

Conservation Services Programme Annual Plan 2014/15

Conservation Services Programme
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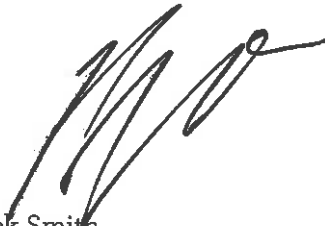
Statement on Conservation Services

Conservation services are defined in section 2 of the Fisheries Act 1996 as follows:

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

- (a) Research relating to those effects on protected species;*
- (b) Research on measures to mitigate the adverse effects of commercial fishing on protected species;*
- (c) The development of population management plans under the Wildlife Act 1953 and the Marine Mammals Protection Act 1978.”*

We agree that the outputs described in the following pages, to be delivered in 2013/14, are “conservation services” in accordance with this definition. Cost recovery principles have been applied in accordance with section 262 of the Fisheries Act 1996.



Nick Smith
Minister of Conservation



Lou Sanson
Director-General of Conservation

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1. Overview

1.1 Introduction

The Conservation Services Programme Annual Plan 2014/15 (“Annual Plan”) includes the conservation services to be delivered as the Conservation Services Programme (“CSP”), and subject to cost recovery from the commercial fishing industry. As such, this Annual Plan forms the basis for levying the commercial fishing industry under the Fisheries Act 1996. For a summary of the legal basis of levied work described in this Annual Plan, refer to the Conservation Services Programme Strategic Statement¹ (“Strategic Statement”).

The Conservation Services Programme vision is that *“commercial fishing is undertaken in a manner that does not compromise the protection and recovery of protected species in New Zealand fisheries waters”*. In order to meet this vision, the following CSP Objectives, as described in the CSP Strategic Statement, have been identified:

Objective A: Proven mitigation strategies are in place to avoid or minimise the effects of commercial fishing on protected species across the range of fisheries with known interactions.

Objective B: The nature of direct effects of commercial fishing on protected species is described.

Objective C: The extent of known direct effects of commercial fishing on protected species is adequately understood.

Objective D: The nature and extent of indirect effects of commercial fishing are identified and described for protected species that are at particular risk to such effects.

Objective E: Adequate information on population level and susceptibility to fisheries effects exists for protected species populations identified as at medium or higher risk from fisheries.

1.2 Format

The format used to specify the conservation services in this Annual Plan includes an outline of the objectives and rationale for each project, and the outputs that are anticipated to be produced. Guiding objectives, both CSP Objectives (described in the CSP Strategic Statement) and relevant management plans, are identified for each project. The project specifications also indicate cost recovery information, i.e. indicative project costs (excluding administration costs), relevant provisions within the Fisheries (Cost Recovery) Rules 2001 that determine cost allocation, and relevant fish stocks. Costs are summarised in Appendix 1. All financial amounts appearing in this document are exclusive of GST.

1.3 Guiding frameworks, research planning and prioritisation

The CSP Strategic Statement, which was finalised in November 2013, outlines the objectives of CSP and describes the process through which each annual plan of services will be developed and delivered. It provides detail on the wider management context (for example, how CSP delivers on whole of government plans such as the National Plans of Action for seabirds and sharks), the research planning and prioritisation processes used by CSP, and the way CSP is implemented by working with others.

¹ Available to download from <http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/csp-strat-statement2013.pdf>

The CSP Research Advisory Group (CSP RAG), was established in December 2013 following finalisation of the CSP Strategic Statement, and provided guidance for the development of this Annual Plan. Two draft medium term research plans have also been developed as part of the work of the CSP RAG; the Draft CSP seabird population medium term research plan (“Draft CSP seabird plan”) and the Draft CSP protected fish medium term research plan (“Draft CSP fish plan”)². These plans have been used, to extent possible given their draft nature, to inform relevant sections of this Annual Plan.

A summary of the planning and prioritisation milestones, in accordance with the CSP Strategic Statement, undertaken in developing the CSP Annual Plan 2014/15 are as follows:

1. Preparation of initial research summary material (Nov 2013).
2. CSP RAG meeting to review relevant outputs and advise on planning process (Dec 2013)
3. Discussions with MPI to align research processes and priorities, ensure that no overlaps existed and to maximise synergies between research directions (Feb 2014).
4. Draft medium term research plans and initial research projects identified (CSP), draft aquatic environment research plan developed (MPI) (Feb-March 2014).
5. A joint CSP RAG-MPI research planning session was held, with open invitation to all CSP stakeholders, at which DOC and MPI presented their respective initial research proposals, as one package, for comment. Specifically, feedback was sought on prioritisation of project proposals and identification of gaps (March 2014).
6. Draft Annual Plan developed based on this feedback, and provided for formal consultation (April 2014).

Inshore observer coverage was planned using a process developed jointly by CSP and the Inshore Fisheries team at MPI in consultation with Seafood New Zealand and the Federation of Commercial Fishermen. The programme progresses delivery of objectives identified by a process conducted in preparation for the CSP Annual Plan 2011/12. Deepwater observer coverage was developed jointly by the CSP and the Deepwater Fisheries team at MPI.

1.4 Consultation

Key stages for stakeholder input, including formal consultation on this plan, were as follows:

3 December 2013	Initial CSP RAG meeting – review and advice on planning process
Feb-March 2014	Draft medium term research plans and initial CSP research proposals for 2014/15 circulated to stakeholders
11 March 2014	Joint CSP RAG-MPI presentation of initial research proposals to stakeholders
25 March 2014	Close of comments on initial CSP research proposals
1 April 2014	Draft Conservation Services Programme Annual Plan 2014/15 released for public consultation
22 April 2014	Public consultation period closes
May 2014	Summary of public submissions and response to comments completed

² Both available to download from <http://www.doc.govt.nz/conservation/marine-and-coastal/conservation-services-programme/meetings-and-project-updates/11-march-2014/>

May-June 2014 Director-General of Conservation conveys the Conservation Services Programme Annual Plan 2014/15, amended in accordance with public submissions, to the Minister of Conservation for agreement

1.5 **Administrative costs**

Administration costs have always been a contentious matter relating to the delivery of conservation services. Administration requirements of each project differ, as does the time required to address these. Currently, administration charges are distributed in a pro-rated fashion across projects, in accordance with the cost of the project. This approach is broadly appropriate, for example, the most costly project (INT2014/01 Observing commercial fisheries in 2014/15) incurs the majority of administration expenses. For that project, administration includes observer training programmes and training materials, data management, briefing and debriefing, liaison at sea and with other agencies when necessary, and reporting. For other projects, the administration burden may be significantly less. Administration also includes charges for the use of Departmental facilities and services.

DOC is continually striving to maximise efficiencies, and the administration costs for delivering conservation services dropped by \$15,000 between 2008/09 and 2009/10, and subsequently dropped again by \$13,000 for 2011/12 and has been maintained at this level. We welcome stakeholder views on different ways to attribute administration costs across projects.

2. Interaction Projects

2.1 Observing commercial fisheries

Project code: INT2014-01

Start Date: 1 July 2014

Completion Date: 30 June 2015

Guiding Objectives: CSP Objectives A, B, C; National Plan of Action – Seabirds, National Plan of Action – Sharks; Hector’s and Maui’s dolphin Threat Management Plan.

Project Objective

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

Specific Objectives

1. To identify, describe and, where possible, quantify protected species interactions with commercial fisheries;
2. To identify, describe and, where possible, quantify measures for mitigating protected species interactions;
3. To collect information relevant to identifying levels of cryptic mortality of protected species resulting from interactions with commercial fisheries;
4. To collect other relevant information on protected species interactions that will assist in assessing, developing and improving mitigation measures.

Rationale

The management approach

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

The CSP Observer Programme will continue to purchase baseline services for “offshore” fisheries from MPI Observer Services, given the scale of their operation, which allows observers to be placed strategically across New Zealand Fisheries. Inshore fisheries observer coverage will also be delivered by MPI Observer Services, according to a joint planning process (described in Section 2.1.1). Where data collection involves using techniques beyond observation and recording, providers with specific expertise and/or equipment will be considered. For the purposes of providing costings, the rate provided by MPI Observer Services has been used. As such, for the purposes of planning, costings for observer coverage are based on those provided by the MPI Observer Services to provide a best estimate.

Research Approach

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

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

- Historic mortality of protected species.
- Fishing effort.
- Past observer coverage.
- The status of particular threatened protected species.
- Current level of information.
- Risk assessment work which has been undertaken (e.g. Rowe 2010a, Richard & Abraham. 2013).
- Requirements under the National Plans of Action (NPOAs) for seabirds³ and sharks⁴
- Information needs identified for newly introduced protected species.

In 2013/14, increased coverage of Foreign Charter Vessels also formed an important factor driving the distribution of observer coverage. Decisions around coverage levels on Foreign Charter Vessels are driven by multiple factors, but the coverage continues to provide a platform for delivery of CSP Observer Programme coverage in the 2014/15 year. Other ministerial directives have driven coverage priorities including on trawl and setnet vessels on the East coast of the North Island to address the Maui dolphin Threat Management Plan and coverage of snapper trawl and Danish seine vessels in the Hauraki Gulf to address concerns around snapper stocks.

The duties of an observer in respect of the CSP Observer Programme can be summarised as:

- Monitoring and recording the interactions of protected species with fishing operations.
- Reporting on the efforts made to mitigate the adverse effects of commercial fishing on protected species.
- Recording, photographing and tagging all protected species bycatch.
- Recovering and returning the bodies or samples of dead protected species for identification and autopsy.
- Recording at least on a daily basis the numbers, and the behaviour of, marine mammal and seabird species seen around the fishing vessel.
- Collecting information to better understand cryptic mortality of protected species (e.g. following data collection protocols developed from CSP project INT2013-05).
- Carrying out other tasks (e.g. making observations on discard and offal discharge) as required.

In addition to the duties discussed above, CSP will occasionally use observers to collect data for specific mitigation or information acquisition projects. Examples of past projects include fish waste trials, observations of warp interactions on inshore trawl vessels and blue-dyed bait trials.

Information collected includes:

- Environmental conditions (e.g. sea state).
- Fishing methods (including a description of gear employed) and operations.
- Processing waste management practices.
- Abundance and behaviour of protected species in vicinity of vessel.
- Mitigation practices adopted.

³ NPOA-Seabirds available at <http://www.mpi.govt.nz/Default.aspx?TabId=126&id=1760>

⁴ NPOA-Sharks available at <http://www.mpi.govt.nz/Default.aspx?TabId=126&id=2126>

- Knowledge and approach of crew.
- Interactions between protected species and fishing gear.

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

Application of observer coverage by fishery in 2014/15:

For the purposes of planning observer coverage, fisheries are divided into two broad categories: firstly, those fisheries that are poorly known and generally characterised by small vessel, owner operated fleets (see 2.1.1). The majority of these vessels operate in the inshore area (i.e. to around 200 m depth), some small vessels, particularly bottom longline vessels under 36 m, will operate in deeper waters such as the Chatham Rise (and are observed as part of deepwater longline coverage). Details of the approach used to set days in these fisheries are described in the Joint Department of Conservation/Ministry for Primary Industries Inshore Observer Programme 2014/15 plan (included as Section 2.1.1 of this plan). In general, coverage in these fisheries was aimed at reducing uncertainty around the risk to particular protected species which was identified in both the level 1 and level 2 risk assessments (Rowe 2010, Richard & Abraham 2013), and assessing mitigation options for interactions identified, as well as delivering on Threat Management Plan objectives for Hector's and Maui dolphins. The NPOA-Sharks 2013 gives guidance on data collection priorities to inform protection and management of sharks, in the first instance dealing with improved data for the development of a quantitative risk assessment similar to that produced for seabirds.

