



Australian Government
Australian Fisheries Management Authority

Seabird Bycatch Operational Guidelines for Commonwealth Fisheries

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1 Introduction

The Seabird Bycatch Operational Guidelines (the Operational Guidelines) provide an operating framework to support implementation of a number of government policies and legislation relating to the protection of seabirds during fishing operations. The Operational Guidelines have been developed to provide transparency to the fishing industry and the broader public on the role of AFMA in the mitigation of seabird interactions in Commonwealth fisheries. The Operational Guidelines specify actions to provide a consistent approach to minimising and avoiding seabird interactions while remaining flexible enough to tailor management responses for different gear types, spatial and temporal variations, and degree of risk as identified in the Ecological Risk Assessment (ERA) for the fishery. The requirements of the Operational Guidelines will be addressed in each fishery's Fishery Management Strategy (FMS).

The Operational Guidelines have been developed to apply Fisheries Management Paper 15 – AFMA Bycatch Strategy (the AFMA Bycatch Strategy - <http://www.afma.gov.au/wp-content/uploads/2017/07/Fishery-Management-Paper-Number-15-Final-AFMAs-bycatch-strategy-030717.pdf>), to pursue the principles and implement the actions set out in that document to meet the objectives of higher order policies and legislation.

1.1 AFMA's overarching bycatch management principles

These Operational Guidelines have been drafted to pursue the following five overarching principles documented in the AFMA Bycatch Strategy:

- Principle 1: Management responses are proportionate to the conservation status of bycatch species and Ecological Risk Assessment results
- Principle 2: Consistency with Government policy and legislative objectives (including to 'avoid' and 'minimise') and existing national protected species management strategies such as Threat Abatement Plans (TAP) and National Plans of Action.
- Principle 3: Incentives should encourage industry-led solutions to minimise bycatch of protected species utilising an individual accountability approach.
- Principle 4: Cumulative impact of Commonwealth fisheries on protected species is accounted for when making management decisions on mitigation.
- Principle 5: Appropriate, and where possible, consistent monitoring and reporting arrangements across fisheries.

1.2 Objectives

The Operational Guidelines have been designed to be consistent with the intent of the government's overarching Bycatch Policy in that they promote best practice approaches to avoid and minimise interactions with seabirds, consider ecological risks when implementing management arrangements and incentivise industry to continuously improve its interaction performance through the adoption of new technologies and practices. The

Operational Guidelines aim to provide a consistent approach to the management of interactions between seabirds and Commonwealth fisheries.

1.3 Current management of seabird interactions in Commonwealth Fisheries

Management of seabird interactions has predominantly occurred on a fishery by fishery basis in response to identified bycatch issues and with influence from EPBC Act requirements, Regional Fisheries Management Organisations and higher order documents such as the Threat Abatement Plan for the Incidental Catch (or Bycatch) of Seabirds During Oceanic Longline Fishing Operations (the TAP). Interactions with seabirds in Commonwealth fisheries has largely been managed by input controls, such as fishing and mitigation gear requirements, with some fisheries utilising both input and output controls. Output controls may include trigger limits or maximum interaction rates.

Input controls include physical mitigation devices added to the vessel and/or fishing gear as well as the adoption of best practice such as not discharging offal and cleaning fishing gear prior to deployment. Current mitigation across the different gear types include the use of tori lines, weighted lines, bafflers and pinkies. Output controls include the use of a rate based approach to interaction management.

Appendix A shows a summary of management measures which are currently in place for each fishery for the management of seabird interactions.

