



Australian Government

Australian Fisheries Management Authority

# Great Australian Bight Trawl Sector

## BYCATCH AND DISCARDING WORKPLAN

2014 - 2016

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## 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 *Southern and Eastern Scalefish and Shark Fishery 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 Great Australian Bight Trawl Sector (GABT) on bycatch species, that all reasonable steps are taken to minimise incidental interactions with Threatened, Endangered and Protected (TEP) species, and that the ecological impacts of fishing on habitats are minimised. Bycatch and discarding workplans are developed for each sector of the SESSF

This Workplan covers otter board trawling in the Great Australian Bight Trawl Fishery (GABTF). 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
- minimise 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 3 of this document. Progress against action items from the 2010-12 Great Australian Bight Trawl Fishery Bycatch and Discarding Workplan (2010-12 GABTF workplan) are outlined in the final report, available on the AFMA website at <http://www.afma.gov.au/managing-our-fisheries/environment-and-sustainability/bycatch-and-discarding/>.

Several actions from the 2010-12 GABTF Workplan have been carried over to the 2014-16 Workplan.

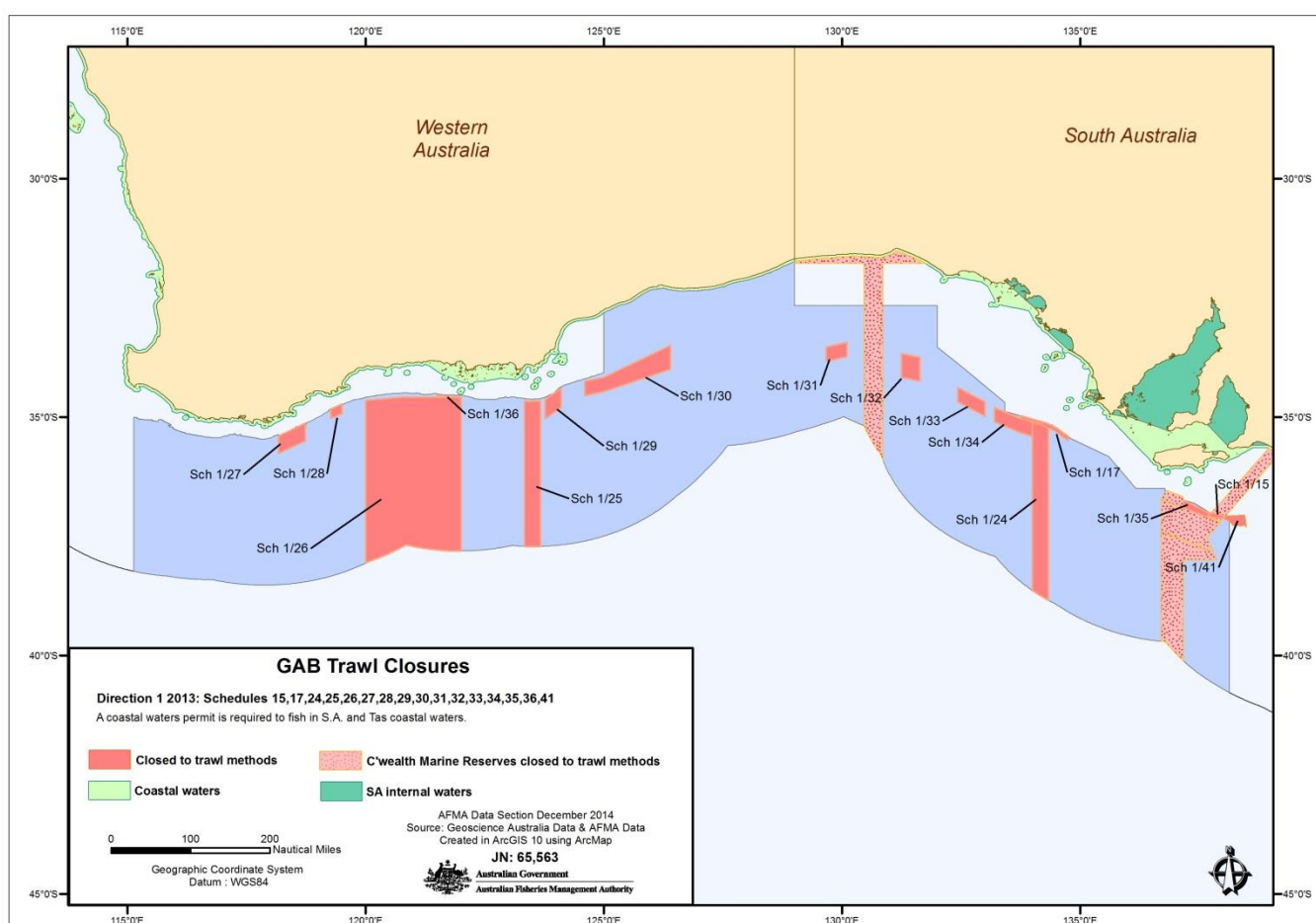
This Workplan should be read in conjunction with:

- *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*
- *Ecological Risk Management –Report for the Great Australian Bight Trawl Sub-Fishery of the Southern and Eastern Scalefish and Shark Fishery, Australian Fisheries Management Authority, Canberra, Australia December 2008*
- *Commonwealth Fisheries Harvest Strategy Policy and Guidelines 2007.*



## Fishery description

The GABT is a sector of the SESSF and extends from Cape Leeuwin, Western Australia, to Cape Jervis near Kangaroo Island, South Australia (Figure 1). The sector excludes state (SA and WA) fishery shelf waters to the extreme east and west which have traditionally been fished by state based fishers. The GABT is a multi-species trawl fishery covering a broad spectrum of ecological and depth strata. The sector is primarily a demersal (bottom) trawl sector based on regular trawling of shelf species and periodic trawling for the deeper dwelling species.



**Figure 1: Area of the Great Australian Bight Trawl Fishery including closures.**

The GABTF is managed through a system of output controls based on quota statutory fishing rights for seven species:

- Bight Redfish (*Centroberyx gerrardi*)
- Deepwater Flathead (*Neoplatycephalus conatus*)



- Orange Roughy (*Hoplostethus atlanticus*)
- School Shark (*Galeorhinus galeus*)
- Gummy Shark (*Mustelus antarcticus*)
- Sawshark (*Pristiophorus cirratus* & *Pristiophorus nudipinnis*)
- Elephantfish (Family *Callorhynchidae* & *Rhinochimaeridae*)

Historically, Orange Roughy have been an important deep water target species, in depths of 750 to around 1,200 metres. However, there is now no commercial targeting of Orange Roughy and a research program is in place to assist in determination of the stock status of GABT Orange Roughy.

The distribution of trawling in the GABT is across a very small area with most of the effort in the fishery concentrated on the upper continental shelf and slope, in depths ranging from 100 to 400 metres. Given the management boundaries of the fishery and bottom terrain (making many areas difficult to trawl), this effort mostly occurs across a relatively small longitudinal range, from about 126° E to 133° E.

Generally, trawling is considered to be a relatively non-selective fishing method, catching a range of species of varying sizes in any one shot. Over 100 species of teleosts (bony fish), chondrichthyans (sharks and rays) and invertebrates are harvested in the GABTF. A smaller number of species, presently considered to be of no commercial value, are discarded during fishing.

## **Process for Workplan Development**

The 2014-16 GABTF workplan is designed to build upon the progress made within the GABTF under the previous GABTF Bycatch and Discarding Workplan and to identify strategies to assist the GABTF 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 GABTF workplan, the following process was taken:

1. High risk species identified in the ERA process were considered
2. General bycatch issues in the fishery were identified and considered
3. Analysis of progress of action items listed in the previous workplan e.g. what was achieved, are there any outstanding items?
4. Developed workplan in consultation with the Great Australian Bight Management Advisory Committee (GABMAC) and the Great Australian Bight Industry Association (GABIA)



## Workplan activities

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

- address the current lack of information on catches of high risk ERA species groups (cuttlefishes and octopods)
- improve skipper consistency in reporting bycatch and discards and make revisions to the established Integrated Scientific Monitoring Program (ISMP) to address concerns over resolution of reporting teleosts and chondrichthyans to species level
- increase the fisheries utilisation of bycatch and byproduct species
- maintain efficacy of seabird mitigation measures implemented in the GABTF.

