

# Vessel Management Plan (VMP) Small Pelagic Fishery

---

## Geelong Star

---



September 2015 • Version 1.5 •



## Contents

Introduction.....	4
Vessel details .....	4
Purpose.....	4
Part 1. Seabirds.....	5
Rationale.....	5
Mandatory mitigation procedures for seabirds .....	5
Mitigation safety management .....	6
On board management .....	6
Recommended handling practices .....	6
Tori line specifications .....	7
Bird baffler specifications .....	7
General management (warp wires).....	8
Review .....	8
Contingency planning.....	8
Part 2. Marine mammals .....	9
Rationale.....	9
Mandatory mitigation procedures for marine mammals .....	9
Australian sea lions.....	11
Dolphins.....	12
Recommended handling practices .....	13
Dolphin management.....	14
Contingency planning.....	14
Review .....	14
Part 3. Reporting requirements.....	15
Part 4. Regional catch limits .....	16
Rationale.....	16
Regional catch limits.....	16
Part 5. Bycatch limits .....	17
Rationale.....	17
Western Australian waters.....	17
South Australian waters .....	17
Victorian, Tasmanian and New South Wales waters.....	17
Appendix A Seabird mitigation device specifications.....	18

Appendix B Review process for bycatch mitigation procedures.....	19
Appendix C Australian sea lion closures.....	20
Appendix D Australian sea lion management zones.....	25
Appendix E Coorong dolphin closure.....	32
Appendix F The assessment of marine mammal excluder devices for approval in the Small Pelagic Fishery.....	33
Appendix G Example of a Listed Marine and Threatened Species Form.....	42
Appendix H Marine mammal bycatch evaluation report.....	43
Appendix I Small Pelagic Fishery regional catch limit grids and management zones.....	47
Appendix J Coordinates for the Small Pelagic Fishery regional catch limit grids.....	48
Appendix K Boundary description of the Small Pelagic Fishery management zones.....	54

# Introduction

## Vessel details

**Owner:** Seafish Tasmania Pelagic Pty. Ltd.

**Distinguishing Symbol:** ROS7

**Port of Registration:** Geelong, Victoria

**Vessel Type:** Fishing vessel

**Length (LOA):** 95.18 m

**Size (GRT):** 3181

**Hold Capacity (tonnes):** 1061

**Concession Holder:** Seafish Tasmania Pty Ltd

**Signature:**

**Date:**

---

## Purpose

The purpose of this Vessel Management Plan (VMP) is to:

- set out environmental management conditions that minimise interactions<sup>1</sup> with seabirds and marine mammals and to reduce the risk of localised depletion
- specify mandatory operational procedures that the concession holder, vessel master and crew are required to adhere to
- specify a range of monitoring tools to evaluate the effectiveness of mitigation procedures
- allow for continued improvements in physical mitigation methods through ongoing observation, information gathering and the review processes.

---

<sup>1</sup> 'Interaction' means: any physical contact an individual has with a protected species. This includes all catching (hooked, netted, entangled) and collisions with an individual of these species.

# Part 1. Seabirds

## Rationale

Seabirds are attracted to fishing vessels to feed on the discarded catch (offal) or the fish caught within the trawl net.

Risks to seabirds can be classified into two types:

1. warp wire related risks, in particular where the warp wires enter the water and birds collide with them
2. net related risks, when birds dive into the net and become entangled.

The deployment of bird scaring devices and effective offal management greatly reduce the level of seabird interactions, entanglements and mortalities.

The highest risk period for seabirds being caught in nets is during hauling, from the time the trawl is near enough to the surface for diving birds to reach it. The retention of offal will reduce the number of birds around the vessel.

---

## Mandatory mitigation procedures for seabirds

- The concession holder must ensure the vessel does not discharge biological material<sup>2</sup> into the water while the fishing gear is in the water.
- The concession holder must ensure that the nets are cleaned prior to deployment and entangled fish (known as 'stickers') are removed.
- The concession holder must ensure the net is deployed and hauled as quickly as practicable to minimise the time the net remains on the surface.
- The concession holder must ensure an AFMA observer is on board the vessel for the first ten trips<sup>3</sup> and as directed by AFMA thereafter.
- The concession holder must ensure the vessel deploys at least one type of physical mitigation measure (Tori Lines or Bird Baffles) at all times, while the fishing gear is in the water.
- The concession holder must ensure the vessel maintains warp wire condition and remove sprags.
- The concession holder must ensure the vessel uses net bindings at all times while

---

<sup>2</sup> 'Biological material' means: any material that is organically based and is sourced from the catch.

<sup>3</sup> Or the first 12 months, whichever is longest.

fishing gear is being deployed.

- The concession holder must ensure the vessel directs deck lighting inboard and keep it to the minimum level necessary for the safety of the crew.
- If any interaction with a seabird occurs the concession holder must implement mandatory reporting requirements outlined in [Part 3](#) of the vessel management plan.

---

### Mitigation safety management

While the over-riding principle is to ensure crew safety, all reasonable care will be taken to minimise seabird interactions.

Significant hazards must be identified for all the equipment and the procedures documented. It is the vessel master's responsibility to ensure crew are aware of the practices and procedures needed to safely use and deploy the mitigation practices.

---

### On board management

- It is the responsibility of the vessel master to ensure crew are briefed on the VMP procedures and fully understand the actions required.
- Crew need to be aware of seabird activity around the vessel and be able to identify increased numbers of seabird interactions with warp wires and nets and deploy additional mitigation procedures if necessary.
- Any seabird mitigation gear failures or alterations should be reported to the AFMA observer (if on board) and be recorded in the bridge log by the vessel master. A brief must also be given to the concession holder and AFMA at the trip's completion.
- It is the responsibility of the vessel master to ensure crew can identify seabird species. The 'Seabird ID Guide' is available on the AFMA website<sup>4</sup>. If a tagged seabird is captured, leg band numbers when they exist, must be recorded.

---

### Recommended handling practices

If, despite precautions, seabirds are incidentally caught:

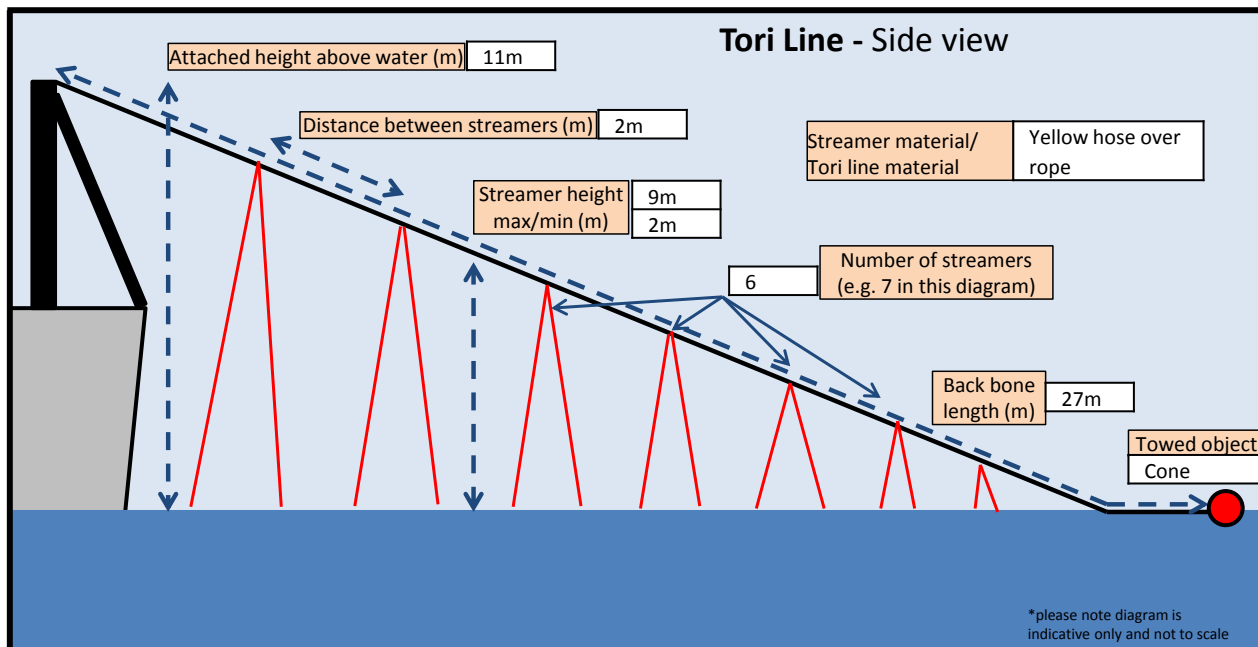
- every reasonable effort must be made to ensure that seabirds are released alive
- crew must attempt to remove seabirds from netting or meshes without jeopardizing the life of the bird
- crew should wear gloves, long sleeves and protective eyewear when handling seabirds, as they have sharp beaks and are capable of serious bites.

---

<sup>4</sup> <http://www.afma.gov.au/static/seabird/>

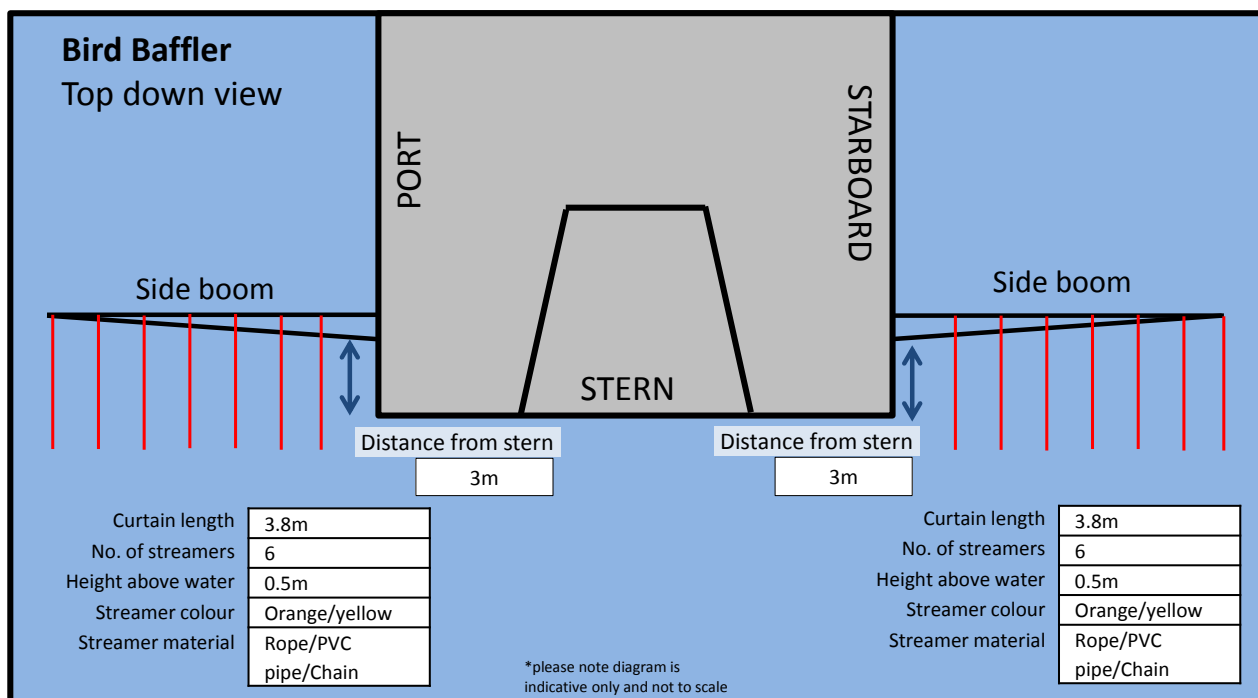
### Tori line specifications

Tori line specifications are detailed in the diagram below (meeting the minimum standards as specified in **Appendix A**).



### Bird baffle specifications

Bird baffle specifications are detailed in the diagram below (meeting the minimum standards as specified in **Appendix A**).



## General management (warp wires)

The vessel master will:

- undertake regular maintenance checks on mitigation gear to ensure they comply with specifications (**Appendix A**) and carry spares
  - ensure all crew are appropriately trained
  - ensure warp wires are spliced using methods that do not leave sprags (i.e. splices should be whipped) and that warp wires are inspected regularly.
- 

## Review

The concession holder is responsible for ensuring the vessel master is reviewing the vessel's mitigation and offal control procedures and is maintaining adherence to this VMP.

Any modification to seabird mitigation procedures must be documented by the vessel master and reported to AFMA for reassessment.

AFMA will implement an annual review process to assess the performance of the approved seabird mitigation procedures (**Appendix B**).

---

## Contingency planning

In the event the mitigation procedure fails or is ineffective the vessel master will ensure:

- replacement device/s are immediately deployed
- the damaged equipment is repaired
- events are recorded in bridge log.

