Ministry for Primary Industries
Manatū Ahu Matua

Annual Operational Plan

for Highly Migratory Species fisheries 2016–17

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Prepared by the Highly Migratory Species team
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1 Introduction

The National Fisheries Plan for Highly Migratory Species provides the framework for the management of fisheries for highly migratory species (HMS) in New Zealand fisheries waters for the five-year period 2010–2015, as well as providing a framework for New Zealand's advocacy for management of HMS in international fora. The national plan is supported by three fishery-specific chapters, covering management of large pelagic species, skipjack, and albacore. The next five-year plan is currently being drafted with the overall objectives of the plan being carried forward for another five years.

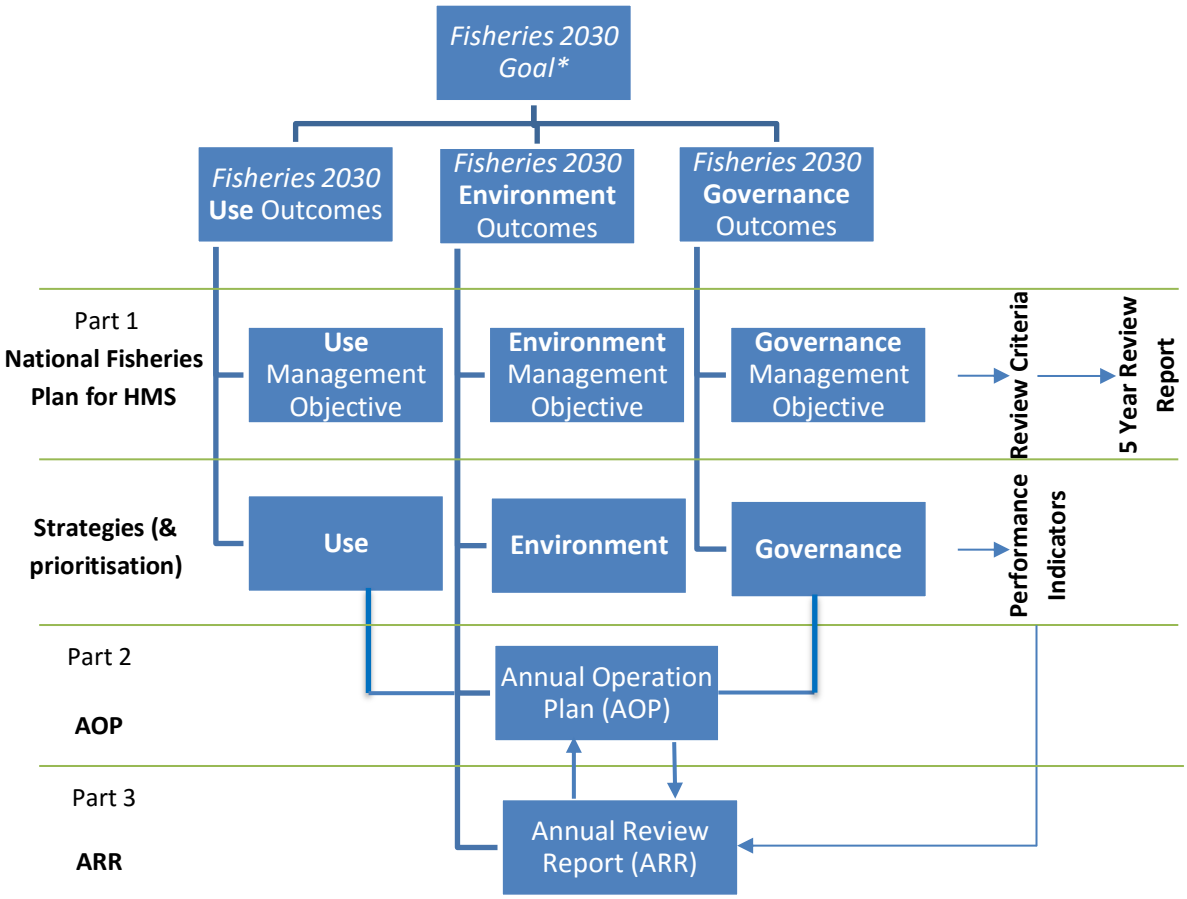
Annual operational plans outline actions aimed at achieving the objectives in the 5-year plan. This annual operational plan describes the management approach for HMS fisheries for the July 2016 to June 2017 financial year. Many actions contribute to meeting more than one objective in the national fisheries plan for HMS; however, noting that the national plan covers a five-year period, actions have not been identified for the 2016–17 year to contribute to every objective in the national fisheries plan. Instead, key focus areas are identified, along with business as usual tasks. The services required for achieving the tasks are also outlined, including services required of the Ministry for Primary Industries (MPI) business groups, and of stakeholders with an interest in the management of these fisheries.

The demand for management services is frequently greater than can be provided by MPI. Internal prioritisation may occur where needed to ensure sufficient resources to undertake not just the activities in the HMS annual operational plan, but also in annual operational plans for Deepwater, Inshore Finfish, Inshore Shellfish, and Freshwater. Engagement with *tangata whenua* and stakeholders also provides opportunities to identify where these groups can provide needed or desired services.

1.1 SUMMARY OF THE NATIONAL HMS PLAN

Please note that the National Fisheries Plan for Highly Migratory Species (HMS) is being reviewed in 2016. This Annual Operational Plan is based on the framework provided by the 2010/11-2015/16 National Fisheries Plan for HMS as follows:

National Fisheries Plan for HMS Structure



**New Zealanders maximising benefits from the use of fisheries within environmental limits*

2 Management and operational objectives for HMS fisheries

The HMS fisheries plan is designed to contribute to the overall goal for New Zealand's fisheries that is laid out in the strategy document *Fisheries 2030* – **New Zealanders maximising benefits from the use of fisheries within environmental limits**[1]**.** This goal is supported by outcomes that are grouped into Use Outcomes, Environment Outcomes, and the Governance Conditions that will be needed to ensure we can meet the outcomes.

[1] http://www.fish.govt.nz/en-nz/Fisheries+2030/default.htm?wbc_purpose=Basic&WBCMODE=PresentationU

FISHERIES 2030 OUTCOMES

Use Outcome: Fisheries resources are used in a manner that provides greatest overall economic, social, and cultural benefit

Environment Outcome: The capacity and integrity of the aquatic environment, habitats and species are sustained at levels that provide for future and current use.

Governance Conditions: Sound governance arrangements that are well specified, transparent, and which support cost-effective and accountable decision-making

The objectives in the HMS fisheries plan are grouped under these outcomes and governance conditions as follows.

MANAGEMENT OBJECTIVES

Use Outcome	1	Promote a viable and profitable tuna fishery in New Zealand
	2	Maintain / enhance world class gamefisheries in New Zealand fisheries waters
	3	Deliver fair opportunities for access to HMS fisheries
	4	Minimise wastage and promote humane treatment
	5	Maori interests (including customary, commercial, recreational, and environmental) are enhanced

Environment Outcome	6	Maintain a sustainable fishery for HMS within environmental standards
	7	Implement an ecosystem approach to fisheries management, taking into account associated and dependent species
	8	Protect, maintain and enhance fisheries habitat
	9	Allow for HMS aquaculture development, while ensuring the ecosystem and wild fisheries are protected

Governance conditions	10	Recognise and provide for Deed of Settlement obligations
	11	Influence international fora and ensure New Zealand interests are taken into account
	12	Maintain an effective fisheries management regime

3 Management actions and services for 2016–2017

3.1 KEY FOCUS AREAS

In implementing the HMS fisheries plan, the proposed key focus areas for 2016–2017 are as follows:

Key focus area 1	*Manage interactions of HMS fisheries with seabirds*

Contributes to management objective 6: Maintain a sustainable fishery for HMS within environmental standards

Contributes to management objective 7: Implement an ecosystem approach to fisheries management, taking into account associated and dependent species

Management Tasks

The National Plan of Action to Reduce the Incidental Catch of Seabirds in New Zealand Fisheries (NPOA-Seabirds) sets out a long term objective, supporting high-level subsidiary objectives, and objectives to be met within the first five years. Annual operational plans, including this one for HMS fisheries, incorporate more specific tasks to meet the objectives contained in the NPOA-Seabirds, including its long-term objective:

> *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.*

Appendix One lists 2016-2017 Annual Operational Plan tasks and associates them with a specific objective from the NPOA-Seabirds.

The NPOA-Seabirds is based on a **risk assessment** approach to identifying and managing seabird interactions. This focus on limiting captures of high-risk seabird species (those for which populations may not be able to sustain current incidental captures) is complemented by other objectives aimed at **reducing captures overall**; putting in place best practice measures in commercial and non-commercial fisheries; and working internationally to ensure all risks are addressed.

The risk assessment compares 'annual potential fatalities' (estimated on the basis of the degree of spatial overlap between known seabird distributions with the distribution of fishing effort, observed capture rates, and multipliers for other factors such as unobservable mortalities) to 'potential biological removal' (the maximum number of animals, not including natural mortalities, that may be removed from a population without compromising its ability to reach or maintain its optimum sustainable population level).

Capture Rate Reduction: One of the five-year objectives of the NPOA-Seabirds is that capture rates reduce in all New Zealand fisheries. A sub-group of the Seabird Advisory Group was tasked with developing a set of principles that could be used when determining the potential for capture rates to be used in individual fisheries. This group recommended that fisheries be defined using the same groupings as those found in the risk assessment. In the case of HMS those groupings are the large surface longline, small surface longline, and swordfish surface longline fisheries. The group also recommended that capture rates be quantitative when possible but that alternative proxies could be developed in cases where current conditions did not allow for a meaningful numeric target.

In the three HMS groupings, only the large surface longline fishery has had sufficient observer coverage and data for capture rates to be used as a measure of successful management over time. In 2016-2017, these large vessel surface longliners will not be fishing in New Zealand as a result of the May 2016 changes to laws around foreign charter vessels. If applicable, in the future, MPI will set quantitative capture rate reduction targets for this fishery.

In the small surface longline and swordfish surface longline fisheries, the following proxy measures are proposed:

- Tori line, line weighing, and night-setting use rates on observed sets (use rates to be reviewed quarterly and annually in order to track improvement over time);
- Number of vessels with Seabird Liaison Officer Programme Operational Plans in place (to be coordinated by the Seabird Liaison Officers). There is currently one vessel with an Operational Plan in place. MPI and the Seabird Liaison Officer Programme aim to have 10 vessels with complete Operational Plans in place by the end of the 2016-2017 year;
- Seabird Liaison Officer Programme Operational Plan responses about mitigation (to be coordinated by the Seabird Liaison Officers);
- Levels of self-reporting of bycatch will be measured using the percentage of trips (observed and unobserved) where non-fish bycatch forms have been filed.

In several of these cases, past data collection has been insufficient, therefore an important part of the team's seabird work in 2016-2017 will be ensuring this data is collected properly. Monitoring this data will allow HMS managers and others to track management results overtime.

Many of the proxies listed above are aimed at assessing behaviour in the fleet as an alternative to a numerically based capture rate. Improved behaviour and buy-in from operators should translate into improved practices and therefore fewer incidents of avoidable bycatch, whilst these indicators should allow us to track progress towards this goal.

Species-Specific Action Plans: In addition to tracking general capture rate reduction (or proxy targets), the NPOA-Seabirds necessitates the creation of species-specific action plans for high risk species. In the HMS fisheries, Gibson's and Antipodean albatrosses have been identified as high risk species, and species-specific action plans have been drafted in 2015-2016 outlining a plan to achieve the NPOA-Seabirds goals of moving high risk species into a less-threatened risk category by 2018. The Wandering Albatross Action Plan is attached as Appendix Six.

Best practice: Current seabird mitigation requirements for surface longline vessels are in a 2014 Circular, issued under regulation 58A of the Fisheries (Commercial Fishing) Regulations 2001. This Circular states that surface longline vessels must use tori lines in addition to either night-setting or line weighting.

The NPOA-Seabirds focuses on ensuring commercial fishing vessels are implementing best practice mitigation measures relevant to their area and fishery. A gap analysis of New Zealand legislative requirements and practice in relation to what is considered "best practice" (see Appendix Two) was performed in 2015-2016. This gap analysis showed several areas where mandated requirements and/or actual practice differ from what is considered best practice, including:

- Compliance with existing measures, particularly tori lines;
- Use of line weighting; and
- Use of mitigation methods during the haul.

The start of the 2016 southern bluefin season has also highlighted additional risks. As a result, MPI will be reviewing the mandatory seabird mitigation requirements, including the mandatory use of line weighting.

In addition to the regulatory review, the following actions will be aimed at ensuring best practice in the fleet:

- Seabird liaison officers will work with fishers to develop seabird management plans or similar for vessels. The seabird management plans should take account of specific operational factors that may affect uptake of specific mitigation tools;
- Industry will also take the lead on a review of the existing code of practice for surface longline vessels, and adopt an overarching set of risk reduction and management procedures that can be tailored to individual areas/fisheries as required. These procedures will include the use of trigger points and agreed actions to be taken to minimise the risk of seabird interaction.

There has been an ongoing effort by MPI, Department of Conservation (DOC), industry, and Agreement on the Conservation of Albatrosses and Petrels (ACAP) to assess new/emerging mitigation measures for their suitability in surface longline fisheries. These measures have included several underwater bait and line setting systems, as well as various hook-shielding devices. MPI and industry will look to prioritise which of these technologies is likely to play a role in seabird bycatch mitigation in New Zealand in the near future. If a successful measure emerges from this assessment, MPI will propose changes at the Regional Fishery Management Organisation (RFMO) level to allow surface longline fishers in New Zealand to utilise these new technologies.

International actions: Many seabird species found in New Zealand waters also travel widely across the Pacific and beyond, and international advocacy is an important component to successful management of seabird interactions. Out-of-zone impacts can include both fisheries impacts and wider changes, such as availability of prey species. In particular, the range of wandering albatrosses, which are caught in domestic longline fisheries, overlaps with a wide range of fisheries outside the New Zealand zone.