The second group of fisheries can be considered 'better known' and have generally had some level of ongoing observer coverage over the last ten years or more (see 2.1.2). Most of these fisheries are characterised by large vessels operating further offshore and are termed 'offshore' fisheries. Observers working in these fisheries generally have multiple priorities including stock assessment, compliance and protected species interactions. DOC contributes to a portion of observer time in these fisheries and, as such, days are planned differently to the poorly known fisheries. In order to set observer days for the period 1 July 2014 – 30 June 2015, effort data from previous years was examined, in conjunction with MPI, to ensure that desired coverage levels are achievable with the days planned and that these coverage levels would meet the data requirements of both agencies. All time periods are based on 1 July - 30 June in line with the period that observer coverage runs (i.e. not the fishing year). Following Ministerial decisions in 2012, there is a substantial increase in foreign charter vessel coverage. This has resulted in a proportionally greater volume of coverage going on to these vessels.

Protected species interaction data for the period 1 July 2004 to 30 June 2011 are reported by Rowe (2009, 2010b) and Ramm (2010, 2012, 2013). Draft summary information for the period 1 July 2011 to 30 June 2013 are reported by Clemens-Seely & Ramm (2013a, b). Download links are provided in the References section.

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

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

2.1.1 “Inshore” Fisheries: Joint DOC-MPI Inshore Observer Programme

Introduction

During the planning round for the 2011/12 observer programme a tiered approach was developed to prioritising areas of observer coverage. This planning process was described in detail in the Marine Conservation Services Programme Annual Plan 2011/12⁵. This tiered process has endured into the planning for the 2014/15 year and decisions on the levels and placement of this observer coverage were undertaken jointly between DOC and MPI. These decisions were informed by risk assessments (levels 1, 2 and 3 where applicable), the National Plan of Action for Sharks, Hector’s and Maui’s dolphin Threat Management Plan priorities, and previous observer data and fish-stock related data collection.

For 2014/15 the cost of observer coverage is being jointly recovered by both DOC and MPI similar to the way in which offshore observer coverage is cost recovered. Broadly, for coverage driven by protected species interactions each cost will be recovered evenly by each agency. For coverage driven by fisheries needs but also collecting protected species information the observer’s time will be prorated to reflect the time spent on each set of tasks generally 85% Fisheries, 15% Conservation Services.

The goals of the Inshore Observer Programme are to:

- *inform management of impacts from fishing on protected species by identifying and quantifying interactions between inshore fisheries and protected species, and assessing the effectiveness of mitigation measures, where appropriate;*
- *minimise adverse effects of fishing on the aquatic environment, including on biological diversity; and*
- *inform management of fish stocks by gathering biological and other information on board fishing vessels.*

⁵ Available for download from <http://www.doc.govt.nz/publications/conservation/marine-and-coastal/marine-conservation-services/csp-plans/mcs-annual-plan-2011-12/>

Inshore Observer Projects 2014/15

The table below summarises the proposed observer projects for 2014/15

Method	Area	Statistical Area	Percentage of effort	Season	Total number of days	Objective
Setnet	East Coast South Island Otago	24,026	65%	Oct-Mar	310	Dolphins and Yellow Eyed Penguins
	South Coast South Island	25,030,031	65%	Oct-Mar	352	Dolphins
	West Coast North Island	041-042	100%	All year	420	
Small inshore trawl	West Coast North Island	041-046	25%	All Year	300	Dolphins, seabirds
	East Coast South Island	20,022	100%	July - Oct	200	BIBV feasibility trial On selected fleet(5 vessels)
Danish Seine	North-east North Island	003-008	Initial Scope	Jul-Nov	100	SNA Catch, Seabirds, Offal Management
Bottom Longline (BNS 1)	North-east North Island	003-008	50%	Oct-Mar	205	Seabirds
SNA1 trawl	North-east North Island	003-008	50%	All year	600	SNA Catch, Seabirds, Offal Management
Total					2487	

Hector's dolphin focussed projects (Projects A and B)

Overall project objectives/information needs

1. Estimate the capture rate of Hector's dolphins South Island populations in **setnet fisheries**.

PROJECT A

Project Title	Interactions with Hector's dolphins and yellow-eyed penguins, East Coast South Island Otago
Start Date	1 October 2014
Completion Date	31 March 2015
Targeted fishing methods	Inshore setnet vessels
Targeted Statistical Area	024,026

Project Objectives

1. Gather information to estimate the number of captures and the capture rate of Hector's dolphins in setnet fisheries on the East Coast of the South Island Otago.
2. Gather information to identify the nature and extent of interactions with Yellow eyed Penguins by setnet fisheries on the East Coast of the South Island.

Information Needs

An overall Hector's dolphin capture rate for the East Coast of the South Island population needs to be estimated as the East Coast has the highest levels of setnet activity. Observer coverage is targeted in a statistical area where there are high levels of setnet fishing occurring. Statistical area 022 (off Timaru coast) was covered in 2012/13, and 20013/14 with enhanced levels of coverage but still experiencing delivery issues in relation to Safe Ship Management (SSM) requirements around crew numbers and ability to safely carry observers. This affected coverage so more data is needed to ensure a robust estimate of Hector's dolphin captures and capture rate.

Robust estimation of total Hector's dolphin captures requires that the fishing behaviour observed is representative of normal situations (i.e. if we can assume that observer placement is not changing behaviour). To minimise any potential bias, relatively high coverage as a percentage of effort by area/month is proposed.

Yellow eyed penguins have been identified by the Level-2 risk assessment as being at risk from setnet fisheries from Otago south. Due to the decrease in their mainland population their susceptibility to fishing increases.

Proposed Coverage

- Statistical area 024,026.
- The planning optimisation process identified 65% coverage required to gain sufficient data.
- 310 observer days are required.

Secondary information to be collected

To make the best use of Observers' time, secondary information can sometimes be collected, which will then inform other priorities. Secondary information collected will include:

- Biological sampling of fish to help inform stock assessments.
- Information on the nature and extent of setnet interactions with other seabirds, marine mammals and protected fish.
- Observer counts to provide spatial distribution data for seabirds and marine mammals.
- Total catch verification in line with providing better information about the specific target fisheries

Related Research

- An East Coast South Island aerial survey has obtained estimates of Hector's dolphin abundance and distribution, which when combined with up to date reliable capture observations will allow estimation of the risk posed by setnet fisheries in this area.
- An ongoing autopsy programme for Hector's and Maui dolphins aims to identify sub-species, cause of death, body condition, parasitism for any beach-cast or captured dolphins. This allows better understanding of the health and condition of the various Hector's and Maui dolphins.

Previous observer coverage and captures for the ECSI setnet fishery. (Figures summarised from CSP observer reports available at www.doc.govt.nz/csp)

Year	Location	% coverage (hauls observed)	Mammal captures	Seabird captures
2007/08	Kaikoura, Timaru	6.84	2	5
2008/09	Kaikoura, Timaru	21.48	1	20
2009/10	Kaikoura, Timaru	18.14	7	4
2010/11	Timaru	9.84	3	0
2011/12	-	-	-	-
2012/13	Timaru	1.85	1	1
2013/14	Timaru	21	1	1

PROJECT B

Project Title	Interactions with Hector's dolphins, South Coast South Island Southland
Start Date	1 October 2014
Completion Date	31 March 2015
Targeted fishing methods	Inshore setnet vessels
Targeted Statistical Areas	025,030,031

Project Objectives

1. Gather information to estimate the number of captures and the capture rate of Hector's dolphins
2. Gather information to identify the nature and extent of interactions with Yellow eyed Penguins, Fiordland bottlenose dolphins and white pointer sharks by setnet fisheries on the South Coast of the South Island.

Information Needs

Observer coverage is targeted in a statistical area where there are high levels of setnet fishing occurring, to allow estimation of captures the capture rate for the South Coast Hector's dolphin population.

Robust estimation of total Hector's dolphin captures requires that the fishing behaviour observed is representative of normal situations (i.e. if we can assume that observer placement is not changing behaviour). To minimise any potential bias, relatively high coverage as a percentage of effort by area/month is proposed.

The National Plan of Action-Sharks (NPOA-Sharks) sets goals and objective for better understanding and ultimately reducing the incidence of protected shark species. Historically captures of white pointer sharks have been reported by both fishers and observers around Stewart Island and Fiordland. Identifying the factors which lead to captures will assist in the development of effective mitigation. Additionally a number of white pointer sharks are alive (though with injuries) at time of release therefore further information on the factors which contribute to safe and successful release of animals is important to developing adequate guidelines for fishers.

Proposed Coverage

- Statistical areas 025,030,031
- The planning optimisation process identified 65% coverage required to gain sufficient data.
- 352 observer days are required.

Secondary information to be collected

To make the best use of Observers' time, secondary information can sometimes be collected, which will then inform other priorities. Secondary information collected will include:

- Information on the nature and extent of setnet interactions with other protected species seabirds, in particular yellow-eyed penguins.
- Sea lion interactions and sightings.
- Observer counts to provide spatial distribution data for seabirds and marine mammals.
- Biological sampling of fish to help inform stock assessments.
- Possible total catch verification.

Related Research

- An East Coast South Island aerial survey has obtained estimates of Hector's dolphin abundance and distribution, which when combined with up to date reliable capture observations will allow estimation of the risk posed by setnet fisheries in this area.
- An ongoing autopsy programme for Hector's and Maui dolphins aims to identify sub-species, cause of death, body condition, parasitism for any beach-cast or captured dolphins. This allows better understanding of the health and condition of the various Hector's and Maui dolphins.

Previous observer coverage and captures for the SCSi setnet fishery. (Figures summarised from CSP observer reports available at www.doc.govt.nz/csp)

Year	% coverage (hauls observed)	Mammal captures	Seabird captures	Protected fish captures
2006/07	10.87	1	2	-
2007/08	25.04	0	1	-
2008/09	23.96	0	1	1
2009/10	60.82	3	4	1
2010/11	0	-	-	-
2011/12	0	-	-	-
2012/13	0	-	-	-
2013/14	0	-	-	-

Maui dolphins (Projects C and D)**Overall project objectives/information needs**

1. Estimate the capture rate of Maui dolphins in **setnet fisheries** on the West Coast of the North Island.
2. Estimate the capture rate of Maui dolphins in **trawl fisheries** on the West Coast of the North Island.

PROJECT C

Project Title	Setnet interactions with Maui dolphins, West Coast North Island
Start Date	1 July 2014
Completion Date	30 June 2015
Targeted fishing methods	Inshore setnet vessels
Targeted Statistical Areas	040-046

Project Objectives

1. Gather information to estimate the number of captures and the capture rate of Maui dolphins in setnet fisheries on the West Coast of the North Island.
2. Observational survey to gather spatial distribution data for Maui dolphin.
3. Gather information on the nature and extent of interactions with other protected species in the area.

Information Needs

An overall capture rate for Maui dolphins needs to be estimated. Observer coverage is targeted to reflect the Ministerial decisions made in response to the Review of the Maui dolphin Threat Management Plan (TMP).

Robust estimation of total Maui dolphin captures requires that the fishing behaviour observed is representative of normal situations (i.e. if we can assume that observer placement is not changing behaviour). To minimise any potential bias, relatively high coverage as a percentage of effort by area/month will be proposed.

Previous observer coverage in the area has identified interactions with other protected species including common dolphins, fur seals and white pointer sharks. Improved information on the nature and extent of these interactions is important in the development of effective management and mitigation strategies.

Proposed Coverage

- Statistical areas 040-046
- 100% coverage of setnet effort within restricted 2nm-7nm zone (Ministerial directive).
- 420 observer days are required.

