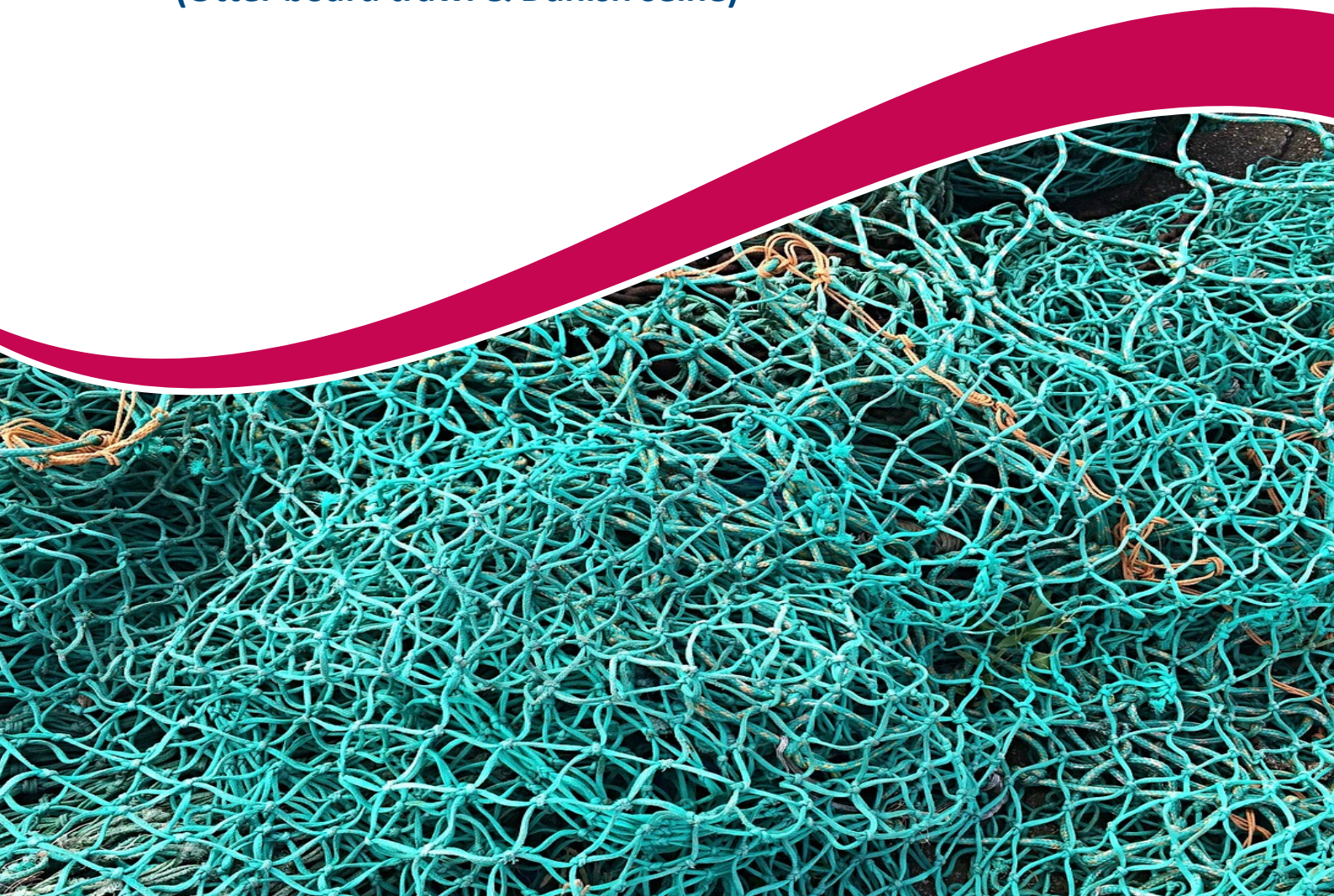
Australian Government

Australian Fisheries Management Authority

Bycatch and Discarding Workplan 2021 - 25

Commonwealth Trawl Sector (Otter board trawl & Danish seine)



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Version	Updates	Drafted by
0.1 – July 2021	Initial draft	Cate Coddington

1 Introduction

In carrying out its functions, the Australian Fisheries Management Authority (AFMA) must pursue objectives in the *Fisheries Management Act 1991* (FMA 1991) including having regard to the impact of fishing activities on non-target species and the long term sustainability of the marine environment.