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 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>.

The highest level of assessment undertaken in the GABTF was the Sustainability Assessment of Fishing Effects (SAFE) for teleost and chondrichthyans, and a Residual Risk Analysis of Level 2 PSA results for all other species. No teleost and chondrichthyan species were assessed as high risk after SAFE, while two species groups (octopods and cuttlefishes) were assessed as being at high risk from otter trawl fishing in the GABTF based on a Level 2 PSA. These are detailed in Table 1. These species groups were identified as at high risk due to a lack of information. To maintain a conservative approach to the assessments, AFMA's Level 2 and Level 3 risk assessment apply a high risk score in situations where a lack of information hampers quantification of a metric. One of the action items in this Workplan is to collect information to more accurately assess the impact of otter trawl fishing on these species groups.



**Table 1: High risk species groups identified from the Residual Risk Assessment of Level 2 Productivity Susceptibility Analysis for the GABTF.**

Scientific Name	Common Name	Role in Fishery	Highest Level of Assessment	Risk Score	Addressed in Action Item (see Table 3)
Order <i>Octopoda</i> (undifferentiated)	octopods	Byproduct	L2 Residual Risk	High	1
Family <i>Sepiidae</i> (undifferentiated)	cuttlefish	Byproduct	L2 Residual Risk	High	1

## Existing measures to reduce bycatch

A range of input management controls apply to the GABTF, including a limit on the number of vessels permitted to operate in the fishery (a maximum of 10), minimum mesh size for trawl gear and spatial/temporal closures.

### T-90 mesh

The selectivity of the gear used in the GABTF is governed by the stipulation of a minimum mesh size of 90 mm as well as an industry code of conduct which mandates the use of T-90 extension and industry practices, which typically see 100 mm minimum mesh sizes used in the fishery.

### Individual Vessel Seabird Management Plans

AFMA identified that in order to take a strategic approach to reducing bycatch and discarding within the GABTF, it was essential to fully understand what gear is currently being used on the water and what practices are being employed by industry. This information has been used to develop mitigation options for any potential risks such as seabird interactions.

AFMA personnel have conducted onboard assessments on each vessel within the GABTF and have gained a detailed understanding of the fishing gear and practices used within the GABTF.

By utilising the information gained through these assessments a GABTF Seabird Management Plan (SMP), has been specifically tailored for each boat in the GABTF through a process involving both GABIA and AFMA. The SMP clearly outlines the responsibility that each crew member has with regard to the mitigation practices. Each vessel within the GABTF is required to comply with their SMP to continually monitor and adjust onboard practices to reduce seabird interactions. Adherence to the SMP by skipper and crew is regulated through vessel fishing permit conditions issued by AFMA.



## Spatial Closures

Spatial closures provide a refuge for species and their habitat from the effects of trawling. A series of spatial closures have been developed in the GABTF. These closures are designed to reduce the potential for species becoming over fished and to protect specific taxa and habitat from the effects of fishing. Some closures are designed to complement the objectives for areas protected under other Commonwealth legislation. The closures in place for the GABTF can be found in the *Southern and Eastern Scalefish and Shark Fishery Management Arrangements Booklet, May 2014* and are listed briefly in Table 2.

