



Australian Government

Department of the Environment and Energy

Australian Antarctic Division

THREAT ABATEMENT PLAN

for the incidental catch (or bycatch) of
seabirds during oceanic longline fishing
operations (2018)



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Glossary

ACAP	<i>Agreement on the Conservation of Albatrosses and Petrels</i> , done 19 June 2001, 2258 UNTS 257 (entered into force 1 February 2004).
AFMA	Australian Fisheries Management Authority.
Antarctic Fishery	An existing, new and exploratory fishery operating under the framework of the <i>Convention on the Conservation of Antarctic Marine Living Resources</i> , done 20 May 1980, 1329 UNTS 47 (entered into force 7 April 1982).
Australian Fishing Zone	Area of waters between three nautical miles and 200 nautical miles seaward of the baselines.
Branch line	Secondary line with an individual baited hook and attached to the mainline of a longline by a clip.
Bycatch	Unintentional catch of a seabird during longline fishing.
Bycatch rate	Number of seabirds observed caught per 1000 hooks set during longline fishing (see also definition of <i>interaction</i>).
Caught	Where a seabird is either hooked or entangled in fishing gear, regardless of whether the seabird is landed on board the fishing vessel.
CMS	<i>Convention on the Conservation of Migratory Species of Wild Animals</i> , done 23 June 1979, 1651 UNTS 333 (entered into force 1 November 1983).
Coral Sea Fishery	A fishery defined under the <i>Fisheries Management Regulations 1992</i> and managed under the <i>Fisheries Management Act 1991</i> .
Criteria	Maximum permissible bycatch rate at or above which a management response is required.
Dead seabird	A seabird caught by a longline shall be considered to be dead if: <ol style="list-style-type: none"> 1. it is obviously dead (i.e. shows no muscle movement or corneal reflex); or 2. it is landed alive, but displays any of the following pathologies that may lead to death on its release: <ol style="list-style-type: none"> a. fracture of a wing bone, a leg bone or beak; b. broken feather shafts on more than two primary feathers on either wing; c. substantial damage to the patagial tendon (indicated by a drooping wing or the inability to fly upon release); d. an open wound (other than superficial injuries in which there is no subcutaneous muscle damage); e. waterlogged or hydrocarbon-soiled plumage; or f. any bird released with a hook in situ.

Demersal fish	Fish that live close to or in contact with the seabed.
Electronic monitoring system	Video recording system involving cameras positioned on a fishing vessel enabling fishing operations (including setting and hauling) to be recorded, and where the recordings are subject to independent auditing. Auditing is conducted for fishery management purposes including to ensure accurate reporting by fishing concession holders of hooks set, seabird interactions and the effectiveness of mitigation measures.
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999.</i>
Eastern Tuna and Billfish Fishery	A fishery defined in the <i>Eastern Tuna and Billfish Fishery Management Plan 2010</i> (AFMA 2016a).
Fishing areas	Areas within the Eastern Tuna and Billfish Fishery or Western Tuna and Billfish Fishery south of the parallel of 25 degrees South divided for the purposes of the criteria into five degree latitudinal bands.
Fishing gear	Any longline fishing gear deployed by a fishing vessel including seabird mitigation devices.
Fishing operator	Legal or natural person who holds a fishing concession, as defined under the <i>Fisheries Management Act 1991</i> .
Fishing seasons	Seasons defined, for the purposes of the criteria, into two: summer 1 September–30 April, and winter 1 May–31 August.
Heard Island and McDonald Islands Fishery	A fishery defined in the <i>Heard Island and McDonald Islands Fishery Management Plan 2002</i> (AFMA 2016b).
Independent monitoring	Using an AFMA scientific observer or other independent observer approved by AFMA and/or an electronic monitoring system approved by AFMA to independently monitor and record fishing activities including seabird bycatch.
Interaction	In the context of this threat abatement plan an interaction with a seabird occurs where a seabird is observed as caught under one of the following situations: <ol style="list-style-type: none"> 1. dead not landed on board – birds observed to be killed by direct interaction with fishing gear, but not landed on the fishing vessel; 2. dead landed on board – birds killed by direct interaction with fishing gear and landed on the fishing vessel; 3. alive landed on board the fishing vessel following direct interaction with fishing gear: <ol style="list-style-type: none"> a. injured; or b. released uninjured; or

	<p>4. alive and released while not on board the fishing vessel following direct interaction with fishing gear:</p> <ol style="list-style-type: none"> a. injured; or b. released uninjured.
IUCN	International Union for Conservation of Nature.
Longline fishing	Setting and hauling of one or more single lines (mainline) that contains many individual hooks on branch lines. The mainline can either be anchored or drifting. It can be oriented vertically or horizontally, and vary considerably in length and number of hooks. Longline fishing includes using any configuration of a pelagic or drifting longline, demersal longline, trotline, or dropline (AAD 2005).
Macquarie Island Toothfish Fishery	A fishery defined in the <i>Macquarie Island Toothfish Fishery Management Plan 2006</i> (AFMA 2016c).
Night	Period after nautical dusk and before nautical dawn. Nautical dusk and nautical dawn are defined as set out in the Nautical Almanacs for relevant latitude, local time and date.
Night setting	Setting of all hooks deployed by a fishing vessel during night.
Observed caught	Number of seabirds observed as caught by an AFMA scientific observer or other independent observer approved by AFMA, and/or reported as caught by the fishing operator in compliance with arrangements for the fishery where longline fishing is subject to independent monitoring using an electronic monitoring system approved by AFMA.
Observed hooks set and hauled	Number of hooks observed as set and hauled by an AFMA scientific observer or other independent observer approved by AFMA, and/or reported as set and hauled by the fishing operator in the logbook records in compliance with arrangements for the fishery, where longline fishing is subject to independent monitoring using an electronic monitoring system approved by AFMA.
Offal	Discarded waste from the processing of fish (including, among other things, discarded fish and other organisms, and used baits). The discharge of offal from fishing vessels is regulated by Part 12 of the <i>Fisheries Management Regulations 1992</i> .
Pelagic finfish	Fish that live in the upper layers of the sea.
Seabird	A bird that frequents the sea or coast. For the purposes of the criteria established by this plan, a seabird includes all species in the Class Aves that are caught by any part of the fishing gear and observed to be either dead or alive.