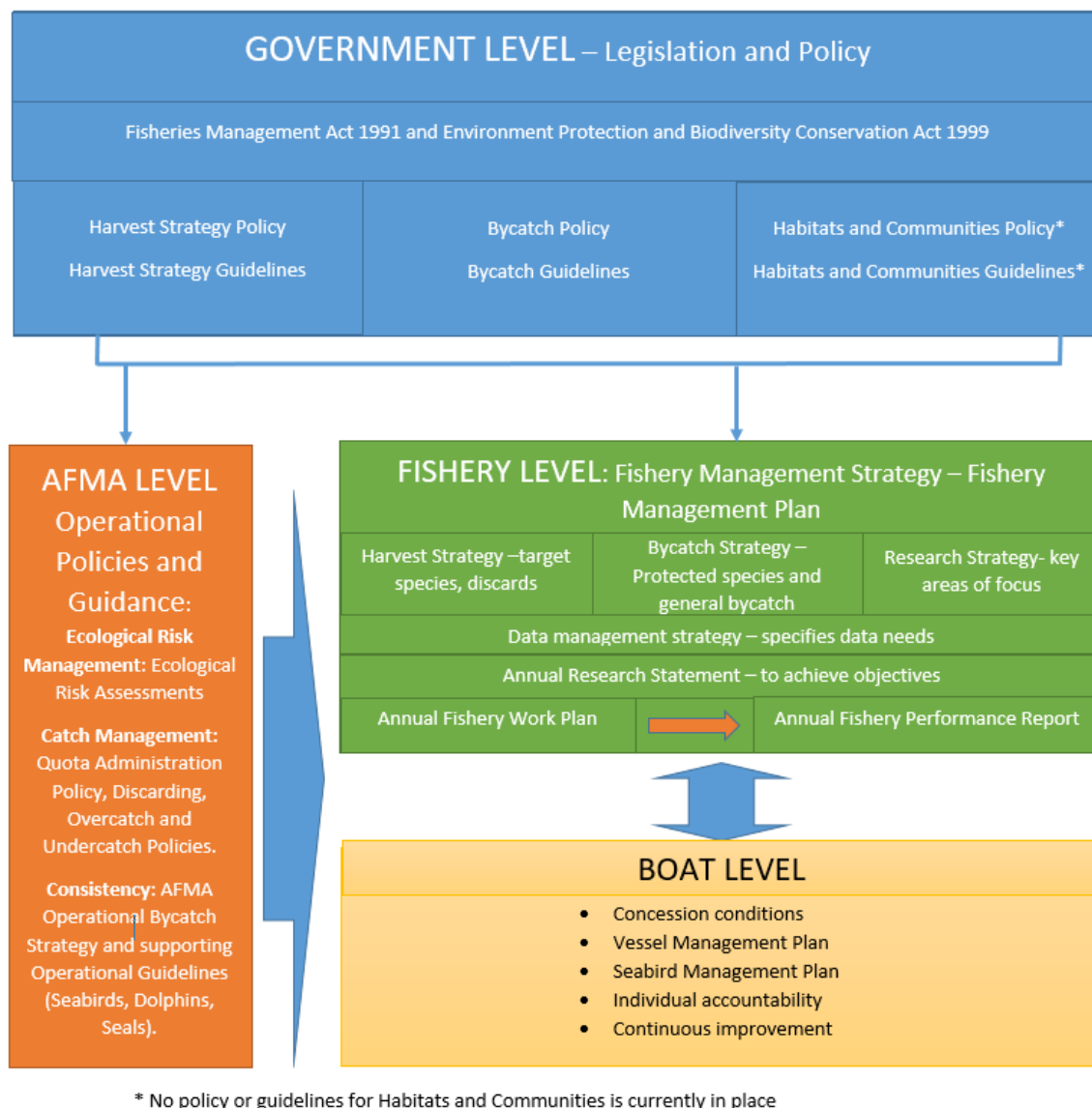


Figure 1. Legislation and policy flow chart.

Note that this document appears under “AFMA LEVEL: Operational Policies and Guidance: Consistency.”

2 The Seabird Bycatch Operational Guidelines

The Operational Guidelines consist of the following actions to meet the AFMA bycatch principles that each fishery will execute through its FMS. This will allow for easier reporting and comparison of results across all Commonwealth fisheries. The following requirements are listed in sequential order and adhered to as such.

2.1 Data collection and monitoring

AFMA will use available data, collected via logbooks, independent observer programs, and Electronic Monitoring, to determine the level of risk a fishery poses to seabirds. This will then inform the appropriate mitigation, management and monitoring requirements for each fishery. In determining risk, the total number of annual seabird interactions must be reliably estimated each year (including where possible an estimation of cryptic mortality), using a statistically robust approach agreed to and advised by the relevant fishery Resource

Assessment Group (RAG) or external third party. Where possible, seabird interactions should be estimated at a species level.

AFMA may pursue other avenues of data collection to estimate the total number of interactions which may include targeted and ongoing research projects, such as the Crew Member Observer (CMO) program and biological data observer collection programs that may collect seabird data as a secondary function (e.g. from the Integrated Scientific Monitoring Program)). AFMA may also assist operators in improving data quality through the provision of educational materials where data gaps are identified.

2.2 Mitigation actions, management responses and performance measures

2.2.1 High risk fisheries

For fisheries that use a fishing method that has a high likelihood of interaction with seabirds, or the Ecological Risk Assessment (ERA) for the fishery results in a 'high' risk rating for seabirds, then the following actions must be completed:

- Where seabird interactions are easily detectable, reported by crew and verified by monitoring:
 - AFMA approved mitigation measures which have been trialled and proven to be effective must be implemented under the relevant FMS.
 - AFMA will determine a bycatch trigger level or rate for seabird interactions at a vessel or fishery level.
 - AFMA will consider the conservation status of seabird species when determining a bycatch trigger level or rate. Any new species information will also be considered as it becomes available and applicable.
 - The determination of the trigger level or rate will be guided by meeting any relevant international or domestic reporting requirements (e.g. the seabird Threat Abatement Plan (TAP)).
 - Each vessel or fishery must demonstrate how it will aim to remain below this trigger level or rate being guided by the approved best practice mitigations in Appendix B.
 - AFMA will monitor a vessel's performance against the determined bycatch trigger level or rate. Where a vessel's seabird interactions exceed the determined bycatch trigger level or rate, AFMA will review the relevant circumstances and apply management responses using an individual accountability approach.
- Where seabird interactions may not be accurately reported by crew but monitoring could detect and support interaction verification:
 - AFMA approved mitigation measures which have been trialled and proven to be effective must be implemented under the relevant FMS
 - The implementation of mitigation measures by fishers must be monitored by AFMA using targeted surveillance or electronic monitoring.
 - All mitigation measures will be reviewed and assessed periodically by AFMA to verify effectiveness.