**Table 2: Purpose of GABTF closures.**

Closure Area	Reason For Closure
GAB Marine Park Benthic Protection Zone	Preserve a representative sample of the sediments and benthic biota of the GAB.
GAB Marine Park Mammal Protection Zone	Protect the calving area for the Southern Right Whale and colonies of the endangered Australian Sea Lion in the area, additionally offering some protection of a representative sample of the seabed in deeper waters of the Commonwealth Park.
Great Australian Bight Trawl Gulper Shark closure	Closed to demersal otter trawl methods to protect Southern Dogfish.
Commonwealth Murray Marine Protected Area	Protection and maintenance of marine biological diversity in the South-east marine region.
GABIA Deepwater closures	Closed to trawling to protect deepwater shark species and Orange Roughy.
GABIA Orange Roughy Research Zones (accessible only by scientific permit)	Closed to trawling methods to protect Orange Roughy stocks.

## Fishery Monitoring Program

GABTF data has been obtained principally through logbooks, catch disposal records, fishery independent surveys and the ISMP (onboard observers). Port based sampling (eg. otolith collection) is used to obtain more detailed biological information about landed species.

In 2005, the GABTF implemented a fishery independent survey (FIS) for the fisheries two main target species (Bight Redfish *Centroberyx gerrardi*, and Deepwater Flathead *Neoplatycephalus conatus*). These surveys are carried out on a regular basis and aim to provide an alternative index of abundance for a range of species that is independent of changes in fishing effort/commercial fishing. Observer data gathered through the ISMP provides information on the quantity, size and age composition of retained and discarded quota species as well as bycatch caught in the GABTF.





As part of the shift towards co-management, GABIA has aided the GABTF in implementing a bycatch and discard recording program whereby ISMP scientific observers collect data in one year and then crew-member observers collect data on every second year.

### **Fishery research program**

This workplan outlines a range of agreed actions, some or all of which will fall into a specific research category. This work will continue to be factored into the fishery research program and prioritised along with wider fishery research projects. The GABRAG will use the Bycatch and Discarding workplan to assist in annually updating the priorities for research in the fishery.



## Bycatch Workplan Action Items

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

All species						
Action Items	Risk/Issue to be addressed (workplan object.)	Timeframe	Cost \$	Responsible Parties	Performance Indicators	Milestones
1. Refine ISMP and FIS Observers to add ERA high risk species (cuttlefishes and octopods) to GAB priorities for catch composition reporting to species level by onboard observers.	Need for improved ISMP reporting of high risk ERA species (cuttlefishes and octopods)  (ERM objective #1)	Prior to commencement of 2016 ISMP sampling – December 2015	AFMA staff time from levy-base.	AFMA managed, supported by GABRAG.  AFMA Observer program.	Cuttlefishes and octopods added as a priority to ISMP data collection  Increased information on cephalopod catches received.	Meeting with ISMP team to add priority – July 2015  Revised priorities agreed and in place – December 2015
2. Refine ISMP GAB priorities to add teleost and chondrichthyan reporting to species level as a priority.	Need for improved resolution of reporting of teleost and chondrichthyan catches in ISMP  (ERM objective #2)	Prior to commencement of 2016 ISMP sampling – December 2015	AFMA staff time from levy-base.	AFMA managed, supported by GABRAG	Teleost and chondrichthyan spp. ID added to priority list for ISMP.  Increased information of T&C catches received and a time series able to be constructed.	Meeting with ISMP to add priority – July 2015  Revised priorities agreed and in place – December 2015
3. Skipper education program to be developed and delivered to	Need for improved consistency in reporting of	First round Port visits – April 2015	AFMA staff time in preparation. Flights and accommodation	AFMA management and bycatch	Port visits and training provided to skippers and crews.	Scoping for education program carried out by