Under the *Southern and Eastern Scalefish and Shark Fishery* (SESSF*) Management Plan 2003* (the Management Plan), AFMA is required to develop and implement a bycatch action plan (now referred to as a Bycatch and Discarding Workplan) to ensure that:

- information is gathered about the impact of the SESSF on bycatch species;
- all reasonable steps are taken to avoid incidental interactions with Threatened, Endangered and Protected (TEP) species; and
- the ecological impacts of fishing on habitats are minimised.

Under the *Guide to AFMA's Ecological Risk Management (ERM) 2017*, for all commercial and bycatch (including protected) species, the primary ecological sustainability objective that AFMA pursues via ERM is "to ensure that fishing (by Commonwealth commercial fisheries) does not reduce any species populations to/below a level at which the risk of recruitment failure is unacceptably high. Where such impacts have occurred, recover populations to above that level".

There are five guiding principles that AFMA uses to identify issues and to minimise and avoid bycatch of protected and general species. These are outlined in the AFMA Bycatch Strategy 2017-22:

- 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 the threat abatement plan 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. Accounting for cumulative impact of Commonwealth Fisheries on protected species when making management decisions on mitigation.
- Principle 5. Appropriate and consistent monitoring and reporting arrangements across fisheries.

As articulated in the *Commonwealth Bycatch Policy 2018* (the Bycatch Policy), the primary objective for bycatch management is to minimise fishing-related impacts on bycatch species in a manner consistent with the principles of ecologically sustainable development (ESD) and with regard to the structure, productivity, function and biological diversity of the ecosystem. In delivering on this objective for Commonwealth fisheries, the Bycatch Policy requires AFMA to:

- draw on best-practice approaches to avoid or minimise all bycatch, and minimise the mortality of bycatch that cannot be avoided;
- manage fishing-related impacts on general bycatch species to ensure that populations (that is, discrete biological units, commonly referred to as stocks in the *Commonwealth Harvest Strategy Policy*) are not depleted below a level where the risk of recruitment impairment is regarded as unacceptably high; and
- where fishing-related impacts have caused a bycatch population to fall below the level described, implement management arrangements to support those populations rebuilding to biomass levels above that level.

This *Commonwealth Trawl Sector (CTS) Bycatch and Discard Workplan 2021-25* (the Workplan) applies to the otter board trawl and Danish seine fishing gears in the SESSF. The objectives of the Workplan, which support those in the Bycatch Policy, are to:

- minimise fishing-related impacts on general bycatch species in a manner consistent with the principles of ecologically sustainable development and with regard to the structure, productivity, function and biological diversity of the ecosystem;
- reduce the number of high risk species assessed through AFMA's Ecological Risk Assessment process; and
- avoid interactions with species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

This Workplan should be read in conjunction with the:

- *Commonwealth Fisheries Bycatch Policy 2018*
- *Southern and Eastern Scalefish and Shark Fishery Management Plan 2003*
- *Ecological risk management strategies for Commonwealth commercial fisheries 2017*
- *Commonwealth Fisheries Harvest Strategy Policy and Guidelines 2018*
- *AFMA Bycatch Strategy 2017-22*

2 Fishery description

The Commonwealth Trawl Sector (CTS) is part of the broader SESSF and covers the area of the Australian Fishing Zone extending southward from Barrenjoey Head (north of Sydney) around the NSW, Victorian and Tasmanian coastlines to Cape Jervis in South Australia (Appendix A, Figure 1). The methods used in the CTS are midwater and demersal otter board trawl and Danish seine. Midwater trawling is not a major component of the CTS and is typically only used to target blue grenadier on the west coast of Tasmania during the winter spawning aggregation. As such, an Ecological Risk Assessment (ERA) has not been undertaken for this gear type, and this Workplan focuses on risks identified under the demersal otter board and Danish seine ERAs. Further information on the SESSF can be found in the SESSF Management Arrangements Booklet.