- AFMA will undertake ongoing monitoring of a vessel's compliance with all mitigation requirements.
- Where seabird interactions are cryptic or difficult to measure, i.e. interactions which are unable to be effectively detected or verified, AFMA's monitoring of the implementation of mitigation measures may be complemented with the use of AFMA initiated regular and targeted research and / or targeted surveillance.

2.2.2 Low risk fisheries

If a fishery is determined as being low risk for seabird interactions through its Ecological Risk Assessment (ERA) process, an appropriate statement summarising why the fishery is considered low risk should be provided by AFMA in the Fisheries Management Strategy (FMS) documentation for that fishery. The statement should be reviewed when the risk rating of a fishery changes through results of the ERA (every five years) or where evidence of seabird interactions emerges in the fishery.

2.2.3 New and exploratory fisheries

In the absence of historical data for new and exploratory fisheries, AFMA must consider the likelihood of seabird interactions for the fishery and use this as a basis for determining the initial risk of interactions to inform the data collection and monitoring requirements. AFMA should review this regularly or where evidence of seabird interactions emerges in the fishery.

2.3 Consultation

Consistent with the Bycatch Strategy, AFMA will pursue consultation options for seabird mitigation. Line fisheries are currently subject to a seabird TAP and the annual TAP stakeholder forum is the key consultative group for these fisheries. AFMA will consult with the relevant Management Advisory Committees and Resource Assessment Groups where they have identified seabird mitigation expertise. Similarly, consultation with international advocacy groups, private consultancies and individual seabird research scientists will be considered in the context of providing holistic advice to AFMA and fishers on best practice seabird mitigation.

Engagement with other governments with similar seabird bycatch issues will also be considered as part of broader consultation on seabird mitigation. There are various examples internationally of significant effort and innovation being led by government (e.g. NZ, South Africa and Chile) which may provide some opportunities for collaboration, shared research, and lessons learnt from developing seabird mitigations or strategies.

There is also a level of independent innovation being led within the fishing industry with respect to mitigating seabird interactions. Engagement with fishers who are proactively seeking to design and test mitigation measures will be supported by AFMA through advice, sea trialling and logistical support. Engaging with fishers is considered a key component toward improving seabird mitigation outcomes.

2.4 Improving environmental stewardship

AFMA continues to support industry by facilitating the development of seabird mitigation devices and conducting educational activities and advocacy work as well as assisting individual fishers to meet mandatory requirements for seabird protection. This is consistent with the individual accountability principle of the Bycatch Strategy.

In addition, recent industry – science – government collaborations on bycatch mitigation have proved to be a successful model for achieving results which place the ownership of bycatch issues back into the hands of industry to solve, while being logistically and materially supported by AFMA and seabird scientists.

AFMA also has a significant role in keeping industry engaged with information on developments of seabird bycatch mitigation from around the world, including their compliance with domestic and higher order international agreements, Regional Fisheries Management Organisation (RFMO) conservation measures and ACAP best practice advice. AFMA will continue to develop initiatives which incentivise innovation and environmental stewardship by fishers.

2.5 Understanding cumulative impacts

The AFMA Bycatch and Discard Program will review and report on the cumulative impact of all Commonwealth fisheries using the estimated number of interactions for the fishery. As identified in the AFMA Bycatch Strategy, the Program will report annually (in the form of an Annual Bycatch Statement) on the cumulative impact on seabird species from Commonwealth fisheries and will use this report to identify areas for improvement or change within either an individual fishery or across all Commonwealth fisheries.

2.6 Research

The AFMA Bycatch and Discard Program will pursue research priorities as identified by fishery Resource Assessment Groups (RAGs) to improve our understanding of either the nature of interactions between the commercial fishing industry and seabirds or the data required to set realistic and measurable bycatch triggers. This will be undertaken within the current scope of resources or through the AFMA Research Committee or Commonwealth Research Advisory Committee (ComRAC) processes.

3 Review and performance of the Operational Guidelines

AFMA will review the Operational Guidelines' performance against their objectives annually, while the Operational Guidelines will be reviewed every five years in association with the review of the AFMA Bycatch Strategy. Should higher order legislation and/or policies be amended or reviewed, the Operational Guidelines will be updated when required to reflect the applicable changes.