Specific actions to mitigate the effects of international fisheries on seabird populations include:

- Undertake and communicate a seabird risk assessment covering all ACAP species throughout the Southern Hemisphere, including presenting results to Commission for Conservation of Southern Bluefin Tuna (CCSBT) and Western and Central Pacific Fisheries Commission (WCPFC). Data collection and analyses are planned in a phased approach with the entire Southern hemisphere;
- Continue to seek improvements to data capture and sharing on bycatch species across RFMOs;
- Advocate for the adoption of proposal to extend existing WCPFC mitigation measure requirements from 30ºS to 25ºS. Consider bilateral talks with Distant Water Fishing Nations and Pacific Island Countries in lead up to meetings in order to overcome obstacles;
- Advocate for latest best practice advice to be reflected in RFMO measures.
- When possible, support fisheries managers in the Pacific Islands to create sound governance arrangements in relation to minimising seabird interaction and mortality;

- Seek to align information collected on seabird conservation measures with Australia, Chile, and other nations New Zealand does joint patrols with;
- Consider requesting observer status at IATTC, with the intention of raising awareness of potential risks to New Zealand seabirds within IATTC fisheries;
- Use existing cooperation Memorandum of Understanding (MOU) between MFAT and MPI to help Small Island Developing States develop NPOA-Seabirds.

Associated services

- Fisheries management: provision of relevant data through RFMOs; and liaise on other seabird tasks
- Science: lead research projects and provide advice as required on other tasks
- Compliance: monitor and enforce compliance with existing requirements
- Observer services: deliver planned observer coverage
- Data management: manage data submission process for CCSBT ecologically related species (ERS) data, WCPFC data, and data for capture rate proxies
- Stakeholders: manage fishing activities to minimise interactions with seabirds; provide input and advice to improve mitigation measures where possible; participate in fisher workshops; support efforts to improve representativeness of observer coverage; lead code of practice review and adopt SMPs for vessels

Key Performance Indicators

- Participate in meetings of Seabird Advisory Group and MPI/DOC joint seabird planning group
- Implement plan to track data for proxy targets (in lieu of capture rates) and set improvement goals for 2017-2018
- Complete Southern Hemisphere Seabird Risk Assessment
- Continued advocacy at CCSBT and WCPFC

Key focus area 2	*Manage interactions of HMS fisheries with sharks*

Contributes to management objective 4: Minimise wastage and promote humane treatment

Contributes to management objective 6: Maintain a sustainable fishery for HMS within environmental standards

Contributes to management objective 7: Implement an ecosystem approach to fisheries management, taking into account associated and dependent species

Management Tasks

A revised National Plan of Action for the Conservation and Management of Sharks (NPOA-Sharks) was adopted in 2014. The purpose of the NPOA-Sharks is:

> *To maintain the biodiversity and the long-term viability of all New Zealand shark populations by recognising their role in marine ecosystems, ensuring that any utilisation of sharks is sustainable, and that New Zealand receives positive recognition internationally for its efforts in shark conservation and management*

MPI's work on sharks is supported by a 2014 qualitative risk assessment, which considered relative risks to shark populations for QMS, non-QMS, and protected shark species. HMS species that are managed under the **QMS** include blue shark, mako shark, and porbeagle shark. These three species were ranked amongst the lowest risk among

QMS species. The assessment was based on both the degree of overlap between species distribution and fisheries (noting not all of the population is typically vulnerable to the fishery given the age and size distribution of the catch), as well as a 2014 indicators analysis that concluded abundance was likely to be increasing for all three species.[2]

Non-QMS HMS sharks include bronze whaler (14th equal out of 66 non-QMS species with enough data to be assessed), smooth hammerhead (32nd), bigeye thresher (43rd equal), Galapagos shark (47th), and tiger shark (48th equal). Two other non-QMS HMS sharks (longfin mako and silky shark) had insufficient data to be covered in the risk assessment due to limited to no presence in New Zealand waters.

Protected HMS species include spinetail devil ray, which topped the risk list, ranking 1st equal with basking shark. Other HMS sharks (oceanic whitetips and manta rays) had minimal risk scores on the basis that either no captures have been recorded for these species, or none in the past five years.

Spinetail devil rays are caught predominantly when purse seining for skipjack tuna, as well as occasionally on tuna longlines. Research has revealed that post-release survival is potentially low and dependent on crew handling techniques.[3] This work has led to recommendations for improvement of animal release in order to reduce fisheries impacts, which will be reflected in the forthcoming codes of practice for the purse seine fisheries.

Shark Finning Ban: Shark finning was banned on 1 October 2014, meaning that it is illegal to remove the fins from a shark and discard the body of the shark at sea. The Fisheries (Commercial Fishing) Regulations 2001 require that any shark fins landed must be naturally attached to the body of the shark. The regulations provide exceptions to the "fins attached" requirements for eight species of shark. The exception for blue shark allows the fins to be removed from the body, but requires that the fins be attached to the trunk after processing but before landing. The exception for several other QMS species (elephant fish, ghost shark, mako shark, pale ghost shark, porbeagle shark, rig, and school shark) states that the fins may be landed separately but in accordance with a gazetted ratio of fins to total greenweight.

The shark finning ban was accompanied by a change to Schedule 6 of the Fisheries Act 1996, which allows for the returning of certain QMS fish to the sea, under specific conditions. Schedule 6 now states that rig and school shark are allowed to be returned to the sea if they are likely to survive, and mako, porbeagle, and blue sharks may be returned to the sea dead or alive. Reporting of these returns must note whether the fish was alive (and likely to survive) or dead using specific destination codes, and ACE will be adjusted accordingly. Spiny dogfish may also be returned dead or alive, but they require a different destination code than the other shark species.

Ongoing monitoring work associated with the shark finning ban includes monitoring shark landings, including use of ratios (where allowed) and shark handling and release practices. This year, the HMS team will contribute to a review the shark fin ban, specifically looking at compliance with landing, discarding, reporting requirements, and the effects of the ban on catch levels. MPI will seek industry stakeholder feedback on the effects of the ban on their operations.

[2] Francis, M., Clarke S., Griggs, L., Hoyle, S. (2014). Indicator based analysis of the status of New Zealand blue, mako, and Porbeagle sharks. *New Zealand Fisheries Assessment Report 2014/69.* 109 p.
[3] Jones & Francis 2012, Francis 2014.

Best practice: Research into shark mitigation in surface longline fisheries has not resulted in the establishment of "best practice" when it comes to avoiding shark captures or increasing likelihood of survival in cases of capture, so the most promising approach at this time is to focus on decreasing the ecological impact of incidental captures.

Objective 2.2 of the NPOA-Sharks states that MPI should seek to "minimise waste by promoting the live release of bycaught shark species and develop and implement best practice guidelines for handling and release of live sharks."

In 2016-2017, the HMS team will seek to make progress on this objective by working with industry to draft "Safe Handling and Release" guidelines for surface longline and purse seine HMS fisheries, to be included in fishery-specific codes of practice.

International Actions: Highly migratory shark species spend only part of their time in New Zealand waters and may migrate over considerable distances. New Zealand cooperates with other countries to manage these species, notably via RFMOs including WCPFC and CCSBT. This collaboration is important to ensure New Zealand's conservation and management efforts are not undermined. Comprehensive management arrangements are required for the high seas and other national jurisdictions that take into account the individual characteristics of highly migratory sharks.

In mid-2015, New Zealand became a signatory to the Memorandum of Understanding on the Conservation on Migratory Sharks (CMS Sharks MOU). MPI participated in a meeting of the Signatories in February 2016, where 22 new species were added to the MOU and the Conservation Plan was updated by the signatories. New Zealand will continue to advocate for the adoption of effective, risk-based shark management measures at WCPFC and CCSBT.

Associated services

- Fisheries management: ensure fishers are aware of existing and any new regulatory requirements; review management based on risk assessment; Conduct review of shark fin ban
- Science: manage research process and provide advice on any management proposals; support shark limit reference point being led by WCPFC
- Compliance: provide advice on any management proposals affecting compliance
- Legal: provide advice on any management proposals
- Stakeholders: provide input into consultation as required

Key Performance Indicators

- Review the shark fin ban in second half of the year
- Development and dissemination of best practice guidelines for "Safe Handling and Release"

Key focus area 3	*Support Industry to obtain and maintain third-party certifications*
Contributes to management objective 1: Promote a viable and profitable tuna fishery in New Zealand Contributes to management objective 6: Maintain a sustainable fishery for HMS within environmental standards	
Management Tasks	

The New Zealand seafood sector is increasingly looking to produce and supply value-added products to international markets in order to increase profitability. Obtaining third-party certifications, such as Marine Stewardship Council (MSC) certification, for specific fisheries is currently the primary way HMS fisheries have added value. Furthermore, it validates the activity of the fishery within environmental standards.

Currently, only one HMS fishery is certified. In 2011, MSC certified New Zealand's albacore tuna troll fishery as sustainable. As of February 2016, this fishery is undergoing re-assessment in order to maintain the certification from January 2017.

The New Zealand skipjack tuna purse seine fishery is also under assessment for MSC certification and the process is scheduled for completion in February 2017. Industry feels that skipjack from this FAD-free fishery could be marketed as a value-added, sustainable product.

Fisheries management and industry will discuss options for MSC certified HMS fisheries. MPI supports industry to achieve and maintain certification of key HMS fisheries.

Associated services

- Fisheries management: provide input into assessments [and re-assessments] for fishery certifications where appropriate
- Stakeholders: educate industry with benefits of third-party certification and communicate further certification options

Key Performance Indicators

- The re-certification of albacore tuna troll fishery
- The certification of skipjack tuna purse seine fishery

3.2 BUSINESS AS USUAL AREAS

Management of HMS fisheries also includes a range of 'business as usual' (BAU) tasks, as outlined below. Many of these BAU tasks contribute to multiple fisheries plan objectives, so the individual objectives have not been specifically identified here.

Business as usual area 1	*Support Profitable Tuna Fisheries*

Management Tasks

External factors affecting the profitability of tuna fisheries include exchange rates, fuel costs and market demand. Exchange rates have not been favourable for domestic fishers and there is little that can be done to resolve this. Market demand (mainly from exports) remained relatively flat over the past decade, whilst the cost of fuel decreased by half from late 2013 to late 2015[4].

The New Zealand seafood sector is increasingly looking to produce value-added products for sale on discerning international markets in order to increase profitability. Obtaining third-party certifications, such as MSC certification, for specific fisheries is currently the primary way HMS fisheries have added value as outlined above.

[4] According to Bunker World, Marine Diesel Oil, fuel typically used in fishing vessels and smaller boats, dropped from USD 922 per tonne in 2013Q4 to USD 450 per tonne in 2015Q3

Other key concerns from industry have related to the burden of cost recovery levies. MPI will continue to work within the context of current domestic management arrangements to reduce attributable costs by ensuring all cost-recovered services are essential for management and are undertaken cost-effectively. The HMS team will also feed into wider reviews of the cost recovery system and ensure that the implications for the tuna fishery are considered as part of those reviews.

MPI and stakeholders will discuss and consider research aimed at putting tuna fisheries into an economic context. The objective would be to increase MPI and industry knowledge and understanding of the economics of the tuna fisheries and the key drivers of profitability. Specific focus areas could include the impact of tuna fisheries on the wider economy, trends in quota and asset values, and ownership. The first step for this exercise would be to agree on the key information gaps to be addressed.

Finally, MPI will continue to liaise with industry to support their efforts for collective representation.

Priorities for 2016-2017 include:

- MSC Certification;
- Monitoring cost-recovery services;
- Improve understanding of the economics of the tuna fishery in New Zealand;
- Support development of industry collective body.

Associated services:

- Fisheries management: provide support to Tuna Management Association (TMA) of New Zealand (via influencing management in RFMOs), provide input into third-party certification processes, and facilitate discussions on potential fisheries economics research
- Stakeholders: provide input and advice on proposed options for profitable tuna fisheries and work towards getting collective representation

Business as usual area 2	*Engage Fishery Stakeholders*

Management Tasks

Engagement with stakeholders with an interest in HMS fisheries occurs in a variety of ways and through various forums, including through:

- The fish plan advisory group (FPAG), which has representatives of commercial, recreational and customary fishers, and environmental groups. Meetings are typically held twice a year to provide input into the annual review report (ARR) and the annual operational plan (AOP);
- Workshops with surface longline fishers, which are held twice a year;
- Recreational and iwi forums;
- Stakeholder consultation meetings, which are held before and/or after key international meetings;
- Statutory consultation, as required under the Fisheries Act 1996 (for changes to sustainability and regulatory measures);
- Targeted meetings or workshops as required;
- The Pelagic Update, a newsletter targeted at surface longline fishers; and
- The HMS pages on the fisheries website (http://www.fish.govt.nz/en-nz/hms/).

Engagement priorities for 2016-2017 include:

- Improved input and participation opportunities for iwi
- Bi-annual longline stakeholder meetings;
- Bi-annual FPAG meetings;
- Making efforts to engage sooner with industry and NGO stakeholders in lead up to international meetings, as per industry requests in recent years;
- Increasing engagement with non-commercial game fisheries by making use of newly formed recreational team within fisheries management.

Associated services:

- Fisheries management: engage with stakeholders with an interest in HMS fisheries
- Science: participate in meetings and workshops as required, e.g. FPAG meetings and longline workshops
- Compliance: participate in meetings and workshops as required, e.g. longline workshops

Business as usual area 3	*Monitor Commercial Fisheries*

Management Tasks

Information on commercial HMS fisheries is collected from a variety of sources, including commercial reporting, observer monitoring, and scientific research. Observer data provides the most detailed quantification of catch on a set-by-set basis and is used for a variety of purposes, including as inputs into characterisations and stock assessments.
New Zealand has obligations to WCPFC and CCSBT to provide observer coverage as follows:

- **CCSBT** – a target of 10% catch and effort for each fishery component (i.e. charter and domestic fleets)
- **WCPFC** – 100% coverage for purse seine vessels operating in the Convention Area, between 20° north and 20° south (observers are sourced from the WCPFC regional observer programme (ROP)); for other methods operating on the High Seas, a minimum of 5% coverage sourced either from the ROP or, if fishing is adjacent to the New Zealand EEZ boundary, from the national observer programme

In recent years, 100% observer coverage on large vessel surface longliners has led to high observer coverage rates across the surface longline fishery. In 2016-2017, these large vessel surface longliners will not be fishing in New Zealand as a result of the May 2016 changes to laws around foreign charter vessels. Consequently, it will be a challenge this year to achieve 10% observer coverage across the fleet. Additional focus and effort will be required to achieve, or even approach, adequate and representative coverage levels.

Priorities for domestic observer coverage in 2016-2017 include:

- Monitoring commercial fishing vessels' compliance with regulatory requirements for mitigation measures for the incidental catch of seabirds;
- Reaching the CCSBT target of 10% observer coverage;
- Monitoring reporting of shark catches.

Planned observer coverage for HMS fisheries in 2016-2017 is outlined in Appendix Five.

