

# Review of the National Plan of Action - Seabirds (2013)



**Fisheries New Zealand**

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Conservation  
*Te Papa Atawhai*

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## 1. Introduction

New Zealand published the *National plan of action to reduce the incidental catch of seabirds in New Zealand fisheries* (NPOA-Seabirds) in April 2004.<sup>1</sup> This was New Zealand's first NPOA, and was developed to respond to the Food and Agriculture Organization of the United Nations (FAO) *International plan of action for reducing incidental catch of seabirds in longline fisheries*.<sup>2</sup>

A revised NPOA-Seabirds was published in 2013. The high-level objective of the NPOA-Seabirds 2013 was:

*New Zealand seabirds thrive without pressure from fishing-related mortalities, New Zealand fishers avoid or mitigate against seabird captures, and New Zealand fisheries are globally recognised as seabird friendly.*

The NPOA-Seabirds 2013 specified that the plan would be reviewed after four years to assess whether its five-year objectives had been met; and whether they, and the longer-term objectives, were still relevant or needed to be reviewed, modified or substituted. Reviewing the NPOA-Seabirds 2013 was also intended to assess how effective its implementation processes had been.

This document summarises the outcomes of the review and achievements up to the end of the 2017/18 fishing year. It highlights progress made over the term of the NPOA-Seabirds 2013, identifies lessons learnt, and recommends changes to the next NPOA-Seabirds to increase its effectiveness.

Sections 2 to 5 report the relevant achievements, problems, lessons learnt and recommendations for each of the NPOA-Seabirds 2013's objectives. More examples of the NPOA-Seabirds' achievements are described in Appendix 1. Section 6 reports on the achievements, problems, lessons learnt and recommendations related to implementing the NPOA-Seabirds 2013.

Further details of the activities carried out during the lifetime of the NPOA-Seabirds 2013 are given in the appendices. Appendices 2 and 3 provide results of the Department of Conservation's Protected Species Liaison Project and the Deepwater Group's Environmental Liaison Officer Programme respectively; Appendix 4 provides results related to Southern Seabird initiatives. Information about seabird captures rates is given in Appendix 5; Appendices 6 and 7 list the research activities led by Fisheries New Zealand and Department of Conservation respectively; Appendix 8 lists the papers that have been submitted to international fora; and Appendix 9 lists the outreach that has been made to the non-commercial fisheries sector.

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<sup>1</sup> <https://fs.fish.govt.nz/Doc/21870/NPOAseabirds%5B1%5D.pdf.ashx>

<sup>2</sup> <http://www.fao.org/3/x3170e/x3170e02.htm>

## 2. Progress with the Practical Objectives

The 2013 NPOA-Seabirds 2013 had three five-year practical objectives.

### Objective a)

All New Zealand commercial fishing vessels are shown to be implementing current best practice mitigation measures relevant to their area and fishery.

### Achievements

The review found that:

- By 2017/18, protected species risk management plans<sup>3</sup> and/or operational procedures were in place on (refer to Appendix 1):
  - All trawl vessels that are greater than 28 metres long;
  - All trawl vessels used to target scampi;
  - All bottom longline vessels targeting ling in Fisheries Management Areas 2–7 (FMA 2–7)
  - 36 of 48 bottom longline vessels in FMA 1;
  - All surface longline vessels; and
  - Some inshore-trawl vessels that are less than 28 metres long.
- The Department of Conservation (DOC)'s and the fishing industry's liaison officers have helped fishers develop protected species risk management plans, and provided them with information and guidance on mitigating risks to seabirds (refer to Appendices 2 and 3).
- The monitoring and audit process carried out by observers, primarily on trawl vessels greater than 28 m in length, was able to measure and report implementation of mitigation.

### Problems

The overall problems were that:

- The NPOA-Seabirds 2013 didn't define processes to identify best-practice mitigation measures that could then be used across New Zealand's diverse fisheries.
- Due to varying levels of observer coverage, existing monitoring and audit processes couldn't consistently measure implementation of mitigation across some sectors and fleets.

The specific problems the review found were:

- There was no consensus among stakeholders about what constitutes best practice (this is partly due to a perception that defining best-practice mitigation measures would remove a fleet's flexibility to innovate and adapt to specific situations).
- There are no consistent cross-fishery processes for documenting, reviewing and refining best practice for each fishery.
- There are no structured processes for reviewing and refining the protected species risk management plans to reflect evolving best practice.

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<sup>3</sup> Vessel-specific protected species risk management plans document how a vessel will mitigate the risk of seabird (and other protected species) captures. The plans may also be referred to as risk management plans, seabird management plans and vessel management plans.

- Limited observer coverage in some fisheries has constrained collecting comprehensive at-sea information on mitigation measures being used (some other fisheries are well observed and their use of mitigation measures is understood).
- As the implementation of protected species risk management plans and operational procedures was prioritised based on the risk that different fisheries pose to seabirds, protected species risk management plans or operational procedures are not yet in place for some vessels (such as set net vessels operating outside of Southland/Otago<sup>4</sup> and some inshore trawl vessels).
- The port-side and at-sea checks of how vessels are adhering to protected species risk management plans could be improved in some fisheries.<sup>5</sup>
- Some fleets (such as those in the southern South Island and Chatham Islands) haven't attended Seabird Smart training (refer Appendix 4).

### Lessons Learnt

As a result of the review, the following lessons have been learnt:

- Guidance and defined standards of best practice must be in place before plans are implemented. Otherwise, people's interpretations of best-practice mitigation measures will vary.
- Metrics, and monitoring or audit processes, need to be developed to show that vessels are using best practice or defined standards of effective mitigation. Otherwise, progress towards objective a) cannot be measured.
- Defined standards of best-practice mitigation measures must be able to be implemented on the full range of vessels in each fleet.

### Next Steps

1. Establish a process for defining and reviewing the standards for mitigation measures.
2. Develop a mechanism for implementing protected species risk management plans on those vessels, and in those fisheries, currently without plans.
3. Establish a process to audit protected species risk management plans against standards for mitigation measures.
4. Establish a process to audit adherence to protected species risk management plans across all fisheries.
5. Establish an information framework that is capable of providing updates on progress towards the objective.

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<sup>4</sup> Operational Procedures for the lower South Island coastal setnet fleet began to be developed during 2017/18

<sup>5</sup> These checks are carried out by Fishery Officers, the Ministry for Primary Industries (MPI) (now Fisheries New Zealand)'s staff, DOC's liaison officers, and observers.

## Objective b)

Recreational and customary non-commercial fishers understand the risks their fishing activities pose to seabirds, relevant organisations support and promote the use of best practice mitigation measures and it is the cultural norm in New Zealand to use such measures

### Achievements

The review found that engagement with, and outreach to, recreational and customary non-commercial fishers increased during the term of the NPOA-Seabirds 2013. This was due to both the formation of the MPI Recreational Fisheries team in 2015 (refer to Appendix 9) and the Southern Seabird Solutions Trust commencing programmes aimed at non-commercial fishers in 2012.

The engagement and outreach focused on the northern regions of the North Island (particularly Auckland). This area has high levels of recreational fishing combined with known recreational seabird catches and seabirds that are estimated to be at a high risk from commercial fishing (black petrels and flesh-footed shearwaters).

An exit survey, undertaken at the end of the 2017/18 National Panel Survey of Marine Fishers, contained a question on people's interactions with seabirds. Information from survey respondents provided useful information on the proportion of fishers who felt seabirds had disrupted their fishing during the 12 month survey period, together with a description of how seabirds disrupted fishing.<sup>6</sup>

### Problems

Overall, outreach is still too limited. It's also difficult to monitor people's understanding and cultural norms; therefore it's difficult to measure whether the objective has been achieved.

The specific problems the review found were:

- During the term of the NPOA-Seabirds 2013, there was limited success in engaging retailers of recreational fishing gear and boats to help educate recreational and customary non-commercial fishers.
- There was limited engagement and outreach outside the northern regions of the North Island.

### Lessons Learnt

As a result of the review, we've learnt that objectives need to focus on outcomes we can control and measure (such as levels of engagement and information provided). Otherwise, progress towards the objective can't be measured.

### Next Steps

1. Collect better information so we better understand risk from non-commercial fisheries and can potentially quantify impacts of recreational fishing on seabird populations.
2. Continue outreach, informed by results from the 2017/18 National Panel Survey of Marine Fishers. Develop a plan for targeted outreach based on best information and implement it.

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<sup>6</sup> The 2017/18 National Panel Survey of Marine Fishers was the second edition of a survey designed to quantitatively measure recreational marine harvest of finfish and non-fish species over a 12-month period.

<https://fs.fish.govt.nz/Doc/24728/FAR-2019-24-National-Panel-Survey-Marine-Recreational-Fishers.pdf.ashx>

## Objective c)

Capture rates are reducing in all New Zealand fisheries in accordance with reduction targets in the relevant planning documents for those fisheries.

### Achievements

The review found that:

- A working group with the Seabird Advisory Group had been held to agree how to use observed capture rates to set capture rate reduction targets.
- Quantitative capture rate reduction targets (consistent with the targets recommended by the working group) for two deepwater fisheries were incorporated in planning documents.<sup>7</sup>
- Proxy capture rate reduction targets were incorporated into surface longline<sup>8</sup> fisheries planning documents.

### Problems

Overall, in many fisheries there isn't enough information on seabird captures to calculate statistically meaningful capture rates (e.g. number of seabird captures per unit of fishing effort). This makes it difficult to set meaningful capture rate reduction targets. Targets have only been set for a small proportion of fisheries where both coverage by observers and seabird captures were sufficient to create meaningful models.

Additionally, observed seabird capture rates per unit of fishing effort are subject to multiple variables such as changes in the spatial and temporal distribution of fishing effort and/or observer coverage. As such, assessing the performance of seabird mitigation measures by interpreting trends in observed capture rates can be problematic.

The specific problems the review found were:

- The limited observer coverage in many fisheries meant capture rate reduction targets couldn't be set.
- Quantitative targets to demonstrate a continuous improvement in capture rates can only be specified for the squid trawl and middle-depths trawl fisheries, which have sufficient information on which to base a numerical target.

### Lessons Learnt

As a result of the review, the following lessons have been learnt:

- Good data is needed to use objective c) across all fisheries. Even for fisheries where numeric targets could be set, annual fluctuations made it challenging to measure change over five years.

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<sup>7</sup> Fisheries New Zealand. (2019). *Annual review report for deepwater fisheries 2017/18*. Retrieved from <https://www.mpi.govt.nz/dmsdocument/33340/loggedIn>. Refer to section 2.4.2 for the steps used to calculate baseline capture rates and capture rate reduction targets for the two deepwater fisheries.

<sup>8</sup> Fisheries New Zealand (2018). *Annual operational plan for Highly Migratory Species Fisheries 2018/19*. Retrieved from <https://www.fisheries.govt.nz/dmsdocument/29669-annual-operational-plan-for-highly-migratory-species-fisheries-201819>

- As observed seabird capture rates are subject to multiple variables, capture rates are best used as a monitoring tool rather than a specified outcome. Proxy targets should be set when there is insufficient information to set capture rate reduction targets.

### Next Steps

1. Consider if it's more appropriate to monitor capture rates to measure progress against objectives.
2. Observe the impact of the Fisheries New Zealand Digital Monitoring programme on the availability of information on seabird captures across a broad range of fisheries. This programme is expected to substantially improve fisheries monitoring over the course of the next NPOA-Seabirds.

## 3. Progress with the Biological risk Objective

The NPOA-Seabirds had one five-year biological risk objective.

The level of mortality of New Zealand seabirds in New Zealand commercial fisheries are reduced so that species currently categorised as at very high or high risk from fishing move to a lower category of risk.

### Achievements

The review found that:

- There is increasing confidence in the risk scores for seabird species, because the methodology for, and information to support, the Spatially Explicit Fisheries Risk Assessment (SEFRA) have been iteratively updated.
- Species-focused working groups have been set up for those species categorised as being at very-high risk from fishing (black petrel), or selected other species that face other threats to their populations and some fishing-related mortality (such as Antipodean albatross and yellow-eyed penguin).

### Problems

Measuring change in risk assessment categories over five years was difficult, as the risk-assessment methodology was corrected and updated in the early years of the NPOA-Seabirds 2013. The risk assessment estimates potential fatalities using the most recent three-year period of data. This means it doesn't react to short-term changes in captures.

The specific problems the review found were:

- The risk-assessment methodology hadn't been completely implemented when the NPOA-Seabirds 2013 was released.
- Iterative improvements were made to the seabird risk assessment (especially changes to its methodology), which meant some stakeholders were confused about how to interpret its outputs.
- There's no agreed strategy to manage high-risk species, particularly in situations where there are significant other threats.

## Lessons Learnt

As a result of the review, we've learnt that stakeholders, especially the Seabird Advisory Group, need to understand the risk assessment's capability and how to interpret its outputs.

## Next Steps

1. Ensure that the biological risk objective in the next iteration of the NPOA-Seabirds is meaningful, measurable, and aligned to the outputs of the risk assessment.

## 4. Progress with the Research and development Objectives

The NPOA-Seabirds had three five-year research and development objectives.

### Objective a)

Where existing mitigation measures are impractical or of limited effectiveness in reducing the mortality of New Zealand seabirds new or improved mitigation measures have been sought and where identified are under development for all priority fisheries or fishing methods.