3 Workplan development

The Workplan is intended to address risks identified through the ERA process and to address impacts on the broader ecosystem, including to minimise interactions with species listed under the EPBC Act. The Workplan also builds upon the progress made under the *CTS (Otter board trawl & Danish seine) Bycatch and Discarding Workplan 2018-2019* (the Previous Workplan). Further information on the progress made under the Previous Workplan is detailed in the 2018-19 CTS Bycatch and Discarding Report Review.

The action items at Table 3 were developed in consultation with the South East Management Advisory Committee (SEMAC) to address the risks identified in the Otter Trawl and Danish Seine ERAs for the period 2012-2016 (published June 2021) as well as broader bycatch and discard risks identified across the sector.

4 Ecological risk assessment (ERA) results

The ERA process is undertaken to determine the impact of fishing on marine species and habitats. Assessment of marine species are based on a series of parameters including life history, biological productivity and susceptibility to fishing gear. It involves a hierarchy of risk assessment methodologies progressing from a comprehensive, largely qualitative analysis at Level 1, through a Level 2 Productivity Susceptibility Assessment (PSA) or more quantitative Sustainability Assessment for the Effects of Fishing (SAFE). This approach is a means of screening out low impact activities and low risk species and focusing more intensive and quantitative analyses on those species assessed as being of higher potential risk from the impact of fisheries. For the detailed methodology please see www.afma.gov.au/sustainability-environment/ecological-risk-management-strategies/.

ERAs for the otter board trawl and Danish seine methods in the CTS were undertaken in 2019 and included a revised approach under the SAFE methodology (b-SAFEi) to allow for intensity of trawling to be explicitly accounted for (spatially heterogeneous effort). The results were considered and adopted by the South East Resource Assessment Group (SERAG) in October 2019[1] and by SEMAC in June 2020[2]. Fourteen species were assessed as potentially being at high risk in the CTS (otter board trawl and Danish seine) for the period 2012-2016 (see Table 1).

Only two of the species that were assessed as potentially high risk under the 2012 ERAs[3] were also assessed as high risk in the 2019 ERAs; southern dogfish (*Centrophorus zeehaani*) and leafscale gulper shark (*C. squamosus*). The change in the risk scores for species is in part due to the change in assessment methodology using b-SAFEi.

Additionally, several mollusc species were included in the ERA analysis because logbooks included reports of ‘octopus’ and ‘cuttlefish’. This level of reporting lacks taxonomic resolution and requires the species lists to be expanded to include all species within the range of the fishery. In the absence of species-specific reporting, the risk scores for several species could not be revised as part of the residual risk assessment (cuttlefish – *Sepia braggi* and *S. graham*, and rosecone cuttlefish – *S. rosella*).

Under the PSA methodology, the absence of information on certain productivity or susceptibility attributes results in a default ‘high’ score for that particular attribute which may lead to an overall high risk score. Six of the 14 species assessed as potentially high risk in the 2019 ERA are rated as such due partly to missing

[1] See October 2019 SERAG meeting minutes
[2] See June 2020 SEMAC meeting minutes
[3] See 2012 ERA reports

information on certain attributes for productivity and susceptibility. Table 1 includes the number of missing attributes for species assessed using the PSA methodology.

In general, this Workplan focusses on high-risk ERA species, with a particular focus on why they have been assessed as potentially at high risk, i.e. missing attributes, species identification issues or actual risk from fishing.

Table 1. Species identified as potentially high risk under the 2019 CTS otter board trawl and Danish seine ERA.

