required to achieve target of 1300.
- If an experiment has been designed, consulted and approved for the evaluation of the effectiveness of bird bafflers for mitigation purposes by the Hoki Fishery at the start of the year (July 1 2003) then consideration will be given to the use of CSL observers for such experiments.
- Industry representatives assisted with the identification of the proposed cost attribution to the fisheries at a meeting following the plenary.

Science providers to be approached for expressions of interest, or indicate if open tender is proposed:	DOC contacts for advice on proposal:
Ministry of Fisheries Observer programme, but other suppliers may be considered for specific programmes at the time that the programmes are developed or reviewed.	Reg Blezard Scientific Officer (Briefing), CSL Programme

APPENDIX - 1

Projects Consulted in Previous Conservation Services Plans

PLEASE NOTE: The following projects have been consulted in previous Conservation Services Plans and are included here for completeness of information only.

1. Marine Mammal Carcass Recovery Project

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

Project Code: CSL OBS 2001/3
Research cost $51,807
Admin costs $10,108
Project Cost: $61,915
Levy Component: $61,915
Start Date: 1 July 2001
Completion Date: 30 June 2004 (ongoing - subject to review)

Project Objectives:

- To collect specimens of marine mammal incidentally taken in commercial fishing operations for the determination 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 by-catch.

Objectives for 2003/04:

- To collect, and return to port for autopsy by qualified personnel, up to 30 marine mammal by-catch specimens, including all sea lions and small cetaceans, and some fur seals. The fur seals will principally be known-age animals bearing DoC tags applied on natal rookeries.

Autopsy will examine species, age, sex, reproductive status, stomach contents and general condition of the specimens to establish a population profile for those species caught as by-catch. For Hector's dolphin and NZ sea lions an attempt to determine cause of death will be made by a veterinary pathologist.

Note that this project was consulted for three years in 2001/2002

Cost Estimate: (provision for up to 30 specimens)	
Packaging and labelling @ $16/bag	480
Transport from wharf @ $250/pallet/tonne	2,407
Storage @ $40/pallet/month	1,920
Autopsy contract	45,000
Publication of reports	2,000
TOTAL	**$51,807**

Please note: This figure is reduced from the 2002/03 levy to reflect correction to 30 animals. This is a reduction of $5,893 in research costs.

Background:
Before this project started in 1995/96, the bodies of most of the marine mammals incidentally taken in commercial fishing operations were 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. The data collected through this project will provide a profile of the population taken as by-catch, and will generate essential information on the impact of commercial fishing on marine mammals.

Cause of death will be determined for Hector's dolphin to attempt to assess whether they died as a result of entanglement. New Zealand sea lions recovered from squid trawl nets carrying MMED's will be examined see if it is possible to determine cause of death. The operational management of carcass recovery will be carried out by the Observer Programme Operational Manager (CSL OBS2000/1).

Note that this project was consulted for three years in 2001/2002

Project Outputs produced to date:

Duignan, Padraig J., Gibbs, Nadine J., et al Massey University. In prep. Autopsy of pinnipeds incidentally caught in commercial fisheries 1997/1998, 1999/2000, 2000/2001.

Duignan, Padraig J., Gibbs, Nadine J., Jones, Gareth W., In prep. Autopsy of pinnipeds incidentally caught in commercial fisheries, 2001/2002.

Duignan, Padraig J., Gibbs, Nadine J., Jones, Gareth W., In prep. Autopsy of cetaceans incidentally caught in commercial fisheries and all beachcast specimens of Hector's dolphins 1997/1998, 1999/2000, 2000/01.

Duignan, Padraig J., Gibbs, Nadine J., Jones, Gareth W., In prep. Autopsy of cetaceans incidentally caught in commercial fisheries and all beachcast specimens of Hector's dolphins 2001/2002.

NB. All these reports have been received by CSL and accepted as final documents for DoC publication purposes.

2. Seabird Carcass Recovery Project

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

Project Code: CSL OBS 2001/4
Research costs $76,621
Admin costs $14,949
Project Cost: $91,570
Levy Component: $91,570
Start Date: 1 July 2001
Completion Date: 30 June 2004 (ongoing - subject to review)

Project Objectives:

- To collect specimens of protected seabirds incidentally taken in fishing operations for the determination of: species, age (where possible), 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 2003/04:

- To collect, and return to port for autopsy by qualified personnel seabird bycatch specimens.

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

Note that this project was consulted for three years in 2001/2002

Cost Estimate: (provision for up to 550 specimens)

Labelling and packing @ $8/kit	4,400
Transport from wharf to autopsy room	6,471
Autopsy and identification	63,750
Publication of reports	2,000
TOTAL	**$76,621**

Note: During preparation of the 2003/04 Plan, an error was identified. The budgeted number of seabirds in the seabird carcass recovery project is 550, not 850 for the duration of this multi-year consultation period. Please note in emending the document a reduction of $4,929 has occurred in the research costs.

Background:

This project will provide each year for the return to port, storage, transport and autopsy of seabirds incidentally taken by vessels carrying observers. The data collected will provide a profile of the species taken as bycatch, and will generate essential information on the impact of commercial fishing on seabirds.

The operational management of carcass recovery will be carried out by the Observer Programme Operational Manager (CSL OBS2000/1).

Note that this project was consulted for three years in 2001/2002

Project Outputs produced to date:

Robertson, C.J.R., et al. 2003. Autopsy report for seabirds killed and returned from New Zealand fisheries, 1 October 200 to 30 September 2001. DOC Science Internal Series 96. Department of Conservation, Wellington. 36p.

3. Advisory services for the Snapper Long-line fishery

Project: Advisory services for the long line fishery.

Project Code: CSL MIT 2002/2
Research costs $85,000
Admin costs $16,584
Project Cost: $101,584
Levy Component: $101,584
Start Date: March 2003
Completion Date: March 2005

NB: This position was consulted for a two year period. It was scheduled to start in July 2002. This position is expected to be filled no earlier than February 2003. DoC will carry forward the balance to maintain the levy as a two year period.

Project Objectives:

- To employ an advisory officer to liaise with fishers in the snapper long line fishery and to work with them to reduce seabird bycatch at sea

Objectives for 2002/03 to 2003/04

- Development of suitable bird bycatch mitigation measures for the snapper long line fleet
- Implementation of mitigation measures and installation of mitigation devices on snapper fishing vessels and advise vessel operators of best practice
- Response to request to advice from fishers
- Identification and mitigation of specific problem areas as they arise.

Note this project was consulted for two years from 2002/03 to 2003/04

Background:

A suite of measures is now available to snapper fishers to enable them to fish with minimal risk of incidentally catching seabirds. The measures include customised tori lines for small vessels, safe line weighting and offal and bait management so these services are aimed at adapting best practices in the snapper long line fishery and the concurrent reduction in seabird bycatch to the snapper fishery. The role of the advisory officer is to liaise with fishers, work on mitigation projects, identify practical measures for reducing seabird bycatch at sea and offer practical advice to fishers.

Note this project was consulted for two years from 2002/03 to 2003/04

4. Monitoring of Protected Seabird Bycatch

Project: Evaluation of the impact of fisheries bycatch on Gibson's (Auckland Island wandering) albatross.

Project Code: CSL BRD 2001/1
Research costs $136,300
Admin cost $26,594
Project Cost: $162,894
Levy Component: $81,447
Start Date: July 2001
Completion Date: June 2006 (Ongoing - subject to annual review)

Project Objectives:

- To determine the present size and population trends of Gibson's albatross (*Diomedea gibsoni*) through annual census of nesting pairs on Adams Island.
- To determine breeding success, annual adult survival and recruitment.
- To determine which areas of ocean are important Gibson's albatross foraging areas and to assess whether conflict between longline fisheries and albatross can be reduced through zoning.
- To collect further population data.

Objectives for 2001/2002 through to 2003/04:

- To determine the survival of adult birds banded between 1991 and 1998, and to band all new pairs nesting in the study area.
- To determine breeding success each year; to band all study area fledglings; and to search for birds banded as chicks since 1995 to assess year-of-first-return, and recruitment rates.
- To census a representative sample of the Gibson's albatross breeding population (study area).
- Map the foraging zones of juvenile birds. using satellite telemetry.