### Achievements

The review found that Fisheries New Zealand and DOC have carried out a range of scientific studies on mitigation, seabird biology and behaviour, and estimates of fisheries interactions (refer to Appendices 6 and 7).

### Problems

Researching bycatch mechanisms, and developing and testing effective and practical solutions, takes many years. There are also several new or innovative mitigation measures that are still being tested.

### Lessons Learnt

As a result of the review we've learnt that we need to be agile in our research contracting. This includes maximising opportunities for collaboration to be more efficient.

### Next Steps

1. This objective is still relevant and needs to drive continual improvement in areas where risks still exist.

### Objective b)

New observation and monitoring methods, especially in relation to poorly observed fisheries, are researched, developed and implemented.

### Achievements

The review found that the Black Petrel Working Group had started to trial electronic monitoring to detect and count seabird captures by small bottom longline vessels in FMA 1.

## Problems

Although new ways of observing and monitoring captures have been researched in one fishery, they haven't been fully implemented. It's also uncertain how much information can be collected with electronic monitoring technology alone.

## Lessons Learnt

As a result of the review, we've learnt that developing the technology for observation and monitoring tools and methods is only one aspect of improving data collection. Management frameworks for these new technologies must also be developed to ensure robust and transparent data collection.

## Next Steps

1. Observe the impact of the Fisheries New Zealand Digital Monitoring programme, as this will have implications for updated NPOA-Seabirds monitoring objectives. The full benefits of this programme may not be realised, or fully understood, until it is fully operational and embedded. Therefore, the next iteration of the NPOA-Seabirds may need to be a transitional iteration, so it can reflect changes in management tools over the next five years.

## Objective c)

Programmes of research to improve our understanding of and ability to mitigate seabird incidental mortality for at risk species are underway and key projects for very high risk species have been completed.

## Achievements

The review found that Fisheries New Zealand and DOC have carried out a range of scientific studies on mitigation, seabird biology and behaviour, and estimates of fisheries interactions (refer to Appendices 6 and 7).

## Problems

Seabirds that are most at risk from fisheries need to be studied over multiple years. As the research often takes place in remote locations, it can be expensive.

The specific problems the review found were:

- There's scarce information about the biological characteristics (such as estimates of adult survival and numbers of annual breeding pairs) of some very high or high risk species (especially black petrel). This can lead to uncertainty in the input parameters for the risk assessment.
- There's limited data on cryptic mortality.<sup>9</sup> Information that does exist mostly comes from fisheries outside New Zealand, and may not be adequate to inform the current risk assessment of New Zealand fisheries.

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<sup>9</sup> Cryptic mortality is the proportion of seabird captures that are not able to be observed, even with an observer on board.

## Lessons Learnt

The occurrence of cryptic mortalities is well-recognised; therefore, it must be included in risk-assessment frameworks. The cryptic mortalities of seabirds needs to be further researched, to give a better understanding of total mortalities.

## Next Steps

1. Continue to prioritise research projects that help reduce uncertainty in the input parameters for the risk assessment.
2. Develop medium- to long-term research plans that can be used to agree priorities.

## 5. Progress with the International Objective

The NPOA-Seabirds had one international objective.

In areas beyond the waters under New Zealand jurisdiction, relevant Regional Fisheries Management Organisations and governments (and also relevant industry organisations, fishing companies and fishers) understand the potential risk posed to New Zealand seabirds from fishing activities for which they have responsibility and are taking actions to reduce that risk where it is likely to be high.

## Achievements

The review found that (refer to Appendices 6-8):

- Fisheries New Zealand and the DOC are developing a risk assessment for New Zealand seabirds and fisheries in the southern hemisphere. They have been working with other countries.
- Early iterations of the risk assessment have been presented to several regional fisheries management organisations.
- New Zealand has promoted continually improving seabird conservation measures to several regional fisheries management organisations, which has led to new or improved conservation and management measures being agreed.
- New Zealand-flagged vessels on the high seas must now implement bycatch mitigation measures.

## Problems

Changing regional fisheries management organisation requirements is a slow process. It involves substantially inputting to series of meetings and discussions, and New Zealand cannot control the results. So far seabirds haven't been a priority topic for bilateral engagement.

## Lessons Learnt

The NPOA-Seabirds international engagement objectives must be measurable and within New Zealand control. Multi-year plans are needed to guide international engagement.

## Next Steps

1. Continue to find ways to improve data capture and sharing on bycatch species by regional fisheries management organisations.

2. Advocate for regional fisheries management organisations to include the latest best-practice advice in their bycatch mitigation measures.
3. Support small island developing states to develop their own NPOAs on seabirds.

## 6. Progress with Implementing the NPOA-Seabirds 2013

### Achievements

The review found:

- the annual planning and reporting documents for deepwater and highly migratory species fisheries include specific sections on implementing the NPOA-Seabirds<sup>10</sup>
- a seabird-specific plan, based on the NPOA-Seabirds objectives, was developed for inshore fisheries.

### Problems

The NPOA-Seabirds 2013 envisaged that the National fisheries plans for highly migratory species 2010-2015<sup>11</sup> and deepwater and middle-depth fisheries<sup>12</sup> (approved by the Minister of Fisheries and Aquaculture in 2010) would be reviewed and amended mid-term to align the Plans' objectives with those of the NPOA-Seabirds 2013. In this respect the NPOA-Seabirds 2013 implementation framework was inconsistent with Fisheries New Zealand's planning processes. The intent was that all aspects of implementation of the NPOA-Seabirds 2013 would be through the annual planning processes provided for in national fisheries plans.

In inshore fisheries, there was no standard annual planning process and the mechanisms to implement the NPOA-Seabirds 2013 were unclear.

The processes for DOC to plan and report on the parts of the NPOA-Seabirds it was implementing were not covered in the NPOA-Seabirds implementation framework.

### Lessons Learnt

A clear implementation process, that is consistent with wider planning and reporting processes, is required to ensure robust, transparent and consistent planning, reporting and monitoring of progress.

### Next Steps

1. Use an integrated and transparent planning and delivery approach in the next NPOA-Seabirds. This should reflect the roles and responsibilities of each government department and take account of how stakeholders can contribute towards the NPOA-Seabirds' objectives.
2. Make sure that planning and reporting processes are well-documented.
3. Make sure that the NPOA-Seabirds objectives are measurable and have clear performance objectives to report against.

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<sup>10</sup> Planning documents for deepwater and highly migratory species are available at: [www.mpi.govt.nz/growing-and-harvesting/fisheries/fisheries-management/deepwater-fisheries](http://www.mpi.govt.nz/growing-and-harvesting/fisheries/fisheries-management/deepwater-fisheries) and [www.fisheries.govt.nz/growing-and-harvesting/fisheries/fisheries-management/highly-migratory-species](http://www.fisheries.govt.nz/growing-and-harvesting/fisheries/fisheries-management/highly-migratory-species) respectively

<sup>11</sup> Ministry of Fisheries. (2010). *National fisheries plan for highly migratory species 2010-2015*.

<sup>12</sup> Ministry of Fisheries. (2010). *National fisheries plan for deepwater and middle-depth fisheries*.

## Appendix 1: Achievements of the NPOA-Seabirds

### Achievements related to Best-practice Mitigation

#### Plans and Procedures

Codified and documented vessel-specific protected species risk management plans, and sector or fleet-specific operational procedures, have been developed for a range of fisheries, including fisheries that pose a significant risk to seabirds. Liaison Officer programmes have helped to develop, implement and manage these plans.<sup>13</sup> These programmes regularly engage with fishers, and advise them on how to implement effective bycatch-mitigation measures.

#### Support for the deepwater fleet

The Deepwater Group has developed and installed protected species risk management plans (termed vessel management plans) and operational procedures on all trawl vessels over 28 metres in overall length and all trawl vessels used to target scampi. In March 2019 there were 44 vessels in these two categories combined.

Operational procedures have also been developed for bottom longline vessels targeting ling in quota management areas LIN 2 – LIN 7 (over 30 vessels landed more than two tonnes of ling from these stocks during 2017/18).<sup>14</sup>

Vessel management plans and operational procedures both describe the bycatch-mitigation devices and processes the vessel operates; the vessel's real-time reporting and response processes; and state the reporting trigger thresholds for captures. They also both have processes for reviewing and reporting on best-practice measures described in the relevant document.<sup>15</sup>

The performance of vessels against the plans or operational procedures is audited by government observers and reported to the Deepwater Fisheries team and the Deepwater Group. From 2012/13 to 2017/18 the percentage of observed trips on trawl vessels over 28 metres in overall length and scampi trawl vessels that needed remedial follow up reduced from 21 percent to 11 percent (refer to Table 5).

The Deepwater Group's Environmental Liaison Officer provides annual briefings on seabirds, and other protected species, to operators and senior crew of deepwater vessels.

#### Support for bottom longline vessels in FMA 1

Liaison officer deployment began in the FMA 1 snapper bottom longline fishery in 2013/14 and in the bluenose bottom longline fishery in 2014/15.

In 2017/18, DOC liaison officers developed protected species risk management plans for 37 of the 48 FMA 1 bottom longline vessels identified as being active during 2017/18. These plans are vessel-specific and identify the vessel operator's legal obligations with respect to protected species. They also document other elements of the vessel's operational practices that are intended to reduce

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<sup>13</sup> Programmes include the Deepwater Group Environmental Liaison Officer and DOC's Protected Species Liaison Project.

<sup>14</sup> Until 2017/18, Deepwater Group training for bottom longline vessels was targeted at vessels that had targeted and landed more than two tonnes of ling in the previous year.

<sup>15</sup> The Deepwater Group Operational Procedures are available at: <https://deepwatergroup.org/newsresources/op-manual/>

protected species capture risks, liaison officer contact details, date of issue or review of the plan, and triggers.<sup>16</sup>

An information management system supports the broader liaison programme. Information housed by the system includes:

- Vessels involved in the liaison programme;
- Information collected on questionnaires that fed into the development of the protected species risk management plans;
- Trigger event records;
- File notes; and
- Programme resources distributed to fishers.

Government observers started reporting on whether the plans were adhered to during their time on board the vessels.

### Support to surface longline fleet

DOC liaison officers started engaging with the surface longline fleet in 2016. After investigating the most suitable materials, and building and deployment methods, liaison officers have now helped all surface longline vessels to develop suitable tori lines.<sup>17</sup> All surface longline vessels now have operational procedures, protected species risk management plans (previously termed seabird risk management plans), and the information they need to manage risks to seabirds on board. Liaison officers visited each vessel a second time in early 2017 to check their implementation of their protected species risk management plans.

### Support to FMA 1 inshore trawl fleet

Fisheries Inshore New Zealand has developed a set of 10 golden rules for seabird risk for coastal trawlers in the northern North Island (FMA 1).<sup>18</sup>

### Support to South Island set net and inshore trawl fleets

The Southern Inshore Fisheries Management Company has developed protected species risk management plans (termed seabird management plans) for 40 South Island inshore trawl vessels between 14 and 28 metres long (this is 85 percent of all vessels of this type). The company has also developed plans for 13 vessels less than 14 metres long, and operating procedures for southern set net fisheries.

During 2017/18, DOC liaison officers engaged with 12 vessels that formed part of the Otago coastal trawl fleet and finalised protected species risk management plans for the 12 vessels.

### Support to inshore fishers nationwide

Between the 2011/12 and 2017/18 financial years, the Seabird Smart Training Programme had trained around 250 longline and trawl skippers and crew in 17 ports around New Zealand (the

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<sup>16</sup> Triggers are intended to provide an alert on what could be ongoing risks for protected species, and to prompt the skipper and crew to think about what they could be doing differently to avoid future captures.

<sup>17</sup> Tori lines, also referred to as streamer lines, are lines with streamers attached that are towed behind a vessel from a high point near the stern. They are designed to deter seabirds from risk areas such as trawl warps and baited hooks on longlines.

<sup>18</sup> These will be made available at <https://www.doc.govt.nz/our-work/conservation-services-programme/csp-resources-for-fishers/>

percentage of trained skippers and crew from other fisheries varies across the country). This programme, led by Southern Seabird Solutions Trust and funded by DOC, Fisheries New Zealand and fishing companies, trains people about seabird smart fishing methods. By August 2017, all bottom longline skippers in FMA 1 had taken part in the programme.

## Achievements related to Non-commercial Fishing

### Educational Materials

The Southern Seabirds Solution Trust commenced education and awareness-raising programmes aimed at non-commercial fishers in 2012. Fisheries New Zealand and the Trust have disseminated seabird messages through a brochure on responsible fishing, articles in two popular fishing magazines and social media. Around 50,000 seabird and fish-handling brochures were distributed as inserts in national publications, in fishing competition starter packs, or to fishing clubs and honorary fisheries officers.

Fisheries officers distributed the brochures to recreational fishers during patrols in the Hauraki Gulf. Meanwhile, Forest & Bird, funded by Packard (through BirdLife International), engaged with recreational fishers, charter boat operators and local fishing clubs and societies on recreational fisheries issues in the Hauraki Gulf in 2015/16.

Outputs from Forest & Bird's engagement included production of a waterproof ID/safe release poster, three safe seabird fishing videos, articles in social media and magazines, presence at key community and fishing events, and presentations to clubs and societies.

Establishing the MPI Recreational Fisheries team (the team is now located within Fisheries New Zealand) has ensured government resourcing can focus on reaching the recreational fishing community.