The concession holder will ensure that:

- the vessel is carrying parts to replace broken or failed equipment, and ensure spares are in stock
  - the vessel returns to port if it is unable to maintain one of the mandatory regulated mitigation procedures to the required standard.
-



## Part 2. Marine mammals

### Rationale

Marine mammals are sometimes incidentally caught by midwater trawlers due to the overlap in feeding grounds and fishing areas. Fishing vessels can attract marine mammals during operations which feed on the catch from the net including discarded catch and offal.

Physical mitigation measures combined with spatial management (closing areas to fishing) where ASLs and dolphins feed and aggregate reduces the risk of marine mammal mortalities.

---

### Mandatory mitigation procedures for marine mammals

- The concession holder must ensure an AFMA observer is on board the vessel for the first ten trips<sup>5</sup> and as directed by AFMA thereafter.
- The concession holder must have an AFMA approved e-monitoring system (sensors, cameras and recording unit) operating during all fishing activity.
- The concession holder must ensure the vessel uses a marine mammal excluder device that either:
  - a. allows animals to escape the net ('top opening excluder device')
  - b. keeps animals out of the net ('barrier net')
- The device must be approved by AFMA and meet the performance criteria in **Appendix F**.
- The concession holder must ensure the vessel has an underwater camera available on board and, when directed by AFMA, use the camera to assess the efficacy of the marine mammal excluder device in excluding large animals and retaining any dead or incapacitated animals.
- Before commencing any fishing trip the vessel operator is required to review the effectiveness of all marine mammal mitigation devices.
- Within 48 hours of the completion of each fishing trip, the vessel master must provide a written report to AFMA on the performance of marine mammal mitigation devices
- The vessel master must advise AFMA of any changes to marine mammal mitigation devices used by the vessel. The installation of additional devices must not obstruct the performance of other devices required under this vessel management plan.

---

<sup>5</sup> Or first 12 months, whichever is longest.

- In considering the changes, AFMA will review its monitoring requirements and/or issue a scientific permit to trial additional devices.
- The vessel master must ensure the vessel does not discharge biological material into the water while the fishing gear is in the water
- The concession holder must ensure the vessel has acoustic mitigation devices available to use when deemed appropriate by the vessel master.
- The vessel master must ensure that prior to the setting of fishing gear a suitably experienced crew member is available to monitor the presence/absence of all marine mammals.
- The vessel master must ensure that the immediate area around the vessel is observed for dolphin activity before deploying the net. If dolphin sightings are confirmed, the vessel will move from the area to reduce the likelihood of an interaction occurring.
- The vessel master must ensure that before re-setting the gear in the new location the immediate area around the vessel is visibly clear of dolphins.
  - The vessel master must ensure crew are notified prior to the deployment and/or the recovery of nets, in order to allow the crew to be present to detect any marine mammals which become enfolded or caught at the surface, so the animals can be rapidly and humanely released.
- If a marine mammal is observed coming aboard trapped in folds of netting the vessel master must ensure:
  - hauling is stopped as soon as the marine mammal is hauled on deck past the stern roller
  - the animal is released as quickly as possible
  - if a swell is running or the net is full and tight, secure the strop around the net below the animal to take the weight of the net, slack off and release the animal.
- If any interaction with a marine mammal occurs follow your mandatory reporting requirements outlined in **Part 3** of the vessel management plan.

If fishing operations conducted result in the death of three or more seals<sup>6</sup> in any shot, the vessel master must:

- suspend fishing immediately
- check for damage to the net and excluder device and make repairs if necessary
- notify the AFMA observer (if on board) of the mortality event and with the assistance of the AFMA observer review the effectiveness of mitigation

---

<sup>6</sup> Australian fur seals and New Zealand fur seals are listed as species of least concern by IUCN Red List of Threatened Species.

procedures used in fishing operations

- not recommence fishing until the immediate area around the vessel is visibly clear of marine mammals.
- If the vessel master does not report a TEP interaction the vessel operator must cease fishing and return to port for a compliance investigation subject to relevant provisions of the *Fisheries Management Act 1991* and the *Environment Protection and Biodiversity Conservation Act 1999*.
- Mandatory spatial management measures applying to Australian sea lions and dolphins are outlined below.

---

## Australian sea lions

### *Spatial management*

To minimise the bycatch of Australian sea lions (ASLs) in South Australian and Western Australian waters the concession holder must comply with closures and management zones surrounding ASL breeding colonies.

### *ASL breeding colonies*

In South Australian and Western Australian waters, radial closures have been put in place around the inshore areas of all known ASL breeding colonies<sup>7</sup>. These closures range from four nautical miles to 11 nautical miles surrounding identified colonies in South Australia and 11 nautical miles surrounding identified colonies in Western Australia.

Areas close to colonies generally have higher sea lion foraging effort and are the areas that must be traversed each time sea lions leave to forage and come ashore to haul out. Coordinates for ASL breeding colony closures are defined in **Appendix C**.

### *ASL management zones*

Two separate ASL management zones have been introduced into the Small Pelagic Fishery, one in South Australian waters and one in Western Australian waters. Each zone extends from the coastline out to the 130 metre depth contour, which is based upon the diving depth for female ASLs. Each management zone has a closure trigger of one ASL. The boundary description for the 130 metre ASL management zones are defined in **Appendix D**.

If an ASL is caught (found dead or incapacitated in the net), the operator must immediately cease fishing and the entire management zone will be closed to fishing until

---

<sup>7</sup> Cited in: Goldsworthy SD, Bulman C, He X, Larcombe J, Littnan C (2003) Trophic interactions between marine mammals and Australian fisheries: an ecosystem approach. In: Gales N, Hindell M, and Kirkwood R. (eds) *Marine Mammals and Humans: Fisheries, tourism and management*. CSIRO Publications. pp. 62-99.

AFMA has reviewed the nature of the interaction. In conducting this review, AFMA will consider the following criteria:

- life status
- sex
- mitigation measures employed; and
- location of interaction.

Upon review of this information AFMA will determine if the closure should be lifted or maintained for a period up to 18 months<sup>8</sup>.

Any otariid pinniped (fur seals or sea lions) captured in an ASL management zone will be considered to be an Australian sea lion for the purpose of the trigger limits unless there is evidence to show otherwise. Evidence may include but is not limited to detailed photographs and observer reports. (Note that biological samples can only be taken consistent with any approval under the *Environment Protection and Biodiversity Conservation Act 1999*). The advice of AFMA should be sought on a case-by-case basis as practical when an animal is captured.

If an ASL is caught outside of a management zone the operator must immediately cease fishing and inform AFMA of the interaction. AFMA will review details of the interaction before advising the operator if fishing can continue in the area.

---

## Dolphins

### *Coorong dolphin closure*

During 2011, AFMA observed an increase in dolphin bycatch reported in the Commonwealth shark gillnet sector off South Australia. In response, AFMA temporarily closed an area including waters known as the Coorong to the east of Kangaroo Island to gillnet fishing where the majority of dolphin bycatch was reported. In September 2014 AFMA reopened the Coorong Dolphin Closure to gillnet fishing under strict conditions. To minimise the risk of dolphin interactions in the Small Pelagic Fishery, the Coorong Dolphin Closure will be closed to mid-water trawl vessels. An indicative map and coordinates of the Coorong Dolphin Closure is defined in **Appendix E**.

### *Small Pelagic Fishery (Closures) Direction No.1 2015*

The vessel master must comply with *Small Pelagic Fishery (Closures) Direction No.1 2015* as amended by *Small Pelagic Fishery (Closures Variation) Direction No.1 2015*.

AFMA will continue to monitor cumulative dolphin bycatch and will consult marine mammal experts if dolphin bycatch approaches the levels seen historically in the fishery.

---

<sup>8</sup> 18 months is the breeding cycle of ASLs.

### Recommended handling practices

Every care must be taken to reduce stress on and avoid injury to the animal when it is being returned to the sea alive. If possible, give the animal enough time and space to leave the vessel on its own accord. Avoid actions that will antagonise the animal and avoid obstructing its path or escape route. Watch carefully for signs of aggression in the animal.

When attending to animals landed on deck it is recommended that the following steps are followed to ensure crew safety:

- where possible, avoid any contact with blood, urine, faeces and other bodily fluids. It is also important to avoid the mouth of the marine mammal as this is a major source of disease
  - if bitten or grazed by a marine mammal, wash and disinfect the wound immediately, apply betadine/antiseptic ointment and cover the wound. This minimises the risk of 'seal finger', a chronic and very painful infection caused by bacteria carried by some marine mammals
  - if handling bodies of marine mammals, wear waterproof gloves and waterproof protective clothing
  - after handling any marine mammal, crew should wash their hands and forearms with antibacterial soap and their protective clothing should be hosed down.
-

## Dolphin management

- Crew need to be aware of the dolphin activity around the vessel and inform the vessel master of increased risk or potential interactions.
  - The marine mammal exclusion device must be maintained in good condition and any failures or breakages must be immediately reported to the vessel master and repaired before use.
- 

## Contingency planning

In the event of bycatch mitigation equipment failure the vessel master will ensure:

- The marine mammal exclusion device is repaired or replaced
  - where any difficulties arise, the headline and ground-rope is hauled on board as quickly as possible. If this cannot be done, the net must be kept as deep as possible, to reduce the likelihood of seal capture, and towed to a location some distance from the fishing area where the problem can be rectified
  - equipment failure events are recorded in the bridge log
  - parts are carried to replace broken or failed equipment and ensure that ample spares are in stock
  - the vessel returns to port if it is unable to maintain one of the mandatory regulated mitigation devices to the required standard.
- 

## Review

- Prior to at sea testing of the marine mammal excluder device, AFMA will inspect the device to ensure it meets the provisions of performance criteria one (**Appendix F**).
- If the excluder device is modified after AFMA has given approval for use of the device, a full reassessment of the device will be required.
- The vessel master must review their mitigation procedures. It is the concession holders' responsibility to ensure the vessel master is regularly reviewing the vessel's exclusion device, offal control methods and is maintaining adherence to this VMP and its procedures.
- AFMA will implement regular reviews to assess the performance of the approved excluder device (**Appendix B**)

## Part 3. Reporting requirements

The concession holder or authorised agent must meet the reporting requirements as follows:

- The details of any interaction with a listed or protected species must be reported to AFMA on 1300 723 621 or [licensing@afma.gov.au](mailto:licensing@afma.gov.au) within 24 hours of the event.
  - The following detail must be reported:
    - a. the position of any captures and of returning any animals to the sea (latitude and longitude)
    - b. the time of any captures and of returning any animals to the sea.
    - c. the species name (if known). All care should be taken to correctly identify the species
    - d. a brief description of the conditions and circumstances that may have contributed to the capture event
    - e. a brief description of the condition of the animal when recovered from the gear
    - f. any existing tag information (location, colour, and especially numbers).
  - All interactions with listed and protected species must be recorded via e-logs or in the Listed Marine and Threatened Species Form at the back of the daily fishing log and submitted to AFMA with the relevant fishing log sheets (**Appendix G**).
  - **Note:** In addition to the reporting requirements under AFMA legislation, all listed and protected species interactions must be reported under the requirements of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
  - All interactions with marine mammal species must be recorded in the Marine Mammal Bycatch Evaluation Report (**Appendix H**) and the form must be submitted to AFMA within 24 hours.
-

## Part 4. Regional catch limits

### Rationale

Regional catch limits have been applied in the Small Pelagic Fishery to distribute effort across the fishery and collect representative data on target species (**Appendix I**). Regional catch limits may also minimise the risk of localised depletion occurring by restricting catches in localised areas of the fishery over time.

---

### Regional catch limits

- A catch limit of 2000 tonnes applies to the combined catch of quota species within the grids numbered G1 to G120 (**Appendix J**) over a 30 day period<sup>9</sup>.
- A maximum of 75 per cent of the concession holder's combined SPF western sub-area quota holdings (for all species) can be taken in a single management zone in the SPF western sub-area (zones 1-4) for that fishing season (**Appendix K**).
- A maximum of 75 per cent of the concession holder's combined SPF eastern sub-area quota holdings (for all species) can be taken in a single management zone in the SPF eastern sub-area (zones 5-7) for that fishing season (**Appendix K**).

#### *Catch monitoring*

- Catches recorded via e-logs and in the daily fishing log submitted to AFMA will be used by AFMA to determine when catch limits are triggered.

#### *Notes for the application of regional catch limits*

- For the purpose of the application of the regional catch limits in this VMP one day will commence at midnight (GMT) and finish the following midnight.
  - For the purpose of prohibiting fishing in a grid marked in **Appendix J** a day will commence on midnight of the following day AFMA advises the vessel that the regional catch limit has been triggered.
  - Where a trawl shot is undertaken over two of the grids the catch, for the purpose of regional catch limits, will be recorded as being harvested in the grid that the trawl shot commenced in.
  - For the purpose of determining which grids fishing is being undertaken in **Appendix I** should be used as a guide and **Appendix J** detailing the exact longitude and latitude coordinates of each grid, should be used by the vessel master to verify which grid they are actually fishing in.
- 

<sup>9</sup> 2000 t is the maximum amount that has been taken out of any one degree grid square in any month since the year 2000. This means catches limited to below historic levels.