Note this project was consulted for three years from 2001/02 to 2003/04

Cost Estimate:	
Transport	28,500
Contractor's costs (staff etc)	55,400
Equipment (including satellite time)	43,900
Capital charge on hut	4,500
Technical working group costs	2,000
Publication of report	2,000
TOTAL	**$136,300**

Background:
An endemic species, Gibson's albatross breeds only on the Auckland Islands. It is considered an 'at risk' species. Between October 1996 and September 1998, 29 carcasses of this species were returned for autopsy by observers on tuna longline vessels (Bartle, 2000. Robertson, 2000). Studies of wandering albatross 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, fisheries induced reduction of adult survival by 1% p.a. led to a 50% decline in the population on the Crozet Islands over a 20 year period (Weimerskirch & Jouventin, 1987).

No reliable population data exists for the NZ subspecies of wandering albatross. Before a maximum level of fishing related mortality can be set, 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 project 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 albatross, particularly during vulnerable periods of the birds' life cycle.

This year there will be a focus on preparing substantive research reports on the outcomes of the research to date.

As the risk to this population by human intervention has not been estimated the Crown must bear 50% of the costs of this research as outlined in the Fisheries (Crown Contribution) Order 1999.

Note this project was consulted for three years from 2001/02 to 2003/04

Project Outputs produced to date:

Monitoring wandering albatrosses at Auckland and Antipodes Islands, 1995/96-2001/02. Special Conservation Services Levy compendium, DoC Science Internal Series 68-80, Oct 2002.

5. Monitoring of Protected Seabird Bycatch

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

Project Code: CSL BRD 2001/2
Research costs $151,800
Admin costs $29,618
Project Cost: $181,418
Levy Component: $90,709
Start Date: 1 July 2001
Completion Date: 30 June 2006 (Ongoing - subject to annual review)

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

- To determine annual breeding success, 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 further population data.

Objectives for 2003/2004:

- To determine the survival of adult birds banded between 1994 and 1998, and to band all new pairs nesting in the study area.
- To determine breeding success; to band all study area fledglings; and to search for birds banded as chicks since 1995 in assessment of recruitment rates.
- To census a representative sample of the wandering albatross breeding population (study area).
- Through satellite telemetry, map the foraging zones of juvenile birds.
- Prepare detailed research papers on results to date.

Note this project was consulted for three years from 2001/02 to 2003/04

Cost Estimate:	
Transport	48,500
Contractor's costs (staff etc)	55,400
Equipment (including satellite time)	43,900
Technical working group costs	2,000
Publication of report	2,000
TOTAL	**$151,800**

50% of these costs will be recoverable through levies on the fishing industry

Background:
The Antipodean (wandering) albatross is an endemic species that breeds only on the Antipodes Islands and Campbell Island. It is considered an 'at risk' species. Between October 1996 and September 1998, 84 carcasses of this species were returned for autopsy by observers on tuna longline vessels (Bartle, 2000. Robertson, 2000). Studies of wandering albatross 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, a fisheries induced reduction of adult survival by 1%pa led to a 50% decline in the population on the Crozet Islands over a 20 year period (Weimerskirch & Jouventin, 1987).

No reliable population data exists for the NZ subspecies of wandering albatross. Before a maximum level of fishing related mortality can be set, 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 project 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 bird's life cycle.

As the risk to this population by human intervention has not been estimated the Crown must bear 50% of the costs of this research as outlined in the Fisheries (Crown Contribution) Order 1999.

Note this project was consulted for three years from 2001/02 to 2003/04

Project Outputs produced to date:

Monitoring wandering albatrosses at Auckland and Antipodes Islands, 1995/96-2001/02. Special Conservation Services Levy compendium, DoC Science Internal Series 68-80, Oct 2002.

6. Monitoring of Protected Seabird Bycatch

CSL Programme Section: Interaction and Sustainability Research			
Title: Evaluation of the Impact of Fisheries Bycatch on the Parkinson's Petrel of Great Barrier Island			
Science Portfolio: Aquatic Protection & Restoration			
State the Priority Action: Identify critical factors limiting the viability of populations of threatened freshwater, estuarine and marine species, communities, ecosystems and ecological processes. Test ways to mitigate such threats and biosecurity risks.			
Investigation ID:	BRD 2003/1	**Fisheries involved:**	None
DOC Key Output:		**CSL contact person:**	**Kate Bartram**
Project reference:	**BRD 2003/1**[2]	**Funding period**	One financial year commencing 1 July 2003
Conservation problem:	The total population of Parkinson's petrels (*Procellaria parkinsoni*) numbers about 5000 birds. This species listed as a vulnerable threatened species by IUCN, 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. Black petrel is at risk from long line fishing. Over 11 black petrels have been observed or reported caught since 1993. In 2000, two black petrels were observed caught on domestic longliners (Robertson, Bell and Scofield, 2002). The observer coverage in the domestic fishery was very poor in 1999-2000 with less than 0.5 percent of hooks and 0.8 percent of sets observed. This could equate to black petrel deaths of the order of 400.		
Project objectives:	This study will investigate adult mortality, breeding success and recruitment in relation to fisheries interactions.		
Objectives for 2003/2004:	– To determine foraging range and distribution of seabirds through satellite and other tracking – To determine breeding success in the sample of long-term study burrows. Causes of breeding failure, such as predation or disappearance of pairs to be noted. – To determine a population estimate by extrapolating from the grid areas to the main Mount Hobson breeding area. – To undertake a mark/recapture programme earlier in the breeding season to determine pre-breeder survival and age of first return and age of first breeding – To continue the annual census of the black petrel population via burrow monitoring and the banding of adults and fledglings to establish adult mortality, breeding success and recruitment including increased night banding during the entire breeding season. – To confirm the breeding status during each visit.		

Relevant existing information and tools to be taken into account:

Observer coverage of the fisheries that potentially interact with this species has been poor, and it is suspected that many more Parkinson's petrels are taken incidental to fishing than are reported here. No reliable population data exists for the species. Before a maximum level of fishing related mortality can be set, survival, recruitment and population size must be known.

The Parkinson's petrel population on Great Barrier Island has been monitored since the 1995/96 breeding season (Bell and Sim 1998a, 1998b, 2000a, 2000b, 2000c). However after discussions with CSL, interested parties, stakeholders and the fishing industry, extensions to the original programme objectives were suggested. The programme has been extended since 2002 to include a) pre-breeding (Nov/Dec) and b) to attempt to achieve a more precise estimate of adult survival by including an assessment of the foraging range of the species. This information is required to help assess overlap with fishing operations.

Bartle, J.A. 2000. Autopsy report for seabirds killed and returned from New Zealand fisheries 1 October 1996 to 31 December 1997. CAS Notes No. 293, Department of Conservation,

Wellington.
Robertson, C.J.R. 2000. Autopsy report for seabirds killed and returned from New Zealand fisheries 1 January 1998 to 30 September 1998. CAS Notes No. 294, Department of Conservation, Wellington.
Robertson, C.J.R., Bell, E. and Scofield, P. Autopsy report for seabirds killed and returned from New Zealand fisheries, 1 October 2000 to 30 September 2001. DOC Science Internal series (Draft 13 April 2002) 74p. Department of Conservation, Wellington.

Recommended design and methods:
Discussions at the Seabird Working Group meeting (28th August 2001) endorsed the need to expand the project. The project for 2003/2004 involves: a pre-breeding trip to Great Barrier Island in November/December; additional night work throughout the entire breeding season; and foraging studies.

Project outputs:

2000/2001 funding year:

Hunter, C. M., Scofield, R. P., Fletcher, D. and Bell, E. In press. Assessing conservation status of the Black Petrels (*Procellaria parkinsoni*) in New Zealand. Conservation Biology.
Hunter, C., Fletcher, D., Scofield, P. 2001. Preliminary modelling of black petrels (*Procellaria parkinsoni*) to assess population status. (Contract 3092) DOC Science Internal Series 2, 42 p. Available online at: http://csl.doc.govt.nz/dsis2.pdf.