4 Background

Under Australian environmental legislation, all avian species, including seabirds are considered protected species. The term 'Seabirds' is generally used to describe any species of bird which spends a substantial part of its life foraging and breeding in the

marine environment. These species include albatrosses, petrels, gulls, shearwaters, boobies, gannets, cormorants, and terns. Seabirds occur widely around the world with many species occurring in the Southern Hemisphere. Of the world's twenty two albatross species, nineteen of these species occur in Australian waters with five of these breeding within Australian jurisdiction.

The distribution of seabirds in Commonwealth waters and the overlap of this distribution with sometimes multiple Commonwealth fisheries, means that it is likely for interactions to occur between the fishing industry and seabirds. This is especially true as seabirds are often attracted to fishing boats and feed on bait and offal discarded overboard during processing. Feeding from behind the boat puts the seabird in danger of being injured or killed by fishing gear like hooks, trawl nets and warp cables. On trawl vessels, their wings can become tangled on warp wires or in the net and can be dragged under water, possibly leading to drowning and on line boats, birds can be hooked when diving on baits. Unless the seabird comes up with the fishing gear, these interactions often go unseen and unrecorded by fishers. This is known as cryptic mortality and is an issue in some fisheries. Cryptic mortality must be considered in the context of designing mitigation devices and strategies to avoid and minimise interactions. The nature and extent of interactions between seabirds and the commercial fishing industry was historically poorly understood in some sectors but well understood in others. In recent years with the introduction of electronic monitoring, increased rates of observer coverage, better understanding of the fishing gear and operations and better reporting rates, the extent of these interactions across the different fisheries has become more evident and better understood.

4.1 Population information

Seabirds can vary greatly in their behaviour but generally can be categorised as species which are slower to breed and longer lived. Seabirds generally nest in colonies which can vary in size from a few dozen to millions and their migration and foraging distances vary considerably, even on an individual level, let alone a species level. Breeding cycles can vary between being annual breeders or biennial breeders and what age that breeding occurs can vary even within the same species group. For example, shy albatross are known to start reproducing at approximately 5-6 years of age, whereas black browed albatross have a median reproductive age of 10 years.

In Australia, the collection of population information of seabirds falls under the responsibility of the Department of the Environment and Energy (DoEE), which is informed by independent and also funded research. While our understanding of these animals is improving, there are many unknowns with regards to population information on a local level. This is important information which could help improve our understanding of whether different threats are affecting the survival and recovery of different species and to what degree.

4.2 Population risks

Seabirds are faced with various threats to their existence both historically and currently. The International Union for the Conservation of Nature (IUCN) ranked seabirds as the world's most threatened bird grouping (MPI 2013). Historically, seabirds were intentionally killed for their meat, eggs and feathers. In more recent times, seabirds globally face

threats to their long term viability from various sources including climate change, pollution and marine debris, competition and pests at breeding sites, and interactions with the commercial fishing industry. The management of these threats falls under the responsibility of various Departments at both State and Commonwealth level. AFMA is responsible for the management of interactions between commercial fishing vessels and seabirds in Commonwealth waters. AFMA is required to avoid and minimise these types of interactions from occurring where practicable.

4.3 Bycatch of seabirds in Commonwealth Fisheries

Commonwealth fisheries interact primarily with albatrosses, shearwaters, petrels and terns. Of the albatross species, shy-type albatross (shy and white-capped albatrosses) are most common, with lower levels of interaction recorded for Black-browed and yellow-nosed albatross.

With respect to shearwaters, Commonwealth fishers interact most frequently with flesh-footed shearwaters, followed by short tailed and wedge tailed shearwaters.

Commonwealth fisheries have a history of interactions with petrels, and in recent years the primary species of concern has been the white-chinned petrel. Infrequent interactions with white-faced storm petrels, great winged petrels, and Wilson's storm petrels have also been recorded. Crested terns and sooty terns have also been recorded as interacting with fishing gear.

Fishers in Commonwealth waters are required to take all reasonable steps to avoid killing or injuring listed species including seabirds. In the event of incidental catch of protected species, all operators are required to report the interaction in their logbook. However, this is done with varying degrees of reliability. Additionally, AFMA places on board observers onto vessels for the purposes of data collection including the reporting of protected species interactions. AFMA reports all reported interactions to the DoEE on a quarterly basis.

4.4 International commitments

There are many international commitments, encompassed in higher order policies, which focus on achieving a reduction in bycatch including seabird bycatch. Australia is currently a signatory to the following international agreements which relate to the conservation of seabirds:

4.4.1 Bonn Convention: Conservation of Migratory Species

In 1979, the Bonn Convention on the Conservation of Migratory Species of Wild Animals identified requirements for the international conservation and restoration of populations of threatened migratory species. Appendixes 1 and 2 of the Convention list species of whales, dolphins, turtles, seabirds and sharks that are considered threatened or requiring international cooperation for their conservation. In 2004, the Agreement on the Conservation of Albatrosses and Petrels (ACAP) was established under the Bonn Convention in order to provide guidance on implementing effective mitigations measures to reduce fisheries related mortality of seabirds.