Associated services:

- Fisheries management: liaise with observers on coverage planning and observer debriefs

- Science: lead improvements on observer data capture; liaise with observers on outcomes of coverage
- Compliance: monitor commercial and non-commercial fisheries for HMS and follow up on items of interest identified through observer coverage
- Observer services: deliver planned observer coverage; liaise with fisheries management, science, and compliance to provide feedback on observer coverage

Business as usual area 4	*Ensure HMS Compliance with Management Measures*

Management Tasks

The monitoring and enforcement of HMS fisheries regulations presents many challenges, most notably issues relating to monitoring many vessels, far from land, with low observer coverage levels, and limited compliance resources. Ensuring reasonable compliance levels with fisher requirements is crucial to managing HMS fisheries and engaging with industry, environmental, and RFMO stakeholders.

At sea patrols have been difficult to achieve in this fishery, while aerial patrols involve significant resources, which places a greater importance for information from observed trips. The need for observer placement is described under the previous BAU item, however it should also be noted here that observed incidents of non-compliance will be dealt with using appropriate measures, according to the circumstances involved.

Additionally, MPI will be consulting on a proposal to create specific regulations to enforce the CCSBT catch documentation scheme (CDS). The scheme is currently administered using directives issued under Section 190 of the Fisheries Act 1996, which has proved problematic at times. Obligations on fishers and LFRs will remain unchanged from this proposal.

Fisheries Management:

- Clearly documenting requirements and disseminating information
- Ensuring robust systems are in place
- Engagement in RFMO work
- WCPFC reporting obligations and monitoring, control, and surveillance (MCS) scheme
- Administration of the CCSBT CDS, including proposal to draft new regulations

Compliance:

- At sea patrols
- Aerial patrols, specifically targeting longline fisheries
- Multilateral/regional operations
- Port inspections
- Analysis
- Engagement in RFMO work
- Engaging with fishers
- Discrepancy analysis using various data sources to identify possible weaknesses

Compliance priorities for 2016-2017 include:

- Compliance of commercial fishing vessels with bird mitigation requirements
- Reporting of shark discards under schedule 6 rules
- QMS and CDS record-keeping and reporting

- Appropriate follow-up with non-compliance

Specific priorities are outlined in Appendix Three.

Associated services:

- Fisheries management: lead input into CCSBT compliance; ensure compliance with CDS; and liaise with compliance group and stakeholders on other compliance tasks
- Compliance: follow-up on incidents of non-compliance; provide compliance advice as required; attend relevant meetings (e.g. WCPFC Technical and Compliance Committee (TCC)); lead or support Ministry responses to specific compliance proposals or other relevant decisions; and additional compliance tasks
- Legal: provide advice as required
- Stakeholders: meet regulatory requirements for fishing; and provide input and advice on how regulations could be improved where appropriate

Business as usual area 5	*Strengthen Management of Non-commercial HMS fisheries*

Management tasks

The HMS Team is responsible for monitoring non-commercial tuna and billfish game fisheries, as well as consulting and engaging with relevant recreational fishers and charter operators.

Non-commercial fisheries are also monitored in a variety of ways. Recreational charter boats are subject to compulsory registration, activity reporting, and catch reporting for specified stocks, including southern and Pacific bluefin tunas. Monitoring of recreational fisheries for HMS also occurs through voluntary reporting, including through the long-standing gamefish tagging programme, and through targeted diary and logbook schemes.

Associated services

- Fisheries Management: compile recreational HMS report, provide information to Recreational Fisheries team as needed, and engage with recreational fishers through the Recreational Fisheries team, as well as with stakeholders directly
- Recreational Fisheries: assist HMS team with consultation, engagement, and education of HMS fishers
- Data management: provide recreational fisheries and charter vessel data as needed

Business as usual area 6	*Develop and implement HMS Research Plan*

Management Tasks

Research projects planned to begin, continue, or finish in 2016-2017 are outlined in detail in Appendix Four.

Projects beginning in the 2016-2017 year include:

- Data reports for New Zealand HMS fisheries for national and international obligations
- Catch-at-age data for southern bluefin tuna
- Multi-year stock monitoring of striped marlin
- Management of data from gamefish tag-recapture programme

There are also a number of on-going projects that are carried over from previous years including:

- Albacore catch sampling
- Commercial catch sampling for HMS
- Age, growth, and reproduction of HMS sharks from observer collected samples – blue sharks
- Stable Isotope Analysis of HMS to Assess Their Trophic Status and Movements in the South Pacific

In addition, there are a number of other research projects that are of relevance to HMS but are administered under other work streams, such as the risk assessment work taking place for both sharks and seabirds or by DOC under the Conservation Services Program.

Associated services:

- Research Advisory Group (RAG): develop research proposals to meet information needs for fisheries management (membership of this group is limited to technical experts)
- Fisheries management: review research projects; participate in the RAG as required
- Science: run the research process, including working group meetings; convene meetings of the RAG as required
- Contracts management: manage research contracts
- Stakeholders: participate in working group meetings to review research projects

Business as usual area 7	*Contribute to International Processes through RFMOs*

Management Tasks

In order to aid the management of international and migratory stocks, the HMS fisheries management team is engaged in a number of RFMOs, including:

- **CCSBT** – (Commission for the Conservation of Southern Bluefin Tuna) Manages southern bluefin tuna fishery wherever southern bluefin tuna are caught
- **WCPFC** – (Western and Central Pacific Fisheries Commission) Manages all other HMS fisheries in the Western and Central Pacific

CCSBT

This year is a particularly important one for the CCSBT as it will be at the upcoming science and commission meeting where the global allocation for the next three year block (2018-20) will be determined. The New Zealand delegation has been a strong advocate for a precautionary approach to this next three year block, which better reflects the uncertainty surrounding all sources of mortality. We will therefore monitor this process closely to ensure that those principles are reflected in the decisions being made.

Another part of the team's efforts in CCSBT have been aimed at getting other members to account for all sources of mortality (e.g. recreational catch and release mortality) as part of their national allocations. Members were able to reach agreement in 2014, which commits them to this full accounting of mortality by 2018. Our delegation will continue its advocacy role to ensure that there are no delays in the implementation of this agreement and that other members are on track to meet their commitments.

Additionally, New Zealand has offered to serve as the host country for the 2017 meeting of the Ecologically Related Species Working Group, which will carry with it a reasonable resource commitment from the team.

CCSBT business as usual tasks include: administering the catch documentation scheme (CDS); administering the authorised vessel list; preparing and submitting fisheries data; and preparing for annual and subsidiary meetings, including:

- Operating Model and Management Procedure Technical Meeting (3 – 4 September 2016)
- Meeting of the Extended Scientific Committee (5 – 10 September 2016)
- Meeting of the Compliance Committee (6 – 8 October 2016)
- Annual Meeting of the CCSBT (10 – 13 October 2016)

WCPFC priorities

Improving regional longline management (especially for albacore tuna)
New Zealand has had a strong focus on progressing zone-based management for albacore over past years, working closely with Forum Fisheries Agency (FFA) members to develop the Tokelau Arrangement (to set zone-based limits on the catch of south Pacific albacore), and proposing revisions to the existing albacore Conservation and Management Measure (CMM).

These measures are intended to improve the management of the stock in Pacific Island EEZ's in order to call for compatible measures on the high seas. Given the challenges in getting agreement on a revised albacore measure at the Commission, New Zealand is considering alternative avenues to progress key issues. New Zealand will continue to strongly advocate for improved management for albacore, whilst extending the focus to include improving overall longline management in the region. New Zealand will focus on encouraging sub-regional cooperation and identifying opportunities for collective management strategies/ frameworks. Work in 2016/17 will include:

a) improving monitoring and enforcement frameworks and analysing existing data sets to ensure that at a minimum there is compliance with the existing measure;
b) reiterating the need for the provision of operational data;
c) working with Pacific Island countries and Distant Water Fishing Nations to reach agreement on a Target Reference Point (TRP) for albacore that takes into account economic factors and the special requirements of Small Island Developing States (SIDS); and
d) supporting the development of a Catch Management Scheme for the Tokelau Arrangement;
e) improving in-zone management arrangements via supporting national implementation of the Tokelau Arrangement.

Addressing the overfishing of bigeye
There is significant and increasing concern for the bigeye tuna stock (now below the Limit Reference Point), and the rules of the Commission state that action must be taken to reduce catch to sustainable levels. In 2014 and 2015, members of the Commission were not able to agree on the share each sector will contribute to conservation action, and in particular, whether or not SIDS are experiencing a "disproportionate burden" from actions adopted. New Zealand will continue to support discussions with FFA and PNA members in the lead up to the Commission meeting this year, with the intention of finding flexibility to break the deadlock.

WCPFC business as usual tasks include: updating New Zealand vessels on WCPFC's record of fishing vessels as required; issuing and updating high seas permits as required to ensure New Zealand vessels fishing within the WCPFC area comply with all relevant

measures; preparing and submitting fisheries data; and preparing for annual and subsidiary meetings, including:

- Regular Session of the Scientific Committee (3 – 11 August)
- CDS-IWG 2016 (19 – 20 September 2016)
- Regular Session of the Technical and Compliance Committee (21 – 27 September 2016)
- FAD Management Options – Intersessional Working Group 2016 (29 – 29 September 2016)

MPI is actively engaged with the Forum Fisheries Agency (FFA), a pan-Pacific fisheries body. FFA typically meets in advance of each of the WCPFC meetings, as well as at other times to plan its position on key agenda items.

New Zealand is also a member of Te Vaka Moana (TVM), a grouping of Polynesian countries with shared fisheries interests, particularly in the southern albacore and swordfish fisheries (as well as other WCPFC stocks). TVM typically meets in the margins of FFA and WCPFC meetings. Business as usual tasks for TVM include Pacific capacity development, review of planning, and management documents.

Associated services:

- Fisheries management: coordinate input into CCSBT and provide fisheries management input into WCPFC, FFA, and TVM; liaise with stakeholders to keep them informed on international management
- Science: lead input into scientific processes and provide additional scientific advice as required
- Compliance: provide compliance advice as required; attend relevant meetings, e.g. Technical and Compliance Committee
- International fisheries management: lead input into WCPFC, FFA, and TVM; provide advice as required for CCSBT; liaise with stakeholders to keep them informed about international management
- Data management: ensure timely submissions of New Zealand's fisheries data as required under WCPFC and CCSBT agreements
- Stakeholders: provide input into New Zealand's negotiating positions, as outlined in stakeholder consultation meetings/communications; participate in international meetings as part of the New Zealand delegation (following an approval process) or as meeting observers

Business as usual area 8	*Contribute to the implementation of MPI's MOU on Pacific capacity development*

Management Tasks

MPI has a supporting role providing technical assistance to develop Pacific countries' fisheries management and monitoring, control, and surveillance (MCS) capacity. MPI has signed a new Memorandum of Understanding (MOU) with the Ministry of Foreign Affairs and Trade (spanning February 2014 to May 2019) to deliver this work. This work aims to support Pacific Island countries (PICs) to maximise the economic and developmental benefits through the sustainable management and utilisation of their fisheries resources. The main outputs for this work are:

- Provision of advice to PICs on strengthening governance and fisheries management to Te Vaka Moana (TVM) countries and other Pacific partners; and

- Provision of technical MCS and enforcement advice that will build capability of Pacific partners.

MPI facilitates and utilises internal fisheries administration expertise, contributing to strategic relationships with the Secretariat of the Pacific Community (SPC) and Forum Fisheries Agency (FFA) among others. These regional relationships are intended to ensure a coordinated and targeted approach to the provision of resource across Pacific countries. In 2016-2017, MOU priorities include:

- Engage with and assist the TVM organisation and participants through direct capacity building efforts;
- Work with FFA through the Tokelau Arrangement to implement a catch management scheme for South Pacific albacore;
- Direct capacity building projects with Tonga, Niue, Tuvalu, Samoa, and others;
- Assist Tokelau in improving fisheries governance and management

Associated services:

- Fisheries management: provide fisheries management advice on Pacific capacity building
- Science: provide science advice on Pacific capacity building
- Compliance: provide compliance advice on Pacific capacity building
- International fisheries management: coordinate implementation of MOU
- MFAT: monitor and engage on MOU implementation

4 Work plan for 2016-2017

HMS Management Actions & objectives they contribute to	Work Period			
	Q1 (JUL-SEP)	Q2 (OCT-DEC)	Q3 (JAN-MAR)	Q4 (APR-JUN)
KEY FOCUS AREAS				
1. Manage interactions of HMS fisheries with seabirds				
Management objective 6: Maintain a sustainable fishery for HMS within environmental standards; **Management objective 7:** Implement an ecosystem approach to fisheries management, taking into account associated and dependent species	- Work with industry, DOC, and Science to draft a report/document assessing viability of seabird mitigation methods for HMS fisheries, considering ACAP Best Practice and recent studies - Establish Seabird Liaison Officer Programme plan for 2016-2017, with the goal of having 10 Operational Plans in place by June 2017 - Work with industry to update existing codes of practice for longline and purse seine fisheries - Consult with the public on mandatory line weighting proposal.	- Implement plan to track proxy targets (in lieu of capture rate reduction targets) and set improvement goals for 2017-2018 - Advocate for seabird management measures at regional fora - Based on decision, implement mandatory line weighting. - Based on decision, implement mandatory line weighting.	- Implement species-specific action plans (Gibson's and Antipodean albatrosses) to achieve NPOA-Seabird goals	- Consider requesting observer status at IATTC to raise awareness about seabird issues - Work within existing MOU to help SIDS develop NPOA-seabirds
2. Manage interactions of HMS fisheries with sharks				
Management objective 4: Minimise wastage and promote humane treatment; **Management objective 6:** Maintain a sustainable fishery for HMS within environmental standards; **Management objective 7:** Implement an ecosystem approach to fisheries management, taking into account associated and dependent species	- Monitor reporting of landings, handling and release practices with respect of shark fin ban (on-going) - Develop best practice guidelines for "Safe Handling and Release" of sharks in longline and purse seine fisheries	- Shark fin ban review to begin in Nov/Dec - Educate fishers on best practice for safe handling and release through discussion at bi-annual surface long line workshop - Advocate for risk-based shark management measures at CCSBT and WCPFC	- Shark fin ban review	
3. Support Industry to obtain and maintain third-party certifications				
Management objective 1: Promote a viable and profitable tuna fishery in New Zealand; **Management objective 6:** Maintain a sustainable fishery for HMS within environmental standards	- Support industry as required for assessments for MSC certifications (albacore, skipjack)	- Support industry as required for assessments for MSC certifications (albacore, skipjack) - At the bi-annual surface longline fisher workshop, discuss with stakeholders the benefits of certifications and potential further certification options	- Support industry as required for assessments for MSC certifications (albacore, skipjack)	- Support industry as required for assessments for MSC certifications (albacore) - At the bi-annual FPAG meeting, discuss with stakeholders the benefits of certifications and potential further certification options