Fisheries New Zealand invited the Southern Seabirds Solution Trust to share its stand at four northern fishing and boat shows, including the Hutchwilco and On Water Boat Shows in Auckland.

More details relating to outreach with non-commercial fishers is provided in Appendix 9.

## Achievements related to Capture Rate Reduction

A process for achieving the objective of continuous improvement in New Zealand fisheries has been developed using observed capture rate reduction targets. Quantitative capture rate reduction targets were developed for two deepwater fisheries (squid trawl and middle depth trawl) and incorporated into annual planning documents.

For deepwater fisheries for which there was insufficient information to develop quantitative capture rate reduction targets, proxy targets were developed. These fisheries were the southern blue whiting, jack mackerel, scampi and deepwater trawl fisheries, and the small and large vessel ling bottom longline fisheries.

In the surface longline fishery, proxy measures aimed at assessing behaviour and risk in the fleet as an alternative to a numerically-based capture rate were developed.

Some fisheries, particularly inshore fisheries that use smaller vessels, have low observer coverage, which constrains the ability to collect information on seabird captures. Therefore proxy targets are used instead of quantitative capture rate reduction targets.

## Achievements related to the Biological Objective

The Spatially Explicit Fisheries Risk Assessment (SEFRA) framework has been used to assess the impact of commercial fisheries on New Zealand seabirds. This has enabled NPOA-Seabirds management actions to be prioritised for species that are at greatest risk.

The framework was first applied to seabirds in 2009. Its methodology and structure have since been improved, so it can now be used for more quantitative purposes.

## Achievements related to the Research and Development Objectives

### Researching Mitigation

Several scientific studies have been carried out to refine existing mitigation measures, test new mitigation developments, or improve our understanding of seabird behaviour behind fishing vessels. A review was undertaken by the Southern Seabird Solutions Trust that describes all measures suited to the types of commercial fishing carried out in New Zealand.<sup>19</sup> An additional report summarised actions needed to progress each mitigation measure.<sup>20</sup>

### Testing Electronic Monitoring

The Black Petrel Working Group trialled electronic monitoring technology on the bottom longline fleet off the east coast of the upper North Island. An initial trial carried out on behalf of the Southern Seabird Solutions Trust in 2015/16 found that 89 percent of seabird captures were detected when the camera footage was reviewed, and 94 percent were detected if the footage was reviewed multiple times.<sup>21</sup> A second, more comprehensive, trial was undertaken by the fishing industry and the Ministry for Primary Industries during 2016/17 and 2017/18.<sup>22</sup>

### Researching Biology and Population Monitoring

Extensive biological and population monitoring research has been completed under the DOC Conservation Services Programme and Fisheries New Zealand Protected Species Programme. The seabird risk assessment has been used to prioritise much of this work.

## Achievements related to the International Objective

The focus of work towards the international objective has been strengthening seabird conservation measures within regional fisheries management organisations. Progress has been made with a southern hemisphere seabird risk assessment, so that New Zealand can identify the fisheries to prioritise working with to reduce the risk.

## Achievements related to the Implementing the NPOA-Seabirds 2013

The process to implement the NPOA-Seabirds 2013 through fisheries planning has been partially delivered. Each year, in their annual planning documents, the highly migratory and deepwater

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<sup>19</sup> <https://www.catchfishnotbirds.nz/post/stocktake-of-mitigation-measures>

<sup>20</sup> Southern Seabird Solutions Trust (2017). Actions to progress mitigation measures for reducing seabird captures in New Zealand fisheries. Prepared for the Ministry of Primary Industries.

<sup>21</sup> Middleton, D.A.J., Guard, D.P., and Orr, T.J. (2016). Detecting seabird captures via video observation, 27 pages. Final Report for the Southern Seabird Solutions Trust.

<sup>22</sup> At the time of publication the report from the trial was not yet available. Fisheries New Zealand intends to make the report available at <https://fs.fish.govt.nz/Page.aspx?pk=61&tk=209>

fisheries management teams have identified actions and services related to the NPOA-Seabirds 2013 and reported on them in their annual review reports.

In lieu of having finalised national fisheries plans, the Inshore Fisheries team developed actions against each of the NPOA-Seabirds 2013 objectives, and reported its progress to the Seabird Advisory Group each year. In the absence of objectives and targets in national plans, milestones and performance indicators were developed for each of the NPOA-Seabirds 2013 objectives, to guide and integrate annual planning.

## Appendix 2: Results of the Department of Conservation Protected Species Liaison Project

The latest iteration of DOC's Liaison Project has operated since 2013/14. Its initial focus was on interactions between bottom longline vessels and seabirds (primarily black petrels) in north-eastern North Island (FMA 1).<sup>23</sup> The programme was expanded to include surface longline vessels (nationally) and trawl vessels operating around the south and east coasts of the South Island.

Results of the programme are summarised in Tables 1 and 2.

**Table 1: Number of vessels whose crew interacted with DOC Liaison Officers, by vessel type**

Financial year	Bottom longline	Surface longline	Trawl	Total
2014/15	44	-	-	<b>44</b>
2015/16	55	38	-	<b>93</b>
2016/17	39	39	-	<b>78</b>
2017/18	37	33	12	<b>82</b>

**Table 2: Number of observer audits carried out on vessels involved in the Liaison Programme, by vessel type**

Financial Year	Bottom longline	Surface longline	Trawl	Total
2014/15	-	-	-	<b>0</b>
2015/16	22	-	-	<b>22</b>
2016/17	14	-	-	<b>14</b>
2017/18	12	13	-	<b>25</b>
<b>Total</b>	<b>48</b>	<b>13</b>	<b>0</b>	<b>61</b>

The programme broadened in scope in 2017/18 from being focused only on seabirds, to covering all protected species. In 2018/19, the programme will transition to a regional structure, with Liaison Officers working with all vessels using priority fishing methods in their regions. The intention is that significantly more plans will be created for vessels across a range of fisheries.

<sup>23</sup> Some information on the recent history of the liaison project is available in this report:

<https://www.doc.govt.nz/contentassets/4d83b3260a4d43d5afe98dcf193b90b5/mit2017-01-ps-coordination-final-report.pdf>

## Appendix 3: Results related to Deepwater Group Environmental Liaison Officer programme

### Training for trawl fleet (more than 28 metres long)

Vessel management plans (VMPs) for the large (greater than 28 m in length) trawl fleet have existed since 2007. Table 3 shows the number of these vessels that have operated in New Zealand waters since 2012/13, and the number and percentage of crews who have been trained in best practice environmental and mitigation practices.

Each year, the Deepwater Group Environment Liaison Officer (ELO) aims to train crew from as many vessels as possible. However, because many vessels make only a few port calls each year, it's not possible to train every crew annually. Some vessels receive training more than once in a year; this ensures that different crews of the same vessel receive the same training.

The ELO typically visits the Auckland-based fresher<sup>24</sup> component of the fleet every second year.

When a new vessel joins the fleet, a VMP is drafted and its crew briefed prior to, or soon after, fishing commencing.

**Table 3: number and percentage of crews of trawl vessels more than 28 metres long who've been trained by the Deepwater Group**

Fishing year <sup>25</sup>	Number of trawl vessels > 28 metres	Number of vessel crews trained	Percentage of vessel crews trained
2012/13	38	31	82%
2013/14	37	31	84%
2014/15	38	29	76%
2015/16	37	28	76%
2016/17	36	31	86%
2017/18	39	36	92%

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<sup>24</sup> Vessels that do not freeze product on board

<sup>25</sup> The fishing year runs from 1 October to 30 September.

## Training for scampi trawl fleet (less than 28 metres long)

In 2011/12 the Deepwater Group started training the crew of scampi trawl vessels, and the first VMPs for the under 28 metre scampi trawl fleet were developed in the 2013/14 fishing year.

Table 4 shows the number of these vessels, and the number of crews who have received briefings and refresher training from the Deepwater Group ELO.<sup>26</sup>

**Table 4: number of crews of scampi trawl vessels less than 28 metres long who've been trained by the Deepwater Group ELO**

Fishing year	Number of scampi-trawl vessels <28 metres	Number of vessel crews trained
2012/13	8	7
2013/14	8	4
2014/15	8	8
2015/16	8	5
2016/17	9	5
2017/18	8	6

## Audit of VMPs for trawl fleet (more than 28 metres long) and scampi trawl fleet

Observers deployed on trawl vessels more than 28 metres long, and scampi trawl vessels, audit vessel performance against measures set out in the vessel's VMP. These measures include using bycatch mitigation devices, removing 'stickers'<sup>27</sup> from trawl-net mesh before shooting, and using good offal management practices.

The VMP audit reports are sent to the Deepwater Group ELO. In cases when a vessel's performance was inconsistent with its VMP, the ELO follows up directly with the vessel's operator. Table 5 shows the number of vessels that were observed, the number of observed trips that included an audit, and the number and percentage of those audits that resulted in post-audit follow up by the ELO.

Vessel offal management practices are the most common reason for the Deepwater Group ELO needing to follow up post-audit. Table 5 shows that the percentage of vessels needing post-audit follow-ups has declined over the six-year reporting period.

<sup>26</sup> Scampi trawl vessels more than 28 metres long are included in the data presented in Table 3.

<sup>27</sup> The term 'stickers' refers to fish that remains stuck in net mesh after a trawl net has been hauled and emptied

**Table 5: Number of scampi trawl vessels and trawl vessels more than 28 metres long that were observed, audited, and needed post-audit follow-up**

Fishing year	Number of vessels observed	Number of observed trips when VMPs were audited	Number of audits that resulted in a follow-up	Percentage of audits that resulted in a follow-up
2012/13	34	152	32	21%
2013/14	32	162	34	21%
2014/15	34	160	28	18%
2015/16	28	160	20	13%
2016/17	38	149	21	14%
2017/18	42	150	16	11%

### Training for hoki trawl fleet (less than 28 metres long)

Vessel-specific seabird and marine mammal risk management plans were first developed for the under 28 metre hoki trawl fleet in 2013/14. The Deepwater Group developed and published operational procedures for the fleet in June 2017.<sup>28</sup>

In 2012/13 the Cook Strait component of the fleet received training in in best practice environmental and mitigation practices. In 2015/16 this training was expanded to crews of vessels operating on the west coast of the South Island.

Table 6 shows the number of these vessels operating in the Cook Strait and the west coast of the South Island, and the number of vessel crews that have received training from the Deepwater Group ELO.

**Table 6: Number of crews of hoki trawl vessels less than 28 metres long who have been trained by the Deepwater Group ELO.**

Fishing year	Number of hoki trawl vessels <28 metres in Cook Strait	Number of hoki trawl vessels <28 metres on the west coast	Number of hoki trawl vessels <28 metres operating in Cook Strait and on the west coast	Number of vessel crews trained
2012/13	15	9	19	9
2013/14	15	8	20	10
2014/15	16	11	21	9
2015/16	13	10	17	11
2016/17	11	9	18	12
2017/18	11	7	14	14 <sup>29</sup>

<sup>28</sup> The coastal trawler hoki operational procedures are available [here](#)

<sup>29</sup> The crew of one vessel received training but did not end up fishing.

## Ling bottom longline fleet

Operational procedures were developed in time for the 2016/17 fishing year. The procedures apply to all companies and vessels targeting the LIN 2 – LIN 7 stocks using the method of bottom longline.<sup>30</sup> Table 7 shows the number of vessels that these procedures apply to.

**Table 7: Number of vessels that reported targeting ling using the method of bottom longline by overall vessel length.**

Fishing Year	<18 m	18–28 m	28–38 m	>38 m	Total
2012/13	24	20	5	1	50
2013/14	26	21	4	4	55
2014/15	35	20	3	3	61
2015/16	26	21	2	3	52
2016/17	24	21	1	3	49
2017/18	22	20	1	3	46

In 2015/16 the Deepwater Group expanded its training to the ling bottom longline fleet. Previously, training had been delivered to a few vessels on an ad hoc basis. Given the number of vessels in the fleet, training was initially prioritised to vessels that had targeted and landed more than two tonnes of ling the previous year. From 2018/19 the training will extend to vessels below this two-tonne threshold.

Table 8 shows the number of crews of ling bottom longline vessels who were trained in best practice environmental and mitigation practices by the Deepwater Group ELO. The table shows the numbers of these vessels that used autoline equipment and the number that baited hooks by hand.<sup>31,32</sup>

**Table 8: number of crews of ling bottom longline vessels who've been trained by the Deepwater Group ELO**

Fishing year	Crew of vessels >38 metres trained (all autoline)	Crew of vessels <38 metres trained		Total number of vessel crews trained
		Autoline	Handbait	
2015/16	2	4	7	13
2016/17	2	3	19	24
2017/18	2	2	20	24

<sup>30</sup> More information on ling stocks is available at <https://fs.fish.govt.nz/Page.aspx?pk=8&tk=31&stock=LIN1>

<sup>31</sup> Hooks can be baited by machine (autoline) or by hand (handbait). Vessel operators started to record which method they used once Fisheries New Zealand introduced electronic reporting.

<sup>32</sup> During 2016/17 and 2017/18 the Deepwater Group trained the crew of one vessel that had previously operated as a less-than-38 metres-long autoline vessel, but this vessel did not undertake any bottom longline fishing during those two years. This information is not included from Table 8.