4.4.2 Agreement on the Conservation of Albatrosses and Petrels

The Agreement on the Conservation of Albatrosses and Petrels is a multilateral agreement between thirteen member countries and covers thirty one species of albatrosses, petrels and shearwaters. The agreement seeks to conserve albatrosses and petrels by coordinating international activity to mitigate threats to the populations of these species.

4.4.3 Convention on International Trade in Endangered Species of Wild Fauna and Flora

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement that aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival. CITES, to which Australia is a signatory, was drafted as a result of a resolution adopted in 1963 at a meeting of members of The World Conservation Union. The final draft of the Convention was agreed to in 1973 and came into force in 1975.

Signatories to CITES join voluntarily but, once entered, the Convention is legally binding on all parties. CITES does not take the place of national laws but rather provides a guiding framework, which means that each party has to adopt its own domestic legislation ensuring that CITES is implemented at the national level.

4.4.4 Migratory Bird Agreements

Individual agreements are in place for the Protection of Migratory Birds in Danger of Extinction and their Environment between Australia and Japan, China and the Republic of Korea. Each of these agreements provides for the protection and conservation of migratory birds and their important habitats, protection from take or trade except under limited circumstances, the exchange of information, and building of cooperative relationships.

4.4.5 Food and Agriculture Organization of the United Nations

The Food and Agriculture Organization of the United Nations (FAO) aims to identify and work with different partners that have established expertise and assist communication of this knowledge to those who need it. As a result, regional, national and global initiatives evolve and reinforce a best practice approach. In support of the fisheries management obligations established by UNCLOS and UNFSA, the FAO developed guidelines for implementing responsible fisheries management practices. These guidelines along with the FAO Code of Conduct for Responsible Fisheries, which was introduced in 1995, includes measures to protect endangered species, reduce bycatch and protect ecosystems. The guidelines suggest fisheries management objectives should include a statement to the effect that biodiversity of aquatic habitats and ecosystems is conserved and endangered species are protected. In support of this objective, recommended management measures say that member states:

... should take appropriate measures to minimize waste, discards, catch by lost or abandoned gear, catch of non-target species, both fish and non-fish species, and negative impacts on associated or dependent species, in particular endangered species (FAO, 1995)

In 1999, the International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA – Seabirds) was developed by the FAO after noting an increased awareness of the incidental catch of seabirds, particularly in longline fisheries, in addition to the potential negative effects on seabird populations. The FAO also developed the IPOA - Seabirds to comply with the FAO Code of Conduct for Responsible Fisheries and encouraged all member countries to implement the plan of action.

The FAO requests in the IPOA – Seabirds that for States that conduct longline fishing to:

- assess the degree of seabird bycatch in their longline fisheries
- develop individual national plans of action to reduce seabird bycatch in longline fisheries that have a seabird bycatch problem
- develop a course of future research and action to reduce seabird bycatch.

In 2009, FAO member states agreed to include trawl and gillnet fisheries in the FAO guidelines for best practices to reduce incidental catch of seabirds in capture fisheries.

4.4.6 Regional fisheries management organisations and other organisations

While tools such as the FAO Codes of Conduct, related guidelines and international/national plans are used to guide countries, they are not legally binding unless the member state chooses to legislate the measure. However, many of the provisions relating to high seas fisheries have been implemented by RFMO's as a means of conservation and management measures. Australia is a signatory and active participant of multiple RFMO's and other organisations and therefore contributes to the implementation of such provisions. The following RFMO's have adopted various levels of mitigation and management measures, along with the IPOA – Seabirds, which aim to reduce seabird mortality:

- Western and Central Pacific Fisheries Commission
- Commission for the Conservation of Southern Bluefin Tuna
- Indian Ocean Tuna Commission
- Commission for the Conservation of Antarctic Marine Living Resources
- South Pacific Regional Fisheries Management Organisation

4.5 Domestic commitments regarding seabirds

Management of Australian Commonwealth Fisheries is principally governed by the *Fisheries Management Act 1991* (FM Act) and is subject to environmental assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Australia implements its international obligations with respect to management of seabird interactions through these Acts. The key agencies involved in managing interactions with seabirds in Commonwealth fisheries are AFMA, the Department of Agriculture and Water Resources (DAWR) and the DoEE.

Commonwealth fisheries legislation is designed to promote responsible fishing and conservation of marine living resources in addition to ensuring fisheries are managed in an efficient, sustainable and cost-effective manner. AFMA is responsible for managing fisheries under Commonwealth jurisdiction. AFMA was established under the *Fisheries Administration Act 1991* (FA Act), which along with the FM Act identifies AFMA's

objectives, functions and powers. The FM Act also sets out AFMA's responsibilities relating to the pursuit of ecologically sustainable development.