Secondary information to be collected

- Observer counts to provide spatial distribution data for seabirds and marine mammals.

Related Research

- Ongoing aerial and boat based surveys of the West Coast North Island supported by biopsy sampling where possible.
- An ongoing autopsy programme for Hector's and Maui dolphins aims to identify sub-species, cause of death, body condition, parasitism for any beach-cast or captured dolphins. This

allows better understanding of the health and condition of the various Hector's and Maui dolphins.

PROJECT D

Project Title	Trawl interactions with Maui dolphins, West Coast North Island
Start Date	1 July 2014
Completion Date	30 June 2015
Targeted fishing methods	Inshore trawl vessels
Targeted Statistical Areas	040-046

Project Objectives

1. Gather information to estimate the number of captures and the capture rate of Maui dolphins in trawl fisheries on the West Coast of the North Island.
2. Observational survey to gather spatial distribution data for Maui dolphin.
3. Gather information on the nature and extent of interactions with other protected species in the area.

Information Needs

An overall capture rate for Maui dolphins needs to be estimated. Observer coverage will be targeted to reflect Ministerial direction made in response to the review of the Maui dolphin TMP. Robust estimation of total Maui dolphin captures requires that the fishing behaviour observed is representative of normal situations (i.e. if we can assume that observer placement is not changing behaviour). To minimise any potential bias, relatively high coverage as a percentage of effort by area/month will be proposed.

Proposed Coverage

- Statistical areas 040-046
- 25 % of effort (Ministerial directive)
- 300 observer days are required.

Secondary information to be collected

- Biological sampling of fish will help inform stock assessments.
- Information on total commercial catch.
- Observations on the nature of warp interactions will inform improvements to estimates of cryptic mortality which feed in to the level 2 risk assessment.
- Observer counts to provide spatial distribution data for seabirds and marine mammals.

Related Research

- Ongoing aerial and boat based surveys of the West Coast North Island supported by biopsy sampling where possible.
- An ongoing autopsy programme for Hector's and Maui dolphins aims to identify sub-species, cause of death, body condition, parasitism for any beach-cast or captured dolphins. This allows better understanding of the health and condition of the various Hector's and Maui dolphins.

Catch Verification (Projects E, F and G)**PROJECT E**

Project Title	Better Information Better Value (Total Commercial Catch Project) Feasibility Trial
Start Date	July 2014
Completion Date	October 2014
Targeted fishing methods	Inshore small bottom trawl vessels (5)
Targeted Statistical Areas	020-022

Background Information

Information on total fish mortality is important to ensure good fisheries management decision making and that best use is made of New Zealand's fisheries resources. There is uncertainty surrounding the level of total mortality in some inshore fisheries.

The level 2 seabird risk assessment identifies inshore trawl as posing a risk to several albatross species. Observer coverage in stat areas 020-022 have identified captures of Salvin's and white-capped albatross on trawl warps in particular.

Project Objectives/ Information needs

1. Test the feasibility of gathering information on total commercial catch. Information may include species, quantity, size, area, season and age.
2. Collection information on the nature and extent of interactions with protected species, in particular white-capped and Salvin's albatrosses.

Proposed Coverage

- East Coast South Island 020-022.
- Trial on 5 vessels with 100% coverage is required to gain enough sufficient data to test the feasibility of the trial
- 200 observer days required.

Secondary information to be collected

- Observations on the nature of warp interactions will inform improvements to estimates of cryptic mortality which feed in to the level 2 risk assessment.
- Information on any mitigation techniques used in the fleet including assessment of their efficacy.
- Observer counts to provide spatial distribution data for seabirds and marine mammals.
- Information on offal management practices.

PROJECT F

Project Title	Snapper 1 Catch verification
Start Date	June 2014
Completion Date	May 2015
Targeted fishing methods	Trawl vessels targeting Snapper
Targeted Statistical Areas	003, 004, 005, 006, 007, 008, 009

Background Information

MPI proposes to continue a monitoring programme in the SNA 1 fishery in order to achieve improved information gathering and verification of reported catch within the commercial SNA1 fishery.

The purpose of the monitoring programme is to:

- Verify overall commercial catch
- Monitor the number and size of sub-MLS fish returned to the water
- Ensure compliance with spatial and other regulations

Project Objectives/ Information needs

1. Support the development of standards for implementation of the ongoing monitoring programme in SNA 1
2. Support the development and testing of voluntary initiatives and associated systems (e.g. the move on rule).
3. Collection information on the nature and extent of interactions with protected species

Proposed Coverage

- North East North Island 033-008
- 50% of all trawl vessels observed by 01 October 2014 (SNA1 management decision).
- 600 observer days required.

Secondary information to be collected

- Observations on the nature of warp interactions will inform improvements to estimates of cryptic mortality which feed in to the level 2 risk assessment.
- Information on any mitigation techniques used in the fleet including assessment of their efficacy.
- Observer counts to provide spatial distribution data for seabirds and marine mammals.
- Information on offal management practices.

PROJECT G

Project Title	Snapper 1 Catch verification
Start Date	June 2014
Completion Date	May 2015
Targeted fishing methods	Danish Seine vessels targeting Snapper
Targeted Statistical Areas	003, 004, 005, 006, 007, 008, 009

Background Information

MPI proposes to continue a monitoring programme in the SNA 1 fishery in order to achieve improved information gathering and verification of reported catch within the commercial SNA1 fishery.

The purpose of the monitoring programme is to:

- Verify overall commercial catch
- Monitor the number and size of sub-MLS fish returned to the water
- Ensure compliance with spatial and other regulations

Project Objectives/ Information needs

1. Support the development of standards for implementation of the ongoing monitoring programme in SNA 1
2. Support the development and testing of voluntary initiatives and associated systems (e.g. the move on rule).
3. Assess the catch composition of SNA 1 caught by Danish Seine
4. Collection of information on the nature and extent of interactions with protected species

Proposed Coverage

- North East North Island 033-008
- 100 observer days considered sufficient to meet primary project objectives.

Secondary information to be collected

- Information on any mitigation techniques used in the fleet including assessment of their efficacy.
- Observer counts to provide spatial distribution data for seabirds and marine mammals.
- Information on offal management practices

Seabirds (Project H)

PROJECT H

Project Title	Variables affecting capture rates of at-risk seabirds (black petrels, flesh-footed shearwaters) in inshore bottom longline fisheries in the north-east North Island
Start Date	1 October 2014
Completion Date	31 June 2015
Targeted fishing methods	Inshore bottom longline vessels targeting bluenose
Targeted Statistical Areas	003, 004, 005, 006, 007, 008, 009

Project Objectives

1. Collect information to reduce uncertainty associated with the estimated capture rate of at-risk seabird species (primarily black petrels and flesh-footed shearwaters) in inshore bottom longline fisheries targeting bluenose.
2. Collect information to improve current estimates of cryptic mortality/ live-release survival in inshore bottom-longline fisheries.
3. Collect information to evaluate the efficacy of inshore bottom longline mitigation efforts.

Information Needs

Black petrel is identified by the L2 risk assessment as the single most at-risk seabird species from commercial fisheries interactions. Current capture estimates are unrealistically high (mean risk ratio = 19.4) and improved observer coverage is likely to result in a more realistic estimate. In the meantime however, MPI and DOC are confident that current impacts are unsustainable, and management action is needed. The primary objective of observer coverage focused on black petrels is to better understand what factors most strongly determine variable capture rates, in order to support development of mitigation options.

Risk to black petrels derives primarily from inshore bottom long-line fisheries, spread approximately equally between the three defined fishery groups used in the risk assessment (i.e. small bottom longline targeting bluenose; small bottom longline targeting snapper; and small bottom longline targeting other inshore species). A second at-risk species from inshore bottom longline fisheries, flesh-footed shearwater (mean risk ratio = 1.32). Risk to this species arises primarily from bottom longline vessels targeting snapper. Due to low historical observer coverage in all inshore bottom longline fishery groups, these risk estimates are subject to considerable uncertainty. Capture rates recorded by fishery observers can be expected to substantially improve these estimates.

A related research project is currently planned to model black petrel (and flesh-footed shearwater) capture rates as a function of multiple variables potentially affecting interactions with fisheries, including analysis of higher resolution spatial and temporal distributions (of both birds and vessels), and fleet variables such as vessel experience and mitigation. *It will be important that new observer coverage is spread across the range of spatial and temporal variables where captures are thought to occur* (i.e. in all months and all statistical areas) and if possible across the full range of fleet or behavioural variables examined (i.e. on different types of vessels). If new coverage is unrepresentative (i.e. because vessels of a particular class resist accepting observers, or the presence of an observer biases fisher behaviour), capture rate estimation arising from the new model will be poorly informed, and associated risk estimates are likely to remain uncertain (or possibly biased).

Current estimates of cryptic mortality in inshore bottom longline fisheries rely on observations elsewhere and do not include consideration of post-release survivability for live-captured birds. Fishery-specific observations can be expected to yield substantial improvements. Observer

coverage tasked to collect data to characterise interactions and to evaluate the likely fate of birds released alive is a high priority.

Proposed Coverage

- Statistical areas 003, 004, 005, 006, 007 and 008.
- The planning optimisation process identified 50% coverage required, spread to the extent practical across the range of vessels and in space and time, to gain sufficient data.
- Summer coverage is required (black petrels and flesh-footed shearwaters are absent in winter).
- 300 observer days required.

Secondary information to be collected

- Information on BNS and HAP 1 catch
- Observer counts to provide spatial distribution data for seabirds and marine mammals.

2.1.2 “Offshore” Fisheries

As for previous years, planning of observer days was conducted jointly with MPI in order to identify an overall amount of observer coverage which will meet both agencies goals. Costs were then apportioned to each agency on the basis of how much of the observers’ work in each fishery will be focused on Conservation Services. Typically the CSP component is 15% of the total days, which reflects the time that observers are likely to spend on protected species tasks. For specific fisheries such as scampi, Southern blue whiting and squid trawl this apportioning is increased to 20% to reflect an increased focus on protected species data collection due to specifically identified risks.

These fisheries have generally received higher levels of observer coverage compared to the fisheries discussed in 2.1.1, with the exception of the domestic surface longline and scampi fisheries where observer coverage has remained below 10% in recent years. For middle depth trawl fisheries, in order to better reflect the fact that vessels will target multiple species over a single trip, they have been divided on an area basis to both assist in addressing information needs and observer planning.

Planned days for 2014/15 are summarised in the table below. These fisheries are monitored to track changes in protected species interactions and mitigation efficacy over time. Data is collected to allow estimation of capture levels and to better understand the nature of protected species interactions in order to develop mitigation solutions. Foreign Charter Vessel coverage is identified as a separate category, in recognition of the multiple factors influencing high observer coverage levels of these vessels.