HMS Management Actions & objectives they contribute to	Work Period			
	Q1 (JUL-SEP)	Q2 (OCT-DEC)	Q3 (JAN-MAR)	Q4 (APR-JUN)
BUSINESS AS USUAL				
1. Support Profitable Tuna Fisheries				
Contributes to multiple management objectives	- Assist industry with MSC re-certification process for albacore	- Bi-annual surface longline fisher workshop to consult with domestic industry		- Bi-annual longline fisher workshop to consult with domestic industry
2. Engage Fisheries Stakeholders				
Contributes to multiple management objectives	- Work through iwi forum coordinators to keep them up to date with key HMS issues of relevance - Meet before and/or after major RFMO meetings to brief/de-brief on key issues and New Zealand position - Publish the AOP 2016-17 -Consult with public on CDS regulations.	- Bi-annual meeting of fish plan advisory group (FPAG) to discuss annual review report (ARR) and research needs - Bi-annual surface long line workshop - Meet before and/or after major RFMO meetings to brief/de-brief on key issues and New Zealand position - Publish 5 year National Fisheries Plan for HMS	- Publish 'Pelagic Update' newsletter (1-2 per year or as relevant)	- Bi-annual meeting of FPAG to discuss the annual operational plan (AOP) - Bi-annual surface longline workshop - Provide information to iwi and recreational for a on planned HMS projects
3. Monitor Commercial Fisheries				
Contributes to multiple management objectives	- Deliver planned observer coverage as outlined in Appendix Five, including plan to ensure coverage is as representative as possible - Liaise regularly on outcomes of coverage and follow-up as required (on-going)	- Deliver planned observer coverage as outlined in Appendix Five (on-going)	- Plan 2017 – 18 coverage	- Finalise 2017 – 18 coverage plan
4. Ensure HMS Compliance				
Contributes to multiple management objectives	- Prepare for CCSBT Compliance Committee meeting - Prepare for and attend WCPFC Technical and Compliance Committee meeting and any other relevant workshops. Includes input as required into the New Zealand Part 2 Country Report and Compliance Monitoring Report for WCPFC - At-sea patrols (out of zone) - Aerial patrols (on-going) - Monitored unload of domestic vessels (focus on southern bluefin tuna and sharks) - CDS monitoring	- CDS monitoring	- CDS monitoring - Implement any outcomes from CCSBT and WCPFC meetings as required	- Monitoried unloads of domestic vessels (focus southern bluefin tuna and sharks) - CDS monitoring

HMS Management Actions & objectives they contribute to	Work Period			
	Q1 (JUL-SEP)	Q2 (OCT-DEC)	Q3 (JAN-MAR)	Q4 (APR-JUN)
5. Strengthen Management of Non-commercial HMS fisheries				
Contributes to multiple management objectives	- Communicate with Recreational Fishing Team to promote cooperation (on-going)		- Draft non-commercial HMS fisheries summary report	
6. Develop and implement HMS Research Plan				
Contributes to multiple management objectives	- 2016 /17 projects commence - Finalisation of HMS AOP	- FPAG to identify needs for HMS fisheries - Research advisory group (RAG) develops potential research projects to meet identified needs - Research proposals developed		- Consultation on proposed research proposals as part of cost recovery consultation
7. Contribute to International Processes through RFMOs				
Contributes to multiple management objectives	CCSBT - Technical and Science Meetings (3 – 10 September 2016) - CDS Regulatory Proposal Consultation and Cabinet processes WCPFC - Scientific Committee (3 – 11 August) - CDS-IWG 2016 (19 – 20 September 2016) - TCC (21 – 27 September 2016) - FAD Management Options – IWG 2016 (29 – 29 September 2016) - Meetings in advance of TCC meetings FFA - FFC Ministerial Meeting (7 – 8 July 2016)	CCSBT - Compliance Committee (6 – 8 October 2016) - Annual Meeting (10 – 13 October 2016) - CDS Regulatory Proposal Cabinet and Legislation processes WCPFC -Commission Meeting	WCPFC - Implement outcome and consult with stakeholders on any Commission decisions requiring action to meet international obligations as required CCSBT - Host ERSWG (March 2017, Wellington) - Implement CDS Regulatory Proposal	
8. Contribute to the implementation of MPI's MOU on Pacific capacity development				
Contributes to multiple management objectives	- Work with Te Vaka Moana and FFA's SC-SPTBF to strengthen governance and fisheries management (on-going) - Support Pacific Island Countries (PICs) to develop fisheries management and MCS capacity (on-going)	- Work with FFA through the Tokelau Arrangement to implement a catch management scheme for South Pacific albacore		

5 Appendices

5.1 FIVE-YEAR NPOA-SEABIRDS OBJECTIVES AND PROPOSED ACTIONS

Objective	Planned HMS actions for 2016-2017
Five year practical objectives a). All New Zealand commercial fishing vessels are shown to be implementing current best practice mitigation measures relevant to their area and fishery; 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; and c). Capture rates are reducing in all New Zealand fisheries in accordance with reduction targets in the relevant planning documents for those fisheries.	• A gap analysis of New Zealand legislative requirements and practice in relation to what is considered "best practice" (i.e. advice from the Agreement on the Conservation of Albatrosses and Petrels) is outlined in Appendix Two. This gap analysis shows several areas where mandated requirements and/or actual practice differ from what is considered best practice, including: - Improved compliance with existing measures, particularly tori lines; - Improved use of line weighting. • In addition, haul mitigation is likely to be beneficial in the New Zealand fleet. There is no current internationally-recognised "best practice" for haul mitigation, but Appendix Two also outlines some suggestions for improvement in this area, including: - Improved use of offal management; - Improved use of haul mitigation measures. • The HMS team will be consulting on changes to the regulations to better meet "best practice", including through application of compulsory line weighting in some or all areas/seasons • Improvements to use of mitigation measures (both mandated and voluntary) are proposed to be undertaken in conjunction with seabird liaison officers, to develop seabird management plans or similar for SLL vessels. • Work will also take place with industry on a proposed comprehensive review of existing codes of practice operating in HMS fleets, and adopt an overarching documented set of risk reduction and management procedures that can be tailored to individual areas/fisheries as required. • Proxy targets (in lieu of capture rate reduction targets) have been developed in order to track progress on seabird issues. These proxies will be tracked throughout the year and assessed against previous year's data when available.
Five year biological risk objective The level of mortality of New Zealand seabirds in New Zealand commercial fisheries is reduced so that species currently categorised as at very high or high risk from fishing move to a lower category of risk.	• The NPOA necessitates the development and implementation of species- and fishery- specific action plans for seabirds considered to be at very high or high risk from fishing. The HMS team has developed a Wandering Albatross Action Plan (for

	Gibson's and Antipodean Albatrosses), and will implement this plan in 2016-2017. • Where resources allow, it is proposed to develop fact sheets in conjunction with industry for key species.
Five year research and development objectives 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 (e.g. those identified in paragraph 23 [of the NPOA] and via the risk assessment),	• Analyse existing mitigation measures (in conjunction with DOC and fishers) to assess whether they are impractical and/or of limited effectiveness or have specific operational issues that may need to be overcome (to be done in conjunction with review of regulated measures outlined above). • Assess new/emerging mitigation measures for their suitability in HMS fisheries (in conjunction with DOC and fishers), including from an operational standpoint.
b). New observation and monitoring methods, especially in relation to poorly observed fisheries, are researched, developed and implemented, and 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.	• Monitor use of alternate monitoring methods, such as cameras, being trialled in other fisheries to determine applicability in HMS. • Encourage full uptake of non-fish bycatch reporting (and facilitate this with provision of ID guides where required).
Five year international objectives: In areas beyond the waters under New Zealand jurisdiction, relevant RFMOs 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.	• Undertake and communicate a global seabird risk assessment, including presenting results to CCSBT and WCPFC. • Advocate at CCSBT for appropriate seabird mitigation requirements, including at an Ecologically Related Species working group in early 2017. • Seek improvements to data capture and sharing on bycatch species across RFMOs. • Consider need to advocate changes to WCPFC seabird measure to extend coverage further north; add additional flexibility to allow new mitigation measures to be used (where proven effective).

5.2 GAP ANALYSIS ON BEST PRACTICE IN SURFACE LONGLINE FISHERIES

This gap analysis was undertaken for the 2015-2016 Annual Operating Plan and is representative of the state of HMS fisheries at that time.

Small vessels

	ACAP advice	NZ requirements	NZ practice
General	A combination of weighted branch lines, bird scaring lines and night setting are best practice mitigation.	Two from three are required i.e. bird scaring line and either line weighting or night setting.	Most vessels set at night. Use of line weighting is uncommon. Concerns over the use of bird scaring lines (likely variable), which are regarded as a hazard by some vessel operators.[5]
Application of measures	Measures should be applied in areas where fishing effort overlaps with seabirds vulnerable to bycatch to reduce incidental mortality to lowest possible levels. Safety, practical and fishery characteristics should also be recognised.	Measures are currently applied across the entire surface longline fishery irrespective of risk as New Zealand waters overlap with many seabird species, including those assessed as at-risk.	As above – application of measures inconsistent.
Bird scaring lines	Minimum aerial extent 75m Streamer brightly coloured Short streamers (>1m) placed at 1m intervals along aerial extent. Either: mixed design with long streamers at 5m intervals over first 55m; or design with no long streamers. Lightest practical strong fine line. Attached to vessel with barrel swivel to minimise rotation of line.	Mitigation measures outlined in the Fisheries (Seabird Mitigation Measures—Surface Longlines) Circular 2014 meet these specifications.	Some elements of this requirement are difficult to monitor (e.g. aerial extent may be less than specified) but physical characteristics of line itself are generally compliant.
Night setting	Night defined as between nautical twilight and nautical dawn	As above.	Most of fleet sets at night.
Line weighting	> 45g attached within 1m of the hook; or > 65g within 3.5m of the hook; or >98g within 4m of the hook. ACAP guidelines note line weighting is integral to fishing gear which may facilitate compliance and port monitoring, and should be accorded more priority providing preconditions can	As above; in keeping with New Zealand's requirements under Western and Central Pacific Fisheries Commission's seabird rules, an additional line weighting option of at least 40g within 0.5m of the hook is also available to fishers.	Line weighting is not common in the fleet, although some fishers may use some form of weights. Safety is a key concern, although more options are available now including safe or lumo leads that are designed to overcome safety concerns.

[5] See for example Characterising captures of at-risk seabirds in surface longline. Project SEA2010-20 Final Research Report. Dr Dominique Filippi and Paul Filippi (2012).

	be met, including adequately specified line weighting regime characteristics; safety issues adequately addressed; and issues relating to application to artisanal fisheries are taken into account.		
Implementation monitoring	Requires fisheries observers, video surveillance, or at-sea surveillance (e.g. patrol boats or overflights).	New Zealand has a 10% observer coverage target for its southern bluefin tuna fishery. All foreign charter vessels targeting southern bluefin have full observer coverage.	Monitoring primarily occurs through fisheries observers; coverage rates in the domestic fleet are 10% or less. Inspections are typically conducted in port and at-sea inspections are rare.
Other mitigation measures: ***proven and recommended***	Area closures i.e. avoiding fishing at peak areas and during periods of intense foraging activity has been used effectively to reduce bycatch in longline fisheries.	No formal requirements.	May occur informally e.g. charter vessels take bird abundance into account when developing their fishing plans, and operate under codes of practice that include provisions for adopting additional measures if catches exceed a certain amount.
Unproven	Management of offal discharge is considered to be *unproven*, as is haul mitigation (due to a lack of research).	No formal requirements. Such measures are documented in an industry COP. Despite being unproven, management of offal discharges (such as holding offal during hauling, or discharging on the opposite side of the boat), and haul mitigation are both considered to have potential given 25% or so of birds are live on capture.	Some vessels may manage offal discharge and/or use haul mitigation but not as an alternative to mandated mitigation requirements. Practices are variable across the fleet. Haul mitigation is thought to be largely confined to the charter fleet.
Unproven and not recommended	ACAP notes a range of other potential mitigation tools including blue dyed bait, line shooter, bait caster, underwater setting chute to be *unproven and not recommended.*	No formal requirements. Blue dyed bait is mentioned as a mitigation measure in an industry COP.	Some vessels may use blue dyed bait but not as an alternative to mandated mitigation requirements.
Not recommended	Use of live bait and frozen baits are *not recommended*.	No formal requirements.	Not known to be used in the New Zealand fishery.

5.3 HMS COMPLIANCE PRIORITIES FOR 2016-2017

Outcome	Specific Priorities
Compliance with the CCSBT CDS	Specific attention addressed to: • Routine unload inspections • The risk of high-grading of southern bluefin tuna • Compliance with southern bluefin tuna catch documentation requirements
Compliance with seabird mitigation rules	Specific attention addressed to: • Tori line use in surface longline fishery • Time of setting in swordfish longline fishery • Use of line weights in instances where lines were set before sunset.
Accurate reporting of shark catches	Specific attention addressed to: • Compliance with shark finning ban including the appropriate use of ratios where applicable • The reporting of 6th Schedule releases and dead returns in accordance with changes made as part of shark finning regulations[6]
Compliance with protected species rules	Specific attention addressed to: • Accurate non-fish bycatch reporting • Assessment and follow-up of observer reports
Compliance with RFMO measures	Specific attention addressed to: • Commercial awareness of the rules relating to fishing on the high seas for HMS
Integrity of the New Zealand Exclusive Economic Zone is maintained	Specific attention addressed to: • Aerial and at-sea patrols • Compliance analysis and profiling

[6] The 6th Schedule of the Fisheries Act lists species that may be returned to the sea, along with specific conditions associated with the return. HMS sharks (blue, porbeagle, and mako) may now be returned either alive and likely to survive (destination code X), or dead/unlikely to survive (destination code Z). Sharks returned dead (code Z) are covered by annual catch entitlements (ACE). Discards/releases must be reported both on the discards section of the tuna longlining catch and effort form, and on catch landing returns.

