



Australian Government

Australian Fisheries Management Authority



Commonwealth Trawl Sector

(Otter Board Trawl & Danish Seine)



BYCATCH AND DISCARDING WORKPLAN

2014 - 2016

Introduction

In carrying out its functions, the Australian Fisheries Management Authority (AFMA) must pursue objectives in the *Fisheries Management Act 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 *SESSF Management Plan 2003*, 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 Commonwealth Trawl Sector (CTS) on bycatch species, that all reasonable steps are taken to avoid incidental interactions with Threatened, Endangered and Protected (TEP) species, and that the ecological impacts of fishing on habitats are minimised.

This Workplan is for the Commonwealth Trawl Sector and covers otter board trawl fishing in Commonwealth¹ waters adjacent to New South Wales (south of Barrenjoey Point), Victoria, Tasmania and South Australia (east Cape Jervis) and Danish seine fishing. It has been developed to support the overall objectives of the Southern and Eastern Scalefish and Shark Ecological Risk Management (ERM) Strategy. They are to:

- reduce the number of high risks assessed through AFMA's Ecological Risk Assessment process
- avoid interactions with species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- reduce discarding of target and non-target species to as close to zero as practically possible
- minimise overall bycatch in the fishery over the long-term.

Action items for the period 2014-16 are outlined in Table 4. Progress against action items from the 2011-13 Bycatch and Discarding Workplan are available on the AFMA website at <http://www.afma.gov.au/managing-our-fisheries/environment-and-sustainability/bycatch-and-discarding/>.

A project investigating the impact of shortened codends on seal capture rates has been carried over as an action item from the previous Workplan.

This Workplan should be read in conjunction with:

- *Commonwealth Policy on Fisheries Bycatch 2000 and AFMA's Program for Addressing Bycatch and Discarding in Commonwealth Fisheries: an implementation Strategy 2008*
- *Southern and Eastern Scalefish and Shark Fishery Management Plan 2003*

¹ Commonwealth waters in the CTS are defined in the Offshore Constitutional Settlement Agreements between the Commonwealth and the States of NSW, Victoria, Tasmania and South Australia.

- *Ecological Risk Management – Strategy for the Southern and Eastern Scalefish and Shark Fishery, Australian Fisheries Management Authority, Canberra, Australia July 2010*
- *Commonwealth Fisheries Harvest Strategy Policy and Guidelines 2007.*

Fishery description

The Commonwealth Trawl Sector is part of the Southern and Eastern Scalefish and Shark Fishery (SESSF) and covers the area of the Australian Fishing Zone extending southward from Barrenjoey Point (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. Given that midwater trawling in the SESSF currently targets the winter Blue grenadier fishery that has almost no bycatch, and effective management arrangements in place to minimise seal and seabird interactions, this Workplan focuses on demersal activities (demersal otter board and Danish seining). Existing mitigation deployed by midwater trawlers in the winter Blue Grenadier fishery include: mandatory seal excluder devices; acoustic net bindings; seabird scaring lines; and a nil discharge of offal policy.

For the 2012-13 fishing season, a total of 17,662t of quota was agreed across 34 quota species or species groups. During that time there were 59 trawl boat statutory fishing rights, with 38 otter board trawl and 14 Danish seine vessels active. The key economic species include Blue Grenadier, Tiger Flathead, Pink Ling and Silver (Spotted) Warehou.

Process for Workplan Development

The 2014-16 CTS Workplan is designed to build upon the progress made within the CTS under the previous CTS Bycatch and Discarding Workplan and to identify strategies to assist the CTS in continuing to reduce overall bycatch and discarding.