Summary of 2014/15 observer days planned in better known fisheries

Fishery	Stocks covered	Total days	MPI CR %	MPI Days	DOC CSP CR %	DOC CSP Days
FOREIGN CHARTER VESSELS						
Foreign Charter Vessels	240 days STN1; remaining days to be recovered as follows: HOK1; LIN3-7; HAK All; BAR All; SQU1T and SQU6T; JMA3-7; SBW All; WWA All; SWA All	6000	85	5100	15	900
DOMESTIC VESSELS						
Deepwater trawl fisheries:						
ORH 1	ORH1	55	90	49.5	10	5.5
East Coast NI Deepwater	ORH2A, ORH2B, ORH3A, BYX2, CDL2	175	90	157.5	10	17.5
Chatham Rise Deepwater	ORH3B, OEO3A, OEO4, BYX3	250	90	225	10	25
Sub-Antarctic Deepwater	ORH3B, OEO1, OEO6	30	90	27	10	3
West Coast NI Deepwater	ORH7A	40	90	36	10	4
Middle Depth trawl fisheries:						
Sub-Antarctic Middle Depth	SBW6B/6I/6R, SQU6T/1T	250	80	200	20	50
Domestic Middle Depth	HOK1, LIN3-7, HAK1/4/7	210	85	178.5	15	31.5
HOK Cook Strait	HOK1	120	85	102	15	18
HOK WCSI inside 25nm	HOK1,	70	85	59.5	15	10.5
Scampi	SCI (ALL)	150	80	120	20	30
Deepwater bottom longline fisheries:						
Bottom longline	LIN3, LIN7	150	85	127.5	15	22.5
Surface longline fisheries:						
Domestic tuna longline - EC STN	STN1	174	85	147.9	15	26.1
Domestic tuna longline - WC STN	STN1	112	85	95.2	15	16.8
Domestic tuna longline - EC BIG/SWO	BIG1, SWO1	225	85	191.25	15	33.75
Domestic tuna longline - WC BIG/SWO	BIG1, SWO1	45	85	39.25	15	6.75
Purse Seine fisheries:						
Domestic SKJ	SKJ1	70	85	59.5	15	10.5
Super seiner SKJ	SKJ1	30	85	25.5	15	4.5

Further background to these fisheries and the allocation of observer days is provided below.

PELAGIC AND MIDDLE DEPTH TRAWL FISHERIES

Finfish

Pelagic and middle depth trawl fisheries primarily target hoki, hake, ling, warehou, jack mackerel and southern blue whiting. A large proportion of observer coverage in these fisheries will be targeted at Foreign Charter Vessels, and vessels may often target multiple species in the same trip. The rationale provided here is divided on a geographic and fishery basis in order to best identify CSP information needs.

West Coast South Island

Coverage will largely be targeted at the 'Hoki season' from July to September. Observers record information on which mitigation techniques are employed in this fishery. Mitigation techniques employed include offal and discard management, and the use of bird scaring devices (legally required for larger vessels). This fleet has had observed interactions with a wide range of seabirds and historically has had high levels of fur seal interactions. The fleet can be broadly divided by size, with larger vessels (both domestic and foreign charter vessels) operating outside of the 25nm offshore management area and the smaller fleet operating within 25nm of the coast.

This coverage will be achieved from a combination of the 'Foreign Charter Vessel', 'Domestic Middle Depth trawl' and 'HOK WCSI inside 25nm' lines identified in the preceding table

Cook Strait

This fishery operates distinctly from other hoki targeting fisheries in that vessel size is limited to less than 46m. A large number of vessels shift to this fishery from other areas with a short but intense period of fishing taking place. Trips are generally overnight with catch rates of hoki being high. This fishery has also been the site of some of the highest numbers of fur seal captures therefore observer coverage in this fishery has been increased. Observers record information on which mitigation techniques are employed in this fishery. Mitigation techniques employed include offal and discard management, and the use of bird scaring devices (legally required for larger vessels). Observer coverage from July to September will be focused in the Cook Strait, when the peak of fishing effort occurs there.

Chatham Rise

The Chatham Rise middle depth trawl fishery operates in a spatially distinct area to the other middle depth trawl fisheries, and so encounters a different assemblage of protected species. This fishery is operated exclusively by larger vessels. Observers record information on which mitigation techniques are employed in this fishery. Mitigation techniques employed include offal and discard management, and the use of bird scaring devices (legally required for larger vessels). Observer coverage for the period October to May will be spread across SEC and SOE.

This coverage will be achieved under a combination of 'Foreign Charter Vessel' and 'Domestic Middle Depth trawl' lines identified in the preceding table.

Sub-Antarctic

The Sub-Antarctic middle depth trawl fishery is largely dominated by tows targeting southern blue whiting around the Bounty Islands and Campbell Island where significant captures of both New Zealand sea lions and fur seals have taken place. Observer time will be focussed on monitoring and recording behaviour of and interactions with fur seals and sea lions. Data is also collected on seabird interactions and behaviour due to the location of this fishery and its close vicinity to many seabird breeding islands. The landing of protected coral will also be recorded and sub-samples will be taken for identification.

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

Due to increased interactions with New Zealand sea lions around Campbell Island CSP will fund 20% of the observer days in this fishery, reflecting an increasing focus of observers' time being on protected species observation. Overall it is intended that all vessels operating in the southern blue whiting fishery will be observed.

This coverage will be achieved under a combination of 'Foreign Charter Vessel' and 'Sub-Antarctic Middle Depth' lines identified in the preceding table.

West Coast North Island

This fishery group is dominated by the jack mackerel trawl fishery. Observer time will be focussed on recording protected species interactions and the behaviour of cetaceans, pinnipeds and seabirds around the vessel. Observers will also record information on which mitigation and avoidance techniques are employed in this fishery. Vessels can employ several techniques aimed at reducing the likelihood of interacting with dolphins, including not fishing during hours of the day when dolphin interactions are more likely, not shooting nets when dolphins are sighted, avoiding a shallow headline depth. During the 2014/15 observer year coverage is planned to target the period October to December and April to June to coincide with key jack mackerel fishing periods. This coverage will be achieved under the 'Foreign Charter Vessel' line in the preceding table.

Scampi

The priority for observers in southern areas will be to monitor interactions with seabirds and New Zealand sea lions. Priority for observations in northern waters will be monitoring of interactions with seabirds such as black petrels and flesh-footed shearwaters. The landing of protected coral will also be recorded and sub-samples will be taken for identification if required. Data is also collected on seabird interactions and behaviour around vessels. Observers record information on which mitigation techniques are employed in this fishery, including offal and discard retention and the use of bird scaring devices and net restrictors as well as specific gear configurations used. CSP will fund 20% of observer days in this fishery due to the significant protected species focus of the coverage.

Squid6T

Particular areas of CSP interest in this fishery include offal and discard management and captures of sea lions and seabirds in trawl nets. Observer placement in 2014/15 will be focussed to monitor interactions from January to May. This coverage will be achieved under a combination of 'Foreign Charter Vessel' and 'Sub-Antarctic Middle Depth' lines identified in the preceding table. The CSP Observer Programme will form 20% of days planned for the squid 6T fishery to monitor interactions with protected species and measures to reduce those interactions.

DEEP WATER BOTTOM TRAWL FISHERIES

Orange Roughy and Oreo

Observer time will be focussed on assessing the extent of protected coral landed on vessels as well as monitoring and recording interactions with, and behaviours of, seabirds. Sub-samples of corals will be taken for identification when required. Mitigation techniques employed in this fishery include offal and discard management, the use of bird scaring devices and trawling known tracks to avoid catching deep sea invertebrates. CSP will fund only 10% of observer days in this fishery due to the relatively low work load relating to protected species interactions.

SURFACE LONGLINE FISHERIES

Domestic surface longline

Monitoring priorities for 2014/15 will include collecting information on protected species interactions, mitigation techniques and offal/discard management practices employed in the fishery. Coverage may also be utilised in relation to CSP mitigation projects relating to seabird bycatch mitigation including tori line development (see CSP Project MIT2014-02). Observer coverage will be in AKE, CEE, CHA and KER to monitor interactions with seabirds and turtles. Coverage will be throughout the year.

Charter surface longline

Observer time will be focussed on monitoring and recording interactions with seabirds and sea turtles, including captures and behaviour of protected species around the vessel. Observers will record information on which mitigation techniques are employed in this fishery which can include the use of tori lines, night setting, weighted lines and offal and discard management. Observer coverage in 2014/15 will be dependent on where charter tuna vessels focus fishing effort.

BOTTOM LONGLINE FISHERIES

Deep-sea ling

Observer time will be focussed on monitoring and recording interactions with seabirds including captures and behaviour around the vessel. Observers record information on which mitigation techniques are employed in this fishery, including the use of tori lines and line weighting regimes. Observer coverage in 2014/15 will be focussed on smaller bottom longline vessels operating on the Chatham Rise to monitor seabird interactions during September, October, May and June, though some coverage will be spread over all areas.

PURSE SEINE FISHERIES

Skipjack tuna

Observer coverage has historically taken place in this fishery, though not for the purposes of protected species monitoring. Two ray species (*Manta birostris* and *Mobula japanica*) have historically been reported as bycatch in this fishery and therefore for the 2014/15 year CSP will be funding coverage in this fishery in order to assess the nature and extent of protected fish captures in this fishery as well as undertaking specific work to assess the survival probability of live released animals. Observer coverage is planned for AKE and AKW in both the domestic purse seine and super seine fisheries.

CSP OBSERVER PROGRAMME OUTPUTS

1. A descriptive report summarising observer data relating to protected species collected in offshore fisheries and inshore fisheries will be provided to stakeholders. Note that this will include information relating to protected species collected in the joint DOC/MPI Inshore Observer Programme.
2. Specific information can be requested from CSP at any time and will be delivered within a reasonable timeframe (usually within 10 working days).
3. All seabirds are returned and/or photographed, where possible, for identification and autopsy (see project INT 2013-02: Identification of seabirds captured in NZ fisheries).
4. Data will be available for other DOC and MPI projects including mitigation development/testing, bycatch estimation, risk management and other modelling projects.

References

- Clemens-Seely, K, Ramm, K. 2013a. Draft Conservation Services Programme annual research summary 2011-12. Department of Conservation, Wellington. Available to download from <http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/draft-csp-annual-research-summary-2011-2012.pdf>
- Clemens-Seely, K, Ramm, K. 2013b. Draft Conservation Services Programme annual research summary 2012-13. Department of Conservation, Wellington. Available to download from <http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/draft-csp-research-summary-2012-13.pdf>
- Ramm, K. 2010: Conservation Services Programme observer report: 01 July 2008 to 30 June 2009. Final research report. Department of Conservation, Wellington. Available for download from <http://www.doc.govt.nz/upload/documents/science-and-technical/2008-09-csp-observer-report.pdf>
- Ramm, K. 2012: Conservation Services Programme observer report: 01 July 2009 to 30 June 2010. Final research report. Department of Conservation, Wellington. Available for download from <http://www.doc.govt.nz/upload/documents/conservation/marine-and-coastal/fishing/draft-csp-observer-report-2009-10.pdf>
- Ramm, K. 2013: Conservation Services Programme observer report: 01 July 2010 to 30 June 2011. Final research report. Department of Conservation, Wellington. Available for download from: <http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/csp-observer-report-%202010-2011.pdf>
- Richard, Y., Abraham, E.R.. 2013. Risk of commercial fisheries to New Zealand seabird populations. New Zealand Aquatic Environment and Biodiversity Report No. 109. Ministry for Primary Industries, Wellington.
- Rowe, S.J. 2009: Conservation Services Programme observer report: 01 July 2004 to 30 June 2007. DOC Marine Conservation Services Series 1. Department of Conservation, Wellington. 93p. Available for download from <http://www.doc.govt.nz/publications/conservation/marine-and-coastal/marine-conservation-services/csp-reports/csp-observer-report-01-july-2004-to-30-june-2007/>
- Rowe, S. 2010a: Level 1 Risk Assessment for incidental seabird mortality associated with New Zealand fisheries in the NZ-EEZ. Marine Conservation Services, Department of Conservation, Wellington. 75 p.
- Rowe, S.J. 2010b: Conservation Services Programme observer report: 01 July 2007 to 30 June 2008. DOC Marine Conservation Services Series 4. Department of Conservation, Wellington. 97p. Available for download from <http://www.doc.govt.nz/upload/documents/science-and-technical/dmcs4entire.pdf>

Indicative Research Cost: See Appendix 1 for details

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

Fish Stocks: See Appendix 1 for details

NOTE: This multi-year project (INT2013-02) was consulted on in 2013/14 and is included here for completeness.