1999/2000 funding year:

Bell, E.; Sim, J. 2000a. Surveying and monitoring of black petrels on Great Barrier Island 1999/2000. (Contract 3018) 20 p. Available online at http://csl.doc.govt.nz/cs13018.pdf.

1998/99 funding year:
Bell, E.; Sim, J. 2000b. Surveying and monitoring of black petrels on Great Barrier Island 1998/99. (Contract 3089) 24p. Available online at: http://csl.doc.govt.nz/cs13089.pdf.

1997/98 funding year:
Bell, E.; Sim, J. 2000c. Surveying and monitoring of black petrels on Great Barrier Island 1997/8. (Contract 3085) 24p. Available online at: http://csl.doc.govt.nz/cs13085.pdf.

1996/97 funding year:
Bell, E.; Sim, J. 1998. Survey and monitoring of black petrels on Great Barrier Island 1997. DOC, Science for Conservation 78. 18p.

1995/96 funding year:
Bell, E.; Sim, J. 1998. Survey and monitoring of black petrels on Great Barrier Island 1996. DOC, Science for conservation 77. 17p.

Outputs required for 2003/2004:
Annual report describing all field activities
Detailed report outlining key foraging areas, past present and future population trends on the basis of survivorship, breeding success and other data, ,

Expected timeframe for the work and any special operational or reporting requirements:
1 July 2002 to 31 June 2004

Resources required 2003/2004:

Administrative support	9,170
Research costs	47,000
Total	**56,170**

Crown contribution:	100%
Total	**56,170**

Science providers to be approached for expressions of interest.
Elizabeth Bell
Wildlife Management International Limited
Wellington (current contractor)

DOC contacts for advice on proposal:

Kate Bartram
Manager, CSL Programme

7. The evaluation of fisheries bycatch on the New Zealand Sea Lion – Auckland Islands

Project: Evaluation of the impact of fisheries bycatch on the New Zealand Sea Lion.

Project Code: CSL MAM 2002/1
Research Cost: $299,000
Admin support:: $58,337
Project cost $357,337
Levy Component: $357,337
Start Date: 1 July 2002
Completion Date: 30 June 2005

Project Objectives:

- To measure annual pup production for the New Zealand Sea Lion on the Auckland Islands
- To provide estimates of female reproduction and survival parameters and estimates of pup survival and recruitment parameters
- To provide inter-annual comparisons of age-specific life history parameters
- To investigate the foraging ecology of the sea lion in so far as it relates to the Auckland shelf squid trawl fishery.

Objectives for 2003/04

- To measure pup production on the Auckland Islands.
- To resight tagged/branded adult females to provide estimates of parameters (survival and reproductive rate) for use in an age-structured model.
- To resight marked animals of other age/sex classes to provide estimates of survival rate, and other life history parameters for use in an age-structured model.
- To replace tags of adult females tagged prior to 1993/94.
- To tag pups to provide estimates of parameters (survival and recruitment) for use in an age-structured model.
- To investigate pup growth in relation to maternal characteristics (size, age, body condition, reproductive history) and foraging/attendance behaviour.
- To examine diet in New Zealand sea lions utilising scat analysis and dietary fatty acid techniques.
- To further evaluate the efficacy of flipper tagging, hot branding and transponder technology as permanent markers of New Zealand sea lions.

Note this project was consulted for three years from 2002/03 to 2004/05

Approved Conservation Services Plan 2003/2004

AS APPROVED BY Hon. Chris Carter, Minister of Conservation, on 20th March 2003.

Department of Conservation
PO Box 10 420
Wellington

Statement on Conservation Services

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

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

Section 263 of the Fisheries Act 1996 sets out procedures for promulgating cost recovery rules. On 10 September 2001 the Governor-General pursuant to section 263 made the Fisheries (Cost Recovery) Rules 2001, which provides for the apportionment of costs of conservation services as follows:

(a) Research relating to protected species populations where risk to those populations by human intervention has been estimated - percentage of costs to be borne by industry is calculated using the formula: A over B, expressed as a percentage, where-
  - A is the risk to the populations posed by commercial fishing in the EEZ of New Zealand
  - B is the total risk of human interventions on the populations

(b) Research relating to protected species populations where risk to those populations by human intervention has not been estimated - 50% of costs to be borne by industry.
(c) Services (including research) provided to avoid, remedy, or mitigate that portion of the risk to, or adverse effect on, the aquatic environment or biological diversity of the aquatic environment caused by commercial fishing - 100% of costs to be borne by industry.
(d) Observer coverage to support stock assessment process and conservation services - 100% of costs to be borne by industry.
(e) Aquaculture services - 100% of costs to be borne by industry.

After consultation with 'interested parties' which includes individuals and representatives of Maori, non government organisations and commercial fisheries, I hereby approve the attached Conservation Services Plan 2003/04.

Hon Chris Carter
Minister of Conservation

Table of Contents

1. Overview of the Draft 2003/2004 Conservation Services Plan

Conservation Services are services required by the Minster of Conservation and the Director General of the Department of Conservation as a consequence of the impacts of commercial fishing on protected species. A summary of the legal basis of the Plan can be found in the section of the Plan entitled "Legislation and Guidelines used for the Formulation of this Plan".

The format used to specify the conservation services follows the research brief specifications used by the Department of Conservation, Science and Research Unit. This is because the services are administered within the Science and Research Unit and use the same research and contract control systems. An explanation of the template used can be found in the section of the Plan entitled 'Interpreting the template used to specify conservation services'.

The overall objective of 'conservation services' is 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.

For the 2003/2004 year the objectives are:

- *to ensure adequate bycatch data is collected, verified and analysed to give an 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 statutory duties;*
- *to research the status and population demography of protected marine species so as 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 statutory duties;*
- *on a species specific basis to assess fisheries related mortality and the spatial and temporal aspects of commercial fisheries interactions, to provide information on the 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 statutory duties.*

Conservation services can be consulted on the understanding that they will be run over more than one year, although all costs given here and in previous Conservation Services Plans refer to annual expenditures. Services, which were previously consulted in 2001/2002 and 2002/03 to run over multiple years are not being consulted on this year. However, because these previously consulted services impact on 2003/2004 finances, they are included in the project summary tables where they are denoted by an asterisk. Information on these previously consulted projects (autopsies of seabirds and marine mammals subject to incidental take, interaction and sustainability research on wandering albatross and studies into the impact of fisheries bycatch on the New Zealand Sea Lion – Auckland Islands) is included for reference purposes as Appendix 1.

This plan shows a reduced project portfolio from previous years. This reflects the discussions during a CSL stakeholder meeting on 11 December 2002 which focused on developing a path forward and identified benefits from a planning and priority analysis period for CSL programmes over the 2003/04 period.

The 2002/03 Conservation Services Plan detailed services totalling $3,063,600. The 2003/04 plan has conservation services totalling $2,474,541. The draft 2003/04 plan had services totalling $2,588,922. The decrease from 2002/03 is principally due to no new projects being introduced to allow for a year of planning.

Administrative Support

The slight reduction in the number of projects means that CSL administration charges become by default a higher proportion of the total cost of the conservation services plan. This plan has also introduced a change from previous plans in that the costs of the CSL briefing officers (1.8FTE) and direct costs associated with their running of the CSL observer programme have been separated and directly charged against the observer programme. This has been done to more accurately cost programmes for levying purposes. There is an increase in DoC costs of $39,252. Reasons for the increase in costs are a new requirement for CSL to pay a DoC corporate overhead of $25,000 and minor variations to salary and operating costs.

Changes made to the Draft 2003/04 Plan released 20/12/03 include:

- Reducing the demersal ling longline levy to take into account Fishery Service Levy days and prognosed unused days for the deepwater ling fishery this year. The days allocated for the ling deepwater are also provisional and subject to change as a result of statistical modelling of the required coverage.