Southern and Eastern Scalefish and Shark Fishery	A fishery defined in the <i>Southern and Eastern Scalefish and Shark Fishery Management Plan 2003</i> (AFMA 2016d).
Stakeholder group	Forum established by the Department of the Environment and Energy to discuss implementation and effectiveness of provisions of this threat abatement plan. Participation includes representatives from government, the fishing industry, and environmental non-governmental organisations and experts closely involved with alleviating the impact of longline fishing on Australian seabirds.
Western Tuna and Billfish Fishery	A fishery defined in the <i>Western Tuna and Billfish Fishery Management Plan 2005</i> (AFMA 2016e).

Summary

Oceanic longlining is a fishing method used to target pelagic and demersal fish species. Longlining occurs in almost all Australian waters.

The adverse impact of longline fishing activities on seabirds was not fully realised until the 1980s. The incidental catch (or bycatch) of seabirds during oceanic longline fishing operations was listed by the then Minister as a key threatening process on 24 July 1995. Threat abatement plans for this key threatening process have been in place since 1998 with the current plan, *Threat Abatement Plan the incidental catch (or bycatch) of seabirds during longline fishing operations (2018)*, made in 2018. The ultimate aim of this plan is to achieve zero bycatch of seabirds from longline fishing in Commonwealth fisheries.

Considerable progress has been made under successive threat abatement plans to reduce the impact of longlining on seabirds. This has been achieved through the combined efforts of the fishing industry, researchers and non-governmental stakeholders working with government to reduce seabird bycatch in longline fisheries in a feasible, effective and efficient way. The prescriptions in this plan recognise this success and seek to further reduce the incidental capture of seabirds.

Threat abatement plans provide a national strategy to guide the activities of government, industry and research organisations in abating the impact of key threatening processes. The content of a plan must provide for the research, management and other actions necessary to reduce the key threatening process to an acceptable level. Content requirements and matters to be taken into consideration are outlined in s 271 of the *Environment Protection and Biodiversity Conservation Act 1999*. Accordingly, this plan, among other things, states the objective to be achieved; specifies the actions to achieve the objective; states the criteria to measure performance of the plan; identifies the organisations and persons involved in evaluating the performance of the plan; and identifies albatross and other seabird species affected by the key threatening process. The plan is subject to review within five years.

Introduction

This *Threat Abatement Plan for the incidental catch (or bycatch) of seabirds during oceanic longline fishing operations (2018)* replaces the *Threat Abatement Plan 2006 for the incidental catch (or bycatch) of seabirds during oceanic longline fishing operations* (Department of the Environment and Heritage 2006) that was varied by the *Threat Abatement Plan 2014 for the incidental catch (or bycatch) of seabirds during longline fishing operations* (Department of the Environment 2014). It has been developed by the Department of the Environment and Energy to continue to implement existing, as well as new actions needed to abate the listed key threatening process of incidental catch (or bycatch) of seabirds during oceanic longline fishing operations in a feasible, effective and efficient way. The plan binds the Commonwealth and its agencies in responding to the impact of longline fishing activities on seabirds, and identifies the research, management and other actions needed to reduce the impacts of this key threatening process on affected seabird species. The plan will be reviewed within five years.

Threat abatement plans

Under s 270A of the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) the Commonwealth Government develops threat abatement plans; implements the actions under these plans that are its direct responsibility; and facilitates the implementation of actions where other groups share the implementation responsibilities (e.g. fishers, states and territories). Part 13 of the EPBC Act describes the process, content and consultation required when making or varying a threat abatement plan. The legislation requires the Government to implement the plans to the extent to which they apply in areas under Commonwealth control and responsibility. In addition, government agencies must not take any actions that contravene a threat abatement plan. Where a plan applies outside Commonwealth areas in states or territories, the Commonwealth must seek the cooperation of the affected jurisdiction, with a view to jointly implementing the threat abatement plan.

Background

Oceanic longline fishing is a method used to target pelagic and demersal fish species. This method involves setting one or more single mainlines containing many individual hooks on branch lines. The mainline can either be anchored or drifting. It can be oriented vertically or horizontally in the water column, and can vary considerably in length and number of hooks. Longline fishing includes using any configuration of a pelagic or drifting longline, demersal longline, trotline, or dropline (AAD 2005). Longline fishing occurs in almost all Australian waters today. The adverse impact of longline fishing activities on seabirds was not fully realised until the 1980s when seabird bycatch was first reported and then documented (e.g. Brothers 1991; Morant et al, 1983; Tomkins 1985; Weimerskirch & Jouventin 1987).