2.2 Identification of seabirds captured in New Zealand fisheries

Project Code: INT 2013-02

Start Date: 1 July 2013

Completion Date: 30 June 2016

Guiding Objectives: CSP Objectives B, C; National Plan of Action – Seabirds.

Project Objective

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

Specific Objectives

1. To determine, through examination of returned seabird specimens, the taxon, sex, and where possible age-class and provenance of seabirds killed in New Zealand fisheries (for returned dead specimens).
2. To detail the injuries, body condition and stomach contents and, where possible, the likely cause of mortality (for returned dead specimens).
3. To report any changes in the protocol used for the necropsy of seabirds (for returned dead specimens).
4. To determine, through examination of photographs, the taxon and, where possible, sex, age-class and provenance of seabirds captured in New Zealand fisheries (for live captures or dead specimens discarded at sea).

Rationale

Large numbers of seabirds frequent New Zealand commercial fishing waters. Birds with significant differences in conservation status can appear morphologically similar. The accurate determination of the taxon of seabirds captured in New Zealand fisheries is vital for examining the potential threat to population viability posed by incidental fisheries captures. Observers on commercial vessels are not always able to identify seabirds at sea with high precision and the assessment of the age-class, sex and provenance of captured individuals requires autopsy in the majority of cases. Historically all dead seabird specimens collected by observers have been returned for necropsy where possible. However, in many cases, the taxon can be confirmed through expert examination of photographs taken by observers, and this can be achieved at lower cost than returning carcasses and performing necropsy. In order to maximise cost efficiencies, and in recognition of increased observer coverage levels in the offshore Foreign Charter Vessel fleet, a new protocol has been developed to determine which specimens are returned for full necropsy. This protocol aims to strike a balance between returning birds for full necropsy (for rarer species and in less observed fisheries) and photographing birds for determination of taxon (for commonly caught species in well observed fisheries).

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

Information gained through this project will link to Ministry for Primary Industries databases, seabird bycatch estimates, and will inform ongoing risk assessment, research and modelling of the effects of fisheries bycatch on seabird populations. Further, the mode of capture and

associated information will enable robust analyses to be made of the factors contributing to seabird capture events and inform the development of appropriate mitigation strategies.

Research approach

Specific objectives 1-3

Dead birds returned by government observers will be delivered, suitably packaged and labelled, to the contractor. Observers make note of the circumstances of capture and provide a tentative identification. Seabirds returned will be examined to determine the following:

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

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

Specific objective 4

Where government observers recorded an incidental bird capture and no specimen is retained (either live captures or discarded dead birds), all photographs obtained, by specimen, will be delivered to the contractor in electronic format. Details of the date, time, location and fishery of capture will also be provided. Photographs will be examined to determine the following:

- Identification and classification, to the lowest taxonomic level possible;
- Sex (where possible);
- Age (where possible); and
- Provenance (origin) (where possible).

These data will be reported by taxon and fishery stratum (fishing method, fishery area and target species). When a specimen is identified and separated from similar species, the identification features used shall be fully described.

Outputs

1. A summary of results will be reported, for circulation to stakeholders, on a quarterly basis.
2. Information requested by CSP will be provided within a reasonable timeframe (usually 10 working days).
3. Annual report(s) of confirmed identification, sex, age, provenance and all other data collected, of all specimens examined. To the extent possible, the final report will also identify potential interactions between seabirds and fishing gear, and identify factors that

may have contributed to seabird mortality. Data will be reported by fishery stratum (fishing method, fishery area and where possible target species).

4. Presentation of six monthly and annual reports to the CSP Technical Working Group.
5. Provision of all data collected in electronic format, suitable for updating Ministry for Primary Industries databases and/or other relevant databases.

Indicative Research Cost: \$80,000 per annum

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

Fish stocks: BAR 1, 7, BCO 4, BIG 1, BNS1, 2, 3, 7, BUT5, 7, BWS 1, ELE3, 5, 7, EMA 1, 3, 7, FLA1, 2, 3, 7, GMU1, GSH 1, 3, 4, 7, 8, 9, GSP 1, 7, GUR 1, 2, 3, 7, 8, HAK 1, 4, 7, HOK 1, HPB 1, 2, 3, 4, 7, 8, JDO 1, 2, 3, 7, JMA 1, 3, 7, KIN 1, 7, 8, LEA 1, 2, 3, LIN 1, 2, 3, 4, 5, 6, 7, MAK 1, MOK 1, 3, 5, MOO 1, ORH 1, 2A, 2B, 3A, 3B, OEO 1, 3A, 4, 6, PAR 1, 9, POR 1, POS 1, RBM 1, RSN 1, 2, RIB 1, 2, RCO 1, 3, 7, RSK 1, 3, 7, 8, SBW 6A, 6R, 6I, 6B, SCH1, 2, 3, 4, 5, 7, SCI 1, 2, 4A, 6A, 6B, SKI 1, 3, 7, SNA 1, 2, 3, 7, 8, SPD 1, 3, 4, 5, 7, 8, SPE 1, 3, 4, 7, SPO1, 3, 7, 8, SQU1T, 6T, SSK 1, 3, 7, 8, STA 1, 3, 4, 5, 7, STN 1, SWA 1, 3, 4, SWO 1, TAR 1, 2, 3, 4, 5, 7, 8, TOR 1, TRE 1, 2, 7, TRU 3, 4, WAR 1, 2, 3, 7, 8, WWA 2, 3, 4, 5B, 7, YEM 1, 8, 9

NOTE: This multi-year project (INT2013-03) was consulted on in 2013/14 and is included here for completeness.

2.3 Identification of marine mammals, turtles and protected fish captured in New Zealand fisheries

Project Code: INT 2013-03

Start Date: 1 July 2013

Completion Date: 30 June 2015

Guiding Objectives: CSP Objectives B, C.

Project Objective

To determine which marine mammal, turtle and protected fish species are captured in fisheries and their mode of capture.

Specific Objective

1. To determine, primarily through examination of photographs, the taxon and, where possible, sex, age-class and provenance of marine mammals, turtles and protected fish captured in New Zealand fisheries (for live captures and dead specimens discarded at sea).

Rationale

The accurate determination of the taxon of marine mammals, turtles and protected fish captured in New Zealand fisheries is vital for examining the potential threat to population viability posed by incidental fisheries captures. Observers on commercial vessels are not always able to identify marine mammals, turtles and protected fish at sea with high precision, and the assessment of the age-class may require expert knowledge. Information gained through this project will link to Ministry for Primary Industry databases and will inform ongoing bycatch estimation, risk assessment, research and modelling of the effects of fisheries bycatch on marine mammals, turtles and protected fish populations.

This is a new project and is designed to complement the existing seabird identification project. Observers routinely collect samples of genetic material from these taxa, and these can be used to resolve uncertain identification determinations from photographs.

Research approach

Where government observers recorded an incidental capture of a marine mammal, turtle or protected fish generally no specimen is retained, instead photographic records are taken and a genetic sample taken. Live interactions are photographed where possible. All photographs obtained, by specimen, will be delivered to a suitable expert for that taxonomic group in electronic format on a quarterly basis. Details on the date, time, location and fishery of capture will also be provided. Photographs will be examined to determine the following:

- Identification, to the lowest taxonomic level possible;
- Sex (where possible);
- Age (where possible); and
- Provenance (origin) (where possible).

These data will be reported by taxon and fishery stratum (fishing method, fishery area and target species). When a specimen is identified, the identification features used shall be fully described.

Genetic samples of all bycaught marine mammals, turtles and protected fish are routinely collected by observers and where photographic analysis cannot adequately determine taxa, genetic analysis may be undertaken.

Outputs

1. A summary of results will be reported, reviewed by the CSP Technical Working Group, and published on an annual basis.
2. Information requested by CSP will be provided within a reasonable timeframe (usually 10 working days).
3. Provision of all data collected in electronic format, suitable for updating Ministry for Primary Industries databases and/or other relevant databases.

Note: A two year term is proposed.

Indicative Research Cost: \$15,000 per annum

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

Fish stocks: BAR 1, 7, BCO 4, BIG 1, BNS1, 2, 3, 7, BUT5, 7, BWS 1, ELE3, 5, 7, EMA 1, 3, 7, FLA1, 2, 3, 7, GMU1, GSH 1, 3, 4, 7, 8, 9, GSP 1, 7, GUR 1, 2, 3, 7, 8, HAK 1, 4, 7, HOK 1, HPB 1, 2, 3, 4, 7, 8, JDO 1, 2, 3, 7, JMA 1, 3, 7, KIN 1, 7, 8, LEA 1, 2, 3, LIN 1, 2, 3, 4, 5, 6, 7, MAK 1, MOK 1, 3, 5, MOO 1, ORH 1, 2A, 2B, 3A, 3B, OEO 1, 3A, 4, 6, PAR 1, 9, POR 1, POS 1, RBM 1, RSN 1, 2, RIB 1, 2, RCO 1, 3, 7, RSK 1, 3, 7, 8, SBW 6A, 6R, 6I, 6B, SCH1, 2, 3, 4, 5, 7, SCI 1, 2, 4A, 6A, 6B, SKI 1, 3, 7, SNA 1, 2, 3, 7, 8, SPD 1, 3, 4, 5, 7, 8, SPE 1, 3, 4, 7, SPO1, 3, 7, 8, SQU1T, 6T, SSK 1, 3, 7, 8, STA 1, 3, 4, 5, 7, STN 1, SWA 1, 3, 4, SWO 1, TAR 1, 2, 3, 4, 5, 7, 8, TOR 1, TRE 1, 2, 7, TRU 3, 4, WAR 1, 2, 3, 7, 8, WWA 2, 3, 4, 5B, 7, YEM 1, 8, 9

3. Population Projects

3.1 New Zealand sea lion population project (Auckland Islands)

Project code: POP2014-01

Start Date: 1 July 2014

Completion Date: 30 June 2015

Guiding Objectives: CSP Objective E.

Project Objective

To estimate New Zealand sea lion pup production in the Auckland Islands and collect data to allow the estimation of key demographic parameters

Specific Objectives

1. To estimate New Zealand sea lion pup production at Enderby, Figure of 8 and Dundas Islands.
2. To mark New Zealand sea lion pups at Enderby and Dundas Islands following established techniques.
3. To conduct a three to five week period of resighting previously marked animals at Enderby Island.
4. To update the New Zealand sea lion database.

Rationale

New Zealand sea lions are classified as Nationally Critical (Baker et al 2010), and are incidentally killed each year in southern commercial trawl fishing operations targeting species including squid, scampi and southern blue whiting. The foraging areas of New Zealand sea lions at the Auckland Islands have been shown to overlap with commercial trawl fishing activity, particularly SQU6T and SCI6A. Approximately 70% of New Zealand sea lions breed at the Auckland Islands, where population data have been collected since the mid-1990s, including estimates of pup production and resighting of marked animals. Since 2001 there has been a considerable decline in pup production at the Auckland Islands. A literature review to identify potential indirect effects of commercial fishing on the Auckland Islands population as part of CSP project POP2010-01 has recently been completed (Bowen 2012). The review highlighted a number of key information gaps that currently prevent a full understanding of any such potential indirect effects.

In order to manage the commercial fisheries impacts on New Zealand sea lions at the Auckland Islands it is critical to understand the population level and key demographic factors driving trends in the population. CSP project POP2012-02 is currently analysing population data collected during previous years in order to determine the key demographic factors driving the observed population decline of New Zealand sea lions at the Auckland Islands, and is due to complete in mid-2014. This project will extend the time series of population data available for further analyses.