Assessment type	Species type	Common name	Scientific name	Gear type[4]	Number of missing attributes
Sustainability Assessment of Fishing Impacts (b-SAFEi)	Chondrichthyans	Leafscale gulper shark[5]	*Centrophorus squamosus*	OB	
		Southern Dogfish[5]	*Centrophorus zeehaani*	OB	
		Endeavour dogfish	*Centrophorus moluccensis*	OB	
		Longsnout dogfish	*Deania quadrispinosa*	OB	
		Bight Skate	*Dipturus gudgeri*	OB	
Productivity Susceptibility Analysis (PSA)		Sandy skate	*Pavoraja arenaria*	OB	6
		Ogilby's ghostshark	*Chimaera ogilbyi*	OB	6
	Molluscs	Southern bailer shell	*Melo miltonis*	OB	10
		Maori octopus	*Pinnoctopus cordiformis*	OB	5
		Cuttlefish	*Sepia braggi*[6]	OB & DS	10
		Gould's squid[7]	*Nototodarus gouldi*	OB & DS	1
		Cuttlefish	*Sepia graham*[6]	DS	
		Rosecone cuttlefish	*Sepia rosella*[6]	DS	
		Pale octopus	*Octopus pallidus*	DS	

[4] OB = Otter board trawl, DS = Danish seine
[5] Also assessed in 2012 ERA as high risk
[6] Species expanded from higher taxonomic group ID
[7] there is a targeted fishery for Gould's squid with triggers that consider trawl catch

5 Existing measures to mitigate risk

5.1 Gear requirements

Fishing concession conditions specify minimum gear requirements in the CTS to promote escapement of small or non-targeted fish from the net. The requirements are:

- Danish seine: a mesh size of not less than 38 millimetres at any part or, when fishing for flathead, 75 mm in the codend only.
- demersal otter trawl (when fishing for prawn): a mesh size of not less than 40 millimetres and not greater than 60 millimetres at any part
- demersal otter trawl (other):
    - a mesh size of not less than 115mm in the net wing and mouth
    - in the codend mesh size of not less than:
        - 90mm single twine mesh; or
        - 102mm (4 inch) double mesh twine; or
        - 90mm double twine mesh when combined with one or more bycatch reduction devices.

Bycatch reduction devices allow fish and other animals to escape the net and are constructed as follows:

- a single large square mesh (of at least 90 mm) panel in the upper side of the codend bag (of minimum dimensions 15 bars X 20 bars); or
- a single large rotated mesh (of at least 90 mm) panel (called a T90) in the upper side of the codend bag (of minimum dimensions 15 meshes X 18 meshes).
- Seal Exclusion Devices (SEDs) are required on factory boats when fishing in waters south of 40° S and west of 147° E, during the period of 1 June to 30 September of any fishing season.

5.2 Management arrangements for protected species

Under the FMA 1991, there is an obligation to have regard to the impact of fishing activities on non-target species and the long term sustainability of the marine environment. Furthermore, under the EPBC Act, there is an obligation to ensure the protection of native species and, in particular, prevent the extinction of, and promote the recovery of, threatened species.

5.2.1 Seabird Management Plans in trawl fisheries

Seabirds are attracted to fishing boats and feed on biological material discarded overboard during processing. Minimising interactions between seabirds and otter board trawl fishing operations is recognised as a priority for AFMA and the fishing industry. AFMA introduced Seabird Management Plans (SMPs) in the Great Australian Bight Trawl (GABT) and Commonwealth Trawl Sector (CTS) of the SESSF in 2011.

SMPs are tailored to individual fishing boats and identify the main threats posed to seabirds by that boat. It also identifies and sets out the mitigation measures the concession holder has agreed to implement to reduce the risk of seabird interactions with warp wires.

AFMA approved SMPs are compulsory for all Commonwealth otter board trawl boats in the SESSF. SMPs include physical devices to deter and reduce seabird interactions and measures to manage the discharge of biological waste from boats to reduce seabird attraction and interaction. Trawl fishers in the CTS and GABT fisheries must use one of the following mitigation measures:

1. bird bafflers; or
2. water sprayers; or
3. pinkies (buoys) with zero offal discharge.

Detailed information and specifications are available on the AFMA website via:
https://www.afma.gov.au/sustainability-environment/bycatch-discarding/bycatch-reduction-devices

The most common deterrent is bafflers which are designed to prevent seabirds from accessing the front and sides of the warp wires whilst trawl gear is being towed. While bafflers have shown to reduce interactions with seabirds, there are still instances where boats interact with seabirds in high-risk areas.