The incidental catch (or bycatch) of seabirds during oceanic longline fishing operations was listed by the then Minister as a key threatening process on 24 July 1995. Under Commonwealth legislation, now the EPBC Act, an initial threat abatement plan was prepared and approved by the then Minister in 1998. Following review after five years a second plan was approved by the then Minister in 2006. A review of that plan was undertaken in 2011 with a variation released in 2014. This *Threat Abatement Plan for the incidental catch (or bycatch) of seabirds during oceanic longline fishing operations (2018)* replaces the plan made in 2006 (as varied).

This threat abatement plan meets the requirements of the EPBC Act and coordinates national action to alleviate the impact of longline fishing activities on seabirds in Australian waters. Its content reflects changes and improvements which have occurred during the life of the previous plan and highlights the expectation of best and improving practice in all longline fisheries in achieving the ultimate goal and interim objective of this plan. It applies to all longline fisheries under Commonwealth jurisdiction.

Historically, seven longline fisheries operating in the Australian Fishing Zone have been identified as having significant and potential seabird bycatch problems: Antarctic Fishery, Coral Sea Fishery, Eastern Tuna and Billfish Fishery, Heard Island and McDonald Islands Fishery, Macquarie Island Toothfish Fishery, Southern and Eastern Scalefish and Shark Fishery (scalefish hook, shark hook and automatic longline sectors), and Western Tuna and Billfish Fishery (AAD 2005). These fisheries are managed by the Australian Fisheries Management Authority (AFMA). Over the life of the previous threat abatement plans, substantial progress has been achieved towards reducing the key threatening process in each fishery. The incidental bycatch rates in several fisheries are now generally well below 0.01 or 0.05 birds per 1000 hooks in each fishing season and fishing area, the maximum permissible levels set as a performance indicator under the previous plan. The prescriptions in this plan recognise this success and seek to further reduce the incidental capture of seabirds.

Information on the level and nature of interactions between seabirds and fishing gear has increased significantly since 1995, and there is now extensive information available upon which to base decision-making. Considerable research and development activities have been undertaken into seabird bycatch mitigation measures including at-sea trials. This work could not have been achieved without the continued engagement and support of industry.

The prescriptions in this threat abatement plan also draw on best and improving practices in seabird bycatch mitigation for longline fishing developed under the *Agreement on the Conservation of Albatrosses and Petrels* (ACAP) (ACAP 2016a; 2016b). This international agreement, to which Australia is a Party, aims to achieve and maintain a favourable conservation status for albatrosses and petrels. ACAP has been developed under the auspices of another international agreement, the *Convention on the Conservation of Migratory Species of Wild Animals* (CMS).

There is now increased confidence concerning the effectiveness of several mitigation measures, particularly line weighting strategies, use of bird-scaring lines, retention of offal during line setting and hauling, night setting (in certain instances), spatial and temporal closures, and use of hook-shielding devices (ACAP 2016a; 2016b). These mitigation measures form the basis of the prescriptions set out in this threat abatement plan.

This threat abatement plan is closely linked to other plans and policies concerning seabird species, particularly the *Threat Abatement Plan for the impacts of marine debris on vertebrate marine life* (Department of the Environment and Energy 2017); Australia's *National Plan of Action for minimising the incidental catch of seabirds in Australian capture fisheries* (DAWR 2017b) that has been prepared to meet Australia's commitment to the *International Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries* (FAO 1999) and associated technical guidelines (FAO 2009); and the *Commonwealth Fisheries Bycatch Policy* (DAWR 2017a) that is near finalisation. This threat abatement plan relies on recovery plans to collect specific data on population trends of those threatened seabird species found breeding in Australia. Of particular relevance is the *National recovery plan for threatened albatrosses and giant petrels* (DSWEPC 2011), which updates the first recovery plan for albatrosses and giant petrels that was released in 2001. The recovery plan sets out a coordinated conservation strategy for albatrosses and giant petrels listed as threatened under the EPBC Act. It considers threats to albatrosses and giant petrels both at terrestrial breeding sites and at sea in their foraging habitat.

This threat abatement plan represents an important component of Australia's domestic contribution to the global conservation of seabirds by managing the threat of incidental catch (or bycatch) of seabirds during longline fishing operations. However, conservation of migratory seabird species relies on more than Australian action. Mitigation strategies, such as those outlined in this plan, should also be applied during oceanic longline fishing operations in international waters and waters under the jurisdiction of other nations, particularly those in the southern hemisphere. Australia is actively pursuing such action through, among other things, those regional fisheries management organisations to which it is a Party, the Commission for the Conservation of Antarctic Marine Living Resources, ACAP and CMS.

The following sets out the threat abatement plan for the listed key threatening process of *incidental catch (or bycatch) of seabirds during oceanic longline fishing operations*.

Objective

Threat abatement plans must state the objective to be achieved (EPBC Act s 271(2)(a)). The ultimate aim of this threat abatement plan is to achieve a zero bycatch of seabirds, especially threatened albatross and petrel species, in all longline fisheries. However, using currently available mitigation methods, this aim may not be realistic in the short-term, although it is expected that improved and emerging mitigation measures will mean near-zero bycatch is feasible within the life of this plan. Therefore, the objective of this threat abatement plan is to seek to further reduce the seabird bycatch and bycatch rate during oceanic longline fishing operations in the Australian Fishing Zone.

As many seabird species have large distributional ranges, actions by Australia alone are unlikely to be sufficient to prevent any decline in some populations. Accordingly, Commonwealth Government agencies will pursue, in addition to domestic actions under this threat abatement plan, the global adoption of bycatch and other threat mitigation strategies through international conservation and fisheries management forums.