## Part 5. Bycatch limits

### Rationale

Bycatch limits are used to prevent the targeting of species that are managed under adjacent and/or overlapping fisheries or jurisdictions. In the area of the Small Pelagic Fishery there are several overlapping fisheries that use similar methods or target similar species.

---

### Western Australian waters

Australian Sardine is not permitted to be retained under a Commonwealth fishing concession in Western Australian waters using the midwater trawl method. In addition there is a 100 tonne cumulative bycatch trigger for discards of Australian Sardine in waters off Western Australia. This trigger limit applies for the duration of the fishing season (1 May – 30 April each year).

If this trigger is reached, then the WA management zone (extending from the coastline to the 130 metre depth contour, as defined in **Appendix D**) will be closed to fishing for the duration of the fishing season, pending formal review of the catch by AFMA.

---

### South Australian waters

Australian Sardine is not permitted to be retained in under a Commonwealth fishing concession in South Australian waters using the midwater trawl method. In addition there is a 100 tonne cumulative bycatch trigger for discards of Australian Sardine in waters off South Australia. This trigger limit applies for the duration of the fishing season (1 May – 30 April each year).

If this trigger is reached, then the SA management zone (extending from the low water mark out to the 130 metre depth contour, as defined in **Appendix D**) will be closed to fishing for the duration of the fishing season, pending formal review of the catch by AFMA.

---

### Victorian, Tasmanian and New South Wales waters

Any catch of Australian Sardine (retained or discarded) in the waters of Victoria, Tasmania or New South Wales will be deducted from the eastern zone TAC.

---

## Appendix A Seabird mitigation device specifications

### ***Bird Baffler***

- Two or more booms attached to the stern quarter of the vessel, with at least one boom attached to the starboard and port, stern quarters which are able to be lifted and lowered over the sides or stern of the vessel
- Each boom shall extend outwards not less than 3.8 metres from the side or stern of the vessel
- Dropper lines shall be attached to the booms no more than 2 metres apart
- Plastic cones, rods or other brightly coloured durable material shall be attached to the ends of the dropper lines.
- The bottom of the device must be not more than 0.5 metres above the water line (in the absence of wind or swell).
- Lines and webbing may be attached between the dropper lines to prevent tangling.

### ***Tori Line***

- Two lines of a minimum of 8 mm in diameter shall be of a length so when deployed have an aerial extent of at least 10 metres behind the point at which the trawl warps enter the water (in the absence of wind or swell).
- Streamer lines shall be attached to the port and starboard sides of the vessel from a point as close to 2 metres above the trawl blocks as practicable and as close to the stern as practicable. Streamer lines shall be attached either:
  - Between 1 to 3 metres from the outside edge of the trawl blocks on both sides; one a side arm if necessary; or
  - To a "boom and bridle" system that allows the streamer lines to be adjusted on a horizontal plane in order to vary the distance between the streamer line attachment point and the outside of the trawl blocks and is positioned to ensure maximum protection of the trawl warps at all times.
- An object shall be attached at the seaward end of each of the streamer lines. The object must have sufficient drag on the streamer line that it is taut behind the vessel at all times.
- Branched streamers, each comprising of two strands of fluorescent red, yellow, orange or pink plastic tubing of a minimum of 3 mm in diameter, shall be attached no more than 5 metres apart commencing no more than 5 metres from the point of attachment of the streamer line to the vessel.
- Each of the branched streamers must reach the sea surface in the absence of wind and swell. Branched streamer length will therefore vary depending on the height, every branched streamer must be at least 1 metre in length.
- Each branched streamer shall be attached to the streamer line in a manner to prevent fouling of individual branched streamers on the main streamer line and to ensure vertical displacement of individual branched streamers to the water line in the absence of wind or swell.

## **Appendix B Review process for bycatch mitigation procedures**

AFMA will implement regular reviews to assess the performance of the approved bycatch mitigation procedures stipulated in the vessel management plan. These reviews will be comprised of the following steps:

- AFMA will evaluate the performance of the approved bycatch mitigation procedures from information provided in the observer trip reports, Listed Marine and Threatened Species Forms and Marine Mammal Bycatch Evaluation Reports
- upon evaluating the performance of the bycatch mitigation procedures AFMA will identify if any of the bycatch mitigation procedures require modification or if further bycatch mitigation procedures are required under the vessel management plan
- any changes to bycatch mitigation procedures<sup>10</sup> will require the vessel management plan to be updated.

---

<sup>10</sup> Any changes to the marine mammal excluder device will require reassessment by AFMA before the excluder device is approved.

## Appendix C Australian sea lion closures

Fishing by mid-water trawl and purse seine fishing methods is not to be engaged in in the following areas:

### Kangaroo Island strip closure

The area of the Kangaroo Island gillnet strip closure is the part of the Australian Fishing Zone and coastal waters of the State of South Australia contained within and bounded by a line:

- (a) commencing at the intersection of the coastline of Kangaroo Island, South Australia at mean low water with the parallel of longitude of 137° 43' 30" east, in the vicinity of Reynolds Point and running progressively;
- (b) generally south-westerly and westerly along the mean low water line of the southern coastline of Kangaroo Island to its intersection with the parallel of longitude 136° 34' 44.88" east in the vicinity of Cape du Couedic;
- (c) then west along that meridian of latitude to its intersection with longitude 136° 31' 18.22" east;
- (d) then south along that meridian to latitude 36° 14' 56.47" south;
- (e) then east along that parallel to its intersection with longitude 137° 35' 19.97" east;
- (f) then north along that meridian to its intersection with a line every point of which is four nautical miles seaward of the mean low water line of the southern coastline of Kangaroo Island;
- (g) then generally north-easterly along that four nautical mile line to its intersection with the parallel of longitude of 137° 43' 30" east;
- (h) then north along the parallel of longitude to the point of commencement.

### Head of the Great Australian Bight strip closure

The area of the Head of the Great Australian Bight gillnet strip closure is the part of the Australian Fishing Zone and coastal waters of the State of South Australia contained within and bounded by a line:

- (a) commencing at the intersection of the southern coastline of the mainland of Australia at mean low water with the meridian of longitude 129° 00' 05.2" east and running progressively;
- (b) south along that meridian to its intersection with a line every point of which is four nautical miles seaward of the mean low water line of the southern coast of the mainland of Australia;
- (c) then generally easterly and north-easterly along that four nautical mile line to its intersection with the parallel of longitude of 129° 19' 36.05" east;
- (d) then south along that meridian to latitude 31° 48' 24.76" south;
- (e) then east along that parallel to its intersection with longitude 130° 45' 44.52" east;

- (f) then north along that meridian to its intersection with a line every point of which is four nautical miles seaward of the mean low water line of the southern coastline of Kangaroo Island;
- (g) then generally north-easterly along that four nautical mile line to its intersection with the parallel of longitude of 131° 08' 00" east;
- (h) north along that parallel of longitude to its intersection with the mean low water line of the southern coastline of South Australia, in the vicinity of Twin Rocks;
- (i) then generally south-westerly and westerly along the mean low water line of the southern coastline of South Australia to the point of commencement.

**South Australian 4nm radius Australian sea lion closures**

The area of the four nautical mile Australian sea lion gillnet closures is the part of the Australian Fishing Zone and/or Coastal Waters of the State of South Australia contained within and bounded by a line four nautical miles seaward of:

Point	Name	Latitude	Longitude
(a)	Purdie Island	32° 16' 11"S	133° 13' 42"E
(b)	Lounds Island	32° 16' 23"S	133° 21' 56"E
(c)	West Island	32° 30' 39"S	133° 15' 05"E
(d)	Fenelon Island	32° 34' 52"S	133° 16' 54"E
(e)	Blefuscu Island	32° 28' 01"S	133° 38' 38"E
(f)	Albatross Island	35° 04' 07"S	136° 10' 53"E
(g)	North Island	35° 07' 14"S	136° 28' 34"E
(h)	Peaked Rocks	35° 11' 06"S	136° 28' 55"E
(i)	Cap Island	33° 56' 41"S	135° 07' 02"E
(j)	Rocky South Island	34° 48' 36"S	134° 43' 03"E
(k)	Little Hummock Island	34° 45' 09"S	135° 04' 55"E

**South Australian 11nm radius Australian sea lion closures**

The area of the 11 nautical mile Australian sea lion gillnet closures is the part of the Australian Fishing Zone and/or Coastal Waters of the State of South Australia contained within and bounded by a line 11 nautical miles seaward of:

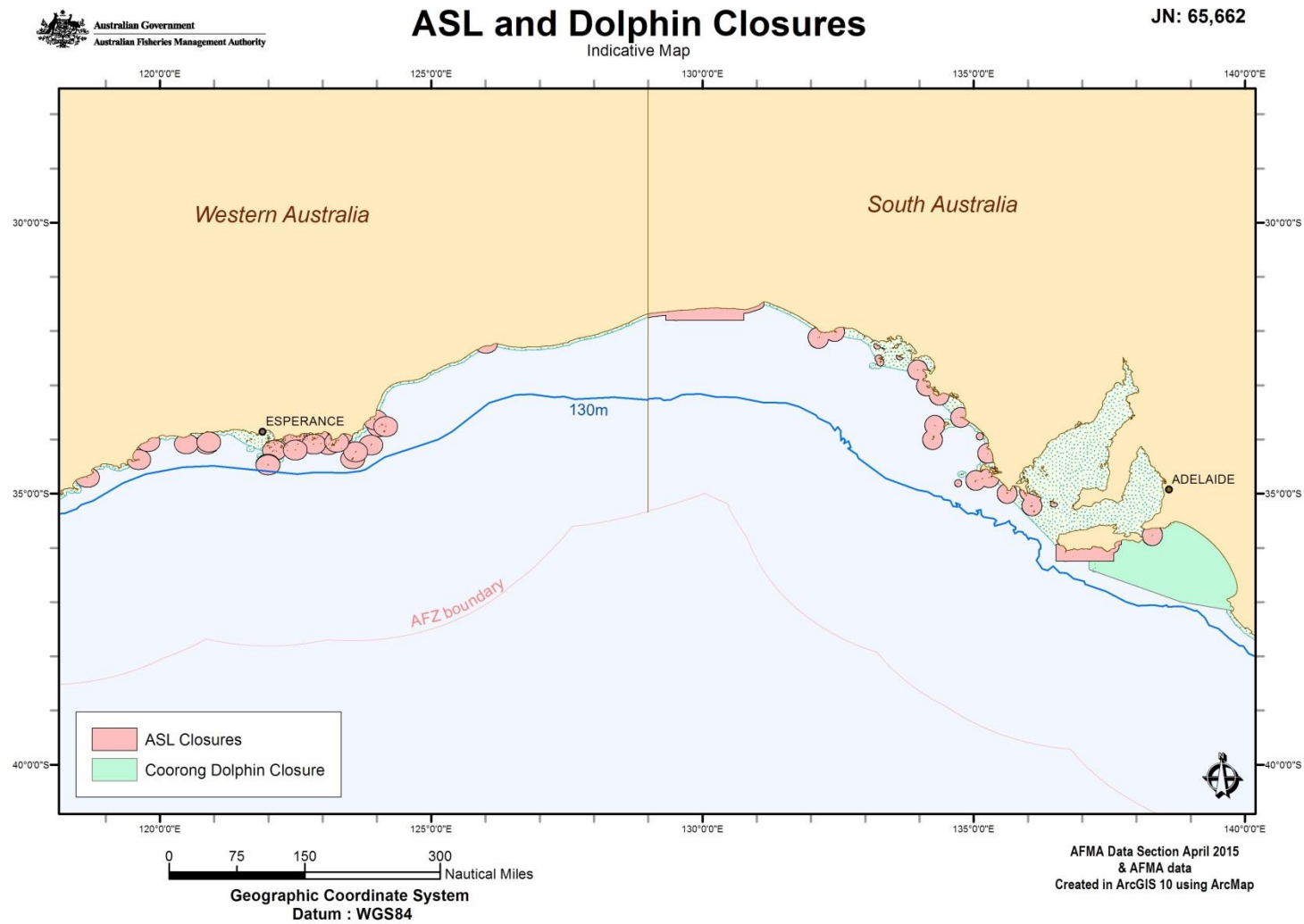
Point	Name	Latitude	Longitude
(a)	Nuyts Reef (west)	32° 07' 07"S	132° 07' 53"E
(b)	Nuyts Reef (east)	32° 08' 19"S	132° 08' 29"E
(c)	Point Fowler	32° 00' 39"S	132° 26' 16"E
(d)	Olive Island	32° 43' 09"S	133° 58' 11"E
(e)	Nicolas Baudin Island	33° 00' 56"S	134° 07' 59"E
(f)	Jones Island	33° 11' 07"S	134° 22' 02"E
(g)	West Waldegrave Island	33° 35' 46"S	134° 45' 41"E
(h)	Ward Island	33° 44' 27"S	134° 17' 06"E
(i)	Dorothee Island	34° 00' 18"S	134° 14' 42"E
(j)	Rocky (North) Island	34° 15' 31"S	135° 15' 38"E
(k)	Four Hummocks (North) Island	34° 45' 28"S	135° 02' 32"E
(l)	Price Island	34° 42' 28"S	135° 17' 22"E
(m)	Liguanea Island	34° 59' 54"S	135° 37' 11"E
(n)	Lewis Island	34° 57' 25"S	136° 01' 54"E
(o)	North Neptune (East) Island	35° 13' 41"S	136° 04' 37"E
(p)	South Pages Island	35° 46' 38"S	138° 17' 30"E
(q)	North Pages Island	35° 45' 32"S	138° 18' 04"E