In developing a Workplan for a specific fishery, several aspects need to be considered and steps undertaken before a Workplan can be implemented. In developing the 2014-16 CTS Workplan, the following process was taken:

1. ERA high risk species considered
2. General bycatch issues in the fishery considered
3. Analysis of progress against action items listed in the previous Workplan – what was achieved, are there any outstanding items?
4. Develop Workplan in consultation with SEMAC and SETFIA

Workplan activities

The activities to be completed as part of this Workplan are detailed as action items in Table 3. Generally they aim to:

- develop mitigation devices to reduce the accidental catch of dogfish species when targeting Royal Red Prawns
- continue investigation of shortened codend trials to reduce seal bycatch
- reduce interactions with protected seabird species to as close to zero as possible
- improve the handling of chondrichthyan species (sharks and rays) that are incidentally caught and released
- improve AFMA’s understanding of which species of sharks and rays are incidentally caught in the CTS.

The action items in Table 4 below will be undertaken during the period of this Workplan to pursue the above objectives. Additional action items may be added during the period of this Workplan if they are consistent with the objectives and there is capacity to undertake further projects.

Ecological Risk Assessment results

The Ecological Risk Assessment (ERA) process is undertaken to determine the impact of fishing on marine species and habitats. Assessment of marine species is 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) to a quantitative analysis at Level 3 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 refer to *Ecological Risk Assessment for the Effects of Fishing: Methodology* (Daley et al, 2007) or see <http://www.afma.gov.au/managing-our-fisheries/environment-and-sustainability/ecological-risk-management/#sessf>.

Species assessed as being high risk are detailed in Table 1.

Table 1 High risk species assessed through the 2012 Sustainability Assessment for Fishing Effects (SAFE) and residual risk assessment of Level 2 PSA results in the CTS

Species Name	Common Name	Role in Fishery	Highest Level of Assessment	Risk Score	Addressed in Action Item (see Table 4)
<i>Family – Diomedidae</i>	Albatrosses – multiple species	Listed (TEP)	L2 Residual Risk	High	2, 3, 6
<i>Arctocephalus pusillus doriferus</i>	Australian Fur Seal	Listed marine species	L2 Residual Risk	High	1, 6
<i>Dipturus gudgeri</i>	Bight Skate	Discard	Level 3 SAFE	Extreme high	5, 6, 7

<i>Centrophorus squamosus</i>	Nilson's Deepsea Dogfish	Discard	Level 3 SAFE	Precautionary High Risk	5, 6, 7 Afforded some protection through the Upper-slope Dogfish Management Strategy
<i>Centrophorus harrissoni</i>	Harrisson's Dogfish	Byproduct	Level 3 SAFE	Extreme High Risk	4, 5, 6, 7 Managed under Upper-slope Dogfish Management Strategy
<i>Centrophorus zeehaani</i>	Southern Dogfish	Discard	Level 3 SAFE	Extreme High Risk	4, 5, 6, 7 Managed under Upper-slope Dogfish Management Strategy
<i>Squalus chloroculus</i>	Greeneye Spurdog	Discard	Level 3 SAFE	Extreme High Risk	5, 6, 7 Afforded some protection through the Upper-slope Dogfish Management Strategy
<i>Urolophus sufflavus</i>	Yellow-backed Stingaree	Discard	Level 3 SAFE	Precautionary Extreme High Risk	5, 6, 7
<i>Dipturus australis</i>	Common Skate	Discard	Level 3 SAFE	Extreme High Risk	5, 6, 7
<i>Dipturus canutus</i>	Grey Skate	Discard	Level 3 SAFE	Precautionary Extreme High Risk	5, 6, 7
<i>Cephaloscyllium albipinnum</i>	Whitefin Swell Shark	Byproduct	Level 3 SAFE	Precautionary Extreme High Risk	5, 6, 7
<i>Hydrolagus lemmings</i>	Bight Ghost Shark	Discard	Level 3 SAFE	High Risk	5, 6, 7
<i>Trygonorrhina fasciata</i>	Eastern Fiddler Ray	Discard	Level 3 SAFE	High Risk	5, 6, 7
<i>Azygopus pinnifasciatus</i>	Righteye Flounder	Discard	Level 3 SAFE	Precautionary Extreme High Risk	6
<i>Ventrifossa nigrodorsalis</i>	Rattail	Discard	Level 3 SAFE	Precautionary High Risk	6

Existing measures to reduce bycatch

Reference limits for quota species

The status of the quota species in the CTS are monitored around two reference points: 'target' reference points and 'limit' reference points. Target reference points are the desired status of stocks and desired fishing intensity. Limit reference points express situations to be avoided because they represent a point beyond which the risk to the stock as the basis of a commercial fishery is regarded as unacceptably high.