- The daily Ministry of Fisheries costs of the observer programme are also provisional subject to an outcome of a current review of daily charges being undertaken by Mfish.
- Introduction of the Parkinson's petrel project which is 100% crown funded as a record of the work to be undertaken

Please note: All financial amounts appearing in this document are exclusive of GST.

PROJECT SUMMARY TABLE 1 - COST ALLOCATION BETWEEN CROWN AND INDUSTRY Conservation Services Plan 2003/2004 – Department of Conservation						
Code	**Project**	**Cost recovery item used[1]**	**% of costs to be borne by industry**	**Costs [$]**	**Crown contribution [$]**	**Industry contribution [$]**
1. Observer Programme				**1,624,784**	**NIL**	**1,624,784**
OBS 2001/3*	Marine Mammal Carcass Recovery Project	8	100%	61,220	NIL	61,220
OBS 2001/4*	Seabird Carcass Recovery Project	8	100%	90,543	NIL	90,543
OBS 2003/1	Fisheries Observer Programme – observer sea days	8	100%	1,473,021	NIL	1,473,021
2. Bycatch Mitigation				**100,444**	**NIL**	**100,444**
MIT 2002/2*	Advisory Services for the Snapper Longline Fishery	4	100%	100,444	NIL	100,444
3. Interaction and Sustainability Research				**749,313**	**225,764**	**523,549**
BRD2001/1*	Evaluation of the Impact of Fisheries Bycatch on Gibson's (Auckland Island Wandering) Albatross	3	50%	161,065	80,533	80,532
BRD2001/2*	Evaluation of the Impact of Fisheries Bycatch on the Antipodes Island Wandering Albatross	3	50%	179,381	89,691	89,690
BRD 2003/1	Evaluation of the Impact of Fisheries Bycatch on the Parkinson's Petrel of great Barrier Island	n/a	0%	55,540	55,540	0
MAM 2002/1*	The Impact of Fisheries Bycatch on the New Zealand Sea Lion – Auckland Islands	2	100%	353,327	NIL	353,327
Please note: All financial amounts appearing in this table are exclusive of GST.	**TOTAL**			**$2,474,541**	**$225,764**	**$2,248,777**

* Denotes previously consulted project.

[1] Number refers to the numbered items in the schedule to the Fisheries (Cost Recovery) Rules 2001.

PROJECT SUMMARY TABLE II – PROJECT COSTINGS Conservation Services Plan 2003/2004 – Department of Conservation					
Code	**Project**	**Total costs [$]**	**Administrative support costs [$]**	**Research costs [$]**	**Other costs [$]**
1. Observer Programme					
OBS 2001/3*	Marine Mammal Carcass Recovery Project	61,220	9,413	51,807	
OBS 2001/4*	Seabird Carcass Recovery Project	90,543	13,922	76,621	
OBS 2003/1	Fisheries Observer Programme – observer sea days	1,473,021	211,530	1,164,200	97,291
2. Bycatch Mitigation					
MIT 2002/2*	Advisory Services for the Snapper Longline Fishery	100,444	15,444	85,000	
3. Interaction and Sustainability Research					
BRD2001/1*	Evaluation of the Impact of Fisheries Bycatch on Gibson's (Auckland Island Wandering) Albatross	161,065	24,765	136,300	
BRD2001/2*	Evaluation of the Impact of Fisheries Bycatch on the Antipodes Island Wandering Albatross	179,381	27,581	151,800	
	Evaluation of the impact of fisheries bycatch on the Parkinson's Petrel of Great Barrier Island	55,540	8,540	47,000	
MAM 2002/1*	The Impact of Fisheries Bycatch on the New Zealand Sea Lion – Auckland Islands	353,327	54,327	299,000	
Please note: All financial amounts appearing in this table are exclusive of GST. TOTAL		**$2,474,541**	**$365,522**	**$2,011,728**	**$97,291**

2. Legislation and Guidelines used for the Formulation of this Plan

The outline below is a summary designed to orientate readers of this plan.

There are three parts to the 'purpose and principles' (Part II) of the Fisheries Act 1996. These three sections are 'purpose and principles', 'environmental principles', and 'information principles'. All of them apply to the Conservation Services Plan.

The first (section 8) states that the purpose of the Act "*is to provide for the utilisation of fisheries resources while ensuring sustainability*. Section 9, the 'environmental principles', of the Act states that:

(a) Associated or dependant species shall be maintained above a level that ensures their long-term viability;
(b) Biological diversity of the aquatic environment should be maintained;
(c) Habitat of particular significance for fisheries management should be protected.

The information principles (section 10) state that:

(a) Decisions should be based on the best available information:
(b) Decision makers should consider any uncertainty in the information available in any case:
(c) Decision makers should be cautious when information is uncertain, unreliable or inadequate:
(d) The absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of this Act.

Part XIV of the Fisheries Act 1996 deals with cost recovery issues. This part was replaced by the Fisheries Act 1996 Amendment Act 1999, which now becomes part of the principal act. Under section 261 the Crown can impose levies to recover costs in respect of the provision of conservation services. These services are defined in the definitions of the Fisheries Act 1996 Amendment Act ("the Act") 1999 as:

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

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

Section 262 of the Act sets out cost recovery principles:

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

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

1) The Governor-General may from time to time, by Order in Council made on the recommendation of the Minister, make rules relating to the imposition of levies under this Part.
2) The rules may-
(a) Prescribe the portion of costs of conservation services and fisheries services to be recovered as levies:
(b) Prescribe who must pay levies:
(c) Prescribe how costs are to be apportioned between persons who must pay the levies.

3) *Without limiting anything in subsections (1) and (2), different rules may apply in respect of different classes of persons, stocks, quota management areas, fishery management areas, conservation services, fisheries services, or any combination of them.*
4) *Before making a recommendation under subsection (1), the Minister must-*
   (a) *Be satisfied that the rules to which the recommendation relates comply with the cost recovery principles in section 262; and*
   (b) *Have regard to the extent to which conservation services or fisheries services are wholly or partly purchased or provided by persons other than the Crown.*
5) *Without limiting the Acts Interpretation Act 1924, no order made under this section is invalid because it leaves any matter to the discretion of any person.*

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

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

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

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

3. Interpreting the template used to specify Conservation Services

CSL Programme Section: *CSL projects are grouped into a larger "Programme Section".*

Title: *Project title*

Science Portfolio: *This grouping locates CSL projects within the broader context of the Department's guiding strategic documents. These include the Department's annual "Statement of Intent" document presented to the House of Representatives and "Restoring the Dawn Chorus 2001-2004[1]". These documents set the Department's 10-year 'National Priority Outcomes' and it's 3-year Strategic Directions. The CSL programme forms part of the Science and Research Unit, managed within the Department's Science, Technology & Information Services Group. The work of this group supports a number of the Department's Strategic Directions. The CSL work programme is part of the "Aquatic protection and restoration" portfolio, one of five portfolios managed by the Science and Research Unit.*

State the Priority Action: *This statement links each CSL project with one of the seven Priority Actions for the "Aquatic protection and restoration" Science Portfolio. For more information see the Science and Research Unit's strategic planning document "Science Counts! - National strategic science & research portfolios, programmes, priority actions - 2003/04 and Beyond"[1].*

Investigation ID:	*Allocated once the project has ministerial approval.*	**Fisheries involved:**	*This is the Department's **preliminary** determination of how costs should be attributed. The Ministry of Fisheries consultation process and "cost allocation" plenary is where these indicative determinations are expressed in terms of fish stocks.*
DOC Key Output:	*Allocated once the project has ministerial approval.*	**CSL contact person:**	*The DOC contact person who will be responsible for project **management** once the project has ministerial approval. See below for the person to contact about technical aspects of this proposal.*
Project reference:	*A new reference number is allocated each time a project is proposed as part of the annual consultation process for conservation services.*	**Consultation period for levy:**	*Not necessarily the end date for the project, but rather the project 'run-time' before it is next consulted on.*
Conservation problem:	*This is a description of the problem to be solved and the information or tools required.*		
Project objectives:	*This section sets out the long-term objectives for the project.*		
Objectives for 2003/2004:	*Priority tasks to be carried out during the current consultation period for the levy (2003/2004 or as listed above).*		

Relevant existing information and tools to be taken into account:
What do we know about the conservation problem described above? This section is particularly relevant to new proposals. For projects which are ongoing, more information is given in the 'project outputs' box below

Recommended design and methods:
An overview of how the project will be designed, and what methods will be used to address the project objectives. This section again is particularly relevant to new project proposals. For ongoing projects see the 'project outputs' box below.