**Western Australian 11nm radius Australian sea lion closures**

The area of the 11 nautical mile Australian sea lion closures is the part of the Australian Fishing Zone and/or Coastal Waters of the State of Western Australia contained within and bounded by a line 11 nautical miles seaward of:

Point	Name	Latitude	Longitude
(a)	Haul Off Rock	34° 42' 07"S	118° 39' 39"E
(b)	Middle Doubtful Island	34° 22' 28"S	119° 36' 25"E

(c)	Red Islet	34° 02' 23"S	119° 46' 48"E
(d)	West Island	34° 04' 55"S	120° 29' 05"E
(e)	Rocky Island	34° 04' 59"S	120° 52' 00"E
(f)	Investigator Island	34° 02' 58"S	120° 53' 58"E
(g)	Little Island	34° 27' 25"S	121° 59' 23"E
(h)	Termination Island	34° 28' 18"S	121° 59' 24"E
(i)	MacKenzie Island	34° 12' 00"S	122° 06' 41"E
(j)	Kimberley Island	33° 56' 56"S	122° 28' 08"E
(k)	Draper Island	34° 11' 47"S	122° 29' 38"E
(l)	Kermadec (Wedge) Island	34° 05' 16"S	122° 50' 02"E
(m)	Taylor Island	33° 55' 12"S	122° 52' 22"E
(n)	SW Rock (Twin Peak Islands)	33° 58' 59"S	122° 54' 00"E
(o)	Glennie Island	34° 05' 45"S	123° 06' 18"E
(p)	George Island	34° 03' 06"S	123° 15' 25"E
(q)	Stanley (Wickham) Island	34° 01' 12"S	123° 17' 27"E
(r)	Poison Creek Island	33° 55' 00"S	123° 19' 47"E
(s)	Salisbury Island	34° 21' 35"S	123° 33' 07"E
(t)	Cooper Island	34° 13' 51"S	123° 36' 25"E
(u)	Round Island	34° 06' 17"S	123° 53' 16"E
(v)	Six Mile Island	33° 38' 24"S	123° 58' 04"E
(w)	Ford (Half Way) Island	33° 45' 57"S	124° 02' 27"E
(x)	Spindle Island	33° 45' 46"S	124° 09' 39"E
(y)	Twilight Cove	32° 16' 44"S	126° 00' 42"E





## Appendix D Australian sea lion management zones

### West Australian Management Zone

The area of the Western Australian Management Zone is the part of the AFZ bounded by a notional line:

- a) commencing at the intersection of parallel of Latitude 31° 00' south and the western coastline of the mainland of Australia
- b) then westerly along that parallel to its intersection with the meridian of longitude 114° 54' 29" east
- c) then generally along the geodesics sequentially connecting the following points:

Point	Latitude	Longitude
1	32° 26' 11"S	115° 05' 56"E
2	32° 03' 44"S	115° 17' 14"E
3	33° 58' 44"S	115° 17' 38"E
4	33° 46' 20"S	115° 15' 02"E
5	33° 08' 20"S	114° 50' 29"E
6	34° 46' 01"S	114° 41' 18"E
7	34° 21' 14"S	114° 39' 32"E
8	35° 52' 44"S	114° 43' 08"E
9	35° 30' 08"S	114° 53' 29"E
10	35° 15' 32"S	115° 10' 17"E
11	36° 58' 17"S	115° 36' 59"E
12	36° 59' 06"S	115° 42' 00"E
13	36° 54' 32"S	115° 53' 38"E
14	36° 48' 27"S	115° 59' 02"E
15	36° 39' 41"S	116° 17' 29"E
16	36° 34' 17"S	116° 51' 50"E
17	36° 39' 08"S	117° 14' 11"E

18	36° 33' 18"S	117° 49' 26"E
19	36° 34' 26"S	118° 00' 41"E
20	36° 37' 45"S	118° 08' 09"E
21	36° 38' 14"S	118° 14' 16"E
22	36° 43' 15"S	118° 27' 50"E
23	36° 47' 42"S	118° 32' 29"E
24	36° 52' 11"S	118° 45' 56"E
25	35° 11' 40"S	119° 18' 58"E
26	35° 21' 38"S	119° 44' 13"E
27	35° 29' 13"S	120° 25' 17"E
28	35° 30' 49"S	120° 59' 04"E
29	35° 21' 29"S	122° 31' 53"E
30	35° 23' 32"S	122° 50' 14"E
31	35° 23' 06"S	123° 25' 57"E
32	35° 24' 50"S	123° 41' 11"E
33	35° 26' 42"S	123° 47' 34"E
34	35° 40' 04"S	124° 08' 04"E
35	35° 59' 47"S	125° 07' 41"E
36	34° 08' 44"S	125° 23' 11"E
37	34° 40' 29"S	126° 03' 55"E
38	34° 49' 03"S	126° 33' 05"E
39	34° 49' 53"S	126° 50' 38"E
40	34° 46' 35"S	127° 15' 50"E
41	34° 47' 29"S	127° 27' 14"E
42	34° 44' 29"S	127° 38' 56"E
43	34° 46' 35"S	128° 22' 17"E

44	34° 43' 35"S	128° 59' 20"E
45	34° 45' 14"S	129° 00' 00"E

- d) from there north along the meridian of longitude 129° 00" east to its intersection with the coastline of the mainland of Australia
- e) then generally westerly and northerly along the coastline to the point of commencement.

**South Australian Management Zone**

The area of the South Australian Management Zone is the part of the AFZ bounded by a notional line:

- a) commencing at the intersection of the meridian of longitude 129° 00" east and its intersection with the coastline of the mainland of Australia
- b) then southerly along that meridian to its intersection with the parallel of latitude 34° 45' 14" south
- c) then generally along the geodesics sequentially connecting the following points:

Point	Latitude	Longitude
1	34° 45' 14"S	129° 01' 44"E
2	34° 45' 41"S	129° 13' 26"E
3	34° 43' 26"S	129° 16' 53"E
4	34° 43' 44"S	129° 24' 59"E
5	34° 49' 44"S	129° 37' 35"E
6	34° 50' 20"S	129° 57' 50"E
7	34° 47' 11"S	130° 14' 29"E
8	34° 46' 44"S	130° 37' 26"E
9	34° 40' 44"S	131° 06' 59"E
10	34° 40' 17"S	131° 32' 11"E
11	34° 36' 05"S	131° 47' 11"E
12	34° 26' 47"S	132° 05' 38"E
13	34° 23' 38"S	132° 08' 02"E

14	34° 17' 38"S	132° 21' 05"E
15	34° 09' 50"S	132° 26' 47"E
16	34° 13' 44"S	132° 29' 29"E
17	34° 09' 41"S	132° 32' 56"E
18	35° 58' 53"S	132° 33' 05"E
19	34° 01' 17"S	132° 35' 56"E
20	35° 59' 02"S	132° 37' 53"E
21	35° 55' 35"S	132° 36' 41"E
22	35° 57' 59"S	132° 41' 29"E
23	35° 51' 05"S	132° 44' 02"E
24	35° 50' 11"S	132° 41' 02"E
25	35° 43' 35"S	132° 50' 56"E
26	35° 39' 05"S	132° 52' 35"E
27	35° 16' 53"S	133° 22' 53"E
28	35° 03' 59"S	133° 57' 59"E
29	35° 01' 53"S	134° 09' 41"E
30	36° 57' 32"S	134° 17' 02"E
31	36° 56' 38"S	134° 24' 14"E
32	36° 53' 29"S	134° 26' 47"E
33	36° 52' 17"S	134° 34' 17"E
34	36° 45' 41"S	134° 37' 17"E
35	36° 45' 23"S	134° 42' 05"E
36	36° 49' 44"S	134° 40' 17"E
37	36° 47' 47"S	134° 44' 56"E
38	36° 45' 32"S	134° 44' 29"E
39	36° 37' 44"S	134° 53' 38"E

40	36° 38' 29"S	134° 58' 08"E
41	36° 36' 32"S	135° 03' 50"E
42	36° 38' 56"S	135° 05' 29"E
43	36° 40' 53"S	135° 02' 47"E
44	36° 42' 05"S	135° 08' 11"E
45	36° 36' 50"S	135° 08' 29"E
46	36° 33' 59"S	135° 11' 02"E
47	36° 32' 20"S	135° 22' 44"E
48	36° 30' 08"S	135° 25' 20"E
49	36° 26' 47"S	135° 22' 44"E
50	36° 24' 10"S	135° 23' 34"E
51	36° 27' 41"S	135° 35' 38"E
52	36° 29' 56"S	135° 39' 23"E
53	36° 26' 29"S	135° 40' 35"E
54	36° 22' 53"S	135° 46' 17"E
55	36° 20' 38"S	135° 46' 17"E
56	36° 19' 53"S	135° 43' 48"E
57	36° 15' 41"S	135° 45' 50"E
58	36° 18' 08"S	135° 49' 21"E
59	36° 17' 47"S	135° 53' 56"E
60	36° 14' 47"S	135° 55' 44"E
61	36° 14' 29"S	135° 57' 41"E
62	36° 09' 11"S	136° 00' 29"E
63	36° 11' 11"S	136° 02' 11"E
64	36° 09' 05"S	136° 10' 53"E
65	36° 02' 56"S	136° 14' 11"E

66	37° 58' 53"S	136° 14' 02"E
67	37° 58' 08"S	136° 12' 23"E
68	37° 50' 38"S	136° 12' 23"E
69	37° 46' 17"S	136° 09' 32"E
70	37° 36' 50"S	136° 15' 50"E
71	37° 35' 05"S	136° 21' 59"E
72	37° 39' 50"S	136° 27' 59"E
73	37° 32' 31"S	136° 35' 16"E
74	37° 31' 53"S	136° 42' 50"E
75	37° 25' 53"S	136° 50' 38"E
76	37° 22' 49"S	137° 02' 17"E
77	37° 19' 44"S	137° 03' 23"E
78	37° 11' 56"S	137° 26' 11"E
79	37° 00' 05"S	137° 48' 32"E
80	38° 55' 49"S	138° 01' 57"E
81	38° 56' 44"S	138° 19' 35"E
82	38° 55' 09"S	138° 28' 53"E
83	38° 56' 42"S	138° 33' 41"E
84	38° 54' 50"S	138° 34' 54"E
85	38° 55' 11"S	138° 51' 23"E
86	38° 49' 53"S	139° 05' 02"E
87	38° 50' 50"S	139° 06' 50"E
88	38° 42' 32"S	139° 16' 03"E
89	38° 34' 21"S	139° 20' 33"E
90	38° 30' 26"S	139° 31' 29"E
91	38° 19' 44"S	139° 42' 41"E

92	38° 11' 49"S	139° 53' 55"E
93	38° 11' 11"S	139° 58' 17"E
94	38° 02' 56"S	140° 04' 08"E
95	39° 59' 02"S	140° 13' 35"E
96	39° 49' 08"S	140° 24' 05"E
97	39° 44' 44"S	140° 33' 02"E
98	39° 44' 47"S	140° 41' 29"E
99	39° 38' 47"S	140° 52' 35"E
100	39° 39' 09"S	140° 57' 57"E

- f) from there north along the meridian of longitude 140° 57' 57" east to its intersection with the coastline of the mainland of Australia
- g) then generally north-westerly along the coastline to the point of commencement.