improve consistency of reporting and understanding of management arrangements.	bycatch and discards in fisher's log sheets.  <b>(ERM objective #2)</b>	Second round of more detailed education – December 2015	from AFMA budget.	team  GABIA & Industry	Increased reporting detail of discards and frequency.  Improved adherence to management arrangements.	AFMA, GABIA.  Education material prepared – July 2015  Presented during port visits – Dec 2015
<b>4.</b> Investigate the capability of e-logs to meet requirements for TEP reporting	Need for increased detail regarding TEP interactions and to increase ease of reporting.  <b>(ERM objective #2)</b>	TBC	TBC	AFMA with GABIA and e-log vendors if necessary.	Report provided to GABRAG on feasibility of including TEPs in e-logs.	Feasibility investigated by AFMA, GABIA and OLRAC.  Report from AFMA provided to RAG
<b>5.</b> Investigate feasibility of GABTF becoming a zero-discards fishery.	Need for improved utilisation of bycatch and byproduct species  <b>(ERM objective #3)</b>	End of workplan	FRDC application to be completed. Funds needed for PI time	AFMA/GABIA (2014 research round)	Study presented to GABRAG/AFMA to allow consideration of feasibility	Application completed.  Funding secured.  Study carried out and presented to GABRAG
<b>6.</b> Investigate how GABTF fishers can improve markets for under-utilised species such as Latchet	Need for improved utilisation of bycatch and byproduct species	December 2015	TBC	GABIA  Industry	Study presented to GABRAG/AFMA to allow consideration of potential methods to increase market access etc.	Industry/GABIA to secure funding and engage consultant if necessary to carry out work.  Report presented to



	<b>(ERM objective #3)</b>					GABRAG/AFMA
7. Develop a series of YouTube videos to show skippers and crew how to record bycatch, discards and wildlife interactions on e-logs.	Need for improved consistency in reporting of bycatch and discards in fisher's log sheets/e-logs.  <b>(ERM objective #2)</b>	TBC	AFMA staff time in support of GABIA	GABIA with AFMA support	Videos produced and online for skippers and crew to watch.	Scoping with GABIA  Videos filmed  GABIA/AFMA to upload and circulate link.
<b>Chondrichthyans</b>						
<b>Action Items</b>	<b>Risk/Issue to be addressed (workplan object.)</b>	<b>Timeframe</b>	<b>Cost \$</b>	<b>Responsible Parties</b>	<b>Performance Indicators</b>	<b>Milestones</b>
8. Develop and distribute chondrichthyan (sharks and rays) best handling practices guide to all operators in the GABTF	Improve handling of chondrichthyan species in the GABTF	July 2015	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 GABTF	Develop best handling practice guide – July 2014  Digital version available on web – September 2014  Distribution of the guide to industry- November 2014



<b>Seabirds</b>						
<b>Action Items</b>	<b>Risk/Issue to be addressed (workplan object.)</b>	<b>Timeframe</b>	<b>Cost \$</b>	<b>Responsible Parties</b>	<b>Performance Indicators</b>	<b>Milestones</b>
<b>9.</b> Review all vessel Seabird Management Plans across the SSSF.	Improving skipper/crew education on deploying seabird mitigation devices <b>(ERM objective #4)</b>	December 2014	Within AFMAs Bycatch and Discarding Program budget.	AFMA Bycatch Program  AFMA Trawl Management Team	All vessel Seabird Management Plans reviewed during 2015	Report ' <i>Effectiveness of Seabird Mitigation Devices</i> ' received and provided to GABMAC –September 2014  New management measures implemented as required
<b>10.</b> Distribute seabird identification guides to all vessels in the GABTF.	Improve reporting of seabird interactions  Improve amount of data for seabird interactions  Improve skipper/crew education	December 2014	Printing \$5k  Delivery \$1k	AFMA and GABIA	Seabird identification guides distributed to all vessels in the GABTF by December 2014	Distribution of seabird identification guides:  50% by June 2014  100% by December 2014

Note: When the timeframe for the action item is to be confirmed (TBC), deadlines for milestones have not been determined. These will be updated as the action item is progressed.



## Summary

The GABTF has undertaken considerable measures to reduce the fisheries impact on bycatch species. GABIA with AFMA and GABMAC have been proactive in addressing the fisheries environmental sustainability, which is reflected in the results of the risk assessments.

Ongoing refinement in gear designs and the successful implementation of vessel management plans have resulted in positive change with regard to the impact the GABTF has on bycatch in the Great Australian Bight ecosystem. Progress will be assessed every six months while a full biannual review will hope to map the fisheries progress.

## 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. 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 February 2015 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.