## Appendix 4: Results related to Southern Seabird Solutions Trust initiatives

Southern Seabird Solutions is a charitable trust formed in 2004, with a purpose of '*promoting the conservation of albatrosses and petrels within New Zealand and internationally*'. The Trust works with commercial and recreational fishers, and delivers projects that contribute to reducing the effects of fishing on seabirds in southern hemisphere fisheries.

Seabird Smart Fishing workshops remain one of the Trust's flagship projects. Table 9 below summarises the number of commercial fishing skippers and crew who attended one of the workshops.

**Table 9: Number of commercial fishers in the North and South Island who attended a Seabird Smart Fishing workshop.**

Financial year	North Island	South Island	Total
2011/12	-	5	5
2012/13	112	30	142
2013/14	20	8	28
2014/15	13	-	13
2015/16	31	15	46
2016/17	-	-	-
2017/18	21		21
<b>Total</b>	<b>197</b>	<b>58</b>	<b>255</b>

The Trust has a YouTube channel <sup>33</sup> and its video in seabird smart fishing in deepwater trawl and longline fisheries has been viewed nearly 300,000 times.

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<sup>33</sup> [https://www.youtube.com/user/seabirds11/featured?disable\\_polymer=1](https://www.youtube.com/user/seabirds11/featured?disable_polymer=1)

## Appendix 5: Seabird capture rates

### Observed Seabird capture Rates

This section provides the observed seabird capture rate and the level of observer coverage over equivalent time periods. Information is provided for deepwater, inshore and surface longline fisheries.

Seabird capture rates are expressed as the number of seabirds caught (dead or alive) per 100 observed tows (for trawl fisheries); per 1,000 hooks observed hauled (for longline fisheries); and per 1,000 metres of observed net hauled (for set net fisheries). Seabird capture rates exclude deck landings (when a seabird voluntarily lands on a vessel and is assisted from the vessel by crew or an observer) and impacts against a vessel (when a seabird collides with a vessel superstructure and is assisted from the vessel by the crew or an observer, or dies from the impact).

Observed seabird capture rates can be affected by a number of variables such as changes in the spatial and/or temporal distribution of fishing effort and/or observer coverage, changes in seabird abundance around vessels, changes in the availability of seafood prey items and changes in fleet mitigation practices. As such, assessing the performance of seabird mitigation measures by interpreting trends in observed seabird capture rates can be problematic.

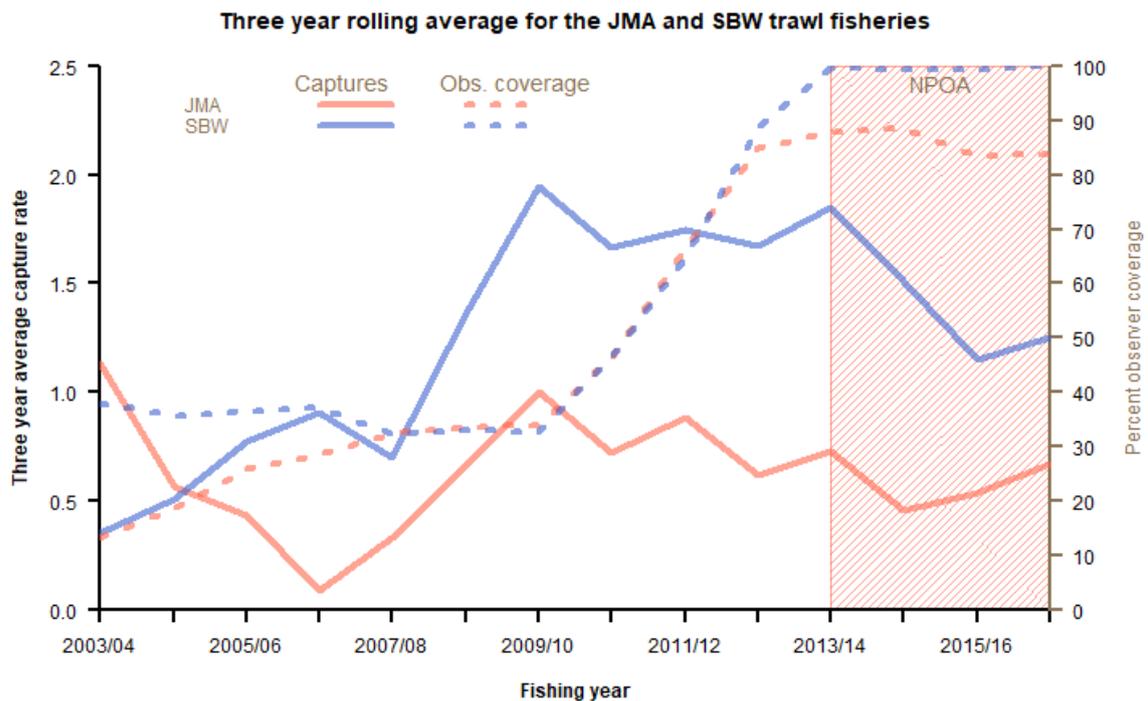
Seabird capture rates and percentages of observer coverage are expressed as three-year rolling averages. For example, figures for 2015/16 represent the average over the three years between 2014/15 and 2016/17. All figures in Appendix 5 contain data up to the end of the 2017/18 fishing year.

All years correspond to a fishing year (1 October to 30 September).

## Southern blue whiting and jack mackerel trawl fisheries

Observed seabird captures in the jack mackerel fishery ranged from zero in the 2003/04 and 2005/06 fishing years to 24 in 2012/13. Observed seabird capture rates in the southern blue whiting fishery ranged from zero in 2002/03 and 2008/09 to 19 in 2012/13 (Figure 1).

**Figure 1: Observed seabird capture rates and percentages of observer coverage for the southern blue whiting (SBW) and jack mackerel (JMA) fisheries**



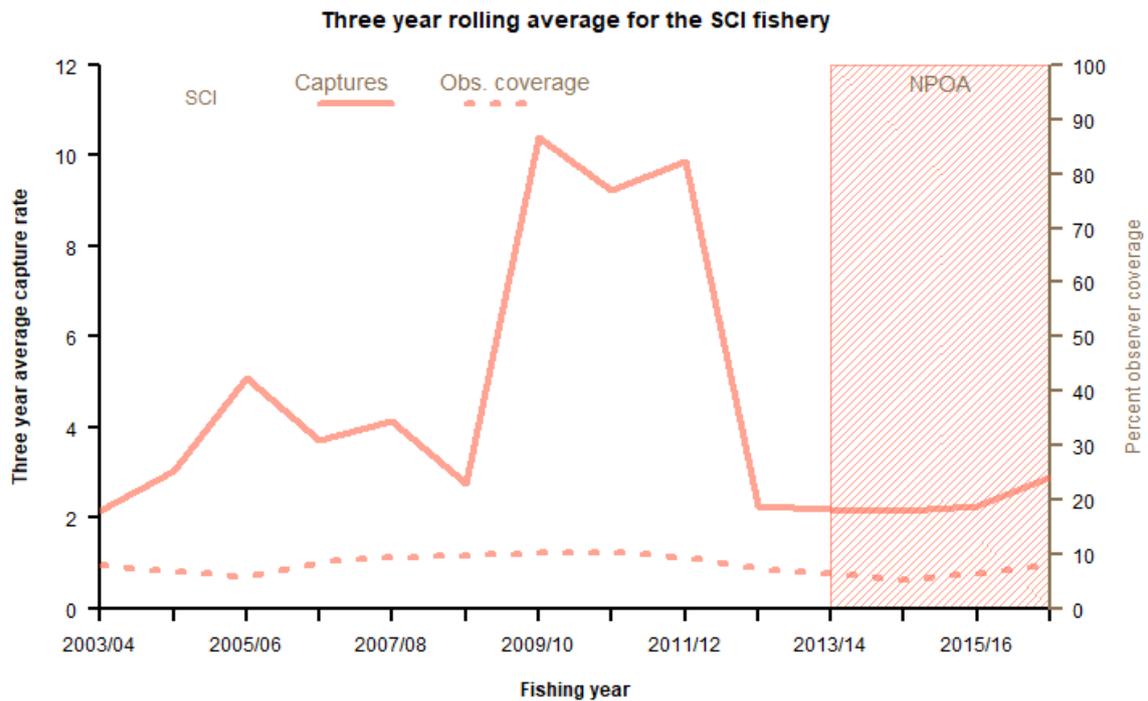
### Notes

1. The observed seabird capture rates (seabird captures per 100 observed tows, averaged over three years) are shown in solid lines compared to the left-hand axis.
2. The percentages of observer coverage (percentage of tows observed) are shown in dotted lines compared to the right-hand axis.
3. The shaded area called 'NPOA' refers to the period since the NPOA-Seabirds was revised in 2013.

## Scampi trawl fishery

The observed seabird capture rate peaked between 2009/10 and 2011/12. This was due to a large number of observed captures (109 - mostly petrels and shearwaters) during 2010/11. The lowest number of observed captures was in 2015/16, when there were only three observed captures (Figure 2).

**Figure 2: Observed seabird capture rate and percentage of observer coverage for the scampi (SCI) fishery**



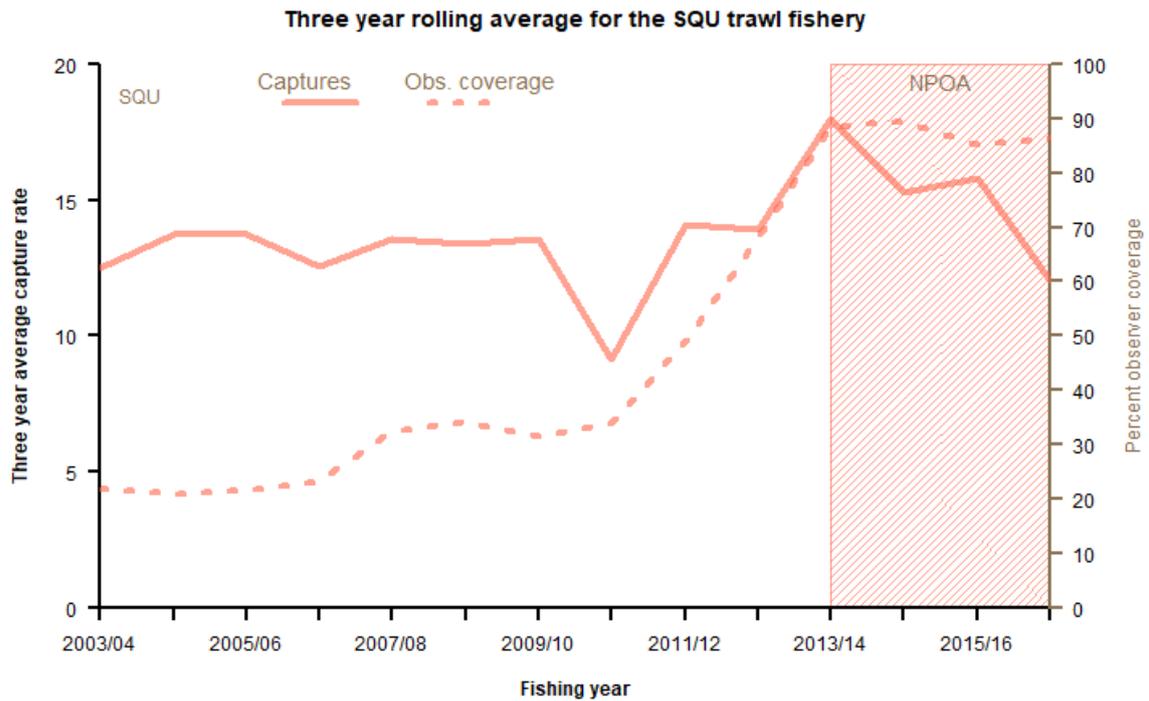
### Notes

1. The observed seabird capture rate (seabird captures per 100 observed tows, averaged over three years) is shown as a solid line compared to the left-hand axis.
2. The percentage of observer coverage (percentage of tows observed) is shown as a dotted line compared to the right-hand axis.
3. The shaded area called 'NPOA' refers to the period since the NPOA-Seabirds was revised in 2013.