## Appendix E Coorong dolphin closure

That part of the Australian Fishing Zone and coastal waters of the State of South Australia known as the Coorong dolphin closure contained within and bounded by a line:

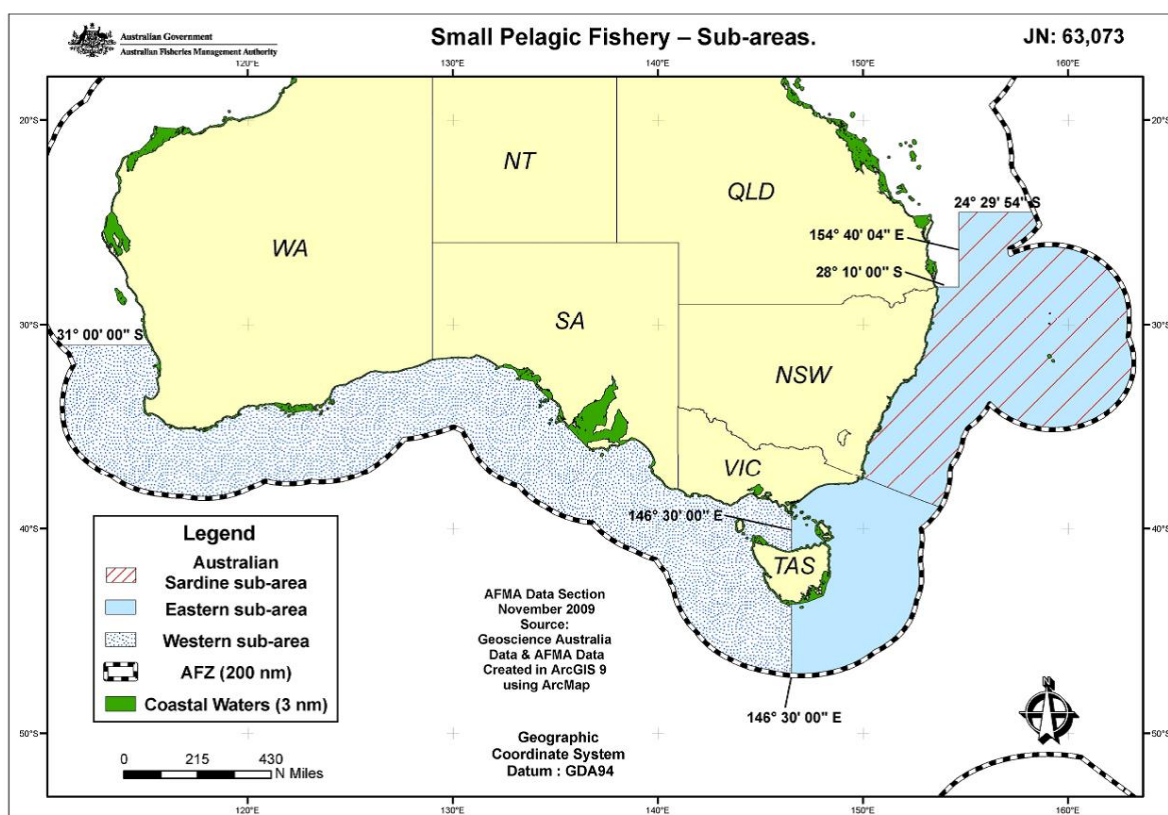
- (a) Starting at the intersection of longitude 137° 08'00" east and the low water mark of Kangaroo Island;
- (b) Then south to latitude 36° 24' 00" south, longitude 137° 08' 00" east;
- (c) Then southeast to latitude 37° 00'00" south, longitude 138° 50' 00" east;
- (d) Then southeast to the intersection of latitude 37° 09' 24" south and the low water mark of the coast of mainland Australia in the vicinity of Cape Dombey;
- (e) Then generally northwest along the coast of mainland Australia to the intersection of longitude 138° 08'00" east and the low water mark;
- (f) Then south to the intersection of longitude 138° 08'00" east and the low water mark of Kangaroo Island in the vicinity of Cape Willoughby;
- (g) Then generally southwest along the coast to the point of commencement.



## Appendix F The assessment of marine mammal excluder devices for approval in the Small Pelagic Fishery

### Background

The Small Pelagic Fishery extends from southern Queensland to southern Western Australia (**Figure 1**). Historically, purse seining was the primary fishing method, but this was replaced by mid-water trawling between 2003 and 2008 (Moore and Stephan 2014). The target species are blue mackerel (*Scomber australasicus*), jack mackerel (*trachurus declivis*) and redbait (*Emmelichthys nitidus*). Catch across the fishery has decreased steadily since 2003-04, driven mainly by economic and logistical limitations, rather than any decline in resource abundance (Moore and Stephan 2014).

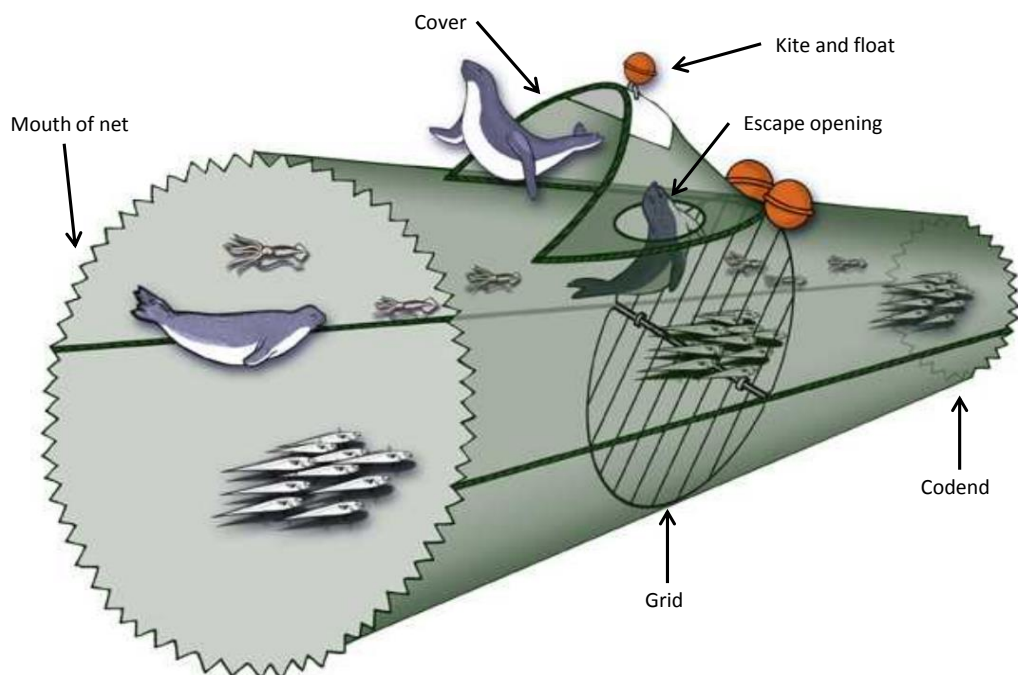


**Figure 1.** Area of the Small Pelagic Fishery.

During the normal course of fishing operations, fishers can interact with threatened, endangered and protected (TEP) species (Georgeson *et al.* 2014). Historically the Small Pelagic Fishery has experienced interactions with seals and dolphins (Lyle and Willcox 2008). Marine mammals may be attracted to fishing operations to feed on the discarded catch (offal) or the fish caught within the trawl net (Wickens and Sims 1994, David and Wickens 2003). A number of trawl fisheries in Australia and New Zealand have developed management procedures and excluder devices to minimise the incidental catch of marine mammals (Wilkinson *et al.* 2003; Tilzey *et al.* 2006; Lyle and Willcox, 2008; Thompson *et al.* 2013).

Exclusion devices are designed to enable the target species to pass through a grid or mesh barrier and into the codend of the net, but they must prevent the passage of larger animals which are ejected out through an escape opening or swim back out the mouth of the net (Lyle and Willcox 2008).

In 1999 large factory vessels operating in the Australian winter trawl fishery for blue grenadier (*Macruronus novaezelandiae*) experienced a seal bycatch problem (87 seals incidentally caught) (Tilzey *et al.* 2006), which resulted in the development of fishing practices and seal excluder devices to mitigate seal bycatch in the fishery. Tilzey *et al.* 2006 recommended the use of forward facing and top-opening seal excluder devices in all mid-water net shots (**Figure 2**).



**Figure 2.** Example of the seal excluder device used in the Australian winter trawl fishery for blue grenadier. Note the preferred shape of the escape aperture is now triangular, rather than a circular aperture shown here (modified from Tilzey *et al.* 2006).

A marine mammal excluder device with a 'soft-mesh' grid has been implemented since the inception of mid-water trawlers operating in the Small Pelagic Fishery (Lyle and Willcox 2008). The soft grid was designed to allow the trawl net to be hauled onto the net drum. However, these soft-mesh excluder devices were not sufficiently rigid and under the weight of a seal, deformed considerably, sometimes leading to entanglements, and providing no assistance in directing seals through the escape opening.

In 2004-05 the fishery experienced a number of incidents with dolphin and seal mortalities, which resulted in the development of a code of practice and modification of the marine mammal excluder device from a soft-mesh grid to a rigid grid (Lyle and Willcox 2008). Lyle and Willcox 2008 reported a 63 per cent reduction in seal mortalities

(from 0.19 seals per shot to 0.12 seal per shot) with the implementation of a modified marine mammal excluder device with a larger escape opening<sup>11</sup>. Top opening excluder devices were trialled, however due to operational difficulties with retrieving the excluder device onto the net drum it was deemed operationally unsuitable and omitted from the trial (Lyle and Willcox 2008).

## **Need**

The management plan for the Small Pelagic Fishery was recently accredited under part 13 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 28 October 2014. One condition of the fishery's accreditation is mid-water trawl vessels must have effective mitigation approaches and devices, to the satisfaction of the Australian Fisheries Management Authority (AFMA), to minimise interactions with marine mammals.

Marine mammal excluder devices offer the most practical mitigation solution (Lyle and Willcox 2008), and a number of studies have used underwater video footage to assess the functionality of excluder devices (Lyle and Willcox 2008; Shaughnessy and Davenport 1996). The analysis of marine mammal interactions using underwater video footage can present a number of challenges due to events being uncommon, the challenges of video operations in the marine environment and the effort and cost of undertaking such research (Cleal *et al.* 2009). Despite this, underwater video footage can be effective at assessing whether the components and structure of the excluder device are functioning during fishing operations which are unable to be assessed by on board observations (Gerner pers. comm, February 2015).

A number of excluder device design specifications have been assessed using underwater video footage. The following features are recommended to maximise the performance of the excluder device:

- The excluder device includes a kite or float configuration which ensures the escape opening remains open during normal fishing operations and becomes covered in circumstances where the net becomes inverted, to maximise the retention of dead or incapacitated animals.
- The excluder device is angled sufficiently to readily deflect large animals towards the escape opening.
- A top escape opening better facilitates the exit of marine mammals towards the surface and reduces the likelihood of dead or incapacitated animals passing through the excluder device to the codend.
- The spacing of excluder bars must be large enough to allow target species to pass through the device to the codend and small enough to prevent the passage of large animals through to the codend and/or the entanglement of large animals.

While such designs have proven to be effective in various trawl fisheries, it is recognised that excluder devices need to be tailored to individual fisheries and fishing operations.

### **Purpose**

This document provides the performance criteria and process for a marine mammal excluder device to be approved by AFMA in the Small Pelagic Fishery.

In line with the Small Pelagic Fishery concession conditions which state 'when fishing under this concession using mid-water trawl method, the holder must use a marine mammal excluder device approved by AFMA for use on the boat nominated to this concession.' AFMA will grant the concession holder approval for at sea testing of the excluder device. Prior to at sea testing of the marine mammal excluder device AFMA will inspect the device to ensure it meets the provisions of the performance criteria specified in **Table 1** and **Table 2**.

During the at sea testing period AFMA will assess the efficacy of the excluder device against the performance criteria. During at sea testing the excluder device may be modified to improve its performance. The concession holder must ensure that any modification to the excluder device meets the minimum requirements as specified by performance criteria one. If the excluder device is modified after AFMA has given approval for use of the device, AFMA will perform a full reassessment of the device.

### **Performance Criteria and approval process**

The concession holder must ensure the vessel uses a marine mammal excluder device that either:

- a. allows animals to escape the net ('top opening excluder device') **Table 1**;  
or
- b. keeps animals out of the net ('barrier net') **Table 2**.

Prior to approval, the vessel operator must submit documentation to AFMA that provides sufficient evidence that the excluder device meets the performance criteria.

**Table 1.** Performance criteria, performance indicators and performance measures for the approval of a top opening excluder device in the Small Pelagic Fishery.

<b>Performance Criteria</b>	<b>Performance indicators</b>	<b>Performance measures</b>
1. Allows marine mammals to exit the net	1.1 The spacing of grids must prevent marine mammals from entering the codend of the net. 1.2 The escape opening must be sufficient size to allow marine mammals to escape.	<ul style="list-style-type: none"> <li>• A maximum grid spacing of 500 mm (stretched, measured knot to knot)</li> <li>• The angle of the grid must be upwards facing</li> <li>• The escape opening must be no smaller than 800 mm in length and 600 mm in width and be free of obstruction</li> <li>• Must have a 'hood' over the escape opening</li> <li>• A kite must be attached to the leading edge of the hood to ensure that the escape opening egress is maintained</li> <li>• Buoyancy equivalent to at least one single 20 cm diameter float on the centre of the leading edge of the kite for initial flotation</li> <li>• The measurements of the excluder device and construction materials have been recorded and documented.</li> </ul>
2. Retains dead or incapacitated animals	2.1 The hood must cover the escape opening and retain dead or incapacitated animals. 2.2 If the net becomes inverted during fishing the hood must close over the escape opening of the net to retain dead or incapacitated animals.	<ul style="list-style-type: none"> <li>• The excluder device retains all dead or incapacitated animals</li> <li>• The structure of the hood remains in place during all observations</li> <li>• The hood must close over the escape opening when the net is inverted.</li> </ul>

**Table 2.** Performance criteria, performance indicators and performance measures for the approval of a barrier net in the Small Pelagic Fishery.