To mitigate this risk, additional management arrangements were phased in across two stages; from 1 November 2019, new rules were introduced specifying that all biological material be retained when fishing gear is in the water south of latitude 39 degrees South and west of longitude 147 degrees East, during daylight hours. Then from 1 July 2020, these requirements were extended to include south of 38 degrees South.

AFMA consider granting exemptions to this rule where operators can demonstrate offal management techniques that remove the risk to seabirds interacting with trawl warps. Further information about these requirements including testing mitigation approaches in high risk areas, is available in the Guidelines for the retention of biological material in the CTS.

5.3 Overfished and conservation dependent species

5.3.1 Commercial species rebuilding strategies

Five species stocks are assessed as overfished in the SESSF and are managed under stock rebuilding strategies; eastern redfish, blue warehou, eastern gemfish, school shark and orange roughy[8]. The primary mechanism to promote stock recovery is restricting Commonwealth commercial catches. Accordingly, management measures focus on preventing targeting and limiting bycatch. Current management measures to support rebuilding include incidental catch Total Allowable Catch limits, catch triggers, limited entry, gear requirements, fishery closures, and industry code of practice.

The objective is to rebuild stocks within the area of the SESSF to 20 per cent of unfished levels within biologically reasonable timeframes. The rebuilding strategies are reviewed annually by the relevant Resource Assessment Groups (RAGs) to determine whether any additional management arrangements or

[8] The Eastern and Cascade Plateau stock are assessed as sustainable.

further research are required to promote and measure recovery. The rebuilding strategies are available on the AFMA website on the Protected species management & commercial fish species rebuilding strategies page.

5.3.2 Upper-slope dogfish species management strategy

The Upper slope Dogfish Management Strategy (the Strategy) was developed by AFMA in consultation with the fishing industry, scientific experts, conservation Non-Government Organisations and other stakeholders. AFMA implemented the Strategy in 2012 to meet the requirements of the EPBC Act relating to threatened species listings, and accreditation of the SESSF as a Wildlife Trade Operation (WTO).

The Strategy was also developed as a management response to AFMA's 2007 ERA process that identified several species of dogfish as being at high ecological risk from the impact of fishing in the SESSF.

The objective of the Strategy is to promote the recovery of Harrisson's dogfish (*Centrophorus harrissoni*) and southern dogfish (*C. zeehani*), both of which are listed as Conservation Dependent under the EPBC Act and assessed as high risk through the 2007 ERA process. Management measures implemented under the Strategy also benefit endeavour dogfish (*C. moluccensis*) and greeneye spurdog (*Squalus chloroculus*), two species also identified as high risk through the 2007 ERA process.

Specifically, the Strategy is designed to rebuild the populations of Harrisson's dogfish and southern dogfish above a limit reference point (B_{LIM}) of 25%B_0 (25% of unfished biomass), in line with the HSP. In the absence of biomass estimates for these species, a habitat proxy has been used for biomass. Consequently, to achieve its objectives, the Strategy relies on a network of spatial closures aimed at protecting suitable habitat. Spatial closures are supplemented by a range of operational measures including:

- a prohibition on the take of Harrisson's dogfish and southern dogfish;
- monitoring obligations through observers or electronic monitoring;
- a limit for bycatch of Harrisson's and southern dogfish when undertaking permitted types of line fishing in specific areas; and
- handling practices to improve post capture survival for released sharks.

Research is also expected to commence in 2021 to establish a relative index of abundance for Harrisson's dogfish and southern dogfish which will allow for ongoing monitoring of the recovery of the species. A copy of the Strategy, including details of the review undertaken in 2020 can be found on the AFMA website.

5.4 Area Closures

A network of closures is implemented in the CTS (**Table 2**) that offer protection to a broad range of species, including target, bycatch and protected species. SESSF operators are also required to adhere to spatial closures implemented under the South-East Commonwealth Marine Reserve Network.

Further information regarding closures can be found at www.afma.gov.au/fisheries/southern-eastern-scalefish-shark-fishery

Table 2: Purpose of CTS closures[9].