Gear

Fishing concession conditions specify minimum gear requirements in the CTS to allow small or non-targeted fish to escape through the net. The requirements are:

- Danish seine: a mesh size of not less than 38 millimetres at any part
- demersal otter trawl when fishing for prawns: a mesh size of not less than 40 millimetres and not greater than 60 millimetres at any part
- other demersal otter trawl:
 - in the net wing and mouth a mesh size of not less than 115mm
 - 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 immediately after being taken in 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).

Upper-Slope Dogfish Management Strategy

The Upper-Slope Dogfish Management Strategy (the Strategy) was revised in 2012 to promote the recovery of two species of dogfish, Harrison's Dogfish (*Centrophorus harrissoni*) and Southern Dogfish (*C. xeehaani*). The strategy relies primarily on a network of spatial closures (Appendix A, Figure 2) complemented by a range of non-spatial operational measures. The network builds on existing closures by implementing new closures, extending existing closures and revising existing closures. Those relevant to the CTS are described in Table 2. The Strategy also provides some protection to Endeavour Dogfish (*C. moluccensis*) and Greeneye Spurdog (*Squalus chloroculus*).

The types of management arrangements which apply under the Strategy include:

- a prohibition on the take of Harrison's Dogfish and Southern Dogfish
- area closures
- monitoring obligations through observers or electronic monitoring
- a limit for bycatch of Harrison's and Southern Dogfish when undertaking permitted types of line fishing in specific areas
- handling practices to improve post capture survival for released sharks

Table 2 Closures relevant to the CTS under the Upper Slope Dogfish Management Strategy. There are four additional closures north of the CTS.

Spatial Closures	Details	Complementary management arrangements where fishing is permitted inside closures
Extended Endeavour Dogfish Closure off Sydney	Extended closure to all methods of fishing across the core depth range	Fishing is not permitted so complementary measures are not applicable.
Extended closure in the Flinders Research Zone (FRZ)	Extended closure to range from 200m to 1000m for all methods. The extended FRZ incorporates the existing Babel Island and Cape Barren Closures and one area of the existing 700m line closure	If night time closures are negotiated in future, all fishing will be subject to 100% monitoring*
Extended Port MacDonnell Closure	Extended closure to all methods of fishing across the core depth range	Fishing is not permitted, so complementary measures are not applicable.
Murray Dogfish closure	Closed to trawling Open to hook methods	Line fishing subject to regulated handling practices, interaction limit per boat and 100% monitoring* Vessel interaction limit of three ¹ gulper sharks which if reached the closure will be closed to that boat for 12 months
Harrison's Dogfish Closure	Will remain closed to all fishing methods in an amended depth range (200 m to 1000 m) which reflect the depth range of Harrison's Dogfish and Southern Dogfish.	Fishing is not permitted, so complementary measures are not applicable.

¹ An interaction limit has been developed as a conservative number by AFMA reviewing the possible boats to fish in the closure as the maximum gulper sharks that AFMA consider should be taken from an area.

*100% monitoring by an approved AFMA method

Area closures

There are a number of area closures in the CTS which offer protection for Threatened, Endangered and Protected (TEP) species, as well as high risk and other bycatch species (Table 3).

Table 3 Spatial closures which have been implemented to protect TEP and high risk species in the CTS.