5.4 HMS RESEARCH PROJECTS FOR 2016-2017

Continuation of Ongoing Projects

ALB2015-01 - Albacore catch sampling (completion date 31/11/2018)
Objectives:

1. To update the characterisation of the albacore fishery in New Zealand fisheries waters with the inclusion of data through the 2014-2015 fishing year.

2. To develop a sampling design to determine the representative length composition and length-weight relationships of the albacore fishery in New Zealand fisheries waters.

3. To conduct representative sampling to determine the length composition of albacore tuna during the 2015/16, 2016/17, and 2017/18 fishing years. The target coefficient of variation (CV) for the length composition is 20 % (mean weighted CV across all length classes).

HMS2013-01 – Data reports for New Zealand HMS fisheries for national and international obligations (completion date 31/11/2016)
Objective:

1. To characterise the New Zealand Tuna and Swordfish fisheries, including catches and discards of associated and dependent species and incidental take of protected species for international reporting obligations and for monitoring of the National Fisheries Plan for HMS.

HMS2014-01 – Commercial catch sampling for Highly Migratory Species (completion date 31/11/2017)
Objectives:

1. To continue the catch sampling programme for swordfish, bigeye tuna, Pacific bluefin tuna, and yellowfin for the 2014/15 fishing year. Attempt to collect information on other large HMS species such as sharks and moonfish.
2. To continue the catch sampling programme for swordfish, bigeye tuna, Pacific bluefin tuna, and yellowfin for the 2015/16 fishing year. Attempt to collect information on other large HMS species such as sharks and moonfish.
3. To continue the catch sampling programme for swordfish, bigeye tuna, Pacific bluefin tuna, and yellowfin for the 2016/17 fishing year. Attempt to collect information on other large HMS species such as sharks and moonfish.

HMS2015-01 - Age, growth, and reproduction of HMS sharks from observer collected samples – blue sharks (completion date 30/12/2016)
Objectives:

1. To develop and aging protocol for blue sharks from vertebrae collected by observers
2. To analyse the sex, maturity state, length and age structure of the commercial catch for blue sharks
3. To develop an aging library from the material used in this study

HMS2015-02 - Stable Isotope Analysis of Highly Migratory Species to Assess Their Trophic Status and Movements in the South Pacific (completion date 30/12/2016)
Objectives:

1. Assess the movement patterns of New Zealand HMS species based on their isotopic values.
2. Determine the trophic level of HMS shark species through their life history and the potential effects of changing ocean conditions and fishing pressure on these species.

STM2013-01 – Multi-year stock monitoring of striped marlin including logbook programme implementation (completion date 30/12/2016)
Objectives:

1. To update time series of catches, landings, and size composition data collected from recreational sources for the 2013/14, 2014/15 and 2015/16 fishing years.
2. To undertake a logbook programme for striped marlin for the recreational fishery for the 2013/14, 2014/15 and 2015/16 fishing years.

TAG2013-01 – Management of data from gamefish tag-recapture programme (completion date 30/11/2016)
Objectives:

1. To characterise the New Zealand recreational gamefish fishery.
2. To collect and key punch tagging and recapture data for gamefish species in the 2013/14, 2014/15 and 2015/16 fishing years.
3. To compile annual summaries of the results of the tag recapture programme for 2013/14, 2014/15 and 2015/16 fishing years.
4. To develop graphical descriptions of linear displacements for each species tagged, released and recaptured by the programme; review displacements in terms of time-at-liberty, fish size, season and area; and review individual tagger success.

Proposed new projects for 2016-17

HMS2016-01 – Data reports for New Zealand HMS fisheries for national and international obligations (completion date 31/11/2019) (Continuation of HMS2013-01)
Objectives:

1. To characterise the New Zealand Tuna and Swordfish fisheries, including catches and discards of associated and dependent species and incidental take of protected species for international reporting obligations and for monitoring of the National Fisheries Plan for HMS for the 2016-17 year.

2. To characterise the New Zealand Tuna and Swordfish fisheries, including catches and discards of associated and dependent species and incidental take of protected species for international reporting obligations and for monitoring of the National Fisheries Plan for HMS for the 2017-18 year.

3. To characterise the New Zealand Tuna and Swordfish fisheries, including catches and discards of associated and dependent species and incidental take of protected species for international reporting obligations and for monitoring of the National Fisheries Plan for HMS for the 2017-18 year.

STN2016-01 – Catch-at-age data for Southern Bluefin Tuna (completion date 30/6/2019) (Continuation of STN2011-01)
Objectives:

1. To age 250 otoliths from southern bluefin tuna collected by scientific observers aboard vessels fishing in New Zealand fisheries waters during the 2015/16 fishing season (2016 calendar year)
2. To age 250 otoliths from southern bluefin tuna collected by scientific observers aboard vessels fishing in New Zealand fisheries waters during the 2016/17 fishing season (2017 calendar year)
3. To age 250 otoliths from southern bluefin tuna collected by scientific observers aboard vessels fishing in New Zealand fisheries waters during the 2017/18 fishing season (2018 calendar year)

STM2016-01 – Multi-year stock monitoring of striped marlin including logbook programme implementation (completion date 30/12/2016) (Continuation of STM2013-01)
Objectives:

1. To update time series of catches, landings, and size composition data collected from recreational sources for the 2016/17, 2017/18 and 2018/19 fishing years.
2. To undertake a logbook programme for striped marlin for the recreational fishery for the 2016/17, 2017/18 and 2018/19 fishing years.

TAG2016-01 – Management of data from gamefish tag-recapture programme (completion date 30/11/2016) (Continuation of TAG2013-01)
Objectives:

1. To characterise the New Zealand recreational gamefish fishery.
2. To collect and key punch tagging and recapture data for gamefish species in the 2016/17, 2017/18 and 2018/19 fishing years.
3. To compile annual summaries of the results of the tag recapture programme for 2016/17, 2017/18 and 2018/19 fishing years.
4. To develop graphical descriptions of linear displacements for each species tagged, released and recaptured by the programme; review displacements in terms of time-at-liberty, fish size, season and area; and review individual tagger success.

5.5 PLANNED OBSERVER DAYS FOR HMS FISHERIES FOR 2016–17

HMS observer days are allocated to reflect the effort in the identified fishery groupings. The table below reflects the proportion of effort expended in each target fleet. Observer days were allocated according to the days available for those target fisheries to achieve 10% coverage for surface longline fisheries, and the days allocated to each month proportionally.

	Total days	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
Tuna longline ET – WCPFC	10										5	5	
Domestic tuna longline -EC STN	330	112	53	10							16	54	85
Domestic tuna longline - WC STN	230	28	28						10	41	41	41	41
Domestic tune longline - EC BIG/SWO	225	5	15	10	10	15	15	20	30	40	35	25	5
Domestic tune longline -WC BIG/SWO	45	5	10	5				5	5	5	5	5	
Domestic purse seine – SKJ	70							25	25	20			
Domestic purse seine - SKJ Super Seiner	30									30			
TOTAL HMS	**940**	**150**	**106**	**25**	**10**	**15**	**15**	**50**	**70**	**136**	**102**	**130**	**131**

EC – east coast; WC – west coast; STN – southern bluefin tuna; BIG – bigeye tuna; SWO – swordfish; SKJ – Skipjack tuna; ET – Out-of-zone; WCPFC – Western and Central Pacific Fisheries Management Commission

5.6 WANDERING ALBATROSS SPECIES-SPECIFIC ACTION PLAN

Gibson's Albatross (*Diomedea antipodensis gibsoni*) and Antipodean Albatross (*Diomedea antipodensis antipodensis*) Action Plan

Produced by the Ministry for Primary Industries and Department of Conservation

May 2016

Objectives of the Plan

1. Manage the cumulative effects of longline and trawl fisheries on Gibson's albatross (*Diomedea antipodensis gibsoni*) and antipodean albatross (*Diomedea antipodensis antipodensis*) so that the species can shift from "very high risk" (Gibson's) and "high risk" (antipodean) from commercial fishing[7] to a lower risk category by 2018.
2. Assess the scale of the impacts of recreational and international fishing on Gibson's and antipodean albatross and develop an appropriate mitigation response.

Scope

The National Plan of Action for Seabirds (NPOA-Seabirds) states that, in appropriate circumstances, a seabird species-specific plan may be developed where there are grounds for serious concerns about the status of a particular species and a potential need to understand and manage a range of threats including non-fishing threats and/or threats from fishing in waters beyond New Zealand's jurisdiction. Any fisheries related actions developed under any such species specific plan will need to be fully integrated into fisheries plans.[8]

This action plan addresses the potential risks posed by commercial fisheries within and outside the New Zealand Exclusive Economic Zone (EEZ). It also addresses the potential risks from non- commercial fishing[9]. It does not address land-based threats as these are outside the scope of the NPOA-Seabirds. However a short description of land-based threats is included for context.

Plan Term

This plan is effective to June 2018.

Gibson's and Antipodean Albatross Identification, Distribution, and Non-Fishing Threats

Gibson's and antipodean albatross are New Zealand's two endemic wandering albatross taxa (currently considered as subspecies of *Diomedea antipodensis*). For the purposes of the NPOA-Seabirds these taxa are treated separately, in alignment with fisheries seabird risk assessment[10] and the New Zealand Threat Classification.[11]

[7] MPI, *Assessment of the Risk of Commercial Fisheries to New Zealand Seabirds.*
[8] MPI, NPOA – Seabirds.
[9] This includes recreational, customary and recreational charter vessels
[10] MPI, *Assessment of the Risk of Commercial Fisheries to New Zealand Seabirds.*
[11] [ref to Robertson et al 2013].

Both Gibson's and antipodean albatross are large albatross varying in colour from black-and-white to chocolate brown depending on age and sex. Antipodean breeding females have chocolate-brown upperparts with white 'waves' on their back, a white face mask and throat, a broad brown breast-band with a white lower breast and belly with brown under-tail coverts, and a white underwing with a dark tip. Breeding males are whiter than the females but never as white as the whitest Wandering Albatross. Both sexes have a pink bill. This species can be easily confused with other species of wandering albatross or even royal albatross (which have a black cutting edge on their bill).[12]

Gibson's and antipodean albatross forage over the continental shelf edge and deep water from south of West Australia to the coast of Chile, but are most common in the Tasman Sea and over the Chatham Rise east of New Zealand. The antipodean Albatross breed almost exclusively on Antipodes Island southeast of New Zealand, with a few pairs breeding on Campbell Island, and occasional breeding on the Chatham Islands since 2003.[13] Gibson's albatross breed exclusively in the Auckland Islands south of New Zealand. Approximately 95% of the population breeds on Adams Island, the southern-most island in the group.[14]

There are few land-based threats to Gibson's and antipodean albatrosses. Adams Island is pest-free, pigs pose a potential threat to the small number of Gibson's albatross chicks on Auckland Island, and, on Chatham and Pitt Islands, a range of predators may have an effect on the occasional breeding antipodean albatrosses there. The only introduced mammals on Antipodes Island are mice, which have not been documented to predate albatross eggs or chicks on the island but pose a potential future threat (a mouse eradication programme is currently underway). [15] Non-fishing at-sea threats include oil pollution, climate change, and plastic pollution.

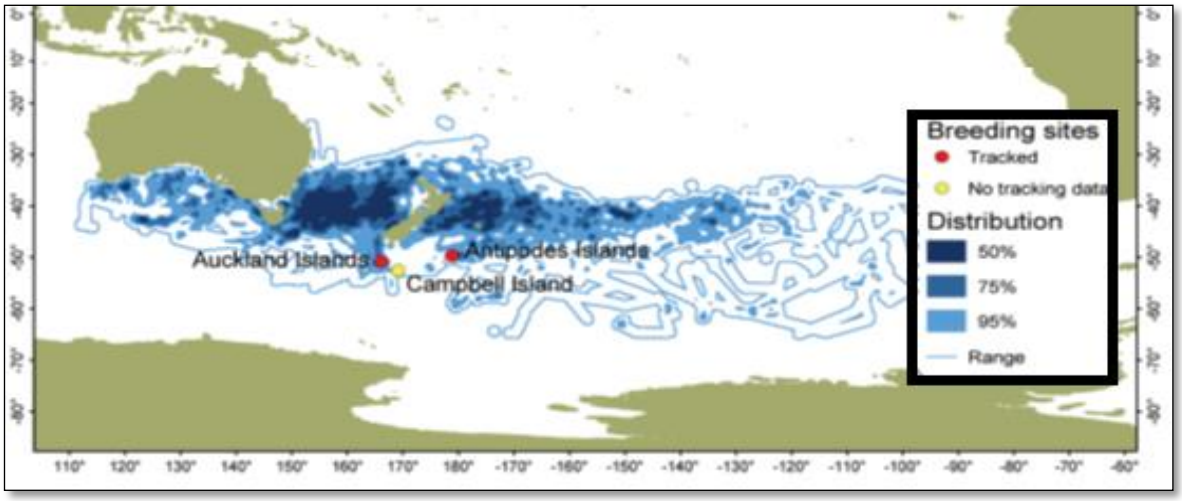


Figure 1 Satellite-tracking data of non-breeding *D. antipodensis* (Number of tracks =51). Map based on data contributed to the BirdLife Global Procellariiform Tracking Database. (From http://acap.aq/en/acap-species/289-antipodean-albatross/file)

[12] New Zealand Birds Online, *Antipodean Albatross.*
[13] *Ibid*
[14] DOC, *Gibson's albatross research - Adams Island.*
[15] *Ibid*

NZ Commercial Fisheries Interactions

Introduction

The major threat affecting Gibson's and antipodean albatross is incidental mortality in longline fishing operations.[16] The albatrosses are attracted to discards and baited hooks, which can lead to incidental mortalities.[17]

The growth of the southern Bluefin tuna longline fishery around New Zealand in the 1960s and 1970s – and, more recently, the swordfish fishery – is likely to have impacted populations of both species.[18] This probably led to a dramatic decline in numbers which has slowed with the more recent decrease in effort in the southern Bluefin tuna fishery and improvements in bird capture avoidance techniques.[19] Gibson's and antipodean albatross are also likely to be affected by fishing effort outside of the New Zealand exclusive economic zone (EEZ).