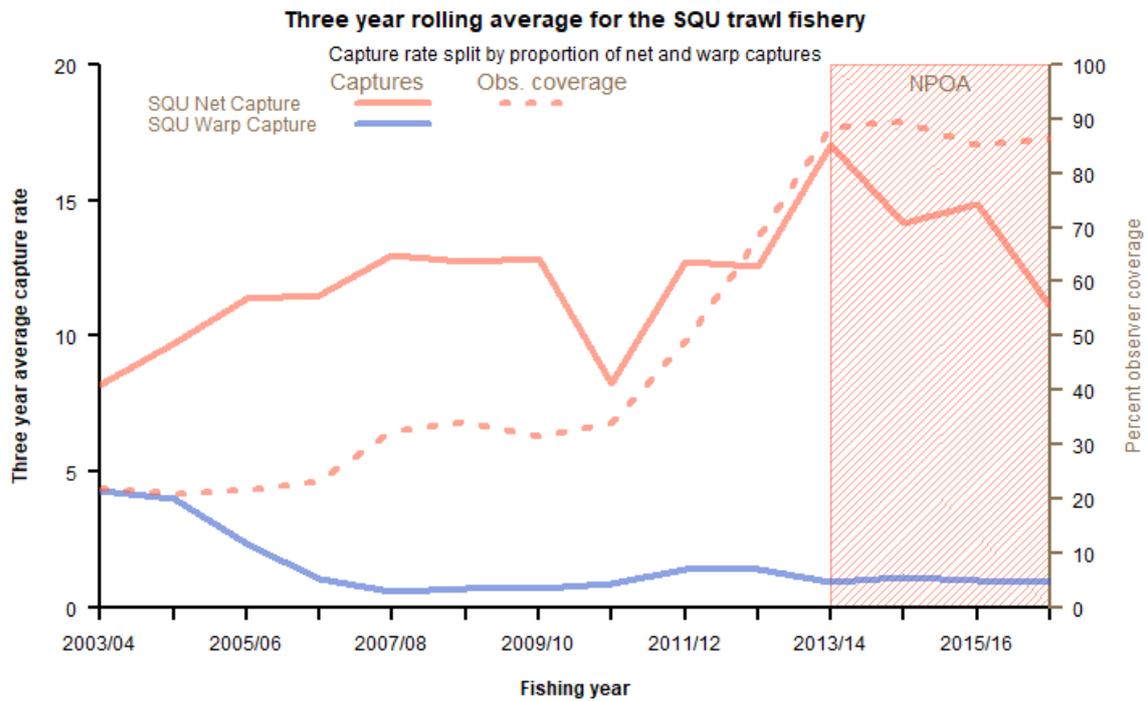
## Squid trawl fishery

The number of observed captures in the squid trawl fishery ranged from 92 in 2009/10 to 444 in 2012/13 (Figure 3). A breakdown of the squid trawl capture rate by capture method (warp captures or net captures) is displayed in Figure 4.

**Figure 3: Observed seabird capture rate and percentage of observer coverage for the squid (SQU) trawl fishery (all capture methods).**



**Figure 4: Observed seabird capture rates and percentages of observer coverage for the squid (SQU) trawl fishery (by capture method)**



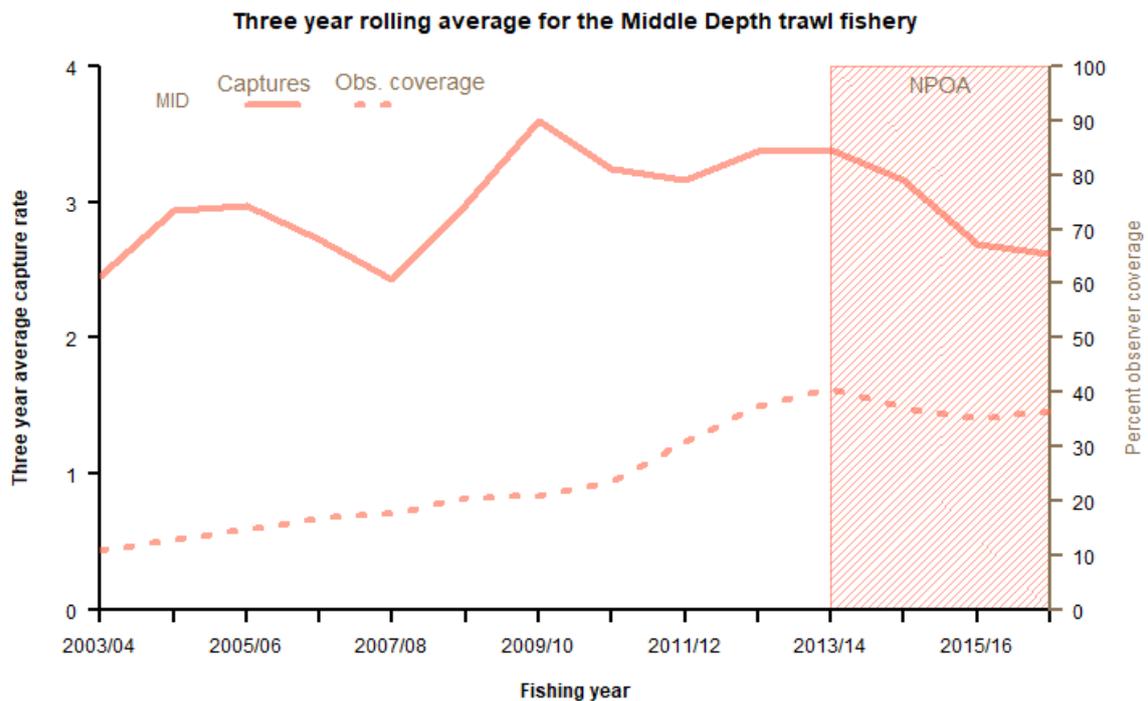
**Notes**

1. The observed seabird capture rates (seabird captures per 100 observed tows, averaged over three years) are shown in solid lines compared to the left-hand axis.
2. The percentages of observer coverage (percentage of tows observed) are shown in dotted lines compared to the right-hand axis.
3. The shaded area called 'NPOA' refers to the period since the NPOA-Seabirds was revised in 2013.
4. The capture method was extracted from the raw observer data and applied as a proportion to the total capture rate.

## Middle-depth trawl fishery

The combined middle-depth trawl fishery includes trawl vessels greater than 28 metres long that target barracouta, blue warehou, hake, hoki, ling, silver warehou and white warehou. The observed captures in the middle-depth fishery ranged from 44 in 2006/07 to 232 in 2013/14 (Figure 5).

**Figure 5: Observed seabird capture rate and percentage of observer coverage for the middle-depth trawl fishery**



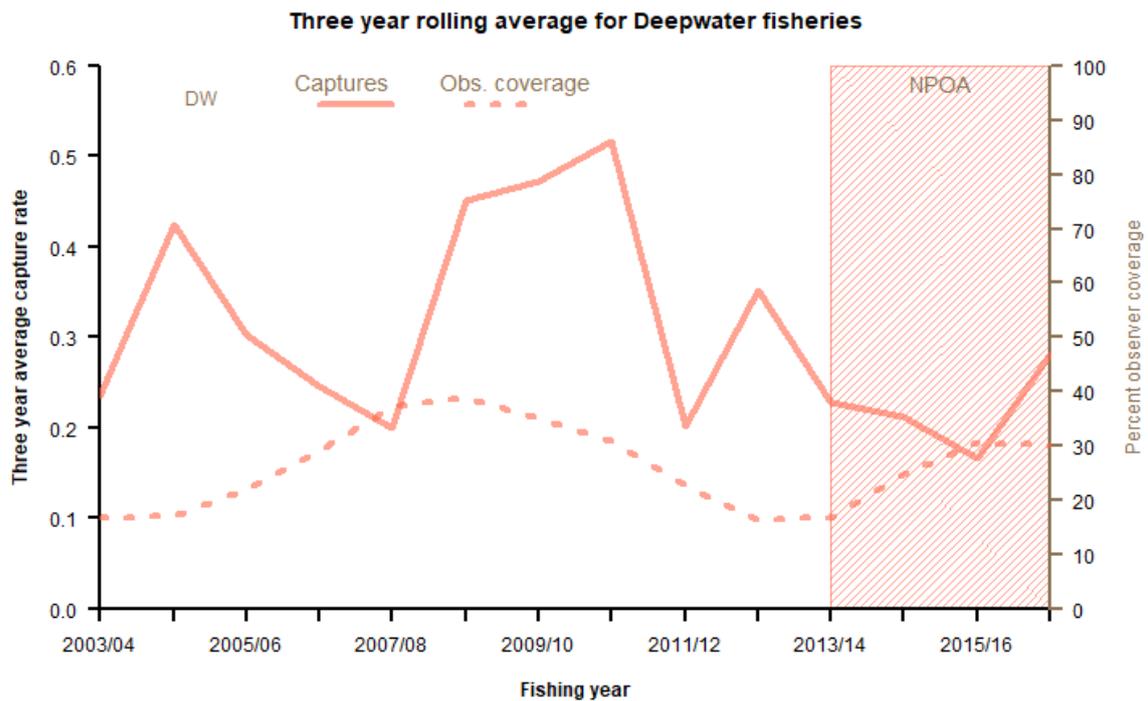
### Notes

1. The observed seabird capture rate (seabird captures per 100 observed tows, averaged over three years) is shown as a solid line compared to the left-hand axis.
2. The percentage of observer coverage (percentage of tows observed) is shown as a dotted line compared to the right-hand axis.
3. The shaded area called 'NPOA' refers to the period since the NPOA-Seabirds was revised in 2013.

## Deepwater trawl fishery

The combined deepwater trawl fishery includes all trawl vessels that target orange roughy, oreo or cardinal fish. The observed captures in the deepwater fishery ranged from none in 2002/03 and 2014/15, to 19 in 2009/10 (Figure 6).

**Figure 6: Observed seabird capture rate and percentage of observer coverage for the deepwater trawl fishery**



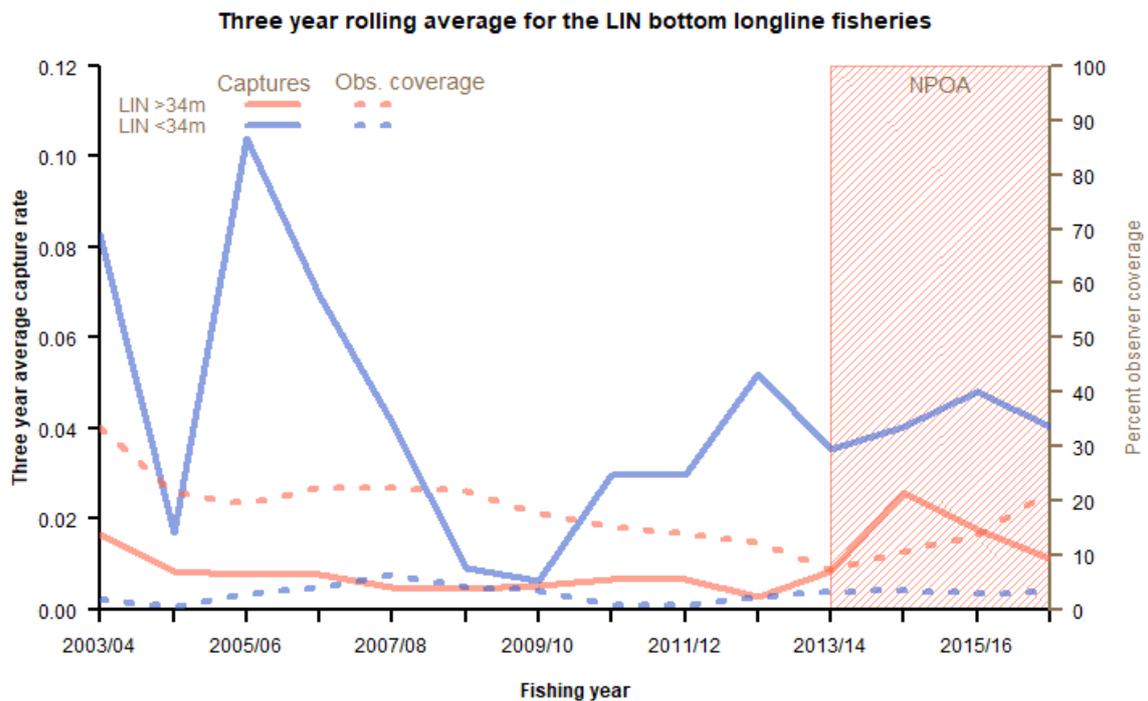
### Notes

1. The observed seabird capture rate (seabird captures per 100 observed tows, averaged over three years) is shown as a solid line compared to the left-hand axis.
2. The percentage of observer coverage (percentage of tows observed) is shown as a dotted line compared to the right-hand axis.
3. The shaded area called 'NPOA' refers to the period since the NPOA-Seabirds was revised in 2013.

## Ling bottom longline fishery

Observed seabird captures in the ling bottom longline fishery (by vessels more than 34 metres long) ranged from zero in 2012/13 to 241 in 2002/03 (Figure 7). Trends in the seabird capture rate for small vessels (less than 34 metres long) must be interpreted cautiously, due to the low and variable observer coverage.