Project outputs:
For ongoing projects only – this is a list of all significant project outputs from the project to date. Outputs can include published papers or reports, scientific papers or reports in preparation or in press, databases, popular articles, seminars, workshops, public lectures, conference oral or poster papers, and any specialised equipment or software to be developed. Outputs from earlier, now completed CSL projects are included here in cases where the current work is an extension of earlier CSL projects.

Outputs required for 2003/2004:
List of all significant project outputs for the current consultation period for the levy. Outputs can include written advice to the Minister, advice required under statute by a Minister, published papers or reports, scientific papers or reports in preparation or in press, databases, popular articles, seminars, workshops, public lectures, conference oral or poster papers, and any specialised equipment or software to be developed.

Expected timeframe for the work and any special operational or reporting requirements:
This is not the same as the "consultation period for levy" dates box at the top of this form. This timeframe is the period over which the Department believes the existing project objective will run before the project will be reviewed (for example by the Bird or Marine Mammal Working Groups). Therefore the later of the two dates is not necessarily the project 'end date'.

Resources required 2003/2004:
Project cost (exclusive of GST) for the current (2003/2004) financial year.

Science providers to be approached for expressions of interest, or indicate if open tender is proposed: *All projects are 'open tender' except in cases where issues of quality, availability, continuity (e.g. methodologies, databases etc.) may compromise achieving project objectives. For example: for ongoing projects, continuing with an existing contractor or 'in-house' researcher; or, for new projects where the proposal is to extend existing work; to commission new work where value-added benefits are clear.*	**DOC contacts for advice on proposal:** *The DOC contact person for **technical** advice.*

[1] Copies of this document available from DOC Science Publishing - science.publications@doc.govt.nz

4. Specifications of Conservation Services

CSL Programme Section: Observer Programme			
Title: Observer Sea Days			
Science Portfolio: Aquatic Protection & Restoration			
State the Priority Action: Identify critical factors limiting the viability of populations of threatened freshwater, estuarine and marine species, communities, ecosystems and ecological processes. Test ways to mitigate such threats and biosecurity risks.			
Investigation ID:		**Fisheries involved:**	See Tables 1 and 2 below.
DOC Key Output:		**CSL contact person:**	Reg Blezard CSL Programme
Project reference:	**OBS 2003/1**	**Consultation period for levy:**	One financial year commencing 1 July 2003.
Conservation problem:	Because of inter-annual ecological and environmental fluctuations, changing fishing practices and changing fishing areas, ongoing monitoring of fishing operations is required to provide reliable information on the levels of interactions between commercial fishing and protected species.		
Project objectives:	– To obtain statistically reliable information on the number of protected species incidentally taken in commercial fisheries; – To identify possible means for mitigating the incidental take of these protected species; – To collect other biological information on protected species bycatch that will assist in assessment of bycatch mitigation.		
Objectives for 2003/2004:	– To monitor fisheries that are known to interact with protected species that will either: • Enable estimates of protected species captures to be determined • Provide indicative information about the capture of protected species where observer coverage has been absent or negligible, but where captures are likely given the fishing method and areas fished (i.e. 'exploratory' observer coverage) – To debrief all observer trips made by Ministry of Fisheries observers in order to keep a watching brief on protected species interactions in these fisheries.		

Relevant existing information and tools to be taken into account:
Historical patterns of interaction exist from previous years of observer coverage as part of the bycatch databases held by the Ministry of Fisheries.

Recommended design and methods:
The observer days listed below are those required by the Department of Conservation to collect quantitative estimates and other qualitative information on commercial fishing interaction with protected species. This draft plan shows no change from the previous year. It is intended to continue exploratory monitoring of interactions of protected species in the demersal snapper longline fleet and the demersal ling longline inshore fleet and to continue the same level of monitoring of other fisheries.

In some cases the Ministry of Fisheries requires more observer days for a specific fishery. Where the Ministry of Fisheries intends greater coverage than that required by Conservation Services Plan the procedure is to expend all CSL days before FSP days. Note that the number of observer days in the demersal Ling longline fishery reflects the need to have two observers present on a vessel so that 24 hr fishing operations can be constantly monitored i.e. the actual number of fishing days observed is half the number given in Tables 1 and 2 below.

For observer days required under the Conservation Services Plan the Department of Conservation sets the observers' work priorities, whereas the Ministry of Fisheries sets priorities for observer days levied under the Fisheries Services Plan. There is active co-operation between the Department of Conservation and the Ministry of Fisheries to ensure that maximum value is extracted from all at sea observer days.

Qualitative data is captured by having the CSL Science Officer (Briefing) brief and debrief all observed trips in the Ministry of Fisheries Observer Programme. Numerical estimates of bycatch are made under contracts issued by the Ministry of Fisheries after consultation with the Department of Conservation and thus are detailed in the Ministry of Fisheries Services Plan.

Table 1 Observer coverage for 2003/2004

FISHERY	CSL FUNDED 12 hr DAYS		OF CONCERN	
	Target 2002/2003	Target 2003/2004	Protected species	Fisheries involved
Hoki Trawl	200	200	Fur seals Seabirds	Hoki nation-wide
Southern Blue Whiting Trawl	100	100	Fur seals Sea lions	FMA6
Hake Trawl	30	30	Fur seals & seabirds	FMA7
Squid Trawl	200	200	Sea lions, fur seals & seabirds	SQU6T, SQU1T
Chartered Pelagic Tuna Longline	120	120	Seabirds Fur seals	FMA1, FMA2 FMA5, FMA7
Domestic Pelagic Tuna Longline	250	250	Seabirds & turtles	FMA1, FMA2
Demersal Ling Longline	1,600	1,600	Seabirds	Ling nation-wide
Demersal Snapper Longline	150	150	Seabirds & turtles	FMA1
TOTAL DAYS	**2,650**	**2,650**		

CSL Project outputs:

Blezard, R.H, Burgess, J. 1999. Observer Reports from squid-jigging vessels off the New Zealand coast 1999. DOC, Conservation Advisory Science Note 255. 7p

Blezard, R.H. 2002. Observations of set-net and inshore trawl fishing operations in the South Canterbury Bight, 2001. DoC Science Internal Series 85.,20p

Blezard, R. H. In prep. Observations of snapper long-line vessels in the outer Hauraki Gulf, 2002.

Blezard, R. H. In prep. Report on protected species by-catch in the New Zealand scampi fishery 1996-2000.

Blezard, R. H. In prep. Report on the New Zealand/Japan joint venture tuna long-line fishery 1999.

Fairfax, D. P. 2002. Observations of inshore trawl fishing operations in Pegasus Bay and the Canterbury Bight, 2002. DoC Science Internal Series 86., 12p.

Fairfax, D.P. In prep. Observations of the New Zealand/Japan Joint-Venture Long-line Tuna Fishery, March to June 2002.

Manly, B., Cameron, C. and Fletcher, D. 2002. Longline bycatch of birds and mammals in New Zealand fisheries, 1990/91 – 1995/96, and observer coverage. DOC Science Internal Series 43. 51p.

Manly, B., Seyb, A. and Fletcher, D. 2002. Bycatch of sea lions (*Phocarctos hookeri*) in New Zealand fisheries, 1987/88 to 1995/96, and observer coverage. DOC Science Internal Series 42. 21p.

Manly, B., Seyb, A. and Fletcher, D. 2002. Bycatch of fur seals (*Arctocephalus forsteri*) in New Zealand fisheries, 1990/91 – 1995/96, and observer coverage. DOC Science Internal Series 41. 40p.