<b>Performance Criteria</b>	<b>Performance indicators</b>	<b>Performance measures</b>
1. Allows marine mammals to exit the net	1.3 The spacing of grids must prevent marine mammals from entering the codend of the net.	<ul style="list-style-type: none"> <li>• A maximum grid spacing of 500mm (stretched, measured knot to knot)</li> <li>• A secondary grid, with a maximum grid size of 500mm (stretched, measured knot to knot) must be placed ahead of the codend.</li> <li>• The measurements of the excluder device and construction materials have been recorded and documented by AFMA.</li> </ul>
2. Retains dead or incapacitated animals	2.1 The device must retain dead or incapacitated animals.	<ul style="list-style-type: none"> <li>• An AFMA officer must monitor the net on hauling to observe any animals caught at the barrier net and the secondary grid.</li> <li>• Where possible an AFMA officer must monitor the performance of the device using underwater camera footage.</li> </ul>

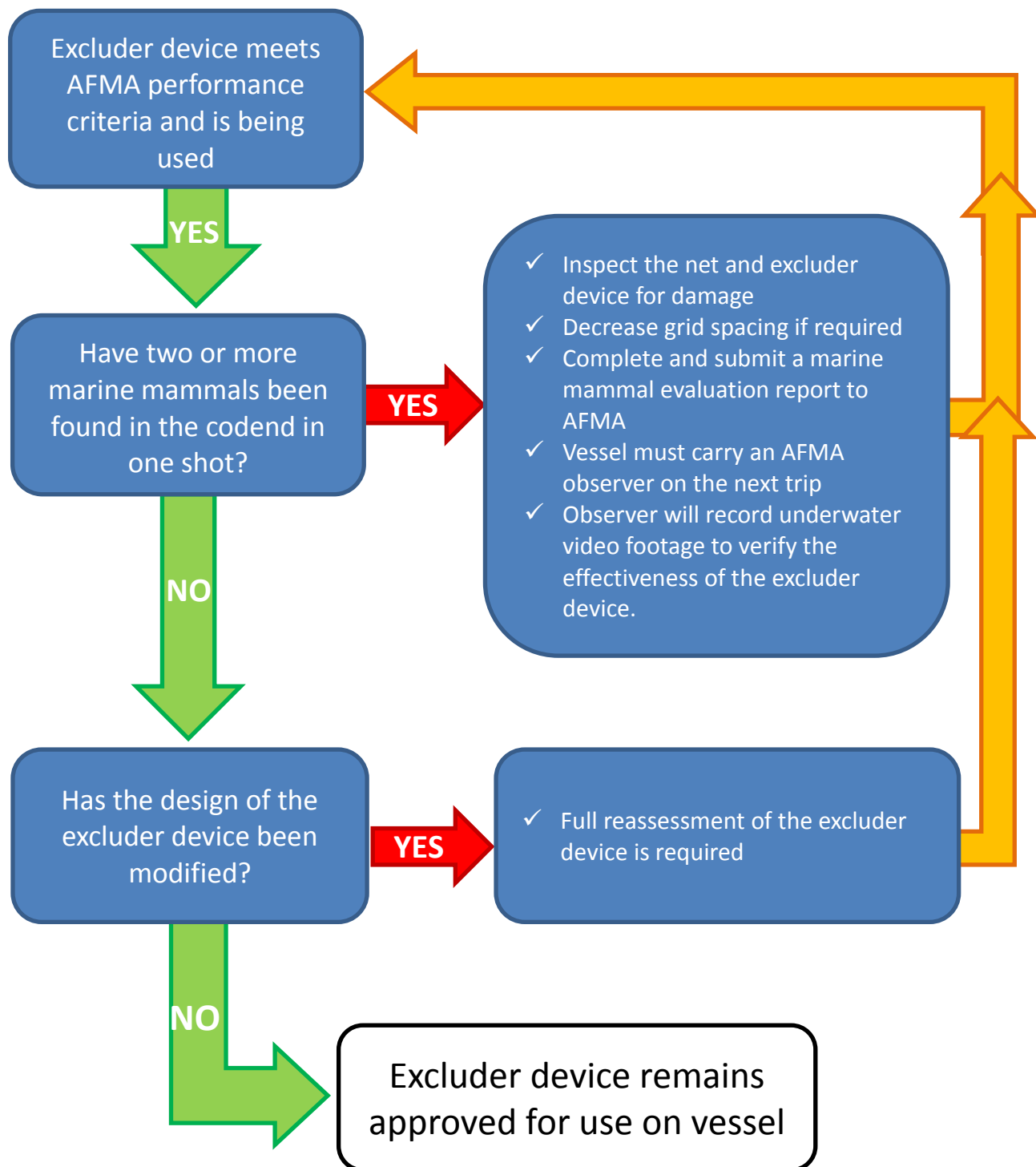
### Review process for marine mammal exclusion devices

AFMA will continue to review the performance of excluder devices that have been approved in the Small Pelagic Fishery. Triggers that will be used to initiate a review and the review process are explained in **Table 3** and in **Figure 3**.

**Table 3.** Review process for marine mammal exclusion devices.

Trigger for review	Review process
If two or more marine mammals are found in the codend of the net in one shot.	<ul style="list-style-type: none"> <li>• Vessel master to check for damage to the net and the mitigation device and make repairs if necessary.</li> <li>• Vessel master to complete a marine mammal evaluation report and submit to AFMA at the end of the trip.</li> <li>• Vessel must carry an AFMA observer on at least the next trip and record underwater video footage to verify the effectiveness of the excluder device.</li> </ul>
Any design change of the exclusion device.	<ul style="list-style-type: none"> <li>• Requires a full reassessment by AFMA.</li> </ul>

### Review process for marine mammal exclusion devices



**Figure 3:** Review process for Marine Mammal Exclusion Devices in the Small Pelagic Fishery

#### References

Cleal, J., Clement, G., and Wells, R. 2009. Mitigating Incidental Captures of Fur Seals in Trawl Fisheries. A report commissioned by Department of Conservation, Project MIT 2006/09. Clement & Associates Limited, Auckland, New Zealand.



David, J., and Wickens, P. 2003: Management of cape fur seals and fisheries in South Africa, pp. 116-135. In: Gales, N.J., Hindell, M.A., and Kirkwood, R. (eds) 2003. Marine mammals: fisheries, tourism and management issues, pp. 192-207. CSIRO Publishing, Melbourne, 446p.

Georgeson, L., Penney, A., Stephan, M., and Curtotti, R. 2014. Chapter 1 Overview. In: Georgeson, L., Stobutzki, I., and Curtotti, R. (eds) 2014. Fishery status reports 2013-14, pp. 1-33. Australian Bureau of Agriculture and Resource Economics and Sciences, Canberra, 495p.

Lyle, J.M., and Willcox, S.T. 2008. Dolphin and seal interactions with mid-water trawling in the commonwealth Small Pelagic Fishery, including an assessment of bycatch mitigation. Fisheries Research and Development Corporation final report, Project No. R05/0996. Tasmanian Aquaculture and fisheries Institute, University of Tasmania, Tasmania, 39p.

Moore, A., and Stephan, M. 2014. Chapter 7 Small Pelagic Fishery. In: Georgeson, L., Stobutzki, I., and Curtotti, R. (eds) 2014. Fishery status reports 2013-14, pp. 91-110. Australian Bureau of Agriculture and Resource Economics and Sciences, Canberra, 495p.

Shaughnessy, P.D., and Davenport, S.R. 1996. Underwater videographic observations and incidental mortality of fur seals around fishing equipment in south-eastern Australia. *Marine and Freshwater Research* **47**: 553-556.

Thompson, F.N., Berkenbusch, K., and Abraham, E.R., 2013. Marine mammal bycatch in New Zealand trawl fisheries, 1995–96 to 2010–11. In: New Zealand Aquatic Environment and Biodiversity Report No. 105., pp. 73.

Tilzey, R., Goldsworthy, S., Cawthron, M., Calvert, N., Hamer, D., Russell, S., Shaughnessy, P., Wise, B., and Stewardson, C. 2006. Assessment of seal-fishery interactions in the winter blue grenadier fishery off west Tasmania and the development of fishing practices and Seal Exclusion Devices to mitigate seal bycatch by factory trawlers. Fisheries Research and Development Corporation final report, Project No. 2001/008. Bureau of Rural Sciences, Canberra, 69p.

Wickens, P.A., and Suims, P.F. 1994. Trawling operations and South African (Cape) fur seals, *Arctocephalus pusillus pusillus*. *Marine Fisheries Review* **56**: 1-12.

Wilkinson, I., Burgess, J., and Cawthron, M. 2003. New Zealand sea lions and squid: managing fisheries impacts on a threatened mammal, pp. 192-207. In: Gales, N.J., Hindell, M.A., and Kirkwood, R. (eds) 2003. Marine mammals: fisheries, tourism and management issues. CSIRO Publishing, Melbourne, 446p.

## Appendix G Example of a Listed Marine and Threatened Species Form

Australian Fisheries Management Authority Box 7051 Canberra Business Centre ACT 2610		<b>LISTED MARINE AND THREATENED SPECIES FORM</b>																
Please use one form per day										Log No. <b>0123</b>								
Boat Name <b>Simon Says</b>		Date of Interaction <b>01 / 12 / 14</b>		Corresponding logsheet no. <b>001</b>		Observer on board (tick box) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Distinguishing Symbol <b>LFB123</b>										
Great White Shark / Grey Nurse / Whale Shark / Seabird / Seal / Dolphin / Whale / Dugong																		
Species Name <small>Be specific (refer to list), one line for each individual, except for Syngnathids (Sea Horses)</small>	No. of Sea Horses	Time at which Interaction occurred (24hr)	Latitude/Longitude of interaction						Caught During Fishing Operation (tick one box only)			Band or Tag Number			Life Status (tick one box only)			
			dd	mm	ddd	mm	Haul	Set	Other	Alive	Dead	Injured						
<b>Shy albatross</b>		<b>1030</b>	<b>3</b>	<b>8</b>	<b>1</b>	<b>5</b>	<b>1</b>	<b>4</b>	<b>8</b>	<b>3</b>	<b>0</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Comments</b>																		
Is there anything else that you believe to be important information, for example: Female, male, adult, juvenile? Where was the animal tangled (flipper, mouth, wing, etc.)? Where in the gear was the animal tangled (codend, wingend, warps, BRDs, etc.)? How was the animal released (lowered by hand, lowered with a net into the water, cut out net, etc.)? <b>Albatross with pink bill and yellow tip was caught during hauling. It's wing was tangled on the warp wire.</b>																		
I certify the information, which I have provided on this form to be a complete and accurate record.																		
Concession Holder/Authorised Person Signature and Date:		<b>Fred Nerk</b>						<b>01 / 12 / 14</b>										
Concession Holder/Authorised Person Printed Name:		<b>Fred Nerk</b>																
WHITE - Original - Send to AFMA		Please provide an estimate of the time taken to complete this form						<b>5</b>		min.								

## Appendix H Marine mammal bycatch evaluation report

**AFMA**  
**Marine Mammal Bycatch Evaluation Report**  
 V. 1.0

The reporting requirements for marine mammal interactions are outlined in your fishing permit conditions and in the table of reporting requirements in the vessel management plan.