**Figure 7: Observed seabird capture rates and percentages of observer coverage for the ling (LIN) bottom longline fishery, by vessel length**



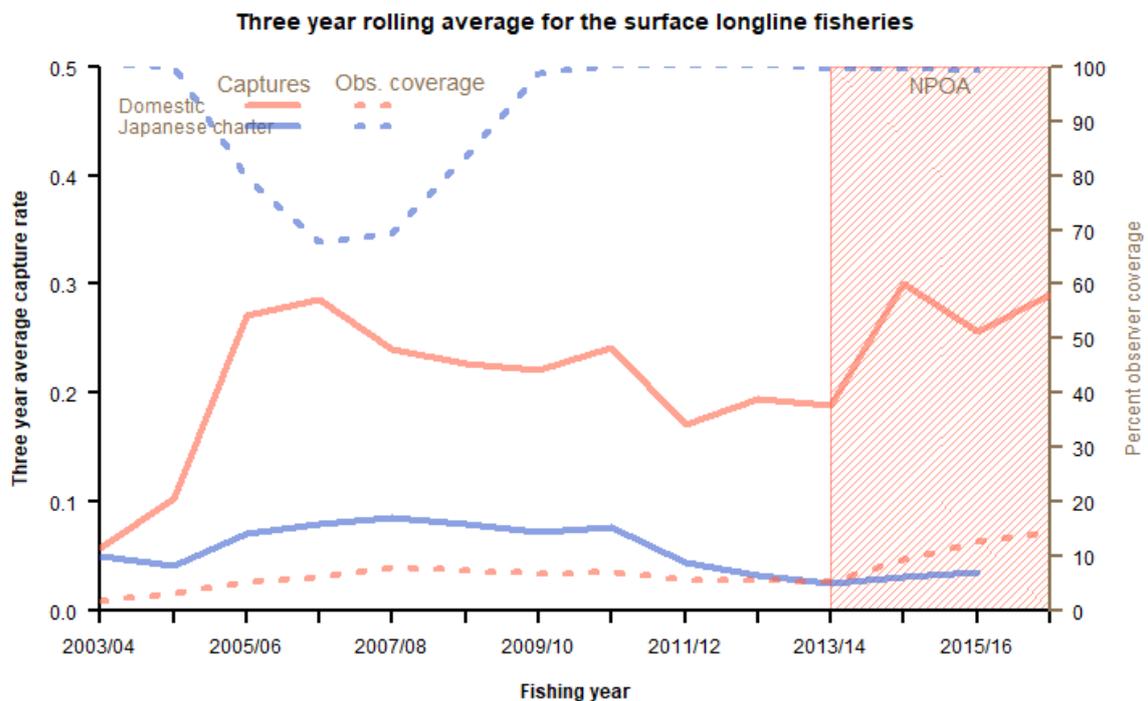
### Notes

1. The observed seabird capture rates (seabird captures per 1,000 hooks, averaged over three years) are shown in solid lines compared to the left-hand axis.
2. The percentages of observer coverage (percentage of hooks observed) are shown in dotted lines compared to the right-hand axis.
3. The shaded area called 'NPOA' refers to the period since the NPOA-Seabirds was revised in 2013.

## Surface longline fishery

Vessels operating in the surface longline fishery target tuna species and swordfish. Observed captures range from 7 in 2003/04 and 2004/05 to 131 in 2015/16, this coincided with an increase in observer coverage on domestic surface longline vessels. Observer coverage in the domestic fleet starts at 2.3% of effort in 2003/04 and has increased to 16.7% by the 2016/17 fishing year. These trend will not be directly reflected in the figure below due to the three year rolling average.

**Figure 4: Observed seabird capture rates and percentages of observer coverage for the surface longline fishery, by fleet type (domestic and Japanese charter).**



### Notes

1. The observed seabird capture rates (seabird captures per 1,000 hooks, averaged over three years) are shown in solid lines compared to the left-hand axis.
2. The percentages of observer coverage (percentage of hooks observed) are shown in dotted lines compared to the right-hand axis.
3. The shaded area called 'NPOA' refers to the period since the NPOA-Seabirds was revised in 2013.

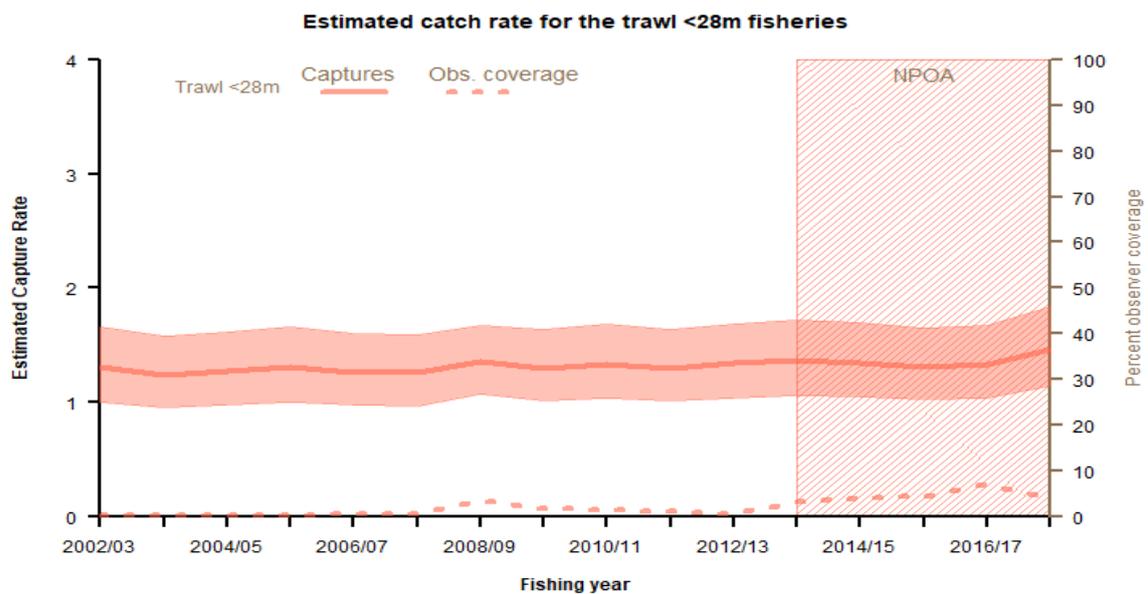
## Estimated Seabird Capture Rates

The extent of seabird interactions with the less-than-28 metres-long trawl fleet is less well known due to the low levels of observer coverage and the bias of observer coverage towards areas or fisheries with lower seabird capture rates.<sup>34</sup> This means that observed capture rates are unlikely to represent true seabird capture rates (especially considering that seabird captures are thought to be more frequent in southern waters during the summer). For these vessels, the *estimated* number of seabirds captured (while still highly uncertain) is considered to be more accurate than *observed* capture rates.

The estimates calculated reflect the likely total number of observable captures, had all effort been observed. The capture rate is the number of captures per 100 tows. The estimates don't take cryptic mortality into account.

The estimates were calculated by using the estimation method found in Abraham and Thompson (2015) and displayed on the Protected Species Captures website<sup>35</sup>.

**Figure 5: Estimated seabird capture rate and percentage of observer coverage of the less-than-28 metres-long trawl fleet.**



### Notes

1. The estimated seabird capture rate (seabird captures per 100 tows, averaged over three years) is shown as a solid line compared to the left-hand axis.
2. The percentage of observer coverage (percentage of tows observed) is shown as a dotted line compared to the right-hand axis.
3. The shaded area above and below the captures line reflects the 95 percent confidence intervals on the estimates.
4. The shaded area called 'NPOA' refers to the period since the NPOA-Seabirds was revised in 2013.

<sup>34</sup> The inshore trawl fishery on the west coast of the North Island, and the winter hoki fisheries in the Cook Strait and on the west coast of the South Island have relatively high levels of observer coverage on small trawlers (less than 28 metres long).

<sup>35</sup> Abraham E. R., Thompson F. N. (2015). Captures of all birds in trawl fisheries, in the New Zealand Exclusive Economic Zone, during the 2016–17 fishing year. Retrieved from <https://psc.dragonfly.co.nz/2018v1/released/birds/trawl/all-vessels/eez/2016-17/>, 2019.

## Appendix 6: Fisheries New Zealand Research

The NPOA-Seabirds had three five-year research and development objectives. This appendix summarises research projects contracted by Fisheries New Zealand related to those objectives.

**Table 10: Summary of seabird-related research projects contracted by Fisheries New Zealand between 2013 and 2018.**

Project code	Research project title	Status
PRO2013-01	Protected species capture estimation	Completed <sup>36</sup>
SEA2013-06	Overlap of the distribution of black petrel ( <i>Procellaria parkinsoni</i> ) with New Zealand trawl and longline fisheries	Completed <sup>37</sup>
SEA2013-14	Assessment of the risk of commercial fisheries to New Zealand seabirds, 2006–07 to 2012–13	Completed <sup>38</sup>
PRO2013-17	Repeat quantitative modelling of southern Buller’s albatross	Completed <sup>39</sup>
PRO2014-06	Update of level-2 seabird risk assessment	Completed <sup>40</sup>
SEA2014-15	Sensitivity of the seabird risk assessment to three years without captures	Completed <sup>41</sup>
ENV2014-09	Spatial decision support tools for multi-use and cumulative effects	In progress
PRO2014-01	Improving information on the distribution of key protected species	In progress
PRO2015-03	International engagement on seabird bycatch issues	In progress
PRO2015-01	Improving estimates of cryptic mortality for use in seabird risk assessments	In progress
PRO2016-03	Estimation of captures of protected species in New Zealand fisheries	In progress
PRO2016-04	Characterise and quantify non-fishing threats on seabirds	In progress

<sup>36</sup> Ministry for Primary Industries (2017). Estimated captures of New Zealand fur seal, New Zealand sea lion, common dolphin, and turtles in New Zealand commercial fisheries, 1995–96 to 2014–15. New Zealand Aquatic Environment and Biodiversity Report 188. <https://fs.fish.govt.nz/Page.aspx?pk=113&dk=24557>

<sup>37</sup> Ministry for Primary Industries. (2015). *Overlap of the distribution of black petrel (Procellaria parkinsoni) with New Zealand trawl and longline fisheries*. New Zealand Aquatic Environment and Biodiversity Report 161. <https://fs.fish.govt.nz/Page.aspx?pk=113&dk=23970>

<sup>38</sup> Ministry for Primary Industries (2015). *Assessment of the risk of commercial fisheries to New Zealand seabirds, 2006-07 to 2012-13*. New Zealand Aquatic Environment and Biodiversity Report 162. <https://fs.fish.govt.nz/Doc/23979/AEBR-162-risk-assessment.pdf.ashx>

<sup>39</sup> Ministry for Primary Industries (2016). *The 2014 demographic assessment of the Snares Islands population of Southern Buller’s albatross (Diomedea bulleri bulleri)*. New Zealand Aquatic Environment and Biodiversity Report 165. <https://fs.fish.govt.nz/Doc/24007/AEBR-165-Southern-Bullers-Albatross.pdf.ashx>

<sup>40</sup> Ministry for Primary Industries (2017). *Assessment of the risk of commercial fisheries to New Zealand seabirds, 2006-07 to 2014-15: supplementary information*. New Zealand Aquatic Environment and Biodiversity Report 191S. <https://www.mpi.govt.nz/dmsdocument/27540-aebr-191s-assessment-of-the-risk-of-commercial-fisheries-to-nz-seabirds-2006-07-to-2014-015-supplementary-information>

<sup>41</sup> Ministry for Primary Industries (2017). *Sensitivity of the seabird risk assessment to three years without captures*. New Zealand Aquatic Environment and Biodiversity Report 182. <https://fs.fish.govt.nz/Doc/24397/AEBR-182-Seabird-risk-assessment-sensitivity.pdf.ashx>

<b>PRO2016-01A</b>	Factors affecting capture rate of black petrel	Completed <sup>42</sup>
<b>PRO2016-06</b>	Spatially explicit fisheries risk assessment tool	In progress
<b>PRO2017-01</b>	Research into the demographic parameters for at-risk seabirds as identified by the RA (black petrels, Southern Buller's/Snares)	In progress
<b>PRO2017-04</b>	Risk Assessments to support the development of revised NPOA-Seabirds (including results from other threat assessment e.g. PRO 2017-14, 2017-18)	In progress
<b>PRO2017-05</b>	Population specific modelling of adult survival of at-risk seabird species	In progress
<b>PRO2017-06</b>	Development and mitigation of setnet mitigation tools	In progress
<b>PRO2017-07</b>	Development and testing of trawl mitigation tools	In progress
<b>PRO2017-15</b>	Use of innovative tag technology to examine foraging patterns of seabirds and association with fishing vessels	In progress
<b>PRO2017-16</b>	Analysis of the white capped albatross aerial survey data collected 2016/17 and 2015/16	In progress
<b>PRO2017-18</b>	Characterisation and quantification of non-commercial fishing threats on seabirds	In progress
<b>PSB2018-01A</b>	Habitat use and spatial distribution of Antipodean albatross	Draft
<b>PSB2018-09</b>	Monitoring trial: comparing observers vs electronic monitoring (EM) for seabirds on FMA1 bottom longline vessels	Draft
<b>PSB2018-10</b>	Deepwater net capture analysis	Draft
<b>PSB2018-13</b>	Multi-threat risk assessment for yellow-eyed penguin	Draft
<b>PSB2018-14</b>	Development and testing of mitigation techniques to reduce penguin captures in setnets	Draft
<b>PRO2018-01</b>	Protected species population dynamics model and simulations to estimate population sustainability threshold (PST)	In progress

<sup>42</sup> Ministry for Primary Industries (2018). *Population trends, breeding distribution and habitat use of black petrels (Procellaria parkinsoni) – 2016/17 operational report*. New Zealand Aquatic Environment and Biodiversity Report 198. <https://www.mpi.govt.nz/dmsdocument/27975-aebr-198-population-trends-breeding-distribution-and-habitat-use-of-black-petrels-procellaria-parkinsoni-20162017-operational-report>

## Appendix 7: Department of Conservation Research

The NPOA-Seabirds had three five-year research and development objectives. This appendix summarises research projects contracted by the Department of Conservation under the Conservation Services Programme that are related to those objectives.