In response to the continued decline at the Auckland Islands, the Ministers of Conservation and Primary Industries announced that a Threat Management Plan (TMP) for New Zealand sea lions would be developed. This research project is scoped to collect key information required to understand the impact of commercial fishing on the Auckland Islands population, in line with CSP Objective E. It is envisaged that other research, and/or management actions, will be

progressed as part of the TMP, and may be delivered alongside the research programme proposed here.

Research Approach

Pup production at Dundas and Enderby Island has been estimated using two methods in recent years: aerial (Baker et al 2013) and ground based mark-recapture methods (Chilvers 2012; Childerhouse et al 2013). Results from 2013/14 (POP2013-01) are being finalised as of April 2013. A technical advisory group will consider the appropriate methods to use at Enderby and Dundas Islands in 2014/15, once results from 2013/14 have been finalised, and will give consideration to findings from POP2012-02 and possible synergies with any other research or management actions being progressed as part of the TMP.

Pup production at Figure of 8 Island will be by direct count following established methods (Chilvers 2012; Childerhouse et al 2013). Marking of pups and resighting of marked adults will follow established methods (Chilvers 2012; Childerhouse et al 2013; methods yet to be fully reported from 2013/14). It is also proposed that the resighting season be focused on a three to five week period starting on approximately 12 January 2015 to extend the approach used in 2013/14.

Outputs

1. Data collected, in an electronic format suitable for upload into the New Zealand sea lion database.
2. New Zealand sea lion database updated and made available to relevant investigators. Any changes to the structure of the database must be fully documented.
3. A technical report (or reports) detailing the methods used, a summary of data collected and estimates of New Zealand sea lion pup production at the Auckland Islands.

Note: Maximum cost efficiencies will be achieved through aligned delivery with project POP2014-02, particularly in relation to transport logistics including helicopter charter. Previous CSP projects on New Zealand sea lion population data collection include: POP2013-01, POP2012-01, POP2011-01, POP2010-01, POP2007-01, POP2006-01, POP2005-01, POP2004-01, MAM2002-1, MAM2001-1 and MAM2000-1. See also POP2012-02.

References

- Baker C.S., Chilvers B.L., Constantine R., DuFresne S., Mattlin R., van Helden A., Hitchmough R. 2010. Conservation status of New Zealand Marine Mammals (suborders Cetacea and Pinnipedia), 2009. *New Zealand Journal of Marine & Freshwater Research* 44:101-115.
- Baker, B., Jenz, K., Chilvers, L. 2013. Aerial survey of New Zealand sea lions – Auckland Islands 2011/12. Report prepared Department of Conservation. Available for download from <http://www.doc.govt.nz/conservation/marine-and-coastal/conservation-services-programme/csp-reports/2012-13/new-zealand-sea-lion-aerial-survey-2013/>
- Bowen, W.D. 2012. A review of evidence for indirect effects of commercial fishing on New Zealand sea lions (*Phocartos hookeri*) breeding on the Auckland Islands. Report of Department of Conservation, Wellington. 41 p. Available for download at <http://www.doc.govt.nz/conservation/marine-and-coastal/conservation-services-programme/csp-reports/2010-11/review-of-indirect-effects-of-fishing-on-new-zealand-sea-lions/>
- Childerhouse SJ, Amey J, Hamer D, McCrone A 2013. Final report for CSP Project 4426 New Zealand sea lion ground component 2012/13. Report to the Department of Conservation, Wellington, New Zealand. Version 1.2. 26 p. Available for download from <http://www.doc.govt.nz/conservation/marine-and-coastal/conservation-services-programme/csp-reports/2012-13/new-zealand-sea-lion-ground-survey-2013/>
- Chilvers, B.L. 2012. Research to assess the demographic parameters of New Zealand sea lions, Auckland Islands 2011/12. Final Research Report, November 2012. Department of Conservation, Wellington.

Available for download <http://www.doc.govt.nz/conservation/marine-and-coastal/conservation-services-programme/csp-reports/2011-12/new-zealand-sea-lion-research-auckland-islands-2011-12/>

Indicative Research Cost: \$200,000

Cost Recovery: F(CR) Item 3 (90% Industry 10% Crown)

Fish Stocks: SQU6T, SCI6A.

3.2 Seabird population research 2014-15

Project code: POP2014-02

Start Date: 1 July 2014

Completion Date: 30 June 2015 (some components will form part of multi-year projects)

Guiding Objectives: CSP Objective E; Draft CSP seabird plan; National Plan of Action – Seabirds.

Project Objective

To collect information on key aspects of the biology of selected at-risk seabird species in order to reduce uncertainty or bias in estimates of risk from commercial fishing.

Specific Objectives

Objective	Species	Target biological information
1	Black petrel	A - Population size (Aotea/Great Barrier Island and Hauturu/Little Barrier Island) B - Key demographic parameters, primarily juvenile and adult survival (Aotea/Great Barrier Island)
2	Salvin's albatross	A - Population estimate (The Snares) B - Adult survival and other demographic parameters (The Snares)
3	White-capped albatross	A - Population estimate (Auckland Islands) B - Ground truth aerial survey methods on Disappointment Island, Auckland Islands C - Investigate logistics of establishing a mark-recapture study to investigate adult survival and other demographic parameters (Disappointment Island, Auckland Islands)
4	Southern Buller's albatross	A - Population estimate (Solander Islands) B - Adult survival and other demographic parameters (The Snares)
5	Gibson's albatross	A - Population estimate (Auckland Islands) B - Adult survival and other demographic parameters (Adams Island, Auckland Islands)
6	White-chinned petrel	A - Investigate logistics of establishing a mark-recapture study to investigate adult survival and other demographic parameters (Auckland Islands) B - Investigate a methodology to estimate the population size on Adams Island, Auckland Islands C - Spatial foraging information (Auckland Islands) D - Taxonomic status across New Zealand populations
7	Burrowing petrels	Review survey methods to describe areas of uncertainty in relation to estimating population sizes

Rationale

The Draft Conservation Services Programme Seabird medium term research plan 2014 (Draft CSP seabird plan)⁶ outlines a five year research programme to deliver on the seabird population research component of CSP. It is targeted at addressing relevant CSP Objectives (as described in the CSP Strategic Statement) and National Plan of Action – Seabirds⁷ Objectives. It was developed as part of the work of the CSP Research Advisory Group. The Draft CSP seabird plan will be revised following updates to the Richard & Abraham (2013) risk assessment. The update is in progress, and aims to address issues highlighted in a review of the 2013 risk assessment (MPI 2014). For the purposes of this Annual Plan, key components of research described in the draft CSP seabird plan have been identified for inclusion in this project, with consideration of the recommendations made by the risk assessment review (MPI 2014) and considerations to maximise logistical synergies with other work in order to deliver cost efficiencies. In particular, the multiple CSP research objectives at the Auckland Islands will be delivered by a programme of research that maximises cost efficiencies, for example in transport logistics and through collaboration with other researchers.

Species specific objectives and research approach

Black petrel – the focus will be to determine the total population size for the species (Objective 1A). Key areas of uncertainty in this respect are the population size on Aotea/Great Barrier Island outside of the main colony (see Bell et al 2011; 2013) and on Hauturu/Little Barrier Island. Multiple methods are available to assess the population size including ground transect surveys, acoustic monitoring, at-sea mark-recapture and at-sea tracking to nesting areas. A mix of complementary methods may also be appropriate. The first component of this project will be an expert workshop to refine the approach(es) before implementation during the 2014-15 breeding season. It is envisaged that obtaining robust information may require a multi-year field programme. Other areas of priority to CSP include refining estimates of key demographic parameters, primarily juvenile survival, which has been demonstrated to be critical to determining the population trajectory (Bell et al 2011). Continuation of the mark-recapture study at Aotea/Great Barrier Island (e.g. Bell et al 2013) will be the secondary focus of this project (Objective 1B), and opportunities to maximise logistical synergies between the two objectives will be sought.

Outputs – a report on a workshop to develop a suitable methodology to estimate total population size for the species; a report or progress report on population estimation work conducted during 2014-15; a report on mark-capture research undertaken to better estimate key demographic parameters; data collected.

Previous CSP population projects on black petrels include POP2013-04, POP2012-03, POP2009-01, POP2008-01, POP2007-02, POP2005-04, POP2004-4, BRD2003-1, BRD2002-5 and BRD2001-3.

Salvin's albatross – the focus will be to obtain an updated population estimate for The Snares, last surveyed during a project in 2008-2010 (Objective 2A). This is the second largest population after the Bounty Islands (updated population information for the Bounty Islands from CSP project POP2012-06 is currently being analysed and will be reported in mid-2014). It is envisaged that the project will trial the use of aerial survey at The Snares, with associated ground truthing (previous estimates have been made using ground-based methods). A secondary objective, utilising the presence of researchers to conduct ground truthing, will be to collect additional mark-capture data to better estimate key demographic parameters (Objective 2B), building on the work of Sagar et al (2011).

⁶ Available for download at <http://www.doc.govt.nz/conservation/marine-and-coastal/conservation-services-programme/meetings-and-project-updates/11-march-2014/>

⁷ National Plan of Action – 2013 to reduce the incidental catch of seabirds in New Zealand Fisheries. Available for download at: <http://www.mpi.govt.nz/>

Outputs – a report describing the research undertaken, an updated population estimate for The Snares and updated estimates of key demographic parameters; data collected.

Previous CSP population projects on Salvin's albatross include POP2012-06.

White-capped albatross – the key focus will be an updated population estimate for the Auckland Islands (Objective 3A) following the methods of Baker et al (2013). Two secondary objectives are reliant on collaborating with proposed research lead by the National Institute of Water and Atmospheric Research Ltd (NIWA) to survey white-chinned petrels on Disappointment Island. These objectives are to conduct ground truthing of the aerial survey methodology used in Objective 3A (Objective 3B) and investigate the feasibility of establishing a mark-recapture study on Disappointment Island to estimate key demographic parameters (Objective 3C). Research to meet Objectives 3B and 3C would be progressed in collaboration with NIWA and other researchers.

Outputs – a report describing the aerial survey, ground truthing and an updated estimate of total population size; a report describing the feasibility of establishing a mark-recapture study on Disappointment Island to estimate key demographic parameters; data collected.

Previous CSP population projects on white-capped albatross include POP2013-02, POP2012-05 and POP2005-02.

Note: the helicopter use for this component will be planned alongside use required for POP2014-01 New Zealand sea lion population project and the Gibson's albatross component of this project, to maximise cost efficiencies. Other DOC seabird monitoring work, outside the scope of CSP, may also be advanced with the use of the helicopter, on a cost-share basis with CSP projects.

Southern Buller's albatross – the key focus will be an updated population estimate for the Solander Islands (Objective 4A), which is the second largest population and has sparse population information compared to the main population on The Snares. A population census at The Snares was conducted in early 2014, so obtaining an estimate for the Solander Islands in 2014-15 will allow for a robust total estimate for the taxon. Updated quantitative modelling to investigate the effect of fisheries bycatch on Buller's albatross is proposed as a Ministry for Primary Industries project. Such modelling relies on the data collected by the established mark-recapture study at The Snares (e.g. Sagar et al 2013), and a secondary objective will be to continue this research programme (Objective 4B), preferably in collaboration with other parties and/or other research.

Outputs – a report describing research undertaken and an updated population estimate for the Solander Islands; a report describing the collection of updated mark-recapture information at The Snares; data collected.