Closure Area	Reason For Closure
Bass Straight Trawl Closure (Otter Only)	Protect school and gummy shark habitat
Freycinet Commonwealth Marine Reserve Closures	Protect upper-slope dogfish, Marine Protected Area
Gulper Shark Closure – Endeavour Dogfish	Protect upper-slope dogfish
Gulper Shark Closure – Harrisson's Dogfish	Protect upper-slope dogfish
South East Trawl Deep Water Closure	Protect orange roughy stocks
Eastern South Australia Trawl Closure	Reduce the catch of juvenile scalefish and protect structured benthic habitat
Portland Area Trawl Closure	Reduce the catch of juvenile scalefish and protect structured benthic habitat
Barcoo and Taupo Seamounts Closure	Protect upper-slope dogfish
Port MacDonnell Closure	Protect upper-slope dogfish
Murray Dogfish Closure	Protect upper-slope dogfish
Pedra Branca Orange Roughy Management Area	Allows for targeted fishing of orange roughy using trawl methods
Western Deepwater Shark Closure	Protect orange roughy, while enabling access for otter trawl method to deepwater shark basket
Flinders Research Zone Closure	Protect upper-slope dogfish

[9] See Figure 2 for a map of the closures within the CTS

6 Bycatch Workplan Action Items

The action items below have been developed to mitigate the risk to species identified as potentially high risk under the CTS ERA, as well as broader risks identified across the fishery with regards to general bycatch, improved discard reporting, and interactions with protected species. The table includes the actions to be pursued,

Table 3: Action items for the 2021-25 Bycatch and Discarding Workplan

Action Items	Risk/Issue to be addressed (workplan object.)	Timeframe	Cost $*	Responsible Parties	Milestone	Performance Indicators
Develop learning modules (either online or in person) to further educate skippers and crew on the current risk in the fishery.	Improving skipper/crew education on bycatch issues in the SESSF Improving species identification	2021-22 financial year	Low Will be considered as part of co-management activities.	AFMA and SETFIA under co-management	Module made available to industry	Number of people completing course.
Investigate mitigation options to reduce seabird interactions.	Reduce interactions with seabirds.	2021-22 financial year	Low/Medium Not included in levy base – driven by industry.	Industry	Effective mitigation options identified	Number of boats implementing identified mitigation options.
Implement discard reporting & and operator feedback framework.	Improve reporting of discards in the trawl sector to better understand and mitigate impacts on high-risk species.	Ongoing	Low Within existing staff budget.	AMFA	Reporting framework implemented. Data plan updated to specify reporting requirements.	6-monthly reports distributed to all trawl operators.
Improve species identification by AFMA observers.	Better understand impacts on high risk species.	Ongoing	Low Within existing staff budget	AFMA	Training material developed for AFMA observers, with focus on Mollusc ID.	Number of higher taxonomic groups reported in observer data
Investigate work on seal mitigation in trawl fisheries with a focus on project python.	Improve understanding of seal interactions and available mitigation options.	2021-22 financial year	Low Included in co-management agreement.	SETFIA	Develop a mitigation device to reduce interactions with seals by using a device that closes the trawl net, and stops the ingress of seals, during the haul back.	Successful development and at-sea trials resulting in reduced seal interactions.
Application of 'enhanced SAFE' (e-SAFE) methodology to better understand the risk to some	Improved understanding of risk to species identified as	Subject to identificati on of	Low Included in research budget if	AFMA	e-SAFE identified as research priority in SESSF Research Statement	e-SAFE completed and results adopted

Action Items	Risk/Issue to be addressed (workplan object.)	Timeframe	Cost $*	Responsible Parties	Milestone	Performance Indicators
species assessed as potentially high risk in the 2019 CTS ERA.	'potential' high risk species under b-SAFEi method.	research priorities.	research priority identified.		e-SAFE completed.	by relevant RAG and MAC.