Measuring Interactions: Observer Data and Seabird Risk Assessment

Gibson's and antipodean albatross comprised at least 8% of the observed seabird incidental captures in Japanese tuna longlines in New Zealand waters from 1989 to 1992, and 14% of the identified birds caught on southern Bluefin tuna longlines in New Zealand waters between 1988 and 1997. Between 1998 and 2004, seventy captures of these species have been observed in the New Zealand surface longline fishery operating around the eastern coast of the North Island, but, at that time, observer coverage in the New Zealand EEZ was less than 5% of total fishing effort.[20] Observer coverage has increased in New Zealand since then. In the 2013-2014 fishing year, over 30% of fishing hooks were observed in the surface longline fleet, which is the fishery group most likely to be involved in fatal interactions with Gibson's or antipodean albatross.[21] Note however this total (Figure 2) includes 100% observer coverage on the Japanese fleet operating within New Zealand; observer coverage on small domestic SLL vessels, which are modelled as a separate fishery group, is considerably lower, at 5-8% (Figure 3).

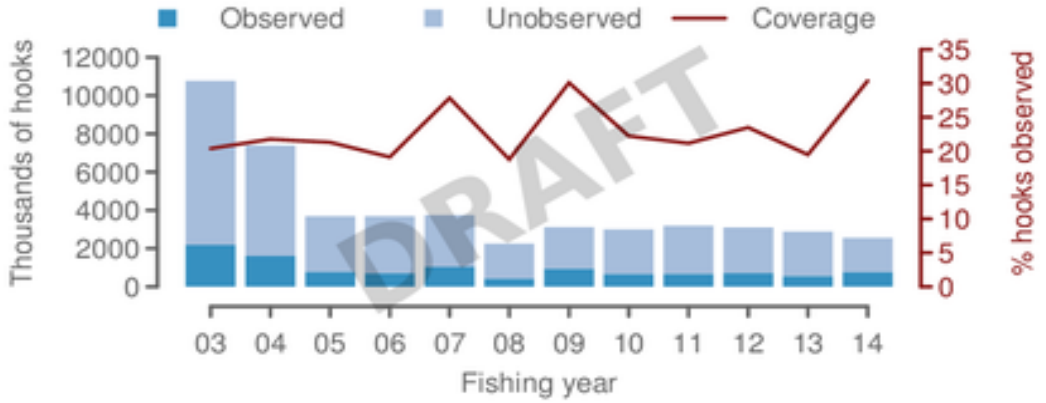


Figure 2 Fishing effort and observations in surface longline fisheries[22]

[16] ACAP, *Antipodean Albatross.*
[17] New Zealand Birds Online, *Antipodean Albatross.*
[18] ACAP, *Antipodean Albatross.*
[19] New Zealand Birds Online, *Antipodean Albatross.*
[20] ACAP, *Antipodean Albatross.*
[21] Dragonfly, *Protected species bycatch, 2002–03 to 2013–14.*
[22] *Ibid*

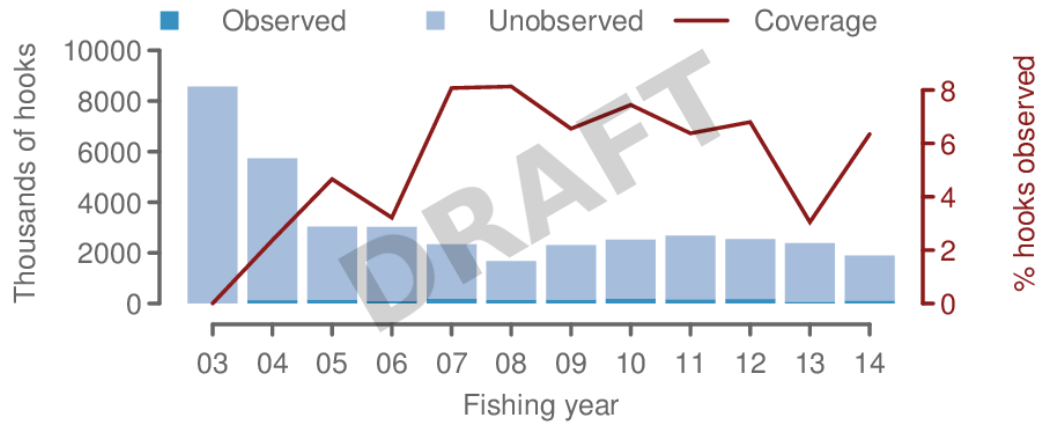


Figure 3 Fishing effort and observations in small vessel (domestic) surface longline fishery[23]

In 2015, an updated spatially explicit semi-quantitative Seabird Risk Assessment on the impacts of commercial fishing in New Zealand was completed, building off of previous iterations of the same risk assessment methodology. The risk assessment compares 'annual potential fatalities' (estimated on the basis of the degree of spatial overlap between known seabird distributions with the distribution of fishing effort, observed capture rates, and multipliers for other factors such as unobservable mortalities) to 'potential biological removal' (PBR)[24] (the maximum number of animals, not including natural mortalities, that may be removed from a population without compromising its ability to reach or maintain its optimum sustainable population level). A risk score is generated by comparing the potential fatalities with the modified PBR, including uncertainty.

$$\textit{Risk Ratio} = \textit{fatality/PBR}$$

Gibson's and antipodean albatross were assigned risk ratios considered "Very High" risk and "High" risk respectively (Figure 4).

[23] *Ibid*

[24] While MPI uses a PBR-style formula as part of assessing the risk to seabird species, the formula for estimating PBR varies slightly from that originally designed by P. R. Wade in 1998 to estimate PBR in marine mammal species in the United States. For more information see AEBAR 162, page 7.

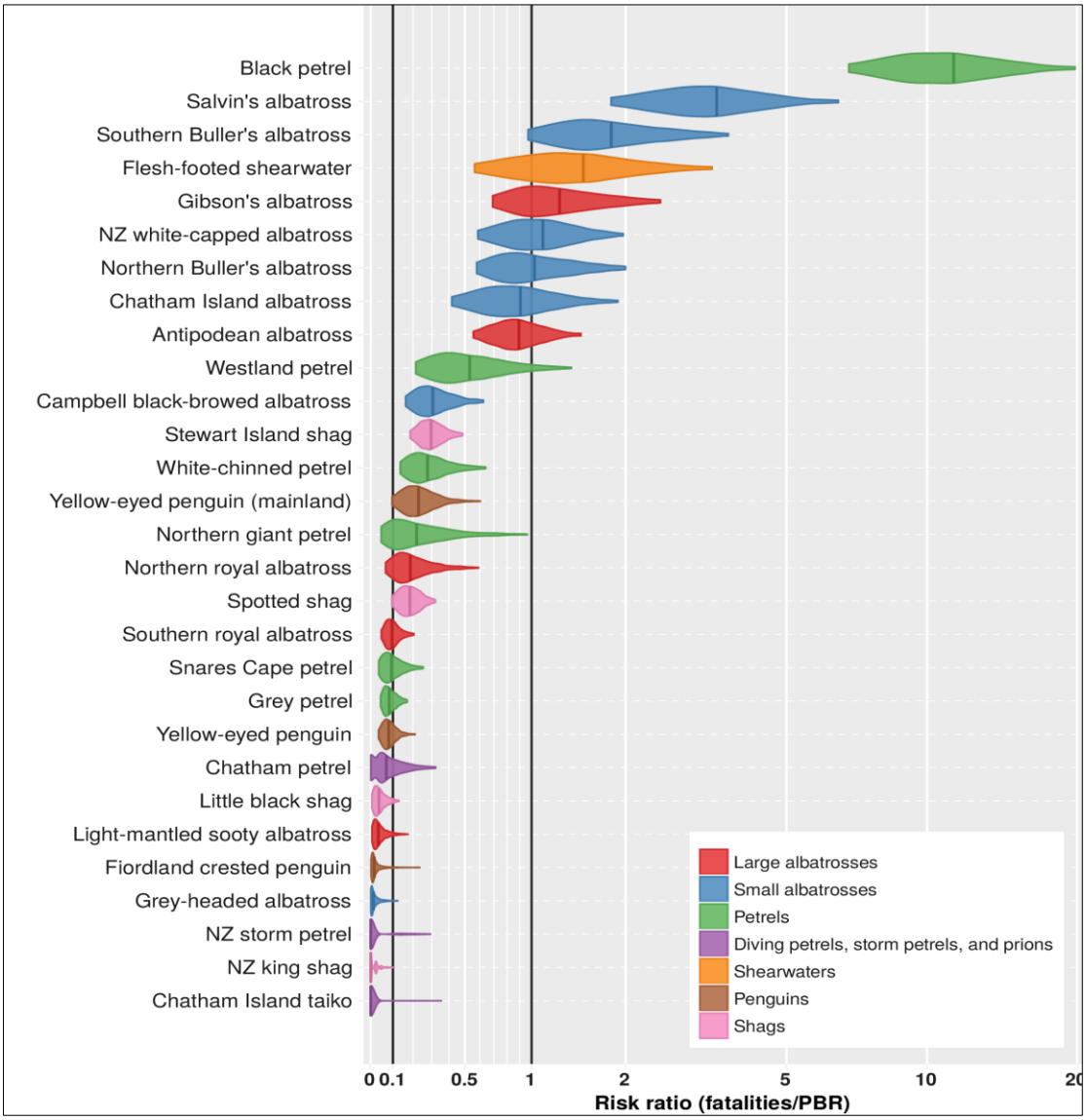


Figure 4 The Risk Ratio equals fatalities to the potential biological removal. (Fatalities to PBR) The fatalities are calculated based on observed captures and fatalities. The potential biological removal is the maximum amount of mortalities that can be sustained by the species. A Risk Ratio of less than 1 means that the number of fatalities are less than PBR. A Risk Ratio of more than 1 means that the number of fatalities are greater than PBR and there is a risk to the species. The shapes corresponding to each species are designed to represent uncertainties. [25]

Gibson's Albatross

Gibson's albatross was at "High" risk in the previous assessment, but was found to be at "Very High" risk in the most recent Seabird Risk Assessment. This increase was primarily due to a change in the structure of the risk assessment concerning the assumption of species grouping; in the most recent (2015) assessment, wandering and royal albatrosses were modelled separately. Because Gibson's and antipodean albatrosses are caught at much higher rates than royal albatross species, this version of the risk assessment more accurately assesses these two species' vulnerability.[26]

The risk ratio model has been designed to incorporate uncertainty. In the case of Gibson's albatross, uncertainty comes from two primary factors. The first, adult survival (the green column labelled "S" in Figure 5) relates to a lack of data, or inherent uncertainty in available data, relating to rates of natural mortality in the absence of fishing-related mortality. Much of

[25] MPI, *Assessment of the Risk of Commercial Fisheries to New Zealand Seabirds.*
[26] MPI, *Assessment of the Risk of Commercial Fisheries to New Zealand Seabirds.*

this uncertainty is simply a reflection of real-life variability. The second significant factor contributing to uncertainty is the relative lack of observer data to estimate vulnerability (i.e. fatalities per encounter with fishing effort), primarily in the small domestic Surface Longline fishery group. (Purple column labelled "SLL" in Figure 5.)

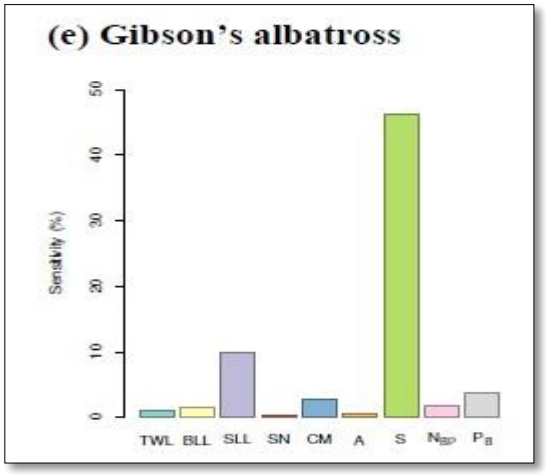


Figure 5 Factors contributing to uncertainty for the risk ratio: annual potential fatalities in trawl, bottom-longline, surface-longline and set-net fisheries (TWL, BLL, SLL, SN, respectively); the cryptic multipliers (CM); age at first reproduction (*A*); adult survival (*S*); the number of annual breeding pairs (*N*BP); and the proportion of adults breeding (*P*B).[27]

Table 1 shows observation rates and observed captures of Gibson's albatross by surface longline vessels since 2002.

Year	Total Hooks	Observed Hooks	Percent Observed	Observed Captures	Capture Rate
2002–03	10 770 488	2 195 152	20.4	8	0.004
2003–04	7 386 884	1 607 304	21.8	0	0
2004–05	3 679 965	783 812	21.3	1	0.001
2005–06	3 690 709	705 945	19.1	0	0
2006–07	3 739 882	1 040 948	27.8	13	0.012
2007–08	2 246 339	421 900	18.8	1	0.002
2008–09	3 115 633	937 496	30.1	2	0.002
2009–10	2 995 264	665 883	22.2	4	0.006
2010–11	3 188 179	674 572	21.2	2	0.003
2011–12	3 099 977	728 190	23.5	4	0.005
2012–13	2 876 932	560 333	19.5	1	0.002
2013–14	2 546 764	773 527	30.4	1	0.001

Table 1 Table of effort, captures, by fishing year. Due to Ministry for Primary Industries anonymity requirements, fishing effort is only shown if there were three or more vessels and three or more companies or persons fishing in that year. [28]

In the 2013–14 fishing year, there was one observed capture of Gibson's albatross in surface longline fisheries. Figures 7 and 8 compare this year to other years and divide the observed captures by month. The risk assessment of Abraham & Richard (2015) estimated a total of 186

[27] *Ibid*
[28] Dragonfly, *Protected species bycatch, 2002–03 to 2013–14.*

annual potential fatalities for Gibson's albatross (note, this includes an estimate of cryptic, or unobservable, mortality; these estimates are subject to considerable uncertainty).[29]

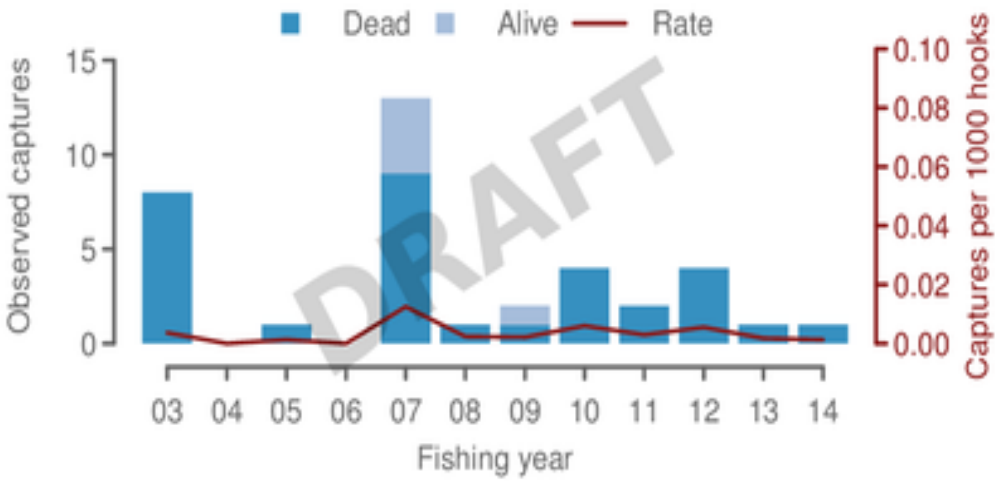


Figure 6 Observed captures of Gibson's albatross in surface longline fisheries[30]