Closure Area	Reason For Closure
Kent Group National Park	Marine Protected Area
Bass Strait Trawl Closure (Otter Only)	Protect School and Gummy Shark habitat
St Helens Hill Closure	Protect Orange Roughy stocks
Pages Island	Protect ASLs and White Sharks
ECDT Sector Exclusion Zone	Protect Benthic Habitats
Kangaroo Island Shark Closure	Protect breeding School Shark and ASLs

Closure Area	Reason For Closure
Victor Harbour to Victoria Border	Protect breeding School Shark and ASLs
South East Trawl 700m Closure	Orange Roughy Stocks
Tasmania Seamounts Marine Reserve	Various endemic species
Eastern South Australian Trawl Closures	Juvenile Scalefish and protected habitat
Portland Trawl Closure	Juvenile Scalefish and protected habitat

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 <http://www.afma.gov.au/managing-our-fisheries/fisheries-a-to-z-index/southern-and-eastern-scalefish-and-shark-fishery/>.

Table 3 Action items for the CTS 2014-16 Bycatch and Discard Workplan

Carry over items

Marine mammals						
Action Items	Risk / Issue to be addressed	Timeframe	Costs \$	Responsible Parties	Performance Indicator	Milestones
1. Continue shortened codend investigation	Investigate the use of a shortened codend to reduce seal bycatch	December 2014	\$30k industry (SETFIA) \$35k AFMA In-kind contribution – with electronic monitoring -AFMA	SETFIA Supported by AFMA Bycatch Program	Sufficient data collected to determine if a shortened codend reduces seal interactions	Field work completed (complete) Report published Presentation to SEMAC Article in SETFIA newsletter

New items

Seabirds						
2. Review all vessel Seabird Management Plans across the fishery	Improving skipper/crew education on deploying seabird mitigation devices	June 2016	Industry sourced \$350k from Australian Government Innovation Grant	Managed by SETFIA Supported by AFMA	All vessel Seabird Management Plans reviewed during 2014	Report ‘ <i>Effectiveness of Seabird Mitigation Devices</i> ’ received (July 2014) New management measures implemented if required (September 2014) Report back to SEMAC (Nov 2014)
3. Develop and test additional mitigation devices	Seabird bycatch	June 2016	Industry sourced \$350k from Australian Government Innovation Grant	Managed by SETFIA Supported by AFMA	Mitigation devices developed and tested	Scientific permit approved (on application) Device tested (within 6 months) Draft report received Final report (project specific)

4. Deliver an online learning module for seabird bycatch issues and mitigation methods	Improving skipper/crew education on seabird bycatch mitigation	June 2016	Development and online production \$15k	Managed by SETFIA Supported by AFMA	Module made available to and completed by skippers crew	Develop online learning module (Dec 2014) Skippers & crew complete online module (March 2015) Results/attendance reported to SEMAC (June 2015)
5. Distribute seabird identification guides to all vessels in the CTS.	Misreporting of seabird interactions Lack of data for seabird interactions Improved skipper/crew education	June 2015	Printing \$5k Delivery \$1k	SETFIA Supported by AFMA	Seabird Identification guides distributed to all vessels in the CTS by June 2015	Distribution of seabird identification guides 50% by December 2014 100% by June 2015
Chondrichthyans						
6. Develop mitigation devices for dogfish species when fishing for Royal Red Prawns	Investigate whether RRP operators can fish in areas where dogfish occur without catching gulper sharks. Gulper sharks are identified as high risk through ERA.	June 2015	\$22k – AFMA In-kind contribution through observers EMS \$15k (AFMA) In-kind contribution from industry through the use of Commercial Vessel Research Catch Allowance (38t) \$5k install 10 days bycatch program observer coverage @ \$1k	SETFIA AFMA Bycatch Program (support role) AFMA Trawl Management Team	Mitigation devices developed for use with RRP gear	Consultation with industry (complete) Devices designed (complete) Devices developed (complete) Devices trialled (Dec 2014) Report published (June 2015)