The objective of this threat abatement plan is to be achieved through six key actions:

1. **Mitigation** – effective measures will continue to be applied, both through legislative frameworks and fishing practices, to avoid seabird bycatch or minimise seabird bycatch and bycatch rates, recognising the importance of other factors such as safety, practicality and the characteristics of the fishery.
2. **Education** – results from data analysis will continue to be communicated throughout the community, stakeholder groups and international forums, and programs will continue or be established to provide information and education to longline operators.
3. **International initiatives** – advocacy in international conservation and fisheries management forums in support of global adoption of seabird bycatch mitigation measures across the range of affected seabird species including trigger and other limits, and effective bycatch and other threat mitigation methods that are complementary with those outlined in this threat abatement plan.
4. **Research and Development and Uptake** – continued support of research into developing and reviewing the efficiency, effectiveness and uptake of new and improved mitigation measures.
5. **Innovation** – innovation in ‘bird friendly’ fishing measures and devices will continue to be encouraged.
6. **Data collection and analysis** – data will be collected and analysed to assess the performance of this threat abatement plan including mitigation measures and to improve knowledge of seabird-longline interactions and the conservation status of seabirds.

Actions to achieve the objective

Threat abatement plans must specify actions needed to achieve the objective(s) (EPBC Act s 271(2)(c)). This threat abatement plan requires that government agencies identified below implement the following actions. The EPBC Act also requires that all government agencies act in a manner that is consistent with and does not undermine the provisions of this plan.

Mitigation actions

1. AFMA will require all pelagic longline tuna fishers operating within either the Eastern Tuna and Billfish Fishery or the Western Tuna and Billfish Fishery, or both fisheries, southwards of the parallel of 25 degrees South to:
 - a. employ a line-weighting strategy approved by AFMA that enables the bait to be rapidly taken below the reach of most seabirds;
 - b. employ either of the following:
 - i. at least one bird-scaring line constructed to a specified standard approved by AFMA, or use another proven mitigation measure approved by AFMA for use without such a line; or
 - ii. only set longlines at night;
 - c. not discharge offal during line setting; and
 - d. employ, as part of an adaptive management approach to seabird bycatch mitigation, such other mitigation measures as AFMA may stipulate following consultation with the Department of the Environment and Energy

(including, but not limited to, use of bird scaring lines, bird exclusion devices and/or managing offal discharge during line hauling, night setting, and area closures).
2. AFMA will continue to require domestic and foreign vessels in all longline fisheries operating within Australian jurisdiction to adopt proven mitigation measures that ensure the performance criteria for each fishery are achieved in all areas and seasons. The relevant requirements for each fishery are summarised in Table 1 below.

Table 1 Summary of seabird bycatch mitigation measures in longline fisheries (the following provides information about seabird bycatch mitigation measures for longline fisheries affected by this threat abatement plan, as at 1 February 2018).

Mitigation	Antarctic Fishery	Coral Sea Fishery		Eastern Tuna and Billfish	Heard Island and McDonald Islands Fishery
		Autolongline	Other line		
Bird scaring line (tori line)	√	√		√ (or night setting)	√ (2 tori lines)
Line weighting	√			√ (or hook-shields)	√
Night setting	√ (if limit exceeded)			√ (or tori line)	Undertaken
Offal management	√	√	√	√ (setting only)	√
Bird exclusion devices	Encouraged				√
Hook-shields				√ (or line weighting)	
Deck lighting	√				√
Observers	√	√ (upon request)	√ (upon request)	√ (upon request)	√
Electronic monitoring				√	
Season closures*	√				√
Area closures*	√			√	√
Performance criteria	√	√	√	√	√
Absolute number limits	√				√

* Where closure of an area or season is for seabird conservation purposes, as opposed to fishery management purposes.

Mitigation	Macquarie Island Toothfish Fishery	Southern and Eastern Scalefish and Shark Fishery		Western Tuna and Billfish Fishery
		Autolongline	Set demersal longline**	
Bird scaring line (tori line)	√ (2 tori lines)	√		√ (or night setting)
Line weighting	√	√		√ (or hook-shields)
Night setting	√	√ (if criterion exceeded)		√ (or tori line)
Offal management	√	√	√	√ (setting only)
Bird exclusion devices	√	√		
Hook-shields				√ (or line weighting)
Deck lighting	√			
Observers	√	√ (upon request)	√ (upon request)	√ (upon request)
Electronic monitoring		√	√	√
Season closures*	√			
Area closures*	√			
Performance criteria	√	√	√	√
Absolute number limits	√			

* Where closure of an area or season is for seabird conservation purposes, as opposed to fishery management purposes.

** Scalefish hook, and shark hook sectors.

3. AFMA will implement an appropriate management response in a longline fishery (described in Table 2 below) if the circumstances described in the table below occur, or data analysis indicates that the performance criteria, defined in this threat abatement plan, have not been met in any fishing area, season or fishery, or that independent monitoring has dropped below acceptable levels. Consistent with an adaptive management approach, the management response will be implemented as soon as practical, but no later than within three months of identification of a problem.