Figure 7 Fishing effort and observed captures of Gibson's albatross in surface longline fisheries by month in 2013-2014 fishing year. The increase in May and June reflects the time of year when the large vessel SLL fleet (foreign vessels) are fishing with 100% observer coverage.[31]

Antipodean albatross

The antipodean albatross is also listed as "Nationally Critical" in New Zealand's threat rankings. The antipodean albatross is listed as "High" risk in the most recent Seabird Risk Assessment, with its risk ratio increasing significantly since previous assessments. This increase was primarily due to structural assumptions in the implementation of the method; in the most recent assessment, Wandering and Royal albatrosses were modeled separately. Because Gibson's and antipodean (Wandering) albatrosses are caught at much higher rates than Royal albatross species, this assessment more accurately assesses these two species' vulnerability, with the effect that risk scores for Wandering albatrosses went up and risk scores for Royal albatrosses went down.[32]

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[29] *Ibid*
[30] Dragonfly, *Protected species bycatch, 2002–03 to 2013–14.*
[31] *Ibid*
[32] MPI, *Assessment of the Risk of Commercial Fisheries to New Zealand Seabirds.*

Understanding the source of uncertainty in the risk scores can help managers to better understand threats and plan effective mitigation. In the case of the antipodean albatross, Figure 10 shows that, as with Gibson's albatross, a large amount of uncertainty comes from poorly modelled or variable natural survival rates in the absence of fishing mortality. Again, as with Gibson's, inadequate observer data with which to estimate vulnerability (fatalities per encounter with fishing effort) in the surface longline industry contributes significantly to the level of uncertainty. Uncertainty about vulnerability in the trawl fishery and bottom longline fishery is also contributing to the level of uncertainty of risk to antipodean albatross.

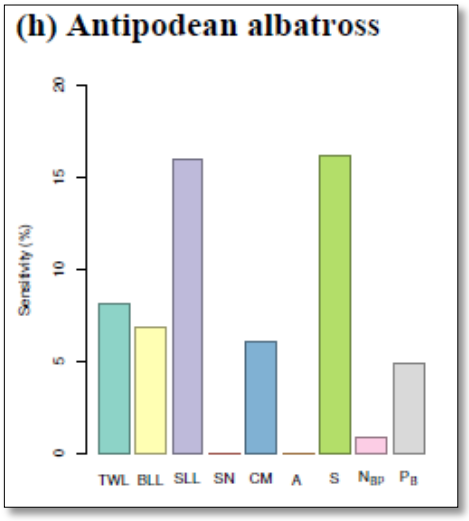

Figure 8 Factors contributing to uncertainty for the risk ratio: annual potential fatalities in trawl, bottom-longline, surface-longline and set-net fisheries (TWL, BLL, SLL, SN, respectively); the cryptic multipliers (CM); age at first reproduction (*A*); adult survival (*S*); the number of annual breeding pairs (*N*BP); and the proportion of adults breeding (*P*B).

In the 2013–14 fishing year, there were no observed captures of antipodean albatross in surface longline fisheries. No estimates of total captures were made.[33]

Year	Total Hooks	Observed Hooks	Percent Observed	Observed Captures	Capture Rate
2002–03	10 770 488	2 195 152	20.4	3	0.001
2003–04	7 386 884	1 607 304	21.8	0	0
2004–05	3 679 965	783 812	21.3	0	0
2005–06	3 690 709	705 945	19.1	1	0.001
2006–07	3 739 882	1 040 948	27.8	15	0.014
2007–08	2 246 339	421 900	18.8	1	0.002
2008–09	3 115 633	937 496	30.1	1	0.001
2009–10	2 995 264	665 883	22.2	6	0.009
2010–11	3 188 179	674 572	21.2	0	0
2011–12	3 099 977	728 190	23.5	4	0.005
2012–13	2 876 932	560 333	19.5	1	0.002
2013–14	2 546 764	773 527	30.4	0	0

Table 2 Table of effort, captures, by fishing year. Due to Ministry for Primary Industries anonymity requirements, fishing effort is only shown if there were three or more vessels and three or more companies or persons fishing in that year. [34]

[33] Dragonfly, *Protected species bycatch, 2002–03 to 2013–14.*
[34] Dragonfly, *Protected species bycatch, 2002–03 to 2013–14.*

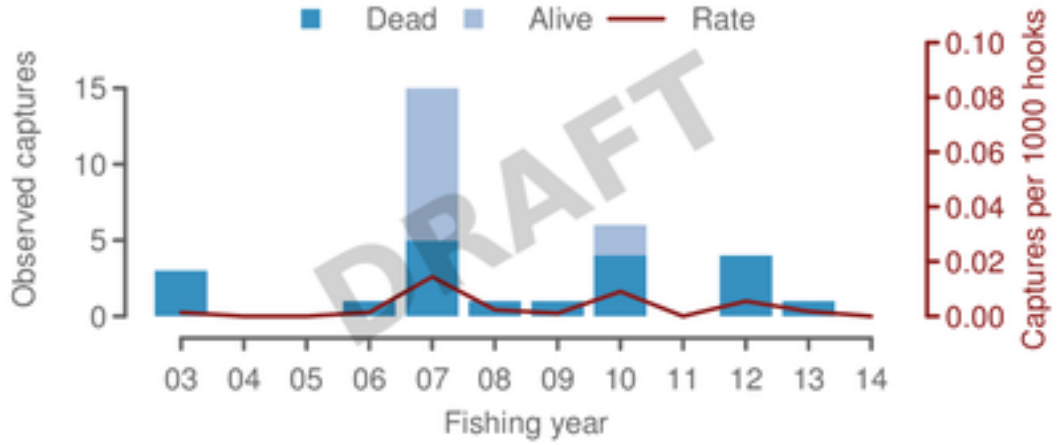

Figure 9 Observed captures of antipodean albatross in surface longline fisheries[35]

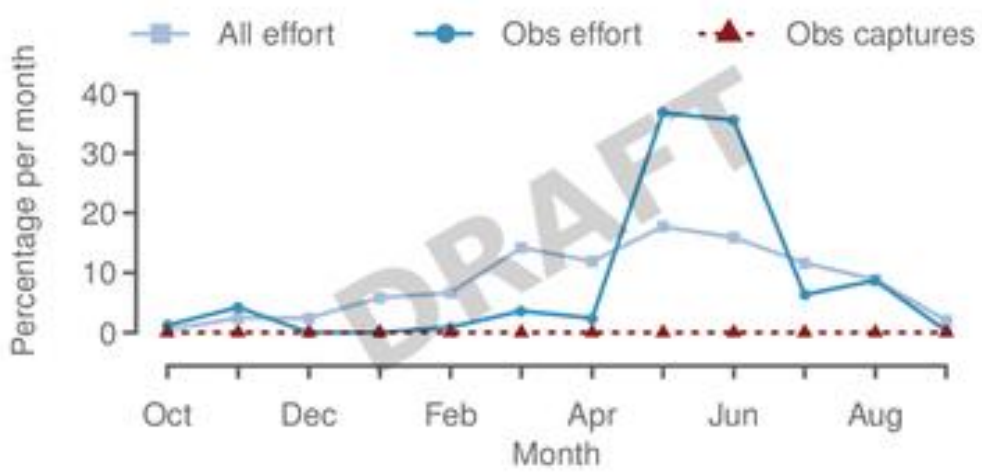

Figure 10 Fishing effort and observed captures of antipodean albatross in surface longline fisheries by month in 2013-2014 fishing year. The increase in May and June reflects the time of year when the large vessel SLL fleet (foreign vessels) are fishing with 100% observer coverage[36]

International Fisheries

In addition to captures within New Zealand waters, both Gibson's and antipodean albatross are likely have interactions with fisheries on the High Seas.[37] Many seabird species found in New Zealand waters also travel widely across the Pacific and beyond, and international advocacy is an important component to successful management of seabird interactions. Out-of-zone impacts can include both fisheries impacts and wider changes such as availability of prey species. In particular, the range of Gibson's and antipodean albatrosses, which are caught in domestic longline fisheries, overlaps with a wide range of longline and demersal fisheries outside the New Zealand zone. It also appears that these species are foraging over a much wider area now

[35] *Ibid*
[36] *Ibid*
[37] MPI, *Assessment of the Risk of Commercial Fisheries to New Zealand Seabirds.*

and may be suffering from reduced availability of prey species and/or changes in oceanographic conditions that are contributing to poor adult survival since the mid-2000s.
Information about seabird interaction with longline fisheries in the Pacific region is provided by catch and effort reporting, as well as regional observers and research done by regional fisheries management organisations (RFMOs) and their members. Measures to protect seabirds continue to be developed by RFMOs such as the Western and Central Pacific Fisheries Commission (WCPFC) and the Convention on the Conservation of Southern Bluefin Tuna (CCSBT), informed both by parties to these agreements and by other groups like Agreement on the Conservation of Albatrosses and Petrels (ACAP), World Wildlife Fund (WWF), and Birdlife International. Relevant international rules surrounding seabirds include a WCPFC Conservation and Management Measure (CMM) that requires certain combinations of mitigation techniques to be used in the Convention area south of 30° south and north of 23° north. In 2015, the New Zealand advocated for the moving of the southern boundary north to 25° south. However, this proposal did not pass. CCSBT requires that its member states adhere to the seabird mitigation rules of the convention area in which they are fishing. ACAP has also published a summary of best practices for seabird mitigation.

Actions to Address Risks from NZ Commercial Fishing

The HMS commercial fisheries most relevant to Gibson's and antipodean albatrosses can be divided into three categories of surface longline operations: Large Vessels, Small Vessels targeting tuna, and Small Vessels targeting Swordfish. Understanding the differences between these categories can help managers to develop effective and targeted action plans.

Actions for Large Vessel Surface Longline Fisheries

In recent years, large vessels have been exclusively Japanese foreign charter vessels operating with 100% observer coverage and annual seabird catch allotments (if a certain number of seabirds are caught in one year, the vessel must cease fishing). In recent years, the fleet is made up of four vessels targeting southern Bluefin tuna off the West Coast of the South Island. In line with requirements, tori lines and night-setting are generally used to mitigate seabird capture. Because of high levels of observer coverage, the large vessel SLL fishery is the only HMS fishery where an actual capture rate reduction target could be established. Contrastingly, mitigation use rates are high in this fishery, and it may be harder to lower risk in this category by increasing compliance rates, which is the standard way to lower risk. In 2016-2017, these large vessel surface longliners will not be fishing in New Zealand as a result of the May 2016 changes to laws around foreign charter vessels.

Actions to identify 'best practice' mitigation techniques

1. Work with DOC, the Seabird Liaison Officers, and stakeholders to research "best practice" for haul mitigation, which is less well understood than mitigation during setting. It would be helpful for Seabird Liaison Officers to work with any skippers who are concerned about safety issues relating to haul mitigation in order to ensure that the vessel's haul set up minimises safety issues (haul block height, hauling speed, adequate crew, smart-leads, safety equipment, etc).
2. Contribute to development of international "best practice" mitigation standards through ACAP.
3. Assess utility of Hookpods in longline fisheries. (DOC/MPI/Birdlife International/Hookpods Ltd.)

Actions to implement use of 'best practice' mitigation techniques large vessel surface longline fishery

1. Work with ACAP, DOC, and the Seabird Liaison Officer Programme to assess efficacy, practicability, and operational issues of existing measures that may need to be overcome.
2. Overcome operational issues relating to line weighting; primarily safety concerns.

Data to measure risk to Gibson's and antipodean albatross from large vessel surface longline fisheries over time

1. DOC to research/consolidate information on species attributes such as diving depth, distribution, habits (night/day feeding, etc.) to inform species fact sheets for industry.
2. Develop and circulate fact sheets for these two taxa to help with proper identification. Consider fact sheets and cards already developed by DOC.
3. Clarify and Improve Observer protocols for seabird interaction, and assess feasibility and efficacy of genetic identification for seabird bycatch.
4. Develop targets for capture rate reduction.
5. Collect robust and accurate data on survival to minimise uncertainty in the Seabird Risk Assessment.
6. Evaluate Seabird Risk Assessment methodology to make sure that uncertainty measures accurately reflect uncertainty. For Gibson's Albatross, for instance, the inclusion of numerous historical studies is adding to uncertainty.

Actions for Small Vessel Surface Longline Fisheries

Small vessels tend to be New Zealand-operated and target various tuna species around New Zealand, in particular Hawkes Bay, north of the North Island, and to the west of the South Island. The fleet is made up of approximately twenty-five vessels. With lower observer coverage, compliance and implementation is the primary issue for small vessel surface longline seabird mitigation. Due to the size of the boats, some mitigation methods may present different challenges than they do to large vessels. Many small vessel operators have concerns about the safety of line weighting and have, thus far, preferred to use tori lines and night setting. International and domestic regulations require small vessel surface longline vessels to utilize two of the following three mitigation techniques: tori lines, line weighting, and/or night-setting.

Actions to identify 'best practice' mitigation techniques

1. Work with DOC, the Seabird Liaison Officer Programme, and stakeholders to research "best practice" for haul mitigation, which is less well understood than mitigation during setting. It would be helpful for Seabird Liaison Officers to work with any skippers who are concerned about safety issues relating to haul mitigation in order to ensure that the vessel's haul set up minimises safety issues (haul block height, hauling speed, adequate crew, smart-leads, safety equipment, etc).
2. Contribute to development of international "best practice" mitigation standards for smaller vessels, including through ACAP.
3. Support development and testing of new mitigation technologies (including bait pods, underwater bait setter, Tuna smart hooks, etc.)
4. DOC to continue research into tori line design and best practice for small vessel surface longline.