Gibson's albatross – there are two primary objectives, to estimate the total population size at the Auckland Islands (Objective 5A) and to continue the mark-recapture study on Adam Island (Auckland Islands) to collect information on key demographic parameters (Objective 5B). It is envisaged that Objective 5A will involve a mix of methods, both ground based and aerial, and may require two years of research due to the difficult terrain of Adams Island, the primary breeding location. Objective 5B will be addressed by continuation of established methods (Walker & Elliot 1999, 2005). Continuation of the mark-capture study is vital in order to track ongoing demographic rates following the drastic changes in demographic parameters described by Francis et al (2012).

Outputs - a report describing research undertaken in collecting mark-recapture information, updated estimates of key demographic parameters and an updated population estimate for the Auckland Islands; data collected.

Previous CSP population projects on Gibson's albatross include POP2013-03, POP2012-07, POP2004-02 and BRD2001-01.

Note: Gibson's albatross has been identified as a potential indicator species by DOC (Monks et al 2013), and data collected by this study may be used as part of DOC's reporting on indicator species.

White-chinned petrel – this component aims to build on a research programme being progressed by NIWA in collaboration with others, to deliver on four relevant CSP research objectives; investigating the feasibility of establishing a mark-recapture study site at the Auckland Islands to estimate key demographic parameters (Objective 6A), investigate a methodology to estimate the population size on Adams Island (Objective 6B), collect information to describe the spatial overlap with commercial fishing effort (Objective 6C) and determine the taxonomic status of this taxon across New Zealand populations using existing genetic samples (Objective 6D). Other relevant research being progressed by NIWA and their collaborators include estimating the population size on Disappointment Island (with funding from the Agreement for the Conservation of Albatrosses and Petrels).

Outputs – a report describing the options and feasibility of estimating the population size on Adams Island and of establishing a mark-recapture study at the Auckland Islands; spatial foraging data suitable for describing the overlap with commercial fishing effort; a report describing the taxonomic status of New Zealand populations of this taxon.

Burrowing petrels – estimates of population size for burrowing petrels are often obtained by extrapolation of burrow survey transects to an island-wide scale, which gives rise to potentially large error bounds. As well as resulting in imprecise estimates of a key component of risk estimation, this also limits our ability to detect trends in population size over time. Burrow occupancy rates are a key source of error, particularly in a number of *Procellaria* petrels of high priority to CSP (e.g. Westland and white-chinned petrels). This project component will consist of a critical review of methods used, to identify, and where possible quantify, the sources of error in estimating population size of burrowing petrels, and seek expert input to develop recommendations for future surveys.

Outputs – a report reviewing population estimation methodologies for burrowing petrels and recommendations for future surveys to minimise error levels in population estimates.

References

- Baker, B. Jensz, K., Cunningham, R. 2013. White-capped albatross population estimate - 2011/12 and 2012/13. Research report for Department of Conservation, Wellington. Available for download from <http://www.doc.govt.nz/conservation/marine-and-coastal/conservation-services-programme/csp-reports/2012-13/white-capped-albatross-population-estimate-2013/>
- Bell, E.A., Sim, J.L., Scofield, P., Francis, C. 2011: Population parameters of the black petrels (*Procellaria parkinsoni*) on Great Barrier Island (Aotea Island), 2009/10. Research report for Department of Conservation, Wellington. Available for download from <http://www.doc.govt.nz/csp>
- Bell, E.A., Sim, J.L., Scofield, P., Francis, C., Landers, T. 2013. At-sea distribution and population parameters of the black petrels (*Procellaria parkinsoni*) on Great Barrier Island (Aotea Island), 2012/13. Research report for Department of Conservation, Wellington. Available for download from <http://www.doc.govt.nz/conservation/marine-and-coastal/conservation-services-programme/csp-reports/2012-13/black-petrel-at-sea-distribution-and-population-estimate-2012-13/>
- Francis, R.I.C.C., Elliot, G., Walker, K. 2012: Fisheries risk to the viability of Gibson's wandering albatross *Diomedea gibsoni*. Draft New Zealand Aquatic Environment and Biodiversity Report. Unpublished report held by the Ministry of Fisheries, Wellington.
- Ministry for Primary Industries 2014. Level Two Risk Assessment - Review Workshop 19/20 November 2013 Mercy Conference Centre, Guildford Terrace, Wellington. Report of meeting. 60 p.

- Monks, J.M.; O'Donnell, C.F.J.; Wright, E.F. 2013: Selection of potential indicator species for measuring and reporting on trends in widespread native taxa in New Zealand. DOC Research and Development Series 338. Department of Conservation, Wellington. 18 p.
- Richard, Y.; Abraham, E.R. 2013 Risk of commercial fisheries to New Zealand seabird populations. New Zealand Aquatic Environment and Biodiversity Report No. 109.
- Sagar, P.M., Charteris, M.R., Carrol, J.W.A., Scofield, R.P. 2011: Population size, breeding frequency and survival of Salvin's albatrosses (*Thalassarche salvini*) at the Western Chain, The Snares, New Zealand. *Notornis* 58: 57-63.
- Sagar, P., Torres, L., Thompson, D., Morrison, K., Battley, P. 2013. Demography and tracking of Buller's Albatrosses at The Snares, and tracking of Snares Crested Penguins and Rockhopper Penguins from The Snares and Campbell Island respectively: Final research report of the 2013 field season. Research Report by NIWA prepared for DOC. Available for download from: <http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/sagar-et-al-2013-bullers-albatross-snares-background-paper.pdf>
- Walker, K.; Elliott, G. 1999: Population changes and biology of the wandering albatross *Diomedea exulans gibsoni* at the Auckland Islands. *Emu* 99: 239-247
- Walker, K.; Elliott, G. 2006: At-sea distribution of Gibson's and Antipodean wandering albatrosses, and relationships with long-line fisheries. *Notornis* 53 (3): 265-290

Note: a more detailed reference list can be found in the CSP RAG seabird reference list⁸.

Indicative Research Cost: \$350,000 (Note: some specific objectives are envisaged as requiring more than one year of research. This costing covers only research in 2014/15. Any out years will be assessed in future plans.)

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

Fish Stocks:

Objective/Species	Indicative Cost	Fish Stocks
1 Black petrel	\$80,000	BIG1, BNS1, SNA1
2 Salvin's albatross	\$65,000	BAR1, BIG1, GUR3, HOK1, LIN4, OEO3A, OEO4, ORH3B, SBW6A, SCI3A, SCI4A
3 White-capped albatross	\$65,000	BAR5, BIG1, HOK1, SCI6A, SQU1T, SQU6T, STN1, SWA4
4 Southern Buller's albatross	\$40,000	BAR1, BAR4, BAR5, BIG1, HOK1, LIN5, LIN7, SCI3, SCI6A, SQU1T, SQU6T, STN1, SWA4, WWA5B
5 Gibson's albatross	\$65,000	ALB, BIG1, STN1, SWO1
6 White-chinned petrel	\$25,000	BAR1, BAR5, BAR7, BIG1, HAK1, HAK7, HOK1 JMA3, JMA7, LIN, 3, LIN5, LIN6, LIN7, SBW6A, SBW6I, SBW6R, SCI1, SCI2, SCI3, SCI6A, STN1, SWA1, SWA3, SWA4, SQU1T, SQU6T, WWA5B
7 Burrowing petrels	\$10,000	BAR1, BAR5, BAR7, BIG1, BNS1, HAK1, HAK7, HOK1, HPB1, JMA3, JMA7, LIN1, LIN, 3, LIN5, LIN6, LIN7, SBW6A, SBW6I, SBW6R, SCI1, SCI2, SCI3, SCI6A, STN1, SWA1, SWA3, SWA4, SWO1, SQU1T, SQU6T, TAR1, WWA5B

⁸ Available for download at <http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/csp-rag-seabird-references-12-12-13.pdf>

3.3 Protected fish population research

Project code: POP2014-03

Start Date: 1 July 2014

Completion Date: 30 June 2015

Guiding Objectives: CSP Objective E; Draft CSP fish plan; National Plan of Action – Sharks.

Project Objective

To progress research on key information gaps in protected fish population information.

Rationale

The National plan of Action for Shark 2013 (NPOA-Sharks) calls for a risk based approach to shark research and contains within it an objective to complete a risk assessment of all shark species by December 2014. This risk assessment will highlight both risk and areas of uncertainty in population parameters for shark species. Once gaps are highlighted it will be important to begin addressing those gaps immediately in order to improve risk estimates and better inform management action. This will be developed in the CSP protected fish medium term research plan, which will be finalised following completion of risk assessment.

This project will use Crown funding to initiate the first tranche of research identified in the Draft CSP protected fish medium term research plan⁹, to address knowledge gaps for protected fish species. Where possible synergies will be identified to allow leverage off research being undertaken by other organisations, and progress research in a collaborative manner.

Outputs

To be confirmed

References

Ministry for Primary Industries. 2013: National Plan of Action Sharks 2013. Available at <http://www.mpi.govt.nz/Default.aspx?TabId=126&id=2126>

Indicative Research Cost: \$25,000

Cost Recovery: Nil (100% Crown funded)

⁹ Available to download from <http://www.doc.govt.nz/conservation/marine-and-coastal/conservation-services-programme/meetings-and-project-updates/11-march-2014/>

4. Mitigation Projects

4.1 Protected species bycatch newsletter

Project code: MIT2014-01

Start Date: 1 July 2014

Completion Date: 30 June 2016

Guiding Objectives: CSP Objective A; National Plan of Action – Seabirds, National Plan of Action – Sharks.

Project Objective

To produce a newsletter to communicate protected species-related information to trawl and longline fishermen.

Rationale

Reducing the impacts of commercial fishing on protected species relies on individual fishermen actively applying best practice mitigation methods to their fishing activity. Applying and developing mitigation methods in specific circumstances requires an understanding of the protected species that may be impacted, and the nature with which they interact with fishing activity. A range of relevant information exists, often the result of research projects, and the newsletter will serve as a vehicle for communication to fishermen, fishing companies, and other interested parties. An evaluation of previous examples of this work by Pierre (2012) indicates that this format shows promise in reaching a broad sector of the fishing community and wider stake holders, and provides recommendations for further development.

Outputs

A bimonthly newsletter covering best practice mitigation methods, current relevant events, updates on novel methods or new mitigation trials and information on protected species and the nature of their interaction with commercial fishing. The newsletter must build on the recommendations in the evaluation of MIT2012-05 currently under way and due to be reported before June 2014.

Previous CSP projects include MIT2012-05 and MIT2011-05.

References:

Pierre., J. 2012. MIT2011-05 Protected Species Bycatch Newsletter Report to the CSP TWG 28 May 2012. Available for download at:
<http://www.doc.govt.nz/upload/documents/conservation/marine-and-coastal/marine-conservation-services/mit-2011-05-ocean-guardian-evaluation-report.pdf>

Indicative Research Cost: \$20,000

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

Fish Stocks: BAR 1, 7, BCO 4, BIG 1, BNS1, 2, 3, 7, BUT5, 7, BWS 1, ELE3, 5, 7, EMA 1, 3, 7, FLA1, 2, 3, 7, GMU1, GSH 1, 3, 4, 7, 8, 9, GSP 1, 7, GUR 1, 2, 3, 7, 8, HAK 1, 4, 7, HOK 1, HPB 1, 2, 3, 4, 7, 8, JDO 1, 2, 3, 7, JMA 1, 3, 7, KIN 1, 7, 8, LEA 1, 2, 3, LIN 1, 2, 3, 4, 5, 6, 7, MAK 1, MOK 1, 3, 5, MOO 1, ORH 1, 2A, 2B, 3A, 3B, OEO 1, 3A, 4, 6, PAR 1, 9, POR 1, POS 1, RBM 1, RSN 1, 2, RIB 1, 2, RCO 1, 3, 7, RSK 1, 3, 7, 8, SBW 6A, 6R, 6I, 6B, SCH1, 2, 3, 4, 5, 7, SCI 1, 2, 4A, 6A, 6B, SKI 1, 3, 7, SNA 1, 2, 3, 7, 8, SPD 1, 3, 4, 5, 7, 8, SPE 1, 3, 4, 7, SPO1, 3, 7, 8, SQU1T, 6T, SSK 1, 3, 7, 8, STA 1, 3, 4, 5, 7, STN 1, SWA 1, 3, 4, SWO 1, TAR 1, 2, 3, 4, 5, 7, 8, TOR 1, TRE 1, 2, 7, TRU 3, 4, WAR 1, 2, 3, 7, 8, WWA 2, 3, 4, 5B, 7, YEM 1, 8, 9.