<b>Voyage departure date</b>			
<b>Voyage return date</b>			
<b>Name of vessel</b>			
<b>Home port</b>			
<b>Species name (refer ID guide)</b>			
<b>Number of animals caught</b>			
<b>Where was the animal caught (select one)</b>	Codend	Before the codend	Entangled in excluder device
<b>Fate of animal and life status e.g. discarded, tagged and discarded,</b>			
<b>Carcass condition</b>	Clean, undamaged	Damaged	
<b>Location of interaction</b>	Latitude		
	Longitude		
<b>Date &amp; time of interaction</b>			
<b>Logbook number and page number or e-log reference</b>	Logbook #: Page #:	e-log ref:	
<b>Net deployment time</b>	Start:	End:	
<b>Net haul time</b>	Start:	End:	

<b>Net fishing depth (m)</b>		
<b>Weather &amp; sea conditions at time of set:</b>		
<b>Weather &amp; sea conditions at time of haul:</b>		
<b>Average vessel setting course &amp; speed at set:</b>	Course:	Knots:
<b>Average vessel setting course &amp; speed at haul:</b>	Course:	Knots:
<b>Standard shot (if no describe problems / net inverted etc.)</b>		
<b>Were marine mammals observed before setting?</b>	YES	NO
<b>Were marine mammals observed during setting?</b>	YES	NO
<b>Were marine mammals observed during hauling?</b>	YES	NO
<b>Any unusual event around interaction capture?</b>		
<b>Bands, tags or markings present?</b>	YES	NO

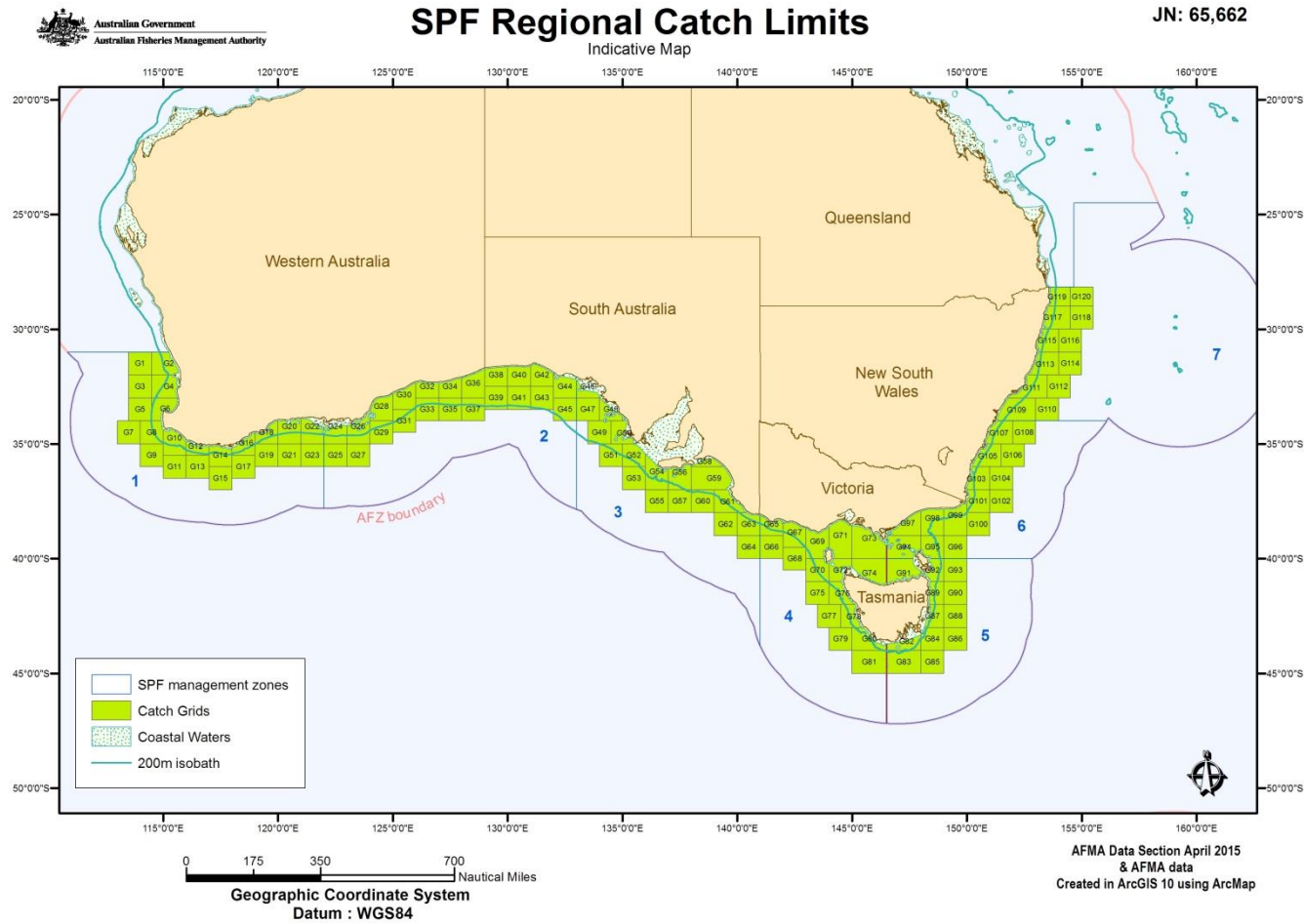
<b>Description of fishing gear</b>	Net length:				
	Overall net condition:	Poor	Average	Good	Excellent
	Condition of excluder device:	Poor	Average	Good	Excellent
	Excluder device grid material:				
	Excluder device grid spacing:				
	Excluder device escape opening dimensions:				
	Excluder device hood dimensions:				
	Excluder device kite dimensions:				
	Number of floats used on excluder device, float type and material:				
	<b>Detail procedures, if any, the vessel has put in place to prevent any further interactions</b>				

**Additional Comments**

Provide any additional comments that may be relevant and not recorded above.

-----  
-----  
-----  
-----  
-----  
-----

## Appendix I Small Pelagic Fishery regional catch limit grids and management zones



## Appendix J Coordinates for the Small Pelagic Fishery regional catch limit grids

Grid Code	Latitude	Longitude
G1	31° 00' S	113° 30' E
	31° 00' S	114° 30' E
	32° 00' S	114° 30' E
	32° 00' S	113° 30' E
G2	32° 00' S	114° 30' E
	31° 00' S	114° 30' E
	31° 00' S	116° 00' E
G3	32° 00' S	113° 30' E
	32° 00' S	114° 30' E
	33° 00' S	114° 30' E
G4	33° 00' S	114° 30' E
	32° 00' S	114° 30' E
	32° 00' S	116° 00' E
G5	33° 00' S	113° 30' E
	33° 00' S	114° 30' E
	34° 00' S	114° 30' E
G6	34° 00' S	114° 30' E
	33° 00' S	114° 30' E
	33° 00' S	116° 00' E
G7	34° 00' S	113° 00' E
	34° 00' S	114° 00' E
	35° 00' S	114° 00' E
G8	35° 00' S	113° 00' E
	34° 00' S	114° 00' E
	35° 00' S	115° 00' E
G9	34° 00' S	114° 00' E
	34° 00' S	115° 00' E
	35° 00' S	115° 00' E
G10	35° 00' S	114° 00' E
	35° 00' S	115° 00' E
	36° 00' S	115° 00' E
G11	36° 00' S	114° 00' E
	35° 30' S	116° 00' E
	35° 30' S	115° 00' E
G12	35° 30' S	117° 00' E
	35° 30' S	116° 00' E
	34° 30' S	116° 00' E
G13	35° 00' S	117° 00' E
	35° 00' S	116° 00' E
	35° 00' S	117° 00' E
G14	36° 30' S	117° 00' E
	36° 30' S	116° 00' E
	35° 00' S	117° 00' E
G15	35° 00' S	118° 00' E
	36° 00' S	118° 00' E
	36° 00' S	117° 00' E
G16	37° 00' S	118° 00' E
	37° 00' S	117° 00' E
	36° 00' S	117° 00' E
G17	35° 30' S	119° 00' E
	35° 30' S	118° 00' E
	35° 00' S	118° 00' E
G18	34° 00' S	119° 00' E
	34° 00' S	119° 00' E
	34° 00' S	120° 00' E
G19	35° 00' S	120° 00' E
	35° 00' S	119° 00' E
	35° 00' S	119° 00' E
G20	36° 00' S	120° 00' E
	36° 00' S	119° 00' E
	35° 00' S	121° 00' E
G21	35° 00' S	120° 00' E
	35° 00' S	120° 00' E
	35° 00' S	121° 00' E
G22	36° 00' S	121° 00' E
	36° 00' S	120° 00' E
	35° 00' S	122° 00' E



	35° 00' S	121° 00' E
	33° 30' S	121° 00' E
	33° 30' S	122° 00' E
G23	35° 00' S	121° 00' E
	35° 00' S	122° 00' E
	36° 00' S	122° 00' E
	36° 00' S	121° 00' E
G24	35° 00' S	123° 00' E
	35° 00' S	122° 00' E
	33° 30' S	122° 00' E
	33° 30' S	123° 00' E
G25	35° 00' S	122° 00' E
	35° 00' S	123° 00' E
	36° 00' S	123° 00' E
	36° 00' S	122° 00' E
G26	35° 00' S	124° 00' E
	35° 00' S	123° 00' E
	33° 30' S	123° 00' E
	33° 30' S	124° 00' E
G27	35° 00' S	123° 00' E
	35° 00' S	124° 00' E
	36° 00' S	124° 00' E
	36° 00' S	123° 00' E
G28	34° 00' S	125° 00' E
	34° 00' S	124° 00' E
	33° 00' S	124° 00' E
	32° 30' S	125° 00' E
G29	34° 00' S	124° 00' E
	34° 00' S	125° 00' E
	35° 00' S	125° 00' E
	35° 00' S	124° 00' E
G30	33° 30' S	126° 00' E
	33° 30' S	125° 00' E
	32° 30' S	125° 00' E
	32° 00' S	126° 00' E
G31	33° 30' S	125° 00' E
	33° 30' S	126° 00' E
	34° 30' S	126° 00' E
	34° 30' S	125° 00' E
G32	32° 00' S	126° 00' E
	32° 00' S	127° 00' E
	33° 00' S	127° 00' E
	33° 00' S	126° 00' E
G33	33° 00' S	126° 00' E
	33° 00' S	127° 00' E
	34° 00' S	127° 00' E

	34° 00' S	126° 00' E
G34	32° 00' S	127° 00' E
	32° 00' S	128° 00' E
	33° 00' S	128° 00' E
	33° 00' S	127° 00' E
G35	33° 00' S	127° 00' E
	33° 00' S	128° 00' E
	34° 00' S	128° 00' E
	34° 00' S	127° 00' E
G36	33° 00' S	129° 00' E
	33° 00' S	128° 00' E
	32° 00' S	128° 00' E
	31° 30' S	129° 00' E
G37	33° 00' S	128° 00' E
	33° 00' S	129° 00' E
	34° 00' S	129° 00' E
	34° 00' S	128° 00' E
G38	32° 30' S	130° 00' E
	32° 30' S	129° 00' E
	31° 30' S	129° 00' E
	31° 30' S	130° 00' E
G39	32° 30' S	129° 00' E
	32° 30' S	130° 00' E
	33° 30' S	130° 00' E
	33° 30' S	129° 00' E
G40	32° 30' S	131° 00' E
	32° 30' S	130° 00' E
	31° 30' S	130° 00' E
	31° 30' S	131° 00' E
G41	32° 30' S	130° 00' E
	32° 30' S	131° 00' E
	33° 30' S	131° 00' E
	33° 30' S	130° 00' E
G42	32° 30' S	132° 00' E
	32° 30' S	131° 00' E
	31° 30' S	131° 00' E
	31° 30' S	132° 00' E
G43	32° 30' S	131° 00' E
	32° 30' S	132° 00' E
	33° 30' S	132° 00' E
	33° 30' S	131° 00' E
G44	32° 00' S	132° 00' E
	32° 00' S	133° 00' E
	33° 00' S	133° 00' E
	33° 00' S	132° 00' E
G45	33° 00' S	132° 00' E

	33° 00' S	133° 00' E
	34° 00' S	133° 00' E
	34° 00' S	132° 00' E
G46	33° 00' S	133° 00' E
	32° 00' S	133° 00' E
	32° 00' S	134° 00' E
	33° 00' S	134° 00' E
G47	33° 00' S	133° 00' E
	33° 00' S	134° 00' E
	34° 00' S	134° 00' E
	34° 00' S	133° 00' E
G48	33° 00' S	134° 00' E
	33° 00' S	135° 00' E
	34° 00' S	135° 00' E
	34° 00' S	134° 00' E
G49	34° 00' S	133° 30' E
	34° 00' S	134° 30' E
	35° 00' S	134° 30' E
	35° 00' S	133° 30' E
G50	35° 00' S	134° 30' E
	34° 00' S	134° 30' E
	34° 00' S	135° 30' E
	35° 00' S	136° 00' E
G51	35° 00' S	134° 00' E
	35° 00' S	135° 00' E
	36° 00' S	135° 00' E
	36° 00' S	134° 00' E
G52	35° 00' S	135° 00' E
	35° 00' S	136° 00' E
	36° 00' S	136° 00' E
	36° 00' S	135° 00' E
G53	36° 00' S	135° 00' E
	36° 00' S	136° 00' E
	37° 00' S	136° 00' E
	37° 00' S	135° 00' E
G54	37° 00' S	137° 00' E
	37° 00' S	136° 00' E
	35° 00' S	136° 00' E
	36° 00' S	137° 00' E
G55	37° 00' S	136° 00' E
	37° 00' S	137° 00' E
	38° 00' S	137° 00' E
	38° 00' S	136° 00' E
G56	37° 00' S	138° 00' E
	37° 00' S	137° 00' E
	35° 30' S	137° 00' E