* Cost: High >$200,000 / Medium $100,000 - $200,000 / Low <$100,000

7 Summary

This Workplan provides an overview of the actions identified to mitigate risks to species identified as potentially high risk under the 2019 ERA, as well as broader ecosystem impacts in the CTS. The outcomes of previous workplans are detailed in the annual reviews, and the progress against action items in this Workplan will also be monitored and reported on (see Review Process below)

Discard reporting and species identification remains a focus of this Workplan, as well as a renewed focus on marine mammal mitigation through project Python. The latest ERA, completed in 2019, has provided the basis for the actions outlined in this Workplan. AFMA and industry will continue to work co-operatively to reduce bycatch, minimise and report discarding and improve monitoring within the CTS.

8 Review Process

Bycatch and Discarding Workplans are largely output focused. The action items included here are only some of the measures AFMA undertakes as part of the Ecological Risk Management (ERM) Strategy and it is difficult to measure the specific contribution of an action item to the overall objectives of the ERM Strategy.

This Workplan is effective as of July 2021 and will be formally reviewed as described below:

- every 12 months to;
    - ensure actions identified in Table 3 have progressed
    - determine if any further action items are required.
- final review and development of a new workplan after five years, or when the ERA is updated (whichever is sooner) to;
    - ensure that action items identified at each annual review have been completed
    - report against performance indicators
    - determine actions for the subsequent workplan.

Outputs of this Workplan will be reported to the Department of Agriculture, Water and the Environment as part of the WTO annual report.

Appendix A: Fishery maps

Figure 1: Map of the Commonwealth Trawl Sector fishing area.

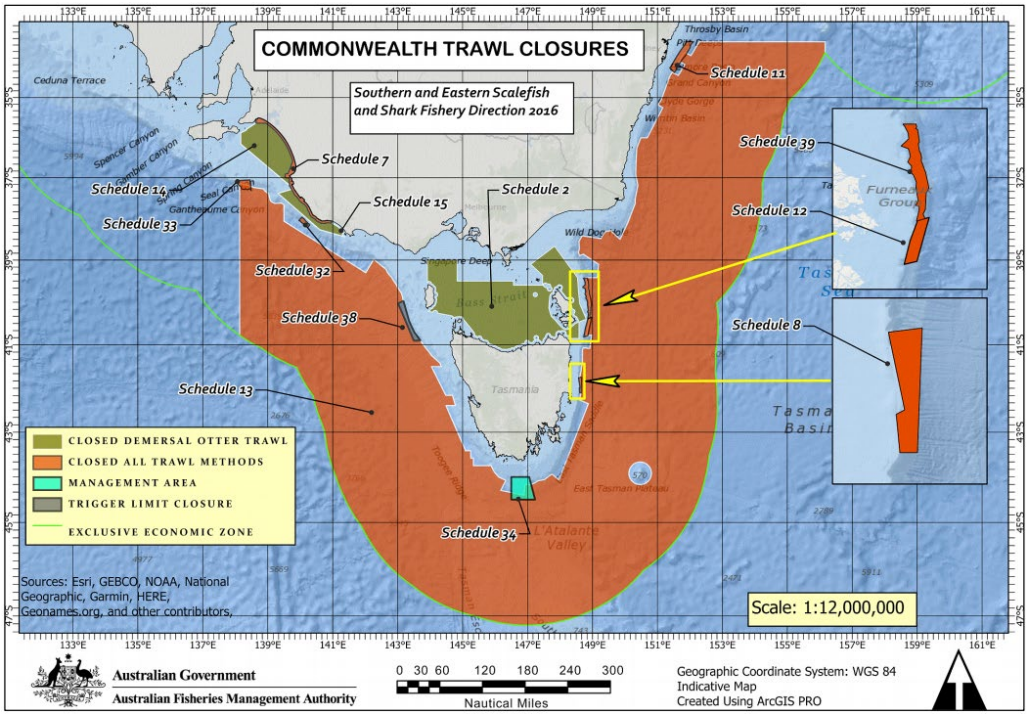

Figure 2: Commonwealth Trawl Closures[10].

[10] Numbers refer to Schedules within the *Fisheries Management (Southern and Eastern Scalefish and Shark Fishery and Small Pelagic Fishery Closures) Direction 2021*