4.2 Improvement of tori line performance in small vessel longline fisheries

Project code: MIT2014-02

Start Date: 1 July 2014

Completion Date: 30 June 2015

Guiding Objectives: CSP Objective A; National Plan of Action – Seabirds.

Project Objective

To develop improved tori lines which are specifically optimised for safe and effective use in small longline vessels.

Rationale

Tori line (bird scaring line) use in small vessel longline fisheries (both surface and demersal) is a regulatory requirement. Despite this there is significant reluctance within the fishing industry to deploying tori lines. Concerns generally centre around issues of crew safety and loss of gear due to tangles. The difficulty of achieving a suitable attachment point and sufficient aerial extent are also cited as limitations to the use of tori lines on smaller vessels. Development of mitigation suitable for smaller vessels is recognised as an international research priority (ACAP 2013). As has been seen in other fisheries, including offshore trawl, improvements to tori line construction, including streamer material and drag weight can lead to increased performance.

Both these small vessel longline fisheries have been shown to pose relatively high risk to seabirds (Richard & Abraham 2013), and historically high capture rates of several seabird species have been observed.

Research approach

This project will involve the design, construction, installation and testing of a number of tori line designs on small longliners, both surface and demersal. The focus will be on developing practical, safe, robust and easy to use designs. Recommendations should then be developed in suitable media such as industry publications, fact sheets and industry newsletters in order to maximise uptake in commercial fisheries. Opportunities for collaboration in the implementation of the project will be actively sought.

Should the tori line designs developed as part of this project not meet current regulated standards, CSP will consider future at-sea testing of their seabird bycatch mitigation effectiveness, to gather data that would be required in any future review of the regulated standards. This is outside the scope of the current project.

Outputs

1. Design and construction of one or more tori lines designs
2. Written report detailing the design, testing methodology and results in terms of mitigation effectiveness, crew safety, resilience to weather and ease of use.
3. Resource factsheet(s) for offshore trawl vessels on optimal designs for seabird scaring devices

References

Agreement for the Conservation of Albatrosses and Petrels. 2013. Report of Seabird Bycatch Working Group. AC7 Doc 14 Rev 1 SBWG5. Seventh Meeting of the Advisory Committee, La Rochelle, France, 6 - 10 May 2013.

Richard, Y., Abraham, E.R.. 2013. Risk of commercial fisheries to New Zealand seabird populations. New Zealand Aquatic Environment and Biodiversity Report No. 109. Ministry for Primary Industries, Wellington.

Indicative Research Cost: \$60,000

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

Fish Stocks: BIG1, STN1, SWO1, SNA1, BNS1 HPB1

4.3 Seabird liaison officers

Project code: MIT2014-03

Start Date: 1 July 2014

Completion Date: 30 June 2015

Guiding Objectives: CSP Objective A; National Plan of Action – Seabirds.

Project Objective

To provide one or more liaison officers to the inshore fishing fleet who will be tasked to assist those fleets in reducing their risk to seabirds.

Rationale

To effectively reduce the risk of interactions with seabirds it is important for vessels to take the latest developments in mitigation technology and be able to adapt them to their specific operations. Translating the latest scientific research and fishing regulations into operational parameters is not always a straight forward process.

Equally an adequate working understanding of seabird biology, taxonomy and behaviour assist in understanding the risk posed in each area and season. By employing liaison officers who have operational experience in fishing fleets along with an understanding of best practice mitigation and seabird characteristics it is possible to spread information over the fishing fleet in a collaborative and practical manner. These officers should also be equipped with fact sheet/resources and mitigation material to assist in the dissemination of this knowledge.

This work has been trialed in the snapper longline fleet around the Hauraki Gulf in 2013/14 and has shown initial positive results. However there is significant scope for expanding this work to a wider area and over a broader range of seasons. Notably the bluenose/hapuku fleet along with the domestic surface longline fleet are known to pose relatively high risk to, and have interactions observed with, seabird species of concern such as black petrels and flesh-footed shearwaters.

Implementation approach

Employ one or more liaison officers to travel to key ports before, during and immediately after high risk months in order to share information on seabird behaviour and mitigation options. Officers should actively encourage development of vessel specific mitigation practices and where appropriate vessel management plans. Part of the role will include sea time on vessels to help understand individual vessels' operations and therefore tailor the most appropriate mitigation solutions. The officers should also operate as a conduit for communication between fishers and government by directing fishers concerns or questions to the right people.

Complementary to this, there is scope for expanding the work of the liaison officers into the recreational fishing sector through mediums such as boat ramp meetings, liaison with charter vessel operators and fishing competitions. **Note:** This work would not be levied, and by operating synergistically with the commercial vessel liaison cost savings would be achieved.

Outputs

1. Monthly short form reports back to relevant advisory groups detailing progress and any developments which have come from the fleet
2. Written report detailing interactions with fishers and steps take to enhance mitigation.

Indicative Research Cost: \$40,000 (excludes potential extension to recreational/charter sector)

Cost Recovery: F(CR) Item 4 (100% Industry) (excludes Crown funding for potential extension to recreational/charter sector)

Fish Stocks: BIG1, STN1, SWO1, SNA1, BNS1 HPB1

Appendix 1: Cost Allocation Tables

A: CSP 2014/15 Projects

Code	Project	Research	Admin	Total	CR Item	Industry %	Industry	Crown
Interaction projects								
INT2014-01	Observing commercial fisheries	\$1,016,687	\$135,056	\$1,151,743	8	100	\$1,151,743	\$-
INT2013-02	Identification of seabirds captured in New Zealand fisheries	\$80,000	\$10,627	\$90,627	4	100	\$90,627	\$-
INT2013-03	Identification of marine mammals, turtles and protected fish captured in New Zealand fisheries	\$15,000	\$1,993	\$16,993	4	100	\$16,993	\$-
Population projects								
POP2014-01	New Zealand sea lion population project (Auckland Islands)	\$200,000	\$26,568	\$226,568	2	90	\$203,911	\$22,657
POP2014-02	Seabird population research 2014-15	\$350,000	\$46,494	\$396,494	3	50	\$198,247	\$198,247
POP2014-03	Protected fish population research	\$25,000	\$3,321	\$28,321	n/a	0	\$-	\$28,321
Mitigation projects								
MIT2014-01	Protected species bycatch newsletter	\$20,000	\$2,657	\$22,657	4	100	\$22,657	\$-
MIT2014-02	Improvement of tori line performance in small vessel longline fisheries	\$60,000	\$7,970	\$67,970	4	100	\$67,970	\$-
MIT2014-03	Seabird liaison officer	\$40,000	\$5,314	\$45,314	4	100	\$45,314	\$-
TOTAL		\$1,806,687	\$240,000	\$2,046,687			\$1,797,462	\$249,225

B: CSP Observer Allocation

Fishery	Stocks covered	Total days	MPI CR %	MPI Days	DOC CSP CR %	DOC CSP Days	Cost per day	CSP research cost
FOREIGN CHARTER VESSELS								
Foreign Charter Vessels	240days STN1; remaining days to be recovered as follows: HOK1; LIN3-7; HAK All; BAR All; SQU1T and SQU6T; JMA3-7; SBW All; WWA All; SWA All	6000	85	5100	15	900	\$450	\$405,000
DOMESTIC VESSELS								
Deepwater trawl fisheries:								
ORH 1	ORH1	55	90	49.5	10	5.5	\$450	\$2,475
East Coast NI Deepwater	ORH2A, ORH2B, ORH3A, BYX2, CDL2	175	90	157.5	10	17.5	\$450	\$7,875
Chatham Rise Deepwater	ORH3B, OEO3A, OEO4, BYX3	250	90	225	10	25	\$450	\$11,250
Sub-Antarctic Deepwater	ORH3B, OEO1, OEO6	30	90	27	10	3	\$450	\$1,350
West Coast NI Deepwater	ORH7A	40	90	36	10	4	\$450	\$1,800
Middle Depth trawl fisheries:								
Sub-Antarctic Middle Depth	SBW6B/6I/6R, SQU6T/1T	250	80	200	20	50	\$450	\$22,500
Domestic Middle Depth	HOK1, LIN3-7, HAK1/4/7	210	85	178.5	15	31.5	\$450	\$14,175
HOK Cook Strait	HOK1	120	85	102	15	18	\$450	\$8,100
HOK WCSI inside the line	HOK1	70	85	59.5	15	10.5	\$450	\$4,725
Scampi	SCI (ALL)	150	80	120	20	30	\$450	\$13,500
Deepwater bottom longline fisheries:								
Bottom longline	LIN3, LIN7	150	85	127.5	15	22.5	\$450	\$10,125
Surface longline fisheries:								
Domestic tuna longline - EC STN	STN1	174	85	147.9	15	26.1	\$585	\$15,269
Domestic tuna longline - WC STN	STN1	112	85	95.2	15	16.8	\$585	\$9,828
Domestic tune longline - EC BIG/SWO	BIG1, SWO1	225	85	191.25	15	33.75	\$585	\$19,744
Domestic tune longline - WC BIG/SWO	BIG1, SWO1	45	85	38.25	15	6.75	\$585	\$3,949

Continued over leaf

B: CSP Observer Allocation (Continued)

Fishery	Stocks covered	Total days	MPI CR %	MPI Days	DOC CSP CR %	DOC CSP Days	Cost per day	CSP research cost
Purse Seine fisheries:								
Domestic SKJ	SKJ1	70	85	59.5	15	10.5	\$585	\$6,143
Super seiner SKJ	SKJ1	30	85	25.5	15	4.5	\$585	\$2,633
Inshore fisheries:								
Setnet WCNI (E*) – TBC, coverage will be MPI Crown funded		420	-	420	-	-	-	-
BNS Bottom longline- AKE	BNS1, HPB1, LIN1	205	50	102.5	50	102.5	\$635	\$65,088
Setnet ECSI- Otago	SCH3, SPO3, ELE3, MOK3	310	50	155	50	155	\$635	\$98,425
Setnet SCSi- Southland	SCH5, SPO3, ELE5, SPD5	352	50	176	50	176	\$635	\$111,760
Inshore trawl WCNI	FLA1, JDO1, SCH1, TRE7, SNA8, KAH8, TAR1, GUR1	300	50	150	50	150	\$635	\$95,250
Danish seine SNA1	SNA1	100	85	85	15	15	\$635	\$9,525
Inshore trawl ECSI	BAR1, RCO3, TAR3	200	85	170	15	30	\$635	\$19,050
Snapper 1 Trawl	SNA1	600	85	510	15	90	\$635	\$57,150
TOTAL								\$1,016,687

EC = East Coast

WC = West Coast

ECSI = East Coast South Island

WCSI = West Coast South Island