Under the FM Act, the *Fisheries Management Regulations 1992* were established as a means of implementing statutory rules of management for the fishing industry. Part 3, division 11 of the *Fisheries Management Regulations 1992* addresses regulations for impacts on the marine environment. Specifically, regulation 9ZS states that:

The concession holder must ensure that, as far as practicable, there is no interaction during a trip with an organism that is:

(a) part of a protected community; or

(b) a protected species.

In December 2005, under section 91 of the FA Act, AFMA was directed by the then Minister for Fisheries, Forestry and Conservation to cease overfishing, recover overfished stocks, avoid further species becoming overfished, and to manage the broader environmental impacts of fishing, including on protected species. With direct relevance to bycatch this included the need to minimise the level of interactions with threatened or otherwise protected species.

4.5.1 Seabird protection under the Environment Protection and Biodiversity Conservation Act 1999

Some species that fishers may catch as bycatch are afforded higher levels of protection under the EPBC Act. The term 'protected species' means all species listed under Part 13 of the EPBC Act, including whales and other cetaceans and listed threatened, marine and migratory species.

It is an offence under the EPBC Act to kill, injure, take, trade, keep or move a member of a Part 13 listed species (other than conservation dependent species) in a Commonwealth area unless the action is covered by a permit issued by the Minister for the Environment or is otherwise exempt. The EPBC Act also specifies that certain actions are not offences, including actions authorised by a permit, taken in accordance with a wildlife conservation plan made under the EPBC Act, covered by an approval in operation under Part 9 of the EPBC Act or undertaken in accordance with an accredited management plan or regime (such as fishery management plans or management). Fishers are obliged to report any interactions with protected species. It is an offence not to report interactions within seven days, unless other reporting arrangements are in place.

Protected species includes species considered threatened (i.e. at risk of extinction in the wild) and as a result are listed as vulnerable, endangered, critically endangered, extinct in the wild or extinct under the EPBC Act. Species listed under the international conventions and agreements to which Australia is a party, are also protected under the EPBC Act. This includes listed migratory species such as some sharks, birds and mammals. More specifically, listed marine species are outlined in section 248 (2) (k) of the EPBC Act including:

all species in the Class Aves (birds) that occur naturally in Commonwealth marine areas

The DoEE is also responsible for implementing recovery plans for threatened marine species listed under the EPBC Act. The Threatened Species Scientific Committee advises the Minister for the Environment on amendments to and updating of lists of threatened species, threatened ecological communities, and key threatening processes together with making or adopting recovery plans and Threat Abatement Plans (TAP). Under the EPBC Act, a Commonwealth agency must not take any action that contravenes a recovery plan or a TAP, and the Commonwealth must implement a recovery or TAP where it applies in Commonwealth areas.

The 'National recovery plan for threatened albatrosses and giant petrels 2011-2016' (the recovery plan) was released to address the need for a co-ordinated conservation strategy for albatrosses and giant petrels listed threatened under the EPBC Act. The recovery plan covers twenty-one species (19 albatross species and two giant petrel species). These have been categorised as:

- a. 'Breeding species' - species that breed on islands in areas under Australian jurisdiction (seven species).
- b. 'Foraging species' - species that forage (or potentially forage), but do not breed, within areas under Australian jurisdiction (14 species).

The species covered by the recovery plan and their conservation status under the EPBC Act are listed in Appendix C.

4.5.2 National Plan of Action for the incidental catch of seabirds in Australian fisheries

To implement Australia's commitment to the IPOA – Seabirds, the DAWR is developing the National Plan of Action for the incidental catch of seabirds in Australian fisheries (NPOA – Seabirds). It is anticipated that the NPOA – Seabirds will set out a nationally-coordinated approach to reduce the incidental catch of seabirds in all fisheries within Australia and complement existing measures such as the TAP and the recovery plan. The AFMA Seabird Bycatch Operational Guidelines will also operationalise the goals of the NPOA – Seabirds within Commonwealth fisheries.

References

ACAP and Birdlife. 2015. Bycatch mitigation fact sheets.

<http://www.acap.aq/en/resources/bycatch-mitigation/mitigation-fact-sheets>

Food and Agriculture Organization of the United Nations (FAO). 1995. Code of Conduct for Responsible Fisheries. Food and Agriculture Organization of the United Nations, Rome, 42 p.

Ministry for Primary Industries (MPI). 2013. National Plan of Action – to reduce the incidental catch of seabirds in New Zealand Fisheries. Ministry for Primary Industries, Wellington, New Zealand.