**Table 11: Summary of seabird-related research projects contracted by Department of Conservation under the Conservation Services Programme between 2013 and 2018**

Financial year	Project code	Research project title	Status
2013/14 <sup>43</sup>	INT2013-02	Identification of seabirds captured in New Zealand fisheries	Multi-year project
	INT2013-05	Assessment of cryptic seabird mortality on trawl warps and longlines	Completed
	POP2012-06	Salvin's albatross – population estimate and at-sea distribution	Completed
	POP2013-02	White-capped albatross population estimate (Auckland Islands)	Completed
	POP2013-03	Gibson's albatross population study (Auckland Islands)	Completed
	POP2013-04	Black petrel population project	Completed
	MIT2013-01	Sea trials of the Kellian line setter	In progress
	MIT2013-02	Surface longline mitigation	Completed
	MIT2013-03	Characterisation of smaller vessel deep water bottom longline operations in relation to risk factors for seabird capture	Completed
	MIT2013-05	Development of bird baffler design for offshore trawl vessels	Completed
2014/15 <sup>44</sup>	INT2013-02	Identification of seabirds captured in New Zealand fisheries	Multi-year project
	POP2013-05	Development of bird baffler designs for offshore trawl vessels	Complete
	POP2014-02	Seabird population research 2014-15 [black petrel, Salvin's albatross, white-capped albatross, southern Buller's albatross, Gibson's albatross, white-chinned petrel, burrowing petrels]	Complete
	MIT2013-01	Kellian line setter sea trials	Complete
	MIT2014-02	Improvement of tori line performance in small vessel longline fisheries	Complete

<sup>43</sup> Further details of all research projects are available in the Conservation Services Programme Annual Research Summary 2013-14 (<https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/marine-conservation-services/reports/csp-annual-research-summary-2013-14.pdf>)

<sup>44</sup> Further details of all research projects are available in the Conservation Services Programme Annual Research Summary 2014-15 (<https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/marine-conservation-services/reports/csp-annual-research-summary-2014-2015.pdf>)

	<b>MIT2014-03</b>	Seabird liaison officers	Complete
2015/16 <sup>45</sup>	<b>INT2013-02</b>	Identification of seabirds captured in New Zealand fisheries	Complete
	<b>INT2015-04</b>	Black petrel and flesh-footed shearwater foraging behaviour around fishing vessels	Complete
	<b>POP2014-02</b>	Seabird population research 2014-15: southern Buller's albatross – Solander Island	Complete
	<b>POP2015-01</b>	Black petrel: Aotea/Great Barrier Island & Hauturu/Little Barrier Island population project	Complete
	<b>POP2015-02</b>	Flesh-footed shearwater: various locations population project	Multi-year project
	<b>POP2015-03</b>	Seabird population research: Auckland Islands 2015-16 [Gibson's albatross, white-capped albatross, white-chinned petrel, northern giant petrel]	Complete
	<b>POP2015-04</b>	Northern Buller's albatross: review taxonomy	Partially completed
	<b>MIT2015-01</b>	Seabird bycatch reduction (small vessel longline fisheries)	Complete
	<b>MIT2015-02</b>	Small vessel seabird mitigation project	Multi-year project
	2016/17 <sup>46</sup>	<b>INT2016-02</b>	Identification of seabirds captured in New Zealand fisheries
<b>INT2016-04</b>		Indirect effects of commercial fishing on Buller's shearwater and red-billed gulls	Complete
<b>POP2015-02</b>		Flesh-footed shearwater: various locations populations project	Multi-year project
<b>POP2016-01</b>		Seabird population research: Chatham Islands 2016-17 [northern Buller's albatross, northern royal albatross]	Complete
<b>POP2016-02</b>		Seabird population research: Auckland Islands 2016-17 [Gibson's albatross, white-capped albatross, white-chinned petrel]	Complete
<b>POP2016-05</b>		Yellow-eyed penguin foraging and indirect effects	Multi-year project
<b>POP2016-06</b>		Salvin's albatross Bounty Islands: methodology development	Complete
<b>MIT2015-01</b>		Seabird bycatch reduction (small vessel longline fisheries)	Complete
<b>MIT2015-02</b>		Small vessel seabird mitigation project	Partially completed
	<b>INT2016-02</b>	Identification of seabirds captured in New Zealand fisheries	Multi-year project

<sup>45</sup> Further details of all research projects are available in the Conservation Services Programme Annual Research Summary 2015-16 (<https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/marine-conservation-services/reports/csp-annual-research-summary2015-2016.pdf>)

<sup>46</sup> Further details of all research projects are available in the Conservation Services Programme Annual Research Summary 2016-17 (<https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/marine-conservation-services/reports/csp-annual-research-summary-2016-17.pdf>)

2017/18 <sup>47</sup>	<b>POP2015-02</b>	Flesh-footed shearwater: various locations populations project	Complete
	<b>POP2016-05</b>	Yellow-eyed penguin foraging and indirect effects	Complete
	<b>POP2017-01</b>	Seabird population research: Chatham Islands 2017-18 [northern Buller's albatross and northern royal albatross]	Complete
	<b>POP2017-03</b>	Salvin's albatross Bounty Islands population project	Postponed
	<b>POP2017-04</b>	Seabird population research: Auckland Islands 2017-18 [Gibson's albatross, white-capped albatross]	Complete
	<b>POP2017-06</b>	Indirect effects on seabirds in north-east North Island region	Multi-year project
	<b>MIT2015-02</b>	Small vessel seabird mitigation project	Ongoing
	<b>MIT2017-01</b>	Protected species liaison project	Ongoing
	<b>MIT2017-02</b>	Characterisation and development of offal management for small vessels	Complete

<sup>47</sup> Further details of all research projects are available in the Conservation Services Programme Annual Research Summary 2017-18 (<https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/marine-conservation-services/reports/final-csp-annual-research-summary-2017-18.pdf>)

## Appendix 8: Papers Submitted to International Fora

### South Pacific Fisheries Management Organisation<sup>48</sup>

- Debski, I. (2013). *Review of best practice mitigation for endangered, threatened and protected species bycatch*. SC-01-10. 1st Meeting of the Scientific Committee, South Pacific Fisheries Management Organisation. La Jolla, USA. 21–27 October 2013.
- Debski, I. (2013). *Review of bycatch data collection and reporting standards*. SC-01-11. 1st Meeting of the Scientific Committee, South Pacific Fisheries Management Organisation. La Jolla, USA. 21–27 October 2013.
- Debski, I. (2014). *Proposed revisions of data standards*. SC-02-11. 2nd Meeting of the Scientific Committee, South Pacific Fisheries Management Organisation. Honolulu, Hawaii, USA. 1–7 October 2014.
- Debski, I., Clements, K., & Bose, S. (2018). *Potential risk to seabirds from interactions with squid jig fisheries in the SPRFMO Area*. SC-06-31. 6th Meeting of the Scientific Committee, South Pacific Fisheries Management Organisation. Puerto Varas, Chile. 9–14 September 2018.
- Debski, I., & Holmes, M. (2017). *Seabird interactions with squid jig fisheries*. SC-05-29. 5th Meeting of the Scientific Committee, South Pacific Fisheries Management Organisation. Shanghai, China. 23–28 September 2017.
- Debski, I., & Pierre, J. (2014). *Observer coverage to monitor seabird captures in demersal longline and trawl fisheries*. SC-02-14. 2nd Meeting of the Scientific Committee, South Pacific Fisheries Management Organisation. Honolulu, Hawaii, USA. 1–7 October 2014.
- Debski, I., & Pierre, J. (2014). *Seabird cryptic mortality and risk from fisheries*. SC-02-13. 2nd Meeting of the Scientific Committee, South Pacific Fisheries Management Organisation. Honolulu, Hawaii, USA. 1–7 October 2014.
- Debski, I., & Pierre, J. (2014). *Seabird risk and trawler discharge*. SC-02-12. 2nd Meeting of the Scientific Committee, South Pacific Fisheries Management Organisation. Honolulu, Hawaii, USA. 1–7 October 2014.
- Ramm, K., Clements, K., & Debski, I. (2015). *Seabird interactions around fishing vessels and associated data collection protocols*. SC-03-25. 3rd Meeting of the Scientific Committee, South Pacific Fisheries Management Organisation. Port Vila, Vanuatu. 28 September–3 October 2015.
- Ramm, K., Clements, K., & Debski, I. (2015). *Standardised recording of hook parameters in demersal and pelagic longline*. SC-03-24. 3rd Meeting of the Scientific Committee, South Pacific Fisheries Management Organisation. Port Vila, Vanuatu. 28 September–3 October 2015.
- Walker, K., & Elliott, G. (2017). *Conservation concern for Antipodean wandering albatross*. SC-05-28. 5th Meeting of the Scientific Committee, South Pacific Fisheries Management Organisation. Shanghai, China. 23–28 September 2017.

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<sup>48</sup> All papers available at <https://www.sprfmo.int/meetings/>

## Western and Central Pacific Fisheries Commission<sup>49</sup>

### Science Papers

- Abraham, E., Roux, M-J., Richard, Y., & Walker, N. (2017). *Assessment of the risk of southern hemisphere surface longline fisheries to ACAP species*. WCPFC-SC13-2017/EB-IP-13. Scientific Committee Thirteenth Regular Session, Western Central Pacific Fisheries Commission. Rarotonga, Cook Islands. 9–17 August 2017.
- Debski, I., Clements, K., & Hjørvarsdóttir, F. (2018). *Hook-shielding devices to mitigate seabird bycatch: review of effectiveness*. WCPFC-SC14-2018/EB-WP-10 Rev1. Scientific Committee Fourteenth Regular Session, Western Central Pacific Fisheries Commission. Busan, Republic of Korea. 8–16 August 2018.
- Debski, I., Hjørvarsdóttir, F., & Knowles, K. (2016). *Distribution of highly at-risk New Zealand seabirds in the Western Central Pacific Fisheries Commission area*. WCPFC-SC12-2016/EB-WP-09 Rev 1. Scientific Committee Twelfth Regular Session, Western Central Pacific Fisheries Commission. Bali, Indonesia. 3–11 August 2016.
- Debski, I., Pierre, J., & Knowles, K. (2016). *Observer coverage to monitor seabird captures in pelagic longline fisheries*. WCPFC-SC12-2016/EB-IP-07. Scientific Committee Twelfth Regular Session, Western Central Pacific Fisheries Commission. Bali, Indonesia. 3–11 August 2016.
- Debski, I., Walker, K., Elliott, G., & Bose, S. (2018). *Update on bycatch risks to seabirds in the Western Pacific*. WCPFC-SC14-2018/EB-WP-11 Rev1. Scientific Committee Fourteenth Regular Session, Western Central Pacific Fisheries Commission. Busan, Republic of Korea. 8–16 August 2018.
- Goad, D., & Debski, I. (2017). *Tori line designs and specifications for small pelagic longline vessels*. WCPFC-SC13-2017/EB-WP-08. Scientific Committee Thirteenth Regular Session, Western Central Pacific Fisheries Commission. Rarotonga, Cook Islands. 9–17 August 2017.
- Ochi, D., Abraham, E., Inoue, Y., Oshima, K., Walker, N., Richard, Y., & Tsuji, S. (2018). *Preliminary assessment of the risk of albatrosses by longline fisheries*. WCPFC-SC14-2018/EB-WP-09. Scientific Committee Fourteenth Regular Session, Western Central Pacific Fisheries Commission. Busan, Republic of Korea. 8–16 August 2018.
- Pierre, J., Goad, D., Debski, I., & Knowles, K. (2016). *Improving tori line performance in small-vessel longline fisheries*. WCPFC-SC12-2016/EB-WP-10. Scientific Committee Twelfth Regular Session, Western Central Pacific Fisheries Commission. Bali, Indonesia. 3–11 August 2016.
- Walker, K., & Elliott, G. (2017). *Conservation concern for Antipodean wandering albatross*. WCPFC-SC13-2017/EB-IP-11. Scientific Committee Thirteenth Regular Session, Western Central Pacific Fisheries Commission. Rarotonga, Cook Islands. 9–17 August 2017.
- Walker, N., Sullivan, B., Debski, I., & Knowles, K. (2016). *Development and testing of a novel seabird mitigation option, the Hook Pod, in New Zealand pelagic longline fisheries*. WCPFC-SC12-2016/EB-IP-06. Scientific Committee Twelfth Regular Session, Western Central Pacific Fisheries Commission. Bali, Indonesia. 3–11 August 2016.

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<sup>49</sup> All papers available at <https://www.wcpfc.int/meetings>

## Technical and Compliance Papers<sup>50</sup>

New Zealand. (2017). *Proposed changes to CMM 2015-03 in regards the seabird mitigation requirements* (Rev 2). Technical and Compliance Committee Thirteenth Regular Session, Western Central Pacific Fisheries Commission. Pohnpei, Federated States of Micronesia. 27 September–3 October 2018.

New Zealand. (2018). *Proposed change to CMM 2017-06 in regards the optional use of hookshielding devices and the southern boundary of seabird mitigation requirements*. Technical and Compliance Committee Fourteenth Regular Session, Western Central Pacific Fisheries Commission. Majuro, Republic of Marshall Islands. 26 September–2 October 2018.

## Commission Proposals

Pacific Islands Forum Fisheries Agency (FFA) Members. (2015). *Proposal to revise Conservation and Management Measure on seabirds (CMM 2012-07)*. WCPFC12-2015-DP11. Commission Twelfth Regular Session, Western Central Pacific Fisheries Commission. Bali, Indonesia. 3–8 December 2015.

FFA Member CMMs. (2016). *Proposal to amend CMM 2015-03 on seabird interaction mitigation*. WCPFC13-2016-DP19. Commission Thirteenth Regular Session, Western Central Pacific Fisheries Commission. Denarau Island, Fiji. 5–9 December 2016.

New Zealand. (2017). *Proposed changes to CMM 2015-03 in regards the seabird mitigation requirements*. WCPFC14-2017-DP05\_rev1. Commission Fourteenth Regular Session, Western Central Pacific Fisheries Commission. Manila, Philippines. 3–7 December 2017.