Reid, P., Reid, J. In prep. Observations of inshore set net and trawl fishing operations in Pegasus Bay and the Canterbury Bight, 1999-2000.

Starr, P., Langley, A. 2000. Inshore Fishery Observer Programme for Hector's dolphins in Pegasus Bay, Canterbury Bight, 1997 / 1998. (Contract 3020) 28p. Printed in: Compendium of published CSL reports, 1995/1996 to 1999/2000 funded by Conservation Services Levy. Department of Conservation, Wellington 2000.

Related Outputs

Baird, S.J. 2001. Estimation of the incidental capture of seabird and marine mammal species in commercial fisheries in New Zealand waters, 1999/00. Draft New Zealand Fisheries Assessment Report. 56pp

Baird, S.J. 2001. Estimation of the incidental capture of seabird and marine mammal species in commercial fisheries in New Zealand waters, 1998-99. New Zealand Fisheries Assessment Report 2001/14. 43pp

Baird, S. and Bradford, E. 1999. Factors that may influence the bycatch of nonfish species in some New Zealand fisheries. Final Research Report for Ministry of Fisheries Research Project ENV9801 Objective 3.

Baird, S. 1999. Estimation of nonfish bycatch in commercial fisheries in New Zealand waters, 1997-98. Final Research Report for Ministry of Fisheries Research Project ENV9801 Objective 1.

Baird, S. 1998. Estimation of nonfish bycatch in commercial fisheries in New Zealand waters, 1990-91 to 1993-94. Final Research Report for Ministry of Fisheries Research Project ENV9701 Objective 1.

Bradford, E. 2001. Observer coverage and accuracy of catch estimates. Final Research Report for Ministry of Fisheries Research Project ENV2000/03, Objective 4. 33pp.

Doonan, I. 1998. Estimation of sea lion captures in southern fisheries in 1998. Final Research Report for Ministry of Fisheries Research project ENV9701, Objective 2. 6pp.

Outputs required for 2003/2004:

- Debriefing notes for each observed fishing trip.
- Special reports on particular fisheries interactions with protected species are issued as required.
- Data provided for inclusion in observer database held by MFish.

Expected timeframe for the work and any special operational or reporting requirements:

1 July 2003 to 30 June 2004 – ongoing.

Resources required 2003/2004:

Administrative support	211,530
CSL observer programme costs	97,291
External contract(s)	1,164,200
Total	**1,473,021**

CSL Levy contribution:	1,473,021
Crown contribution:	NIL
Total	**1,473,021**

Table 2 At sea cost for proposed observer coverage, 2003/2004.

Fishery	CSL days 2003/04	Daily rate charged by Mfish*	Cost at sea	CSL observer programme costs (pro rata on days)	CSL admin costs (pro rata on days)	Total Cost (per fishery)	Fisheries Involved
Hoki Trawl	200	461	92,200	8,845	19,230	120,275	Hoki nation-wide
Southern Blue Whiting Trawl	100	461	46,100	4,422	9,616	60,138	SBW6A, SBW6I
Hake Trawl	30	461	13,830	1,327	2,884	18,041	HAK7
Squid Trawl	200	461	92,200	8,845	19,230	120,275	SQU6T
Chartered Pelagic Tuna Longline	120	461	55,320	5,307	11,538	72,165	STN, BIG
Domestic Pelagic Tuna Longline	250	711	177,750	11,055	24,038	212,843	STN, BIG, YFN, SWO
Demersal Ling Longline: deep sea**	950	461	437,950	42,012	91,342	571,304	LIN3,4,5, & 6
Demersal Ling Longline: inshore	200	711	142,200	8,845	19,230	170,275	LIN 1,2, & 7
Demersal Snapper Longline	150	711	106,650	6,633	14,422	127,705	SNA1
TOTALS	**2,200**		**1,164,200**	**97,291**	**211,530**	**1,473,021**	

NOTE:

- The daily rate charged by MFish is a provisional rate based on last years charges. The Mfish observer programme is currently undergoing a review of the costs to provide a more accurate estimate for budget purposes. This review is due to be completed by May and the costs will be adjusted accordingly.
- The required days for the deepwater ling fishery are provisional and subject to the outcome of work to statistically design a programme of observer coverage to be undertaken over the next few months
- Deep sea ling expenses is provisionally reduced for this levy to include 150 Fishery Services days, 100 days credit from the Janas experiment and anticipated 200 days unused due to a late start in observer coverage in 2002/03 therefore levy of 950 days is required to achieve target of 1600.
- If an experiment has been designed, consulted and approved for the evaluation of the effectiveness of bird bafflers for mitigation purposes by the Hoki Fishery at the start of the year (July 1 2003) then consideration will be given to the use of CSL observers for such experiments.
- Industry representatives assisted with the identification of the proposed cost attribution to the fisheries at a meeting following the plenary.

Science providers to be approached for expressions of interest, or indicate if open tender is proposed:	**DOC contacts for advice on proposal:**
Ministry of Fisheries Observer programme, but other suppliers may be considered for specific programmes at the time that the programmes are developed or reviewed.	Reg Blezard Scientific Officer (Briefing), CSL Programme

APPENDIX - 1

Projects Consulted in Previous Conservation Services Plans

PLEASE NOTE: The following projects have been consulted in previous Conservation Services Plans and are included here for completeness of information only.

1. Marine Mammal Carcass Recovery Project

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

Project Code: CSL OBS 2001/3
Research cost $51,807
Admin costs $9,413
Project Cost: $61,220
Levy Component: $61,220
Start Date: 1 July 2001
Completion Date: 30 June 2004 (ongoing - subject to review)

Project Objectives:

- To collect specimens of marine mammal incidentally taken in commercial fishing operations for the determination 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 by-catch.

Objectives for 2003/04:

- To collect, and return to port for autopsy by qualified personnel, up to 30 marine mammal by-catch specimens, including all sea lions and small cetaceans, and some fur seals. The fur seals will principally be known-age animals bearing DoC tags applied on natal rookeries.

Autopsy will examine species, age, sex, reproductive status, stomach contents and general condition of the specimens to establish a population profile for those species caught as by-catch. For Hector's dolphin and NZ sea lions an attempt to determine cause of death will be made by a veterinary pathologist.

Note that this project was consulted for three years in 2001/2002

Cost Estimate: (provision for up to 30 specimens)

Packaging and labelling @ $16/bag	480
Transport from wharf @ $250/pallet/tonne	2,407
Storage @ $40/pallet/month	1,920
Autopsy contract	45,000
Publication of reports	2,000
TOTAL	**$51,807**

Please note: This figure is reduced from the 2002/03 levy to reflect correction to 30 animals. This is a reduction of $5,893 in research costs.

Background:
Before this project started in 1995/96, the bodies of most of the marine mammals incidentally taken in commercial fishing operations were 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. The data collected through this project will provide a profile of the population taken as by-catch, and will generate essential information on the impact of commercial fishing on marine mammals.

Cause of death will be determined for Hector's dolphin to attempt to assess whether they died as a result of entanglement. New Zealand sea lions recovered from squid trawl nets carrying MMED's will be examined see if it is possible to determine cause of death. The operational management of carcass recovery will be carried out by the Observer Programme Operational Manager (CSL OBS2000/1).

Note that this project was consulted for three years in 2001/2002

Project Outputs produced to date:

Duignan, Padraig J., Gibbs, Nadine J., et al Massey University. In prep. Autopsy of pinnipeds incidentally caught in commercial fisheries 1997/1998, 1999/2000, 2000/2001.

Duignan, Padraig J., Gibbs, Nadine J., Jones, Gareth W., In prep. Autopsy of pinnipeds incidentally caught in commercial fisheries, 2001/2002.

Duignan, Padraig J., Gibbs, Nadine J., Jones, Gareth W., In prep. Autopsy of cetaceans incidentally caught in commercial fisheries and all beachcast specimens of Hector's dolphins 1997/1998, 1999/2000, 2000/01.