Appendix A – Summary of current and potential management measures for each fishery for the management of seabird interactions

| Mitigation Method | Tuna Long line ETBF / WTBF, SBT - LL | CTS and GAB trawl | Gillnet | Autoline | Small Pelagic Fishery | Antarctic long line (HIMI) | HIMI Trawl | Antarctic long line MITF | High Seas Trawl | Northern Prawn Trawl | SQUID | Scallop | Coral Sea | SBT Purse Seine | Trawl North West Slope | Purse Seine Skipjack | Western Deepwater Trawl | Norfolk Is |
|---------------------|--------------------------------------|----------------------|---------|----------|-----------------------|----------------------------|------------|--------------------------|-----------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|------------|
| Tori Line | ✓ | | | ✓ | ✓ | ✓ | | ✓ | | | | | | | | | | |
| Line weighting | ✓ | | ✓ | ✓ | | ✓ | | ✓ | | | | | | | | | | |
| Brickle Curtain | ? | | | ✓ | | ✓ | | ✓ | | | | | | | | | | |
| Baffles | | ✓ | | | ✓ | | | | ? | | | | | | | | | |
| Mesh Size / Colour | | | ✓ | | | | | | | | | | | | | | | |
| Warp maintenance | | ✓ | | | | | ✓ | ✓ | ✓ | | | | | | | | | |
| Pinkies | | ✓ | | | | | | | ✓ | | | | | | | | | |
| Acoustics | | | | | | | | | | ERA low risk - no mitigations in place | ERA low risk - no mitigations in place | ERA low risk - no mitigations in place | ERA low risk - no mitigations in place | ERA low risk - no mitigations in place | ERA low risk - no mitigations in place | ERA low risk - no mitigations in place | ERA low risk - no mitigations in place | |
| Offal Management | ✓ | ✓ (zero or batching) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | |
| Snatch Block | | | | | ✓ | | | | | | | | | | | | | |
| Seasonal Closures | ? | | | | | ✓ | | ✓ | | | | | | | | | | |
| Net Bindings | | ? | | | | | | | ? | | | | | | | | | |
| Area closures | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ | | | | | | | | | |
| Deck lighting | | | | | ✓ | ✓ | | ✓ | | | | | | | | | | |
| Processing position | | | ? | | | | | | | | | | | | | | | |
| Rate based (TAP) | ✓ | ? | ? | ✓ | | ✓ | ✓ | ✓ | | | | | | | | | | |
| Stickers | | ? | ✓ | | ✓ | | | | ? | | | | | | | | | |
| Hook configuration | ✓ | | | | | | | | | | | | | | | | | |
| Absolute numbers | | | | | | ✓ | ✓ | ✓ | | | | | | | | | | |
| Night setting | ? | | | ✓ | | ✓ | | ✓ | ? | | | | | | | | | |
| Underwater setting | ? | | | | | | | | | | | | | | | | | |
| Sprayers | | ✓ | | | | | | | | | | | | | | | | |
| Hook shields | ? | | | ? | | ? | | | | | | | | | | | | |

Appendix B – Best practice mitigation measures for reducing interactions with seabirds as determined by ACAP and Birdlife International

| Method of fishing | Mitigation measures available |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Trawl | Deploy streamer lines while fishing to deter birds away from warp cables and net monitoring cable |
| | Deploy bafflers or water sprayers to deter birds from entering the area where warp cables intersect with the water |
| | Deploy 600mm windy buoys (pinkies) on the warp cable in conjunction with zero discharge of offal while the boat is under tow |
| | Install a snatch block at the stern of a vessel to draw the net monitoring cable close to the water to reduce its aerial extent. |
| | Clean nets after every shot to remove entangled fish (“stickers”) and benthic material to discourage bird attendance during gear shooting |
| | Minimise the time the net is on the water surface during hauling |
| | For pelagic trawl gear, apply net binding to large meshes in the wings (120–800 mm), together with a minimum of 400kg weight incorporated into the net belly prior to setting |
| | Avoid any offal discharge during shooting and hauling |
| | Where possible and appropriate, convert offal into fish meal and retain all waste material with any discharge restricted to liquid discharge / sump water |
| | Batch waste (preferably for two hours or longer) where meal production from offal and full retention are not feasible. |
| Pelagic longline | Combination of weighted branch lines, streamer lines and night setting |
| Demersal longline | Appropriate line weighting regime to maximise hook sink rates |
| | Streamer lines |
| | Night setting |
| | Bird deterrent curtains at the hauling bay |
| | Responsible offal management |

Further details of best practice mitigation approaches can be found on the ACAP website at <https://acap.aq/en/resources/bycatch-mitigation/mitigation-advice> (ACAP and Birdlife, 2015)