## Commission for the Conservation of Southern Bluefin Tuna<sup>51</sup>

New Zealand & European Union. (2018). *Draft Resolution to align CCSBT Ecologically Related Species measures with those of other tuna RFMOs*. CCSBT-EC/1810/19. Extended Commission of the Twenty-Fifth Annual Meeting of the Commission. Noumea, New Caledonia. 15–18 October 2018.

## Ecologically related species working group

Abraham, E., Richard, Y., Walker, N., & Roux, M. (2017). *Assessment of the risk of commercial surface longline fisheries in the southern hemisphere to ACAP seabird species*. CCSBT-ERS/1703/12. Twelfth meeting of the Ecologically Related Species Working Group, Convention for the Conservation of Southern Bluefin Tuna. Wellington, New Zealand. 21–24 March 2017.

Horn, P. L., Ballara, S. L., Sutton, P. J. H., & Griggs, L. H. (2013). *Evaluation of the diets of highly migratory species in New Zealand waters*. New Zealand Aquatic Environment and Biodiversity Report No. 116. CCSBT-ERS/1503/11. Eleventh meeting of the Ecologically Related Species Working Group, Convention for the Conservation of Southern Bluefin Tuna. Tokyo, Japan. 3–6 March 2015.

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<sup>50</sup> In this section CMM refers to Conservation and Management Measure

<sup>51</sup> All papers available at <https://www.ccsbt.org/en/content/reports-past-meetings>

- Ministry for Primary Industries. (2013). *Ecologically related species in the New Zealand southern bluefin tuna longline fishery, New Zealand country report*. CCSBT-ERS/1308/Annual Report - New Zealand. Tenth meeting of the Ecologically Related Species Working Group, Convention for the Conservation of Southern Bluefin Tuna. Canberra, Australia. 28–31 August 2013.
- Ministry for Primary Industries. (2015). *Ecologically related species in the New Zealand southern bluefin tuna longline fishery, New Zealand country report*. CCSBT-ERS/1503/Annual Report - New Zealand. Eleventh meeting of the Ecologically Related Species Working Group, Convention for the Conservation of Southern Bluefin Tuna. Tokyo, Japan. 3–6 March 2015.
- Ministry for Primary Industries. (2017). *Ecologically related species in the New Zealand southern bluefin tuna longline fishery, New Zealand country report*. CCSBT-ERS/1703/SBT. Twelfth meeting of the Ecologically Related Species Working Group, Convention for the Conservation of Southern Bluefin Tuna. Wellington, New Zealand. 21–24 March 2017.
- Richard, Y., & Abraham, E. R. (2013). *Risk of commercial fisheries to New Zealand seabird populations*. CCSBT-ERS/1308/20. Tenth meeting of the Ecologically Related Species Working Group, Convention for the Conservation of Southern Bluefin Tuna. Canberra, Australia. 28–31 August 2013.
- Richard, Y. & Abraham, E. R. (2013). *Risk of commercial fisheries to New Zealand seabird populations: supplementary information*. CCSBT-ERS/1308/20. Tenth meeting of the Ecologically Related Species Working Group, Convention for the Conservation of Southern Bluefin Tuna. Canberra, Australia. 28–31 August 2013.
- Smith, N., Walker, N., Cryer, M., Sharp, B., & Abraham, E. (2015). *Update on seabird ecological risk assessment*. CCSBT-ERS/1503/10. Eleventh meeting of the Ecologically Related Species Working Group, Convention for the Conservation of Southern Bluefin Tuna. Tokyo, Japan. 3–6 March 2015.
- Walker, N., Vallieres, D., & Richard, Y. (2017). *Defining “high risk areas” in southern bluefin tuna fisheries*. CCSBT-ERS/1703/13. Twelfth meeting of the Ecologically Related Species Working Group, Convention for the Conservation of Southern Bluefin Tuna. Wellington, New Zealand. 21–24 March 2017.
- Waugh, S. M., Filippi, D. P., Sharp, B., Weimerskirch, H., & Dias, M. (2013). *Ecological Risk Assessment for seabird interactions in surface longline fisheries managed under the Convention for the Conservation of Southern Bluefin Tuna*. CCSBT-ERS/1308/18. Tenth meeting of the Ecologically Related Species Working Group, Convention for the Conservation of Southern Bluefin Tuna. Canberra, Australia. 28–31 August 2013.

### Strategy and Fisheries Management Working Group

- Ministry for Primary Industries. (2015). *Draft Minimum Performance Requirements for Ecologically Related Species*. CCSBT-SFM/1507/07. Strategy and Fisheries Management Working Group Meeting. Canberra, Australia. 28–30 July 2015.

## Agreement on the Conservation of Albatrosses and Petrels<sup>52</sup>

- Abraham, E., Roux, M-J., Richard, Y., & Walker, N. (2017). *Assessment of the risk of southern hemisphere surface longline fisheries to ACAP species*. SBWG8 Doc 07. Eighth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. Wellington, New Zealand. 4–6 September 2017.
- Argentina, Australia, Brazil, Chile, New Zealand (2014). *Performance Indicators to measure the success of Agreement*. AC8 Doc 23. Eighth Meeting of the Advisory Committee, Agreement on the Conservation of Albatrosses and Petrels. Punta del Este, Uruguay. 15–19 September 2014.
- Argentina, Australia, Brazil, Chile, New Zealand, Secretariat (2017). *Performance Indicators on Capacity Building*. AC10 Doc 23. Tenth Meeting of the Advisory Committee, Agreement on the Conservation of Albatrosses and Petrels. Wellington, New Zealand. 11–15 September 2017.
- Austin, S., Walker, N., Debski, I., & Baird, K. (2017). *Implementation and review of New Zealand's 2013 NPOA-Seabirds*. SBWG8 Inf 21. Eighth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. Wellington, New Zealand. 4–6 September 2017.
- Austin, S., & Walker, N. (2017). *Electronic monitoring of seabird captures in New Zealand bottom longline fisheries*. SBWG8 Inf 22. Eighth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. Wellington, New Zealand. 4–6 September 2017.
- Australia, New Zealand, Uruguay (2017). *Conflict of interest and bias*. AC9 Doc 17. Ninth Meeting of the Advisory Committee, Agreement on the Conservation of Albatrosses and Petrels. La Serena, Chile. 9–13 May 2016.
- Baird, K., & Kellian, D. (2014). *Seabird Mitigation for Recreational Fishers*. SBWG6 Inf 03. Sixth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. Punta del Este, Uruguay. 10–12 September 2014.
- Baker, B., & Frost, R. (2013). *Development of the Kellian Line Setter for Inshore Bottom Longline Fisheries to reduce availability of hooks to seabirds. Preliminary report*. SBWG5 Doc 10. Fifth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. La Rochelle, France. 1–3 May 2013.
- Baker, B., Elliot, G., French, R., Jensz, K., Muller, C., & Walker, K. (2017). *Development of aerial monitoring techniques to estimate population size of great albatrosses*. PaCSWG4 Inf 31. Fourth Meeting of the Population and Conservation Status Working Group, Agreement on the Conservation of Albatrosses and Petrels. Wellington, New Zealand. 7–8 September 2017.
- Barrington, J., & Malloy, J. (2014). *Innovation in mitigation of seabird bycatch in trawl and set net fishing gear*. SBWG6 Inf 04. Sixth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. Punta del Este, Uruguay. 10–12 September 2014.

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<sup>52</sup> All papers available at <https://www.acap.aq/>

- Bell, E. (2017). *Estimating the total population size of black petrel*. PaCSWG4 Inf 16. Fourth Meeting of the Population and Conservation Status Working Group, Agreement on the Conservation of Albatrosses and Petrels. Wellington, New Zealand. 7–8 September 2017.
- Bell, M., & Baker, B. (2017). *Albatross population estimates at the Chatham Islands, New Zealand*. PaCSWG4 Inf 21. Fourth Meeting of the Population and Conservation Status Working Group, Agreement on the Conservation of Albatrosses and Petrels. Wellington, New Zealand. 7–8 September 2017.
- Cleal, J., Pierre, J., Ramm, K., & Debski, I. (2016). *A new bird baffler design for offshore trawl vessels*. SBWG7 Inf 04. Seventh Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. La Serena, Chile. 2–4 May 2016.
- Cryer, M. (2013). *NZ seabird risk assessment*. SBWG5 Doc 12. Fifth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. La Rochelle, France. 1–3 May 2013.
- Debski, I. (2016). *Characterisation of subsurface float configurations used by New Zealand small vessel demersal longliners*. SBWG7 Inf 02. Seventh Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. La Serena, Chile. 2–4 May 2016.
- Debski, I., Hjörvarsdóttir, F., Clements, K., Abraham, E., & Richard, Y. (2016). *Prioritising research and management of at-sea threats to New Zealand seabirds*. SBWG7 Inf 20. Seventh Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. La Serena, Chile. 2–4 May 2016.
- Debski, I., Misiak, W., Walker, N., & Wolfaardt, A. (2017). *ACAP seabird bycatch performance indicators and reporting framework*. SBWG8 Doc 05. Eighth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. Wellington, New Zealand. 4–6 September 2017.
- Debski, I., Suazo, C. G., Yates, O., Seco Pon, J. P., & Baker, G. B. (2016). *Risks posed to ACAP species from net fishing methods other than gillnet and trawl*. SBWG7 Doc 11. Seventh Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. La Serena, Chile. 2–4 May 2016.
- Debski, I., Walker, N., & Molloy, J. (2014). *Mitigation and education resources for small-vessel and recreational fisheries in New Zealand*. SBWG6 Inf 01. Sixth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. Punta del Este, Uruguay. 10–12 September 2014.
- Debski, I., Wolfaardt, A., & Favero, M. (2014). *Definitions and descriptions of net fisheries*. SBWG6 Doc 07. Sixth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. Punta del Este, Uruguay. 10–12 September 2014.
- Debski, I., Wolfaardt, A., & Misiak, W. (2013). *ACAP Bycatch Indicators*. SBWG5 Doc 13. Fifth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. La Rochelle, France. 1–3 May 2013.

- Debski, I., Wolfaardt, A., & Misiak, W. (2014). *Progress on ACAP bycatch indicators*. SBWG6 Doc 10. Sixth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. Punta del Este, Uruguay. 10–12 September 2014.
- Favero, M., Debski, I., Neves, T., & Wolfaardt, A. (2014). *Artisanal, small scale and subsistence fisheries*. SBWG6 Doc 08. Sixth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. Punta del Este, Uruguay. 10–12 September 2014.
- Goad, D., & Debski, I. (2017). *Bird-scaring line designs for small longline vessels*. SBWG8 Doc 12. Eighth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. Wellington, New Zealand. 4–6 September 2017.
- Goad, D., & Ramm, K. (2017). *Encouraging uptake of mitigation measures in a disparate small vessel fleet*. SBWG8 Inf 19. Eighth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. Wellington, New Zealand. 4–6 September 2017.
- Goad, D., Sullivan, S., & Debski, I. (2017). *Testing the hookpod-mini in the New Zealand pelagic longline fishery*. SBWG8 Inf 18. Eighth Meeting of the Seabird Bycatch Working Group, Agreement on the Conservation of Albatrosses and Petrels. Wellington, New Zealand. 4–6 September 2017.
- Jacobs, J., Deguchi, T., Perriman, L., Flint, E., & Gummer, H. (2014). *Guidelines for translocations of albatrosses and petrels*. PaCSWG2 Doc 05. Second Meeting of the Population and Conservation Status Working Group, Agreement on the Conservation of Albatrosses and Petrels. Punta del Este, Uruguay. 8–9 September 2014.
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## Appendix 9: Outreach with Non-commercial Fisheries

**Table 12: Non-commercial outreach activities between 2015 and 2018.**

Activity	2015	2016	2017	2018	Ongoing
Recreational team established at MPI	✓				
Code of conduct for the Amateur Charter Vessel fleet					✓
Including seabird-related questions in the wrap-up survey as part of the National Panel Survey on rec fishing				✓	
Attending shows and competitions					
Hutchwilco NZ boat show. The Southern Seabirds Solution Trust shared MPI's stand.	✓	✓	✓	✓	
On Water boat show. The Southern Seabirds Solution Trust shared MPI's stand.	✓	✓	✓	✓	
Beach and boat fishing contest		✓	✓	✓	
Snapper Classic, Ninety Mile Beach		✓			
Publishing articles and advertising					
Delivering messages to immigrant New Zealanders					✓
Publishing a magazine article for recreational fishers in NZ Fishing News, The Fishing Paper and Hunting News. This article was written with DOC and The Southern Seabirds Solution Trust.		✓		✓	
Writing magazine articles with the Deepwater Group to outline industry seabird initiatives and help start conversations					✓
Producing, with The Southern Seabirds Solution Trust, a brochure on responsible fishing		✓			
Updating the responsible fishing brochure and re-branding it to Fisheries New Zealand				✓	
Including the responsible fishing brochure in the angler starter packs at most major fishing contests and distributing them at schools that take part in the Hiwi the Kiwi programme. (MPI funds 12 low-decile schools to take part in this programme each year)					✓
Using MPI's advertising space for an advertisement about seabirds. The advertisement was designed by MPI.			✓	✓	
Using MPI's advertising space to promote the work of The Southern Seabirds Solution Trust		✓			