Table 2. Management responses in longline fisheries to bycatch incidents, when performance criteria are exceeded, and when independent monitoring does not meet coverage levels

Problem	Management response
<p>1. Bycatch incidents where more than one seabird is observed caught on a single trip by an individual longline fishing vessel</p>	<p>AFMA will investigate and determine if the cause was as a result of inadequate or non-compliant implementation of mitigation measures and/or a lack of effectiveness of mitigation measures.</p> <p>In the event of non-compliance, AFMA will take appropriate corrective action, including monitoring of future compliance.</p> <p>Any information of possible ineffectiveness of mitigation measures will be reviewed in consultation with the Department of the Environment and Energy and agreement reached on what corrective and monitoring actions, if any, are required.</p>
<p>2. Criterion for a longline fishery exceeded in a fishing area or fishery during one season</p>	<p>AFMA will:</p> <ol style="list-style-type: none"> a. review the mitigation measures currently deployed in the fishing area or fishery and the relevant circumstances — environmental conditions and fishing practices including compliance — this review will include examination of all relevant seabird interaction data, independent monitoring reports and other information; b. assess, in consultation with the Department of the Environment and Energy, whether it is feasible and desirable to further improve existing mitigation measures; and c. if identified, implement improved mitigation measures designed to enable the criterion to be achieved in future.
<p>3. Criterion for a longline fishery exceeded in a fishing area or fishery in the next corresponding season</p>	<p>AFMA will implement additional mitigation measures, if identified, for individual vessels that have exceeded the criterion. AFMA must consider suspension from fishing using longline fishing methods until AFMA and the Department of the Environment and Energy are satisfied with mitigation measures implemented on affected vessels.</p> <p>AFMA may also close the fishing area or fishery to fishing using longline fishing methods until AFMA and the Department of the Environment and Energy are satisfied that mitigation measures are available for deployment to enable the criterion to be achieved.</p>

Problem	Management response
4. Independent monitoring of a fishing area, fishery and/or season does not meet coverage levels in the criteria	AFMA will take such actions as are necessary to promptly increase independent monitoring levels to meet specified levels.

4. AFMA will consider the different demersal longline sectors in the Southern and Eastern Scalefish and Shark Fishery (scalefish hook, shark hook and scalefish automatic longline) when applying a management response.
5. AFMA will take into account the conservation status of seabirds caught during longline fishing operations in determining whether a more rigorous management response is required, in addition to that required in Table 2 (see above).
6. AFMA and the Department of the Environment and Energy will report annually to the stakeholder group on progress towards achieving the objective of this threat abatement plan, implementation of actions under the plan, and changes to the conservation status of threatened seabird species.
7. AFMA will implement extension and training programs for longline fishers, where appropriate.
8. AFMA will implement a risk based compliance strategy to ensure that all requirements of this threat abatement plan relevant to the mitigation of seabird bycatch are complied with. AFMA will provide to the stakeholder group annual summary compliance reports. These reports will include an assessment of the effectiveness of implementation of all mitigation measures, and will describe any incidents of non-reporting of interactions or mortalities in Australia's domestic and high seas oceanic longline fisheries.
9. AFMA and the Department of Agriculture and Water Resources will communicate the results of implementing this threat abatement plan, and will promote seabird bycatch mitigation and the need to use effective mitigation measures to foreign fishers through international fisheries forums. This advocacy will focus on ensuring that seabird bycatch mitigation measures across the range of affected seabird species are complementary with those outlined in this threat abatement plan. The Department of Agriculture and Water Resources will report annually to the stakeholder group on progress made on this action.
10. The Department of the Environment and Energy will communicate the results of implementing this threat abatement plan. It will promote seabird bycatch mitigation and the need to use effective mitigation measures in relevant international conservation forums, including ACAP and CMS. This advocacy will focus on ensuring that seabird bycatch mitigation measures across the range of affected seabird species are complementary with those outlined in this threat abatement plan. The Department of the Environment and Energy will report annually to the stakeholder group on progress made on this action.

Research and development, and innovation

11. AFMA, the Department of Agriculture and Water Resources and the Department of the Environment and Energy will promote and support research and development of new and existing mitigation measures, including by facilitating access to and awareness among stakeholders of fisheries research funding programs, particularly those conducting research and development on measures to mitigate seabird bycatch mortalities.
12. AFMA will support trials of seabird bycatch mitigation measures and devices under operational conditions by granting individual scientific permits to operators. The Department of the Environment and Energy will provide advice to help in ensuring the experimental design of trials is scientifically robust. Measures will be tested for a sufficient amount of fishing effort and in a manner that takes proper account of differences across seasons and between boats, and gives confidence in the results. Once a new seabird bycatch mitigation measure or device has been demonstrated to consistently and effectively meet the threat abatement plan criteria, it may be included in the management arrangements for fisheries.
13. AFMA will encourage innovation in the research, development, adoption and review of effective seabird bycatch mitigation measures and devices including international research.

Other actions

Data collection and analysis

14. AFMA will collect data on the bycatch of seabirds, and effectiveness of mitigation measures. In addition to collecting these data from fishing operator logbook reports AFMA will independently monitor fishing activities through the use of AFMA scientific observers or other independent observers approved by AFMA and/or electronic monitoring systems approved by AFMA. Independent monitoring occurs for a range of fishery management purposes including monitoring seabird bycatch. For the purposes of this threat abatement plan the level of independent monitoring shall be commensurate with the nature and level of seabird bycatch in each fishing area, season and fishery, and will comply with the requirements set out below.
15. The minimum level of on-board observer coverage by AFMA scientific observers or other independent observers is set out in Table 3 below.