Duignan, Padraig J., Gibbs, Nadine J., Jones, Gareth W., In prep. Autopsy of cetaceans incidentally caught in commercial fisheries and all beachcast specimens of Hector's dolphins 2001/2002.

NB. All these reports have been received by CSL and accepted as final documents for DoC publication purposes.

2. Seabird Carcass Recovery Project

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

Project Code: CSL OBS 2001/4
Research costs $76,621
Admin costs $13,922
Project Cost: $90,543
Levy Component: $90,543
Start Date: 1 July 2001
Completion Date: 30 June 2004 (ongoing - subject to review)

Project Objectives:

- To collect specimens of protected seabirds incidentally taken in fishing operations for the determination of: species, age (where possible), 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 2003/04:

- To collect, and return to port for autopsy by qualified personnel seabird bycatch specimens.

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

Note that this project was consulted for three years in 2001/2002

Cost Estimate: (provision for up to 550 specimens)

Labelling and packing @ $8/kit	4,400
Transport from wharf to autopsy room	6,471
Autopsy and identification	63,750
Publication of reports	2,000
TOTAL	**$76,621**

Note: During preparation of the 2003/04 Plan, an error was identified. The budgeted number of seabirds in the seabird carcass recovery project is 550, not 850 for the duration of this multi-year consultation period. Please note in emending the document a reduction of $4,929 has occurred in the research costs.

Background:

This project will provide each year for the return to port, storage, transport and autopsy of seabirds incidentally taken by vessels carrying observers. The data collected will provide a profile of the species taken as bycatch, and will generate essential information on the impact of commercial fishing on seabirds.

The operational management of carcass recovery will be carried out by the Observer Programme Operational Manager (CSL OBS2000/1).

Note that this project was consulted for three years in 2001/2002

Project Outputs produced to date:

Robertson, C.J.R., et al. 2003. Autopsy report for seabirds killed and returned from New Zealand fisheries, 1 October 200 to 30 September 2001. DOC Science Internal Series 96. Department of Conservation, Wellington. 36p.

3. Advisory services for the Snapper Long-line fishery

Project:	Advisory services for the long line fishery.
Project Code:	CSL MIT 2002/2
Research costs	$85,000
Admin costs	$15,444
Project Cost:	$100,444
Levy Component:	$100,444
Start Date:	March 2003
Completion Date:	March 2005

NB: This position was consulted for a two year period. It was scheduled to start in July 2002. This position is expected to be filled no earlier than February 2003. DoC will carry forward the balance to maintain the levy as a two year period.

Project Objectives:

- To employ an advisory officer to liaise with fishers in the snapper long line fishery and to work with them to reduce seabird bycatch at sea

Objectives for 2002/03 to 2003/04

- Development of suitable bird bycatch mitigation measures for the snapper long line fleet
- Implementation of mitigation measures and installation of mitigation devices on snapper fishing vessels and advise vessel operators of best practice
- Response to request to advice from fishers
- Identification and mitigation of specific problem areas as they arise.

Note this project was consulted for two years from 2002/03 to 2003/04

Background:

A suite of measures is now available to snapper fishers to enable them to fish with minimal risk of incidentally catching seabirds. The measures include customised tori lines for small vessels, safe line weighting and offal and bait management so these services are aimed at adapting best practices in the snapper long line fishery and the concurrent reduction in seabird bycatch to the snapper fishery. The role of the advisory officer is to liaise with fishers, work on mitigation projects, identify practical measures for reducing seabird bycatch at sea and offer practical advice to fishers.

Note this project was consulted for two years from 2002/03 to 2003/04

4. Monitoring of Protected Seabird Bycatch

Project: Evaluation of the impact of fisheries bycatch on Gibson's (Auckland Island wandering) albatross.

Project Code: CSL BRD 2001/1
Research costs $136,300
Admin cost $24,765
Project Cost: $161,065
Levy Component: $80,532
Start Date: July 2001
Completion Date: June 2006 (Ongoing - subject to annual review)

Project Objectives:

- To determine the present size and population trends of Gibson's albatross (*Diomedea gibsoni*) through annual census of nesting pairs on Adams Island.
- To determine breeding success, annual adult survival and recruitment.
- To determine which areas of ocean are important Gibson's albatross foraging areas and to assess whether conflict between longline fisheries and albatross can be reduced through zoning.
- To collect further population data.

Objectives for 2001/2002 through to 2003/04:

- To determine the survival of adult birds banded between 1991 and 1998, and to band all new pairs nesting in the study area.
- To determine breeding success each year; to band all study area fledglings; and to search for birds banded as chicks since 1995 to assess year-of-first-return, and recruitment rates.
- To census a representative sample of the Gibson's albatross breeding population (study area).
- Map the foraging zones of juvenile birds. using satellite telemetry.

Note this project was consulted for three years from 2001/02 to 2003/04

Cost Estimate:	
Transport	28,500
Contractor's costs (staff etc)	55,400
Equipment (including satellite time)	43,900
Capital charge on hut	4,500
Technical working group costs	2,000
Publication of report	2,000
TOTAL	**$136,300**

Background:
An endemic species, Gibson's albatross breeds only on the Auckland Islands. It is considered an 'at risk' species. Between October 1996 and September 1998, 29 carcasses of this species were returned for autopsy by observers on tuna longline vessels (Bartle, 2000. Robertson, 2000). Studies of wandering albatross 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, fisheries induced reduction of adult survival by 1% p.a. led to a 50% decline in the population on the Crozet Islands over a 20 year period (Weimerskirch & Jouventin, 1987).

No reliable population data exists for the NZ subspecies of wandering albatross. Before a maximum level of fishing related mortality can be set, 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 project 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 albatross, particularly during vulnerable periods of the birds' life cycle.

This year there will be a focus on preparing substantive research reports on the outcomes of the research to date.

As the risk to this population by human intervention has not been estimated the Crown must bear 50% of the costs of this research as outlined in the Fisheries (Crown Contribution) Order 1999.

Note this project was consulted for three years from 2001/02 to 2003/04

Project Outputs produced to date:

Monitoring wandering albatrosses at Auckland and Antipodes Islands, 1995/96-2001/02. Special Conservation Services Levy compendium, DoC Science Internal Series 68-80, Oct 2002.

5. Monitoring of Protected Seabird Bycatch

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

Project Code: CSL BRD 2001/2
Research costs $151,800
Admin costs $27,581
Project Cost: $179,381
Levy Component: $89,690
Start Date: 1 July 2001
Completion Date: 30 June 2006 (Ongoing - subject to annual review)

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

- To determine annual breeding success, 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 further population data.

Objectives for 2003/2004:

- To determine the survival of adult birds banded between 1994 and 1998, and to band all new pairs nesting in the study area.
- To determine breeding success; to band all study area fledglings; and to search for birds banded as chicks since 1995 in assessment of recruitment rates.
- To census a representative sample of the wandering albatross breeding population (study area).
- Through satellite telemetry, map the foraging zones of juvenile birds.
- Prepare detailed research papers on results to date.

Note this project was consulted for three years from 2001/02 to 2003/04

Cost Estimate:	
Transport	48,500
Contractor's costs (staff etc)	55,400
Equipment (including satellite time)	43,900
Technical working group costs	2,000
Publication of report	2,000
TOTAL	**$151,800**

50% of these costs will be recoverable through levies on the fishing industry

Background:
The Antipodean (wandering) albatross is an endemic species that breeds only on the Antipodes Islands and Campbell Island. It is considered an 'at risk' species. Between October 1996 and September 1998, 84 carcasses of this species were returned for autopsy by observers on tuna longline vessels (Bartle, 2000. Robertson, 2000). Studies of wandering albatross 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, a fisheries induced reduction of adult survival by 1%pa led to a 50% decline in the population on the Crozet Islands over a 20 year period (Weimerskirch & Jouventin, 1987).

No reliable population data exists for the NZ subspecies of wandering albatross. Before a maximum level of fishing related mortality can be set, 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 project 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 bird's life cycle.