7. Develop and distribute chondrichthyan (sharks and rays) best handling practices guide to all operators in the CTS	Improve handling of chondrichthyan species in the CTS.	December 2014	Development and online version \$15k Printing \$5k Delivery \$1k	AFMA Bycatch Program AFMA Observers Monash Uni	Chondrichthyan best handling practices guide distributed to all operators in the CTS	Develop best handling practice guide (July 2014) Digital version available on web (Nov 2014) Distribution of the guide to industry (Dec 2014)
8. Deliver an online learning module for shark & ray bycatch issues and mitigation methods	Improving skipper/crew knowledge on shark/ray bycatch mitigation	June 2016	Development and online production \$15k	Managed by SETFIA Supported by AFMA	Module made available to and completed skippers crew	Develop online learning module (Dec 2014) Skippers & crew complete online module (March) Results/attendance reported to SEMAC (June 2015)
9. Implement a chondrichthyan (sharks and rays) I.D guide and catch composition project in the CTS <i>* funding dependent</i>	Improve understanding of chondrichthyan catch composition in the CTS for ERA assessment	June 2016	TBA	AFMA Bycatch Program AFMA Trawl Management Team CSIRO SETFIA	Project is implemented and results are made available for ERA purposes	Project implemented (Jan 2015) Data collected (Jan 2015 – Jan 2016) Results received (March 2016)
All species						
10. Deliver an online learning module for general bycatch reporting	Improving skipper/crew education on bycatch reporting requirements	June 2016	Development and online production \$15k	Managed by SETFIA Supported by AFMA	Module made available to and completed by skippers crew	Define species groups for reporting (Sept 2014) Develop online learning module (Dec 2014) Skippers & crew complete online module (March 2015) Results/attendance reported to SEMAC (June 2015)

11. Assess trends in catch of high risk bycatch species	Impact of trawl on high risk bycatch species	2 Years	Within existing AFMA staff budget	AFMA Trawl Management team	Trends in bycatch determined	Logbook data analysed (every 6 months) Compare logbook to ISMP data (after analysis) Final report (June 2016)
12. High risk species I.D guide distributed to operators <i>* funding dependent</i>	Raise industry awareness of high risk species in the CTS	June 2015	Development of I.D. guide AFMA in kind Printing \$2-3k Delivery \$2k	AFMA Bycatch Program AFMA Trawl Management Team	I.D guide distributed to operators	I.D guide created (October 2014) Digital version available on web (Jan 2015) I.D guide distributed (June 2015)

Summary

Where possible, the Bycatch and Discard Workplan describes action items which are aimed at reducing the impact to species from fishing activities. For some species, high risk scores are precautionary due to a lack of data required for the Level 3 SAFE process. Some action items are designed to collect the information needed to feed in to this process, rather than reducing the actual impact to a species.

Due to the diverse and varied nature of the CTS, it is important that this 2014-16 Bycatch and Discarding Workplan addresses not only species that have been identified via the ERA process as being at high risk but also look at general bycatch reduction methods. AFMA and industry will continue to work co-operatively to reduce bycatch, minimise discarding and improve monitoring within the CTS.

Review Process

Bycatch and Discard 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. As part of the ERM Strategy AFMA have specific and measureable objectives with outcomes to be quantitatively assessed as part of the annual review.