Table 3. Minimum on board observer coverage levels for longline fisheries

Fishery	Minimum level of on board observer coverage
Antarctic Fishery	20% of all hooks set, and 40% of all hooks hauled
Coral Sea Fishery	10% of all hooks set and hauled
Eastern Tuna and Billfish Fishery	5% of all hooks set and hauled in each fishing area
Heard Island and McDonald Islands Fishery	20% of all hooks set, and 40% of all hooks hauled
Macquarie Island Toothfish Fishery	20% of all hooks set, and 40% of all hooks hauled
Southern and Eastern Scalefish and Shark Fishery: scalefish hook, shark hook and scalefish automatic longline sectors	10% of all hooks set and hauled in each of the demersal longline sectors
Western Tuna and Billfish Fishery	5% of all hooks set and hauled in each fishing area
All other longline fisheries (including new and developing fisheries)	10% of all hooks set and hauled

16. Video footage collected as part of independent monitoring using an electronic monitoring system will be subject to independent auditing. AFMA will ensure auditing results in accurate reporting by fishing operators of hooks set, seabird interactions and the effectiveness of mitigation measures.

17. AFMA will continue to require that all seabirds killed on longlines deployed by Commonwealth fishing vessels in the Australian Fishing Zone are:
- a. if feasible, brought aboard the vessel;
 - b. reported to AFMA;
 - c. reported to the Australian Bird and Bat Banding Scheme, if banded;
 - d. if feasible, collected whole or tissue sampled for analysis, and stored on board the vessel in a manner that limits decay, while meeting any vessel food safety requirements established by the Department of Agriculture and Water Resources; and
 - e. if feasible, either transported, as a whole seabird specimen or tissue sample, to a storage and analysis facility nominated by the Department of the Environment and Energy, or undergo other analysis, as required by the Department with these costs met by the Department.

The Department of the Environment and Energy will analyse collected seabird specimens or tissue samples to determine, as appropriate, species, subspecies, provenance (where possible), age, sex and breeding status and other relevant circumstances of the bycatch incident.

18. AFMA and the Department of the Environment and Energy will analyse and review seabird-fisheries interactions data to assess seabird bycatch levels by fishing area, season, fishery and fishing method to monitor compliance with the criteria. These analyses will be prepared annually and take into account possible biases in independent monitoring. The analyses will be provided to the stakeholder group and will show, for each fishing area, season and fishery, the observed and overall bycatch rates, together with the species composition of any seabird bycatch, if available.
19. AFMA will ensure that information collection procedures in longline fisheries enable accurate records about the following to be collected by fishing operators and reported through the logbook system, and collected and reported through independent monitoring:
- a. number of seabirds caught;
 - b. species of seabirds caught;
 - c. life status of seabirds caught;
 - d. type of bait used;
 - e. fishing gear and mitigation measures used and stage of operation when the seabird bycatch occurred;
 - f. time of day/night of line setting and haul;
 - g. date and location of the catch; and
 - h. external factors (such as weather conditions and moon phase) that may influence seabird bycatch.

20. AFMA will use independent monitoring to validate seabird bycatch data collected by fishing operators and reported through the logbook system, and to identify potential benefits and/or deficiencies in existing programs, and will disseminate any findings among domestic longline fishers, and in relevant international forums, as appropriate.
21. AFMA, the Department of Agriculture and Water Resources and the Department of the Environment and Energy, together with representatives of key stakeholders and relevant experts, will collaborate to consider the impact of actions under this threat abatement plan on other marine species.

Criteria to measure performance of threat abatement plan

Threat abatement plans must state criteria against which achievement of the objective(s) is to be measured (EPBC Act s 271(2)(b)). This threat abatement plan requires that seabird bycatch in all fishing areas, seasons and fisheries is less than the bycatch rates set out in Table 4 below.

Table 4. *Bycatch rate performance criteria in longline fisheries*

Fishery	Bycatch rate
Antarctic Fishery	0.01 birds per 1000 hooks
Coral Sea Fishery	0.01 birds per 1000 hooks
Eastern Tuna and Billfish Fishery	0.05 birds per 1000 hooks in each fishing area
Heard Island and McDonald Islands Fishery	0.01 birds per 1000 hooks
Macquarie Island Toothfish Fishery	0.01 birds per 1000 hooks
Southern and Eastern Scalefish and Shark Fishery: scalefish hook, shark hook and scalefish automatic longline sectors	0.01 birds per 1000 hooks in each of the demersal longline sectors
Western Tuna and Billfish Fishery	0.05 birds per 1000 hooks in each fishing area
All other longline fisheries (including new and developing fisheries)	0.01 birds per 1000 hooks

Seabird bycatch occurs where a seabird is observed caught during longline fishing (see also the definition of *interaction*). This is the number of seabirds reported caught: (a) by an AFMA scientific observer or other independent observer approved by AFMA on board the fishing vessel, and/or (b) by the fishing operator in the logbook records in compliance with arrangements for the fishery where longline fishing is subject to independent monitoring using an electronic monitoring system approved by AFMA.

AFMA will monitor performance against these criteria at a fishery level and/or for individual vessels. AFMA may, as appropriate, hold individual vessels responsible for meeting the criteria and apply a management response to vessels that breach the criteria.

These criteria have been set on the basis of annual fishing levels at the time this threat abatement plan was approved. Trends in fishing effort will be reviewed annually and, if fishing levels increase or decrease significantly (by more than 20 per cent), AFMA and the Department of the Environment and Energy may review the maximum permissible bycatch rates identified above, taking into account spatial and temporal trends, and the vulnerability of seabird species encountered. AFMA, the Department of Agriculture and Water Resources and the Department of the Environment and Energy, may arrange more sophisticated analyses in any instances where bycatch rates are close to the maximum permissible levels and are uncertain.