Actions to implement use of 'best practice' mitigation techniques small vessel surface longline fishery

1. Work with ACAP, DOC, and the Seabird Liaison Officer Programme to assess efficacy, practicability, and operational issues of existing measures that may need to be overcome.
2. Increase awareness in the fleet of the need for mitigation.
3. Increase compliance and follow up on incidences of non-compliance.
4. Vessels to develop seabird management plans in cooperation with Seabird Liaison Officers.
5. Consider spatial triggers for application of mitigation rules in areas where seabird interaction risk is highest.
6. Work with Southern Seabirds Solutions Trust (SSST) to educate Fisheries Observers patrolling high seas on how their role will help New Zealand seabirds (particularly these two species). SSST has funding to run a presentation.
7. SSST seabird training workshops to continue educating fishers on seabird issues and bycatch mitigation approaches.
8. MPI and industry will look to assess whether hook shielding devices are likely to play a role in seabird bycatch mitigation in New Zealand in the near future. If a successful hook shielding device emerges from this assessment, MPI will propose changes at the Regional Fishery Management Organisation (RFMO) level to allow surface longline fishers in New Zealand to utilise these new technologies.

Data to measure risk to Gibson's and antipodean albatross from small vessel surface longline fisheries over time

1. DOC to research/consolidate information on species attributes such as feeding depth, distribution, habits (night/day feeding, etc.) to inform species fact sheets for industry. Consider fact sheets and cards already developed by DOC.
2. Develop and circulate fact sheets for these two species to help with proper identification. Consider fact sheets and cards already developed by DOC.
3. Develop proxy targets in place of capture rate reduction targets where observer coverage does not immediately allow for a capture rate reduction target to be used. Useful proxy measures have been identified in the 2015-2016 ARR and 2016-2017 AOP and include:
    - Tori line, line weighing, and night-setting use rates on observed sets (use rates to be reviewed quarterly and annually in order to track improvement over time);
    - Number of vessels with Seabird Liaison Officer Programme Operational Plans in place (to be coordinated by the Seabird Liaison Officers). There is currently one vessel with an Operational Plan in place. MPI and the Seabird Liaison Officer Programme aim to have 10 vessels with complete Operational Plans in place by the end of the 2016-2017 year;
    - Seabird Liaison Officer Programme Operational Plan responses about mitigation (to be coordinated by the Seabird Liaison Officers);
    - Levels of self-reporting of bycatch will be measured using the percentage of trips (observed and unobserved) where non-fish bycatch forms have been filed.
4. Achieve at least 10% observer coverage, in line with international requirements.
5. Focus observer coverage on areas where fishing effort and bird distribution most aligned in order to improve estimates of vulnerability. (See maps below)

6. As new technology becomes increasingly available and reliable, integrate its use as to supplement observer data.
7. Evaluate Seabird Risk Assessment methodology to make sure that uncertainty measures accurately reflect uncertainty. For Gibson's Albatross, for instance, the inclusion of numerous historical studies is adding to uncertainty and risk ratio.
8. Where data is sufficient, model seabird capture rates as affected by additional variables (i.e. mitigation, moon phase, location, season etc) to better understand factors producing increased risk of capture.

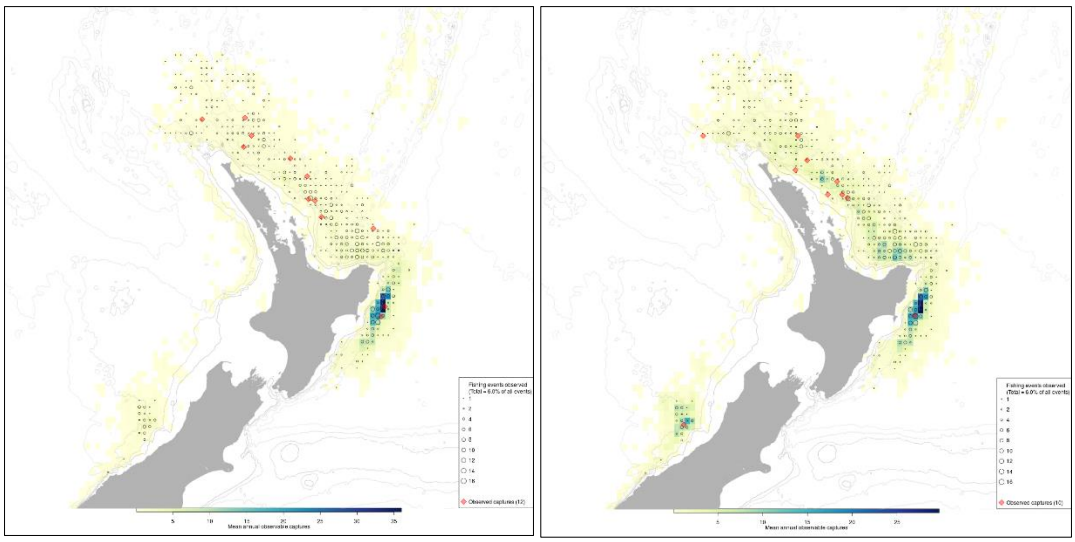

Figure 11. Seabird population distribution and fishing effort hotspots, along with observer coverage and observed captures. Antipodean albatross on the left, Gibson's albatross on the right.

Actions for Small Vessel Swordfish Surface Longline Fisheries

Small vessels targeting swordfish operate in different areas and at a different time of year than small longline vessels targeting tuna. Vessels targeting swordfish also tend to be set at a different time of day than those set by tuna-targeting fishers. Fishing for swordfish is mostly north of the North Island. As in small vessel surface longliners targeting tuna, may present different challenges than they do to large vessels for some mitigation methods. International and domestic regulations require small vessel surface longline vessels (including those targeting swordfish) to utilize two of the following three mitigation techniques: tori lines, line weighting, and/or night-setting.

Actions to identify 'best practice' mitigation techniques

1. Work with ACAP, DOC, and the Seabird Liaison Officer Programme to assess efficacy, practicability, and operational issues of existing measures that may need to be overcome.
2. Work with DOC, the Seabird Liaison Officer Programme, and stakeholders to research "best practice" for haul mitigation, which is less well understood than mitigation during setting. It would be helpful for Seabird Liaison Officers to work with any skippers who are concerned about safety issues relating to haul mitigation in order to ensure that the vessel's haul set up minimises safety issues (haul block height, hauling speed, adequate crew, smart-leads, safety equipment, etc).
3. Contribute to development of international "best practice" mitigation standards for smaller vessels through ACAP.

4. Support development and testing of new mitigation technologies including bait pods, underwater bait setter, Tuna smart hooks, etc.)
5. DOC to continue research into tori line design and best practice for small vessel surface longline.
6. Assess utility of Hookpods in longline fisheries. (DOC/MPI/Birdlife International/Hookpods Ltd.)

Actions to implement the use of 'best practice' mitigation techniques in the small vessel swordfish longline fishery

1. Increase awareness in the fleet of the need for mitigation.
2. Increase compliance and follow up on incidences of non-compliance.
3. Vessels to develop seabird management plans in cooperation with Seabird Liaison Officer Prgoramme.
4. Consider spatial application of mitigation rules in areas where seabird interaction risk is highest. (likely applying to the North)
5. MPI and industry will look to assess whether hook shielding devices are likely to play a role in seabird bycatch mitigation in New Zealand in the near future. If a successful hook shielding device emerges from this assessment, MPI will propose changes at the Regional Fishery Management Organisation (RFMO) level to allow surface longline fishers in New Zealand to utilise these new technologies.

Data to measure risk to Gibson's and antipodean albatross from small vessel surface longline swordfish fisheries over time

Actions

1. Research interactions of albatross with the swordfish fishery specifically. (separate from other small vessels)
2. Research/consolidate information on species attributes such as diving depth, distribution, habits (night/day feeding, etc.) to inform species fact sheets for industry.
3. Develop and circulate fact sheets for these two species to help with proper identification. Consider fact sheets and cards already developed by DOC.
4. Develop proxy targets for capture rate reduction. Useful proxy measures have been identified in the 2015-2016 ARR and 206-2017 AOP and include:
    - Tori line, line weighing, and night-setting use rates on observed sets (use rates to be reviewed quarterly and annually in order to track improvement over time);
    - Number of vessels with Seabird Liaison Officer Programme Operational Plans in place (to be coordinated by the Seabird Liaison Officers). There is currently one vessel with an Operational Plan in place. MPI and the Seabird Liaison Officer Programme aim to have 10 vessels with complete Operational Plans in place by the end of the 2016-2017 year;
    - Seabird Liaison Officer Programme Operational Plan responses about mitigation (to be coordinated by the Seabird Liaison Officers);
    - Levels of self-reporting of bycatch will be measured using the percentage of trips (observed and unobserved) where non-fish bycatch forms have been filed.
5. Maintain at least 10% observer coverage, in line with international requirements.
6. Higher observer coverage in high-risk areas. According to the Seabird Risk Assessment, for the swordfish SLL fishery, the area where effort and bird distribution

most overlap is in the Hawkes Bay area and along the northern coast of the North Island.(See maps below)

7. As new technology becomes increasingly available and reliable, integrate its use as to supplement observer data.
8. Evaluate Seabird Risk Assessment methodology to make sure that input parameter uncertainty is handled correctly. For Gibson's Albatross, for example, the inclusion of numerous historical studies is contributing to increased uncertainty in the estimate of adult survival, and a corresponding higher risk ratio.
9. Where data is sufficient, model seabird capture rates as affected by additional variables (i.e. mitigation, moon phase, location, season etc) to better understand factors producing increased risk of capture.

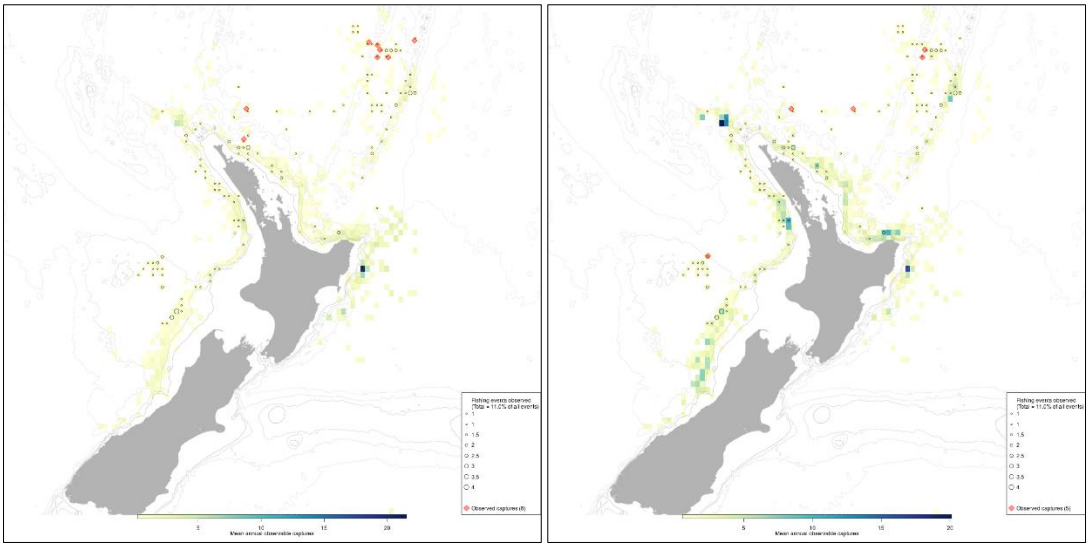

Figure 12. Seabird population distribution and swordfish fishing effort hotspots, along with observer coverage and observed captures. Antipodean albatross on the left, Gibson's albatross on the right.

Actions for Non-Commercial Fishing

The species in this plan are more common in offshore areas where there is limited recreational fishing. While some albatross captures have been reported in recreational and charter fishing, it is unlikely to be a significant number. However, it is worth considering actions for the non-commercial fishery as these species, specifically Gibson's albatross, are known to be highly attracted to fishing boats.

Discussions with recreational fishers suggest that seabirds are most frequently caught over the summer months, and are at risk in circumstances where the baited hook is near the surface, either intentionally when stray lining, or when fishers don't pay attention and take their time getting their lines into the water. Casting into concentrations of seabirds working 'boil-ups' is reportedly a high-risk activity. Discarding used baits, poor offal management and processing fish while still fishing all contribute to seabird captures in recreational fisheries.

Actions

1. Further information on seabird interactions with non-commercial fishery will be necessary before action plans can be developed.

Actions for International Fisheries

Fishing effort beyond the EEZ of New Zealand can affect New Zealand seabirds. Gibson's and antipodean albatrosses are known to forage across the South Pacific, from Australia to Chile. New Zealand is party to several RFMOs. Implementing seabird conservation measures through RFMOs often represents the most effective mechanism to minimize fisheries bycatch in areas outside of national jurisdictions, and in some cases also within the national jurisdictions of member Parties. Action can be achieved by active participation in the most relevant RFMOs, to communicate the vulnerability of seabirds such as Gibson's and antipodean albatross, identify areas of greatest fisheries bycatch risk, and advise on the most effective means of bycatch mitigation. Of specific importance to Gibson's and antipodean albatrosses are the WCPFC and CCSBT.

The WCPFC Conservation and Management Measure for Seabirds (CMM 2012-07) requires WCPFC members and participating non-members to use tori lines on surface longline vessels, as well as one other method (either night-setting or line weighting). These measures are mandatory for all longline fishing effort south of 30°S. The CCSBT requires that signatories follow the seabird mitigation rules of the fisheries management area in which they are fishing.

Actions

1. Advocate for the adoption of proposal to extend existing WCPFC mitigation measure requirements from 30ºS to 25ºS. Consider bilateral talks with Distant Water Fishing Nations and Pacific Island Countries in lead up to meetings in order to overcome obstacles.
2. Communicate to ACAP that Gibson's and antipodean albatross are among our management priorities.
3. Contribute to the development of the spatially explicit BSouthern Hemisphere Seabird Risk Assessment.
4. Data capture and sharing on seabirds across RFMOs and as part of bilateral work with relevant States.
5. Seek to align information collected on seabird conservation measures with Australia, Chile, and other nations NZ does joint patrols with.
6. Communicate to Australia, Chile, and RFMOs that NZ is not a party to that Gibson's and antipodean albatross are among our management priorities.
7. Consider requesting observer status at IATTC, with the intention of raising awareness of potential risks to NZ seabirds within IATTC fisheries.
8. Use existing cooperation Memorandum of Understanding (MOU) between MFAT and MPI to help Small Island Developing States develop NPOA-Seabirds.
9. Ensure that fisheries officers are adequately trained to undertake the above (at sea and port inspections).

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