	35° 30' S	138° 00' E
G57	37° 00' S	137° 00' E
	37° 00' S	138° 00' E
	38° 00' S	138° 00' E
	38° 00' S	137° 00' E
G58	35° 30' S	138° 00' E
	35° 30' S	139° 00' E
	36° 00' S	140° 00' E
	36° 00' S	138° 00' E
G59	37° 00' S	138° 00' E
	36° 00' S	138° 00' E
	36° 00' S	140° 00' E
	37° 00' S	140° 00' E
G60	37° 00' S	138° 00' E
	37° 00' S	139° 00' E
	38° 00' S	139° 00' E
	38° 00' S	138° 00' E
G61	38° 00' S	139° 00' E
	37° 00' S	139° 00' E
	37° 00' S	140° 00' E
	38° 00' S	140° 30' E
G62	38° 00' S	139° 00' E
	38° 00' S	140° 00' E
	39° 00' S	140° 00' E
	39° 00' S	139° 00' E
G63	38° 00' S	140° 00' E
	38° 00' S	141° 00' E
	39° 00' S	141° 00' E
	39° 00' S	140° 00' E
G64	39° 00' S	140° 00' E
	39° 00' S	141° 00' E
	40° 00' S	141° 00' E
	40° 00' S	140° 00' E
G65	38° 00' S	141° 00' E
	38° 00' S	142° 00' E
	39° 00' S	142° 00' E
	39° 00' S	141° 00' E
G66	39° 00' S	141° 00' E
	39° 00' S	142° 00' E
	40° 00' S	142° 00' E
	40° 00' S	141° 00' E
G67	39° 30' S	143° 00' E
	39° 30' S	142° 00' E
	38° 00' S	142° 00' E
	38° 30' S	143° 00' E
G68	39° 30' S	142° 00' E

	39° 30' S	143° 00' E
	40° 30' S	143° 00' E
	40° 30' S	142° 00' E
G69	40° 00' S	144° 00' E
	40° 00' S	143° 00' E
	38° 30' S	143° 00' E
	38° 30' S	144° 00' E
G70	40° 00' S	143° 00' E
	40° 00' S	144° 00' E
	41° 00' S	144° 00' E
	41° 00' S	143° 00' E
G71	40° 00' S	145° 00' E
	40° 00' S	144° 00' E
	38° 00' S	144° 00' E
	38° 00' S	145° 00' E
G72	40° 00' S	144° 00' E
	40° 00' S	145° 00' E
	41° 00' S	145° 00' E
	41° 00' S	144° 00' E
G73	40° 00' S	146° 30' E
	40° 00' S	145° 00' E
	38° 00' S	145° 00' E
	38° 30' S	146° 30' E
G74	40° 00' S	145° 00' E
	40° 00' S	146° 30' E
	41° 30' S	146° 30' E
	41° 00' S	145° 00' E
G75	41° 00' S	143° 00' E
	41° 00' S	144° 00' E
	42° 00' S	144° 00' E
	42° 00' S	143° 00' E
G76	41° 00' S	144° 00' E
	41° 00' S	145° 00' E
	42° 00' S	145° 30' E
	42° 00' S	144° 00' E
G77	42° 00' S	143° 30' E
	42° 00' S	144° 30' E
	43° 00' S	144° 30' E
	43° 00' S	143° 30' E
G78	43° 00' S	144° 30' E
	42° 00' S	144° 30' E
	42° 00' S	145° 30' E
	43° 00' S	146° 00' E
G79	43° 00' S	144° 00' E
	43° 00' S	145° 00' E
	44° 00' S	145° 00' E

	44° 00' S	144° 00' E
G80	43° 00' S	145° 00' E
	43° 00' S	146° 30' E
	44° 00' S	146° 30' E
G81	44° 00' S	145° 00' E
	44° 00' S	146° 30' E
	45° 00' S	146° 30' E
G82	44° 00' S	145° 00' E
	44° 00' S	146° 30' E
	45° 00' S	145° 00' E
G83	44° 00' S	148° 00' E
	44° 00' S	146° 30' E
	43° 30' S	146° 30' E
G84	44° 00' S	148° 00' E
	44° 00' S	148° 00' E
	45° 00' S	148° 00' E
G85	44° 00' S	146° 30' E
	44° 00' S	148° 00' E
	45° 00' S	146° 30' E
G86	43° 00' S	148° 00' E
	43° 00' S	149° 00' E
	44° 00' S	149° 00' E
G87	44° 00' S	148° 00' E
	44° 00' S	149° 00' E
	45° 00' S	149° 00' E
G88	43° 00' S	149° 00' E
	43° 00' S	150° 00' E
	44° 00' S	150° 00' E
G89	42° 00' S	148° 00' E
	42° 00' S	149° 00' E
	43° 00' S	149° 00' E
G90	42° 00' S	148° 00' E
	42° 00' S	149° 00' E
	43° 00' S	149° 00' E
G91	42° 00' S	148° 00' E
	40° 00' S	146° 30' E

	40° 00' S	148° 00' E
	41° 00' S	148° 00' E
	41° 30' S	146° 30' E
G92	40° 00' S	148° 00' E
	40° 00' S	149° 00' E
	41° 00' S	149° 00' E
	41° 00' S	148° 00' E
G93	40° 00' S	149° 00' E
	40° 00' S	150° 00' E
	41° 00' S	150° 00' E
	41° 00' S	149° 00' E
G94	39° 00' S	146° 30' E
	39° 00' S	148° 00' E
	40° 00' S	148° 00' E
	40° 00' S	146° 30' E
G95	39° 00' S	148° 00' E
	39° 00' S	149° 00' E
	40° 00' S	149° 00' E
	40° 00' S	148° 00' E
G96	39° 00' S	149° 00' E
	39° 00' S	150° 00' E
	40° 00' S	150° 00' E
	40° 00' S	149° 00' E
G97	38° 30' S	146° 30' E
	37° 30' S	148° 00' E
	39° 00' S	148° 00' E
	39° 00' S	146° 30' E
G98	39° 00' S	149° 00' E
	39° 00' S	148° 00' E
	37° 30' S	148° 00' E
	37° 30' S	149° 00' E
G99	39° 00' S	150° 00' E
	39° 00' S	149° 00' E
	37° 30' S	149° 00' E
	37° 00' S	150° 00' E
G100	38° 00' S	150° 00' E
	38° 00' S	151° 00' E
	39° 00' S	151° 00' E
	39° 00' S	150° 00' E
G101	37° 00' S	150° 00' E
	37° 00' S	151° 00' E
	38° 00' S	151° 00' E
	38° 00' S	150° 00' E
G102	37° 00' S	151° 00' E
	37° 00' S	152° 00' E
	38° 00' S	152° 00' E

	38° 00' S	151° 00' E
G103	37° 00' S	149° 30' E
	36° 00' S	150° 00' E
	36° 00' S	151° 00' E
	37° 00' S	151° 00' E
G104	36° 00' S	151° 00' E
	36° 00' S	152° 00' E
	37° 00' S	152° 00' E
	37° 00' S	151° 00' E
G105	36° 00' S	150° 00' E
	35° 00' S	150° 30' E
	35° 00' S	151° 30' E
	36° 00' S	151° 30' E
G106	35° 00' S	151° 30' E
	35° 00' S	152° 30' E
	36° 00' S	152° 30' E
	36° 00' S	151° 30' E
G107	35° 00' S	150° 30' E
	34° 00' S	151° 00' E
	34° 00' S	152° 00' E
	35° 00' S	152° 00' E
G108	34° 00' S	152° 00' E
	34° 00' S	153° 00' E
	35° 00' S	153° 00' E
	35° 00' S	152° 00' E
G109	34° 00' S	151° 00' E
	33° 00' S	151° 30' E
	33° 00' S	153° 00' E
	34° 00' S	153° 00' E
G110	33° 00' S	153° 00' E
	33° 00' S	154° 00' E
	34° 00' S	154° 00' E
	34° 00' S	153° 00' E
G111	33° 00' S	151° 30' E
	32° 00' S	152° 30' E
	32° 00' S	153° 30' E
	33° 00' S	153° 30' E
G112	32° 00' S	153° 30' E
	32° 00' S	154° 30' E
	33° 00' S	154° 30' E
	33° 00' S	153° 30' E
G113	32° 00' S	152° 30' E
	31° 00' S	153° 00' E
	31° 00' S	154° 00' E
	32° 00' S	154° 00' E
G114	31° 00' S	154° 00' E

	31° 00' S	155° 00' E
	32° 00' S	155° 00' E
	32° 00' S	154° 00' E
G115	30° 00' S	153° 00' E
	30° 00' S	154° 00' E
	31° 00' S	154° 00' E
	31° 00' S	153° 00' E
G116	30° 00' S	154° 00' E
	30° 00' S	155° 00' E
	31° 00' S	155° 00' E
	31° 00' S	154° 00' E
G117	30° 00' S	153° 00' E
	29° 00' S	153° 00' E
	29° 00' S	154° 30' E
	30° 00' S	154° 30' E
G118	29° 00' S	154° 30' E
	29° 00' S	155° 30' E
	30° 00' S	155° 30' E
	30° 00' S	154° 30' E
G119	29° 00' S	153° 00' E
	28° 10' S	153° 30' E
	28° 10' S	154° 30' E
	29° 00' S	154° 30' E
G120	28° 10' S	154° 30' E
	28° 10' S	155° 30' E
	29° 00' S	155° 30' E
	29° 00' S	154° 30' E

## Appendix K Boundary description of the Small Pelagic Fishery management zones

### Management Zone One

The area of management zone one is the part of the AFZ bounded by a notional line beginning at the intersection of the parallel of latitude 31° 00' south and the coastline of Western Australia, and running progressively as described in the following table (excluding any coastal waters):

Item	Description
1	West along that parallel to the intersection with the outer limit of the AFZ
2	Generally southerly and easterly along that outer limit to the point of intersection with the meridian of longitude 122° 00' east
3	North along that meridian to the intersection with the coastline of Western Australia
4	Generally westerly and northerly along the Australian coastline to the point of commencement

### Management Zone Two

The area of management zone two is the part of the AFZ bounded by a notional line beginning at the intersection of the meridian of longitude 122° 00' east and the coastline of Western Australia, and running progressively as described in the following table (excluding any coastal waters):

Item	Description
1	South along that meridian to the intersection with the outer limit of the AFZ
2	Generally easterly along that outer limit to the point of intersection with the meridian of longitude 133° 00' east
3	North along that meridian to the intersection with the coastline of South Australia
4	Generally westerly along the Australian coastline to the point of commencement

**Management Zone Three**

The area of management zone three is the part of the AFZ bounded by a notional line beginning at the intersection of the meridian of longitude 133° 00' east and the coastline of South Australia, and running progressively as described in the following table (excluding any coastal waters):

Item	Description
1	South along that meridian to the intersection with the outer limit of the AFZ
2	Generally south-easterly along that outer limit to the point of intersection with the meridian of longitude 141° 00' east
3	North along that meridian to the intersection with the coastline of Australia at the landward boundary between South Australia and Victoria
4	Generally north-westerly along the Australian coastline to the point of commencement

**Management Zone Four**

The area of management zone four is the part of the AFZ bounded by a notional line beginning at the intersection of the meridian of longitude 141° 00' east and the coastline of Australia at the landward boundary between South Australia and Victoria and running progressively as described in the following table (excluding any coastal waters):

Item	Description
1	South along that meridian to the intersection with the outer limit of the AFZ
2	Generally south-easterly along that outer limit to the point of intersection with the meridian of longitude 146° 30' east
3	North along that meridian to the intersection with the southern coastline of Tasmania
4	Generally north-westerly and easterly along the coastline of Tasmania to the point of intersection with the meridian of longitude 146° 30' east
5	North along that meridian to the intersection with the coastline of Victoria
6	Generally westerly along that coastline to the point of commencement

**Management Zone Five**

The area of management zone five is the part of the AFZ bounded by a notional line beginning at the point of intersection of parallel of latitude 40° 00' south and the meridian of longitude 146° 30' east and running progressively as described in the following table (excluding any coastal waters):

Item	Description
1	South along that meridian to the intersection with the northern coastline of Tasmania
2	Generally easterly, southerly and westerly along that coastline to the point of intersection with the meridian of longitude 146° 30' east
3	South along that meridian to the intersection with the outer limit of the AFZ
4	Generally easterly, north-easterly and northerly along that outer limit to the point of intersection with the parallel of latitude 40° 00' south
5	West along that parallel to the point of commencement

**Management Zone Six**

The area of management zone six is the part of the AFZ bounded by a notional line beginning at the intersection of the meridian of longitude 146° 30' east and the coastline of Victoria and running progressively as described in the following table (excluding any coastal waters):

Item	Description
1	South along that meridian to the point of intersection with the parallel of latitude 40° 00' south
2	East along that parallel to the intersection with the outer limit of the AFZ
3	Generally north-easterly along that outer limit to the point of intersection with the parallel of latitude 34° 00' south
4	West along that parallel to the intersection with the coastline of New South Wales
5	Generally southerly along that coastline to the landward boundary between New South Wales and Victoria
6	Generally westerly along that coastline to the point of commencement



### Management Zone Seven

The area of management zone seven is the part of the AFZ bounded by a notional line beginning at the intersection of the parallel of latitude 34° 00' south and the coastline of New South Wales and running progressively as described in the following table (excluding any coastal waters):

Item	Description
1	East along that parallel to the intersection with the outer limit of the AFZ
2	Generally northerly to the point of intersection with the parallel of latitude 24° 29' 54" south
3	West along that parallel to the point of intersection with the meridian of longitude 154° 40' 04" east
4	South along that meridian to the point of intersection with the parallel of latitude 28° 10' south
5	West along that parallel to the intersection with the of the landward boundary between Queensland and New South Wales
6	Generally south along the coastline of New South Wales to the point of commencement