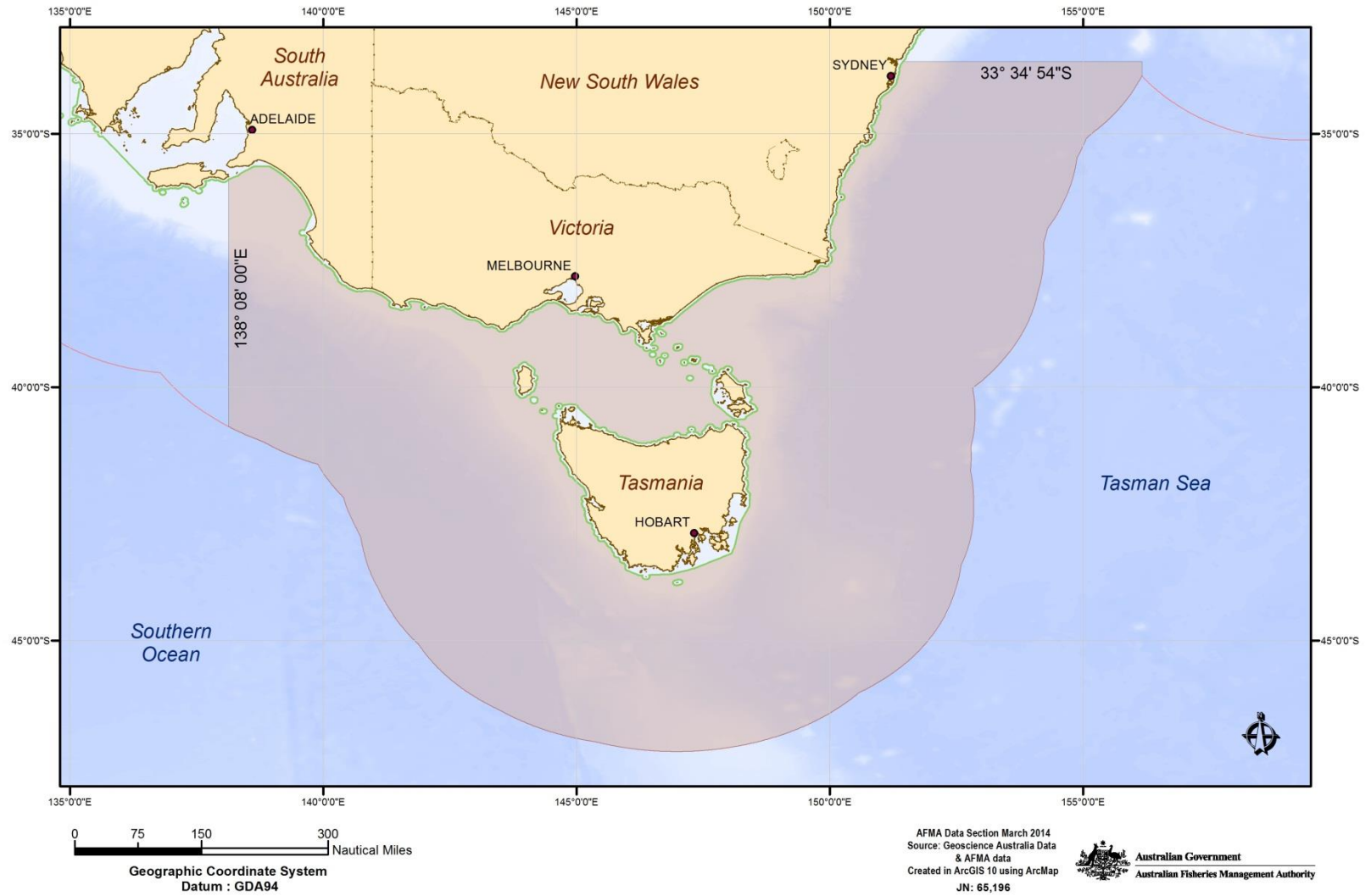
This Workplan is effective as of September 2014 and will be reviewed as described below:

- every 6 months to
 - ensure actions are progressing well
 - determine if any additional actions can be taken
- as part of the annual Ecological Risk Management Strategy Review to
 - ensure actions are progressing well
 - ensure that objectives of the ERM Strategy are being met
 - determine if any additional actions can be taken
- final review at 24 months as part of the annual Ecological Risk Management Strategy Review to
 - to ensure that action items have been completed
 - report against performance indicators
 - determine actions for subsequent Workplans.

At the end of the two year period the outputs of this Workplan will be reported to the Department of Environment and a new Workplan will be developed and implemented.