As the risk to this population by human intervention has not been estimated the Crown must bear 50% of the costs of this research as outlined in the Fisheries (Crown Contribution) Order 1999.

Note this project was consulted for three years from 2001/02 to 2003/04.

Project Outputs produced to date:

Monitoring wandering albatrosses at Auckland and Antipodes Islands, 1995/96-2001/02. Special Conservation Services Levy compendium, DoC Science Internal Series 68-80, Oct 2002.

6. Monitoring of Protected Seabird Bycatch

CSL Programme Section: Interaction and Sustainability Research			
Title: Evaluation of the Impact of Fisheries Bycatch on the Parkinson's Petrel of Great Barrier Island			
Science Portfolio: Aquatic Protection & Restoration			
State the Priority Action: Identify critical factors limiting the viability of populations of threatened freshwater, estuarine and marine species, communities, ecosystems and ecological processes. Test ways to mitigate such threats and biosecurity risks.			
Investigation ID:	BRD 2003/1	**Fisheries involved:**	None
DOC Key Output:		**CSL contact person:**	**Kate Bartram**
Project reference:	**BRD 2003/1[2]**	**Funding period**	One financial year commencing 1 July 2003
Conservation problem:	The total population of Parkinson's petrels (*Procellaria parkinsoni*) numbers about 5000 birds. This species listed as a vulnerable threatened species by IUCN, 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. Black petrel is at risk from long line fishing. Over 11 black petrels have been observed or reported caught since 1993. In 2000, two black petrels were observed caught on domestic longliners (Robertson, Bell and Scofield, 2002). The observer coverage in the domestic fishery was very poor in 1999-2000 with less than 0.5 percent of hooks and 0.8 percent of sets observed. This could equate to black petrel deaths of the order of 400.		
Project objectives:	This study will investigate adult mortality, breeding success and recruitment in relation to fisheries interactions.		
Objectives for 2003/2004:	– To determine foraging range and distribution of seabirds through satellite and other tracking – To determine breeding success in the sample of long-term study burrows. Causes of breeding failure, such as predation or disappearance of pairs to be noted. – To determine a population estimate by extrapolating from the grid areas to the main Mount Hobson breeding area. – To undertake a mark/recapture programme earlier in the breeding season to determine pre-breeder survival and age of first return and age of first breeding – To continue the annual census of the black petrel population via burrow monitoring and the banding of adults and fledglings to establish adult mortality, breeding success and recruitment including increased night banding during the entire breeding season. – To confirm the breeding status during each visit.		

Relevant existing information and tools to be taken into account:

Observer coverage of the fisheries that potentially interact with this species has been poor, and it is suspected that many more Parkinson's petrels are taken incidental to fishing than are reported here. No reliable population data exists for the species. Before a maximum level of fishing related mortality can be set, survival, recruitment and population size must be known.

The Parkinson's petrel population on Great Barrier Island has been monitored since the 1995/96 breeding season (Bell and Sim 1998a, 1998b, 2000a, 2000b, 2000c). However after discussions with CSL, interested parties, stakeholders and the fishing industry, extensions to the original programme objectives were suggested. The programme has been extended since 2002 to include a) pre-breeding (Nov/Dec) and b) to attempt to achieve a more precise estimate of adult survival by including an assessment of the foraging range of the species. This information is required to help assess overlap with fishing operations.

Bartle, J.A. 2000. Autopsy report for seabirds killed and returned from New Zealand fisheries 1 October 1996 to 31 December 1997. CAS Notes No. 293, Department of Conservation,

Wellington.
Robertson, C.J.R. 2000. Autopsy report for seabirds killed and returned from New Zealand fisheries 1 January 1998 to 30 September 1998. CAS Notes No. 294, Department of Conservation, Wellington.
Robertson, C.J.R., Bell, E. and Scofield, P. Autopsy report for seabirds killed and returned from New Zealand fisheries, 1 October 2000 to 30 September 2001. DOC Science Internal series (Draft 13 April 2002) 74p. Department of Conservation, Wellington.

Recommended design and methods:
Discussions at the Seabird Working Group meeting (28th August 2001) endorsed the need to expand the project. The project for 2003/2004 involves: a pre-breeding trip to Great Barrier Island in November/December; additional night work throughout the entire breeding season; and foraging studies.

Project outputs:

2000/2001 funding year:

Hunter, C. M., Scofield, R. P., Fletcher, D. and Bell, E. In press. Assessing conservation status of the Black Petrels (*Procellaria parkinsoni*) in New Zealand. Conservation Biology.
Hunter, C., Fletcher, D., Scofield, P. 2001. Preliminary modelling of black petrels (*Procellaria parkinsoni*) to assess population status. (Contract 3092) DOC Science Internal Series 2, 42 p. Available online at: http://csl.doc.govt.nz/dsis2.pdf.

1999/2000 funding year:

Bell, E.; Sim, J. 2000a. Surveying and monitoring of black petrels on Great Barrier Island 1999/2000. (Contract 3018) 20 p. Available online at http://csl.doc.govt.nz/cs13018.pdf.

1998/99 funding year:

Bell, E.; Sim, J. 2000b. Surveying and monitoring of black petrels on Great Barrier Island 1998/99. (Contract 3089) 24p. Available online at: http://csl.doc.govt.nz/cs13089.pdf.

1997/98 funding year:

Bell, E.; Sim, J. 2000c. Surveying and monitoring of black petrels on Great Barrier Island 1997/8. (Contract 3085) 24p. Available online at: http://csl.doc.govt.nz/cs13085.pdf.

1996/97 funding year:

Bell, E.; Sim, J. 1998. Survey and monitoring of black petrels on Great Barrier Island 1997. DOC, Science for Conservation 78. 18p.

1995/96 funding year:

Bell, E.; Sim, J. 1998. Survey and monitoring of black petrels on Great Barrier Island 1996. DOC, Science for conservation 77. 17p.

Outputs required for 2003/2004:
Annual report describing all field activities
Detailed report outlining key foraging areas, past present and future population trends on the basis of survivorship, breeding success and other data, ,

Expected timeframe for the work and any special operational or reporting requirements:
1 July 2002 to 31 June 2004

Resources required 2003/2004:

Administrative support	8,853
Research costs	47,000
Total	**55,853**

Crown contribution:	100%
Total	**55,853**

Science providers to be approached for expressions of interest.
Elizabeth Bell
Wildlife Management International Limited
Wellington (current contractor)

DOC contacts for advice on proposal:

Kate Bartram
Manager, CSL Programme

7. The evaluation of fisheries bycatch on the New Zealand Sea Lion – Auckland Islands

Project: Evaluation of the impact of fisheries bycatch on the New Zealand Sea Lion.

Project Code:	CSL MAM 2002/1
Research Cost:	$299,000
Admin support::	$54,327
Project cost	$353,327
Levy Component:	$353,327
Start Date:	1 July 2002
Completion Date:	30 June 2005

Project Objectives:

- To measure annual pup production for the New Zealand Sea Lion on the Auckland Islands
- To provide estimates of female reproduction and survival parameters and estimates of pup survival and recruitment parameters
- To provide inter-annual comparisons of age-specific life history parameters
- To investigate the foraging ecology of the sea lion in so far as it relates to the Auckland shelf squid trawl fishery.

Objectives for 2003/04

- To measure pup production on the Auckland Islands.
- To resight tagged/branded adult females to provide estimates of parameters (survival and reproductive rate) for use in an age-structured model.
- To resight marked animals of other age/sex classes to provide estimates of survival rate, and other life history parameters for use in an age-structured model.
- To replace tags of adult females tagged prior to 1993/94.
- To tag pups to provide estimates of parameters (survival and recruitment) for use in an age-structured model.
- To investigate pup growth in relation to maternal characteristics (size, age, body condition, reproductive history) and foraging/attendance behaviour.
- To examine diet in New Zealand sea lions utilising scat analysis and dietary fatty acid techniques.
- To further evaluate the efficacy of flipper tagging, hot branding and transponder technology as permanent markers of New Zealand sea lions.

Note this project was consulted for three years from 2002/03 to 2004/05