Duration and cost of threat abatement process

Threat abatement plans may identify the duration and cost of the threat abatement process (EPBC Act s 271(4)(a)). This threat abatement plan will be reviewed within five years of its coming into force. The cost of this plan will be covered under the core business expenditure of the affected agencies. There are costs to industry in meeting the requirements set out in this plan. The overall costs should be similar to those incurred in implementing the previous plan, and are not expected to significantly increase, and may decrease in some instances as a result of this plan. These costs are an unavoidable consequence of the need to abate the incidental catch (or bycatch) of seabirds during oceanic longline fishing operations in a feasible, effective and efficient manner.

Organisations and persons involved in evaluating the performance of threat abatement plan

Threat abatement plans may identify the organisations and persons involved in evaluating performance of the plan (EPBC Act s 271(4)(b)). The Department of the Environment and Energy will evaluate performance of this threat abatement plan in consultation with key stakeholders and relevant seabird experts. It will report the results of the review to the Minister for the Environment, through the Threatened Species Scientific Committee.

Major ecological matters that may be affected by threat abatement plan

Threat abatement plans may specify any major ecological matters that will be affected by the plan (EPBC Act s 271(4)(c)). This threat abatement plan is unlikely to affect other ecological matters, but all actions undertaken will take into account any impacts on the conservation status of non-seabird species including threatened sharks, marine mammals and marine reptiles.

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Annex A: Summary of the seabird species affected by longline fishing in the Australian Fishing Zone

The following reflects current information on the taxonomy and conservation status of each seabird species, including information from the IUCN Red List of Threatened Species Version 2017-3 (IUCN, 2018) and ACAP. A distinction is drawn between species that breed and forage in areas under Australian jurisdiction (Table 5 below) and species foraging, but not breeding in areas under Australian jurisdiction (Table 6 below). The likely incidence in longline bycatch is assessed in the absence of seabird mitigation measures.

Table 5. Species breeding and foraging in Australian jurisdiction that are affected by longline fishing

Species name	International conservation status	EPBC Act listing	Likely incidence in longline bycatch	Jurisdiction and location of breeding areas
Wandering albatross <i>Diomedea exulans</i>	Vulnerable	Vulnerable	Moderate	Australia: Heard Island, Macquarie Island France: Iles Crozet, Iles Kerguelen South Africa: Prince Edward Islands United Kingdom/Argentina: South Georgia (Islas Georgias del Sur)
Black-browed albatross <i>Thalassarche melanophris</i>	Least Concern	Vulnerable	High	Australia: Heard Island and McDonald Islands, Macquarie Island Chile: island groups of Diego de Almagro, Diego Ramirez, Evangelistas, and Ildefonso; islets in the Magallanes region, and Tierra del Fuego France: Iles Crozet, Iles Kerguelen New Zealand: Antipodes Island, Campbell Island United Kingdom/Argentina: Falklands Islands (Islas Malvinas), South Georgia (Islas Georgias del Sur)
Shy albatross <i>Thalassarche cauta</i>	Near Threatened	Vulnerable	Moderate	Australia: Tasmanian islands of Albatross, Mewstone, and Pedra Branca
Grey-headed albatross <i>Thalassarche chrysostoma</i>	Endangered	Endangered	Moderate	Australia: Macquarie Island Chile: island groups of Diego Ramirez, and Ildefonso France: Iles Crozet, Iles Kerguelen

Species name	International conservation status	EPBC Act listing	Likely incidence in longline bycatch	Jurisdiction and location of breeding areas
				<p>South Africa: Prince Edward Islands</p> <p>New Zealand: Campbell Island</p> <p>United Kingdom/Argentina: South Georgia (Islas Georgias del Sur)</p>
<p>Light-mantled albatross</p> <p><i>Phoebastria palpebrata</i></p>	Near Threatened	Not listed	Low	<p>Australia: Heard Island, Macquarie Island</p> <p>France: Iles Crozet, Iles Kerguelen</p> <p>New Zealand: Antipodes Island, Auckland Islands, Campbell Island</p> <p>South Africa: Prince Edward Islands</p> <p>United Kingdom/Argentina: South Georgia (Islas Georgias del Sur)</p>
<p>Northern Giant Petrel</p> <p><i>Macronectes halli</i></p>	Least concern	Vulnerable	Low	<p>Australia: Macquarie Island</p> <p>France: Iles Crozet, Iles Kerguelen</p> <p>New Zealand: Antipodes Island, Auckland Islands, Campbell Island, Chatham Island</p> <p>South Africa: Prince Edward Islands</p> <p>United Kingdom/Argentina: South Georgia (Islas Georgias del Sur)</p>
<p>Southern Giant Petrel</p> <p><i>Macronectes giganteus</i></p>	Least concern	Endangered	Low	<p>Antarctica: Australian Antarctic Territory (Frazier, Hawker and Giganteus Islands), Antarctic Peninsula, South Orkney Islands, South Shetland Islands, Terre Adélie</p> <p>Argentina: Isla Arce, Isla de los Estados, Isla Gran Robredo, Isla Observatorio</p> <p>Australia: Heard Island and McDonald Islands, Macquarie Island</p> <p>Chile: Isla Noir, Islas Diego Ramirez</p> <p>France: Iles Crozet, Iles Kerguelen</p> <p>Norway: Bouvet Island</p> <p>South Africa: Prince Edward Islands</p> <p>United Kingdom/Argentina: Falklands Islands (Islas Malvinas), South Georgia (Islas Georgias del Sur), South Sandwich Islands (Islas Sandwich del Sur)</p> <p>United Kingdom: Gough Island</p>