Appendix C – The seabird species covered by the recovery plan and their conservation status under the EPBC Act

| Species name | Scientific name | EPBC Act conservation status | Covered by ACAP | Covered by the recovery plan | Category under the recovery plan |
|---------------------------------|------------------------------------|------------------------------|-----------------|------------------------------|-------------------------------------|
| Albatrosses | | | | | |
| Northern Royal Albatross | <i>Diomedea sanfordi</i> | Endangered | ✓ | ✓ | Foraging in Australian jurisdiction |
| Southern Royal Albatross | <i>Diomedea epomophora</i> | Vulnerable | ✓ | ✓ | Foraging in Australian jurisdiction |
| Wandering Albatross | <i>Diomedea exulans</i> | Vulnerable | ✓ | ✓ | Breeding in Australian jurisdiction |
| Antipodean Albatross | <i>Diomedea antipodensis</i> | Vulnerable | ✓ | ✓ | Foraging in Australian jurisdiction |
| Amsterdam Albatross | <i>Diomedea amsterdamensis</i> | Endangered | ✓ | ✓ | Foraging in Australian jurisdiction |
| Tristan Albatross | <i>Diomedea dabbenena</i> | Endangered | ✓ | ✓ | Foraging in Australian jurisdiction |
| Sooty Albatross | <i>Phoebastria fusca</i> | Vulnerable | ✓ | ✓ | Foraging in Australian jurisdiction |
| Light-mantled Albatross | <i>Phoebastria palpebrata</i> | Not listed | ✓ | ✓ | Breeding in Australian jurisdiction |
| Waved Albatross | <i>Phoebastria irrorata</i> | Not listed | ✓ | | |
| Black-footed Albatross | <i>Phoebastria nigripes</i> | Not listed | ✓ | | |
| Laysan Albatross | <i>Phoebastria immutabilis</i> | Not listed | ✓ | ✓ | Foraging in Australian jurisdiction |
| Short-tailed Albatross | <i>Phoebastria albatrus</i> | Not listed | ✓ | | |
| Atlantic Yellow-nosed Albatross | <i>Thalassarche chlororhynchos</i> | Not listed | ✓ | ✓ | Foraging in Australian jurisdiction |
| Indian Yellow-nosed Albatross | <i>Thalassarche carteri</i> | Vulnerable | ✓ | ✓ | Foraging in Australian jurisdiction |
| Grey-headed Albatross | <i>Thalassarche chrysostoma</i> | Endangered | ✓ | ✓ | Breeding in Australian jurisdiction |
| Black-browed Albatross | <i>Thalassarche melanophris</i> | Vulnerable | ✓ | ✓ | Breeding in Australian jurisdiction |

| Species name | Scientific name | EPBC Act conservation status | Covered by ACAP | Covered by the recovery plan | Category under the recovery plan |
|------------------------|--------------------------------------------------------------|------------------------------|-----------------|------------------------------|-------------------------------------|
| Campbell Albatross | <i>Thalassarche impavida</i> | Vulnerable | ✓ | ✓ | Foraging in Australian jurisdiction |
| Buller's Albatross | <i>Thalassarche bulleri</i> | Vulnerable | ✓ | ✓ | Foraging in Australian jurisdiction |
| Shy Albatross | <i>Thalassarche cauta</i> | Vulnerable | ✓ | ✓ | Breeding in Australian jurisdiction |
| White-capped Albatross | <i>Thalassarche steadi</i> | Vulnerable | ✓ | ✓ | Foraging in Australian jurisdiction |
| Chatham Albatross | <i>Thalassarche eremita</i> | Endangered | ✓ | ✓ | Foraging in Australian jurisdiction |
| Salvin's Albatross | <i>Thalassarche salvini</i> | Vulnerable | ✓ | ✓ | Foraging in Australian jurisdiction |
| Gibson's albatross | <i>Diomedea gibsoni</i> | Vulnerable | | ✓ | Foraging in Australian jurisdiction |
| Pacific albatross | <i>Thalassarche nov. sp. (platei)</i> | Vulnerable | | ✓ | Foraging in Australian jurisdiction |
| Petrels | | | | | |
| Southern Giant Petrel | <i>Macronectes giganteus</i> | Endangered | ✓ | ✓ | Breeding in Australian jurisdiction |
| Northern Giant Petrel | <i>Macronectes halli</i> | Vulnerable | ✓ | ✓ | Breeding in Australian jurisdiction |
| White-chinned Petrel | <i>Procellaria aequinoctialis</i> | Not listed | ✓ | | |
| Spectacled Petrel | <i>Procellaria conspicillata</i> | Not listed | ✓ | | |
| Black Petrel | <i>Procellaria parkinsoni</i> | Not listed | ✓ | | |
| Westland Petrel | <i>Procellaria westlandica</i> | Not listed | ✓ | | |
| Grey Petrel | <i>Procellaria cinerea</i> | Not listed | ✓ | | |
| Shearwaters | | | | | |
| Pink-footed Shearwater | <i>Ardenna creatopus</i> , <i>syn. Puffinus creatopus</i> | Not listed | ✓ | | |
| Balearic Shearwater | <i>Puffinus mauretanicus</i> | Not listed | ✓ | | |