Appendix A

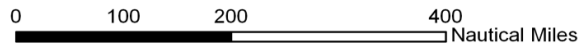
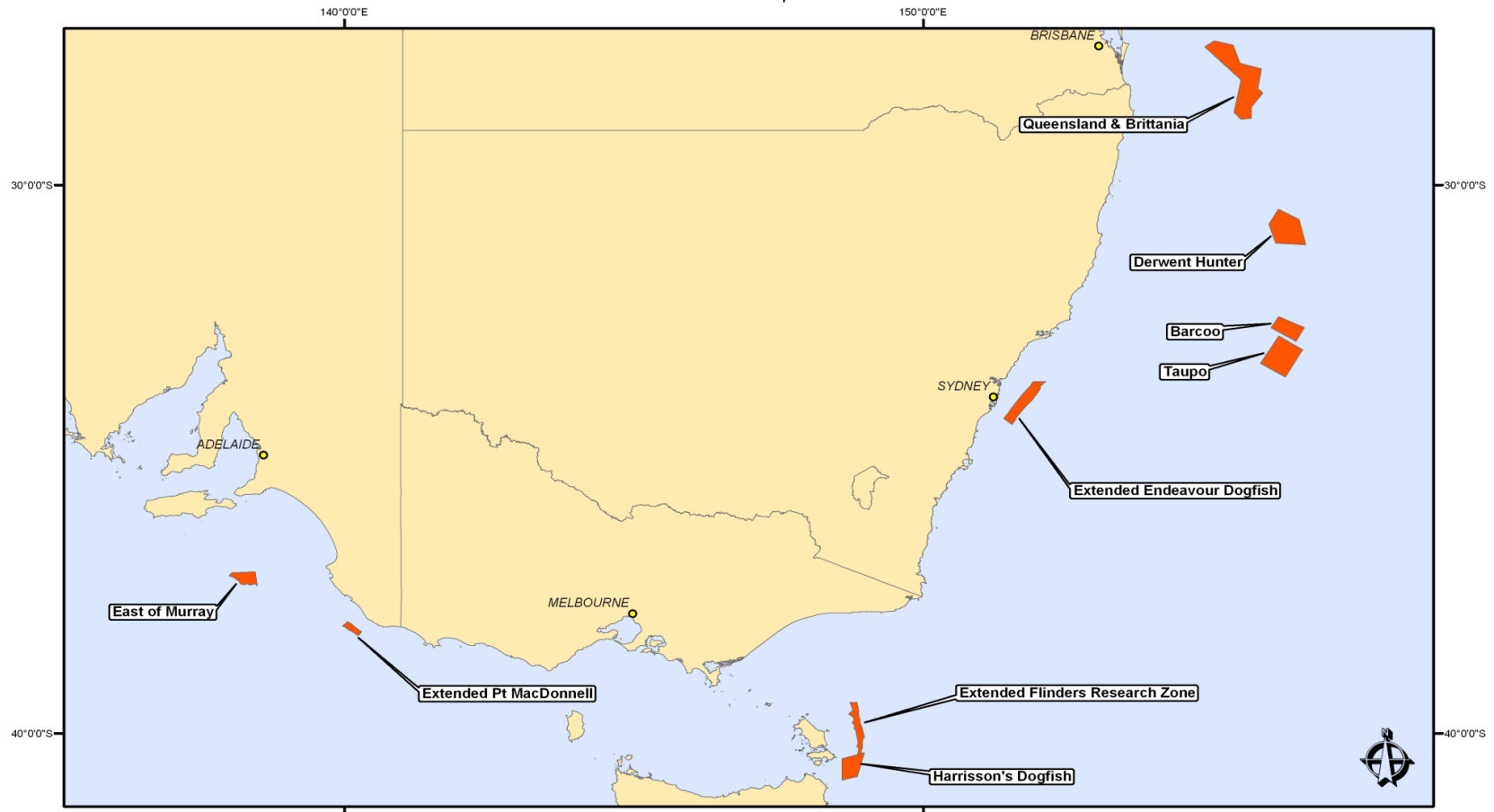
Commonwealth Trawl Sector



Upper Slope Dogfish Closures

JN: 64,472

Indicative Map



Geographic Coordinate System
Datum : GDA94

AFMA Data Section October 2012
Source: Geoscience Australia Data
& AFMA data
Created in ArcGIS 9 using ArcMap