Species name	International conservation status	EPBC Act listing	Likely incidence in longline bycatch	Jurisdiction and location of breeding areas
Great-winged Petrel <i>Pterodroma macroptera</i>	Least Concern	Not listed	Moderate	Australia: southern and southwestern Australia France: Iles Crozet, Iles Kerguelen New Zealand: North Island South Africa: Prince Edward Island United Kingdom: Tristan da Cunha Group
Grey Petrel <i>Procellaria cinerea</i>	Near Threatened	Not listed	Moderate	Australia: Macquarie Island France: Iles Amsterdam, Iles Crozet, Iles Kerguelen New Zealand: Antipodes Islands, Campbell Islands South Africa: Prince Edward Islands United Kingdom: Tristan da Cunha Group
Wedge-tailed shearwater <i>Ardenna pacifica</i>	Least Concern	Not listed	Moderate	Australia: numerous island and coastal locations Other: extensive distribution
Flesh-footed shearwater <i>Ardenna carneipes</i>	Near Threatened	Not listed	High	Australia: southern Australia France: Ile St Paul New Zealand: North Island
Sooty shearwater <i>Ardenna griseus</i>	Near Threatened	Not listed	Low	Australia: southeastern Australia (including Macquarie Island) Chile: southern New Zealand: islands off New Zealand United Kingdom/Argentina: Falkland Islands (Islas Malvinas)
Short-tailed shearwater <i>Ardenna tenuirostris</i>	Least Concern	Not listed	Low	Australia: southern Australia
Southern skua <i>Catharacta antarcticus</i>	Least Concern	Not listed	Low	Australia: Heard Island and McDonald Islands, Macquarie Island Other: extensive distribution across sub-Antarctic

Table 6. Species foraging in Australian jurisdiction that are affected by longline fishing

Species name	International conservation status	EPBC Act listing	Likely incidence in longline bycatch	Jurisdiction and location of breeding areas
Tristan albatross <i>Diomedea dabbenena</i>	Critically endangered	Endangered	Low	United Kingdom: Tristan da Cunha Group
Antipodean albatross <i>Diomedea antipodensis</i>	Endangered	Vulnerable	Low	New Zealand: Antipodes Island, Auckland Islands, Campbell Island
Northern royal albatross <i>Diomedea sanfordi</i>	Endangered	Endangered	Low	New Zealand: Chatham Islands (Big Sister Island, Little Sister Island, Forty-fours Island), South Island (Otago Peninsula, Taiaroa Head)
Southern royal albatross <i>Diomedea epomophora</i>	Vulnerable	Vulnerable	Low	New Zealand: Auckland Islands, Campbell Island, South Island (Taiaroa Head)
Amsterdam albatross <i>Diomedea amsterdamensis</i>	Critically Endangered	Endangered	Low	France: Iles Amsterdam
Campbell albatross <i>Thalassarche impavida</i>	Vulnerable	Vulnerable	High	New Zealand: Campbell Island
Buller's albatross <i>Thalassarche bulleri</i>	Near Threatened	Vulnerable	Low	New Zealand: Chatham Islands, Snares Islands, Solander Islands, Three Kings Islands
White-capped albatross <i>Thalassarche steadi</i>	Near Threatened	Vulnerable	Moderate	New Zealand: Antipodes Islands, Auckland Islands, Chatham Islands
Salvin's albatross <i>Thalassarche salvini</i>	Vulnerable	Vulnerable	Low	New Zealand: Bounty Islands, Snares Islands
Chatham albatross <i>Thalassarche eremita</i>	Vulnerable	Endangered	Low	New Zealand: Chatham Island

Species name	International conservation status	EPBC Act listing	Likely incidence in longline bycatch	Jurisdiction and location of breeding areas
Atlantic yellow-nosed albatross <i>Thalassarche chlororhynchos</i>	Endangered	Not listed	Low	United Kingdom: Tristan da Cunha Group
Indian yellow-nosed albatross <i>Thalassarche carteri</i>	Endangered	Vulnerable	Moderate	France: Iles Amsterdam, Iles Crozet, Iles Kerguelen, Iles St Paul South Africa: Prince Edward Islands
Sooty albatross <i>Phoebastria fusca</i>	Endangered	Vulnerable	Low	France: Iles Amsterdam, Iles Crozet, Iles Kerguelen, Iles St Paul South Africa: Marion Island, Prince Edward Island United Kingdom: Tristan da Cunha Group
White-chinned Petrel <i>Procellaria aequinoctialis</i>	Vulnerable	Not listed	Moderate	France: Iles Crozet, Iles Kerguelen New Zealand: Antipodes Islands, Auckland Islands, Campbell Islands South Africa: Prince Edward Island United Kingdom/Argentina: Falklands Islands (Islas Malvinas), South Georgia (Islas Georgias del Sur)
Westland Petrel <i>Procellaria westlandica</i>	Endangered	Not listed	Low	New Zealand: South Island (Punakaiki)
Black Petrel <i>Procellaria parkinsoni</i>	Vulnerable	Not listed	Low	New Zealand: Great Barrier Island, Little Barrier Island

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