



Australian Government

Australian Fisheries Management Authority



Western Deepwater Trawl Fishery



BYCATCH AND DISCARDING
 WORK PLAN



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 Protecting **our** fishing future

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WESTERN DEEPWATER TRAWL FISHERY

BYCATCH WORK PLAN 2010 - 2012

Introduction

The objective of the Western Deepwater Trawl Fishery (WDWTF) Bycatch and Discarding Work Plan is to develop strategies that will:

- Respond to high ecological risks assessed through AFMA's Ecological Risk Assessment for the Effects of Fishing (ERAEF);
- Avoid interactions with species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- Reduce discarding of target species to as close to zero as practically possible; and
- Minimise overall bycatch in the fishery over the long-term.

All Commonwealth fisheries are committed under the Australian Government's *Commonwealth Policy on Fisheries Bycatch* to minimise bycatch. "Bycatch" is defined as any "part of the fisher's catch which is returned to the sea either because it has no commercial value or because regulations preclude it being retained and any part of the catch that does not reach the deck of the fishing vessel but is affected by interactions with the fishing gear."

The WDWTF work plan will focus on developing management measures to reduce and monitor interactions with high risk and protected species and discarding of key target species. This work plan should be read in conjunction with the *Commonwealth Policy on Fisheries Bycatch* and *AFMA's program for addressing bycatch and discarding in Commonwealth fisheries: an implementation strategy*. Work plans should be reviewed annually to assess any specified milestones, incorporation of new bycatch information or need for new research. They must be formally reviewed every 12 months to assess the effectiveness of mitigation measures and renewed every 2 years.

Fishery Snapshot

The WDWTF is located in deep water off Western Australia, from the 200m isobath to the edge of the Australian Fishing Zone (AFZ). Its northern most point is the boundary of the AFZ to longitude 114° E and southern most point at the boundary of the AFZ to longitude 115° 08'E. The Ningaloo Marine Park extends into the area of the Fishery and the northern part of the Fishery is also an area of high oil and gas productivity.

Principally a finfish trawl fishery, species diversity is considerable. Commercial species are taken on the upper (200-700m) and mid-continental slope, but generally not in large quantities. The community structure in the WDWTF ranges from a temperate/sub-tropical fish community in the south, to a more tropical fish community at the northern range of the fishery. A wide range of species are caught, ranging from tropical snappers on the shelf edge to orange roughy, oreo dories and bugs in the deeper temperate waters.

Bycatch and the OCS Agreement

The Offshore Constitutional Agreement (OCS) between the Commonwealth and WA has given the Commonwealth jurisdiction in waters deeper than 200m for the trawl fishing of crustaceans and finfish. This includes jurisdiction over byproduct and bycatch species taken in the designated area.

Characterisation of Bycatch

Overview

The WDWTF is a low effort fishery. The primary concern for this fishery is the potential for an increase in effort if fishers commence fishing latent permits. There are currently 11 permits in the WDWTF. However, in 2007 almost no fishing was taking place.

If effort remains low, there may be little concern regarding bycatch and discarding. However, it will also be difficult to instigate any projects to address bycatch and discarding issues that do exist as there is limited data and low GVP to fund research.

Ecological Risk Assessment Processes

A key component in AFMA's move towards Ecosystem Based Fisheries Management (EBFM) has been the undertaking of ecological risk assessments (ERA) for all AFMA-managed fisheries. These were completed mid-2007 and provided a list of high risk species based on their productivity (life-history) and susceptibility to fishing effects. However due to the semi-quantitative nature of the risk assessment, the analysis did not take into account all management measures currently in place in fisheries, resulting in a potential over-estimate of the actual risk for some species. To take account of this constraint *residual risk* was quantified using AFMA developed guidelines with input from CSIRO and stakeholders.

The WDWTF has undergone two ecological risk assessments for the effects of fishing (ERAEF) at both level 1.0 and 2.0 which examined target, by-product and threatened,

endangered and protected (TEP) species. All the species identified as high risk were target or byproduct species.

Based on the ERA process no interactions with TEP species were detected. Twenty-two species were identified as high risk; three were target species and nineteen were byproduct species. These species consisted of ten teleost species, nine chondrichthyan species, two chimaera species and one invertebrate species. Forty-two species were identified as medium risk. These include thirty teleost species, eight shark species, three invertebrate species and one chimaera species.

There are a range of reasons why a species may be identified as “high risk” in the ERA. Some species are missing data that may be added later and the species reassessed, while others are susceptible to capture or have low productivity due to their biology. Currently, there is limited information on the distribution of many of the species deemed high risk, particularly the dogfish species. Better identification of these species and more research in the future may allow some of these species to be placed in a lower risk category.

Following completion of the residual risk process all high risk species remained in the high risk category and were incorporated into the harvest strategy for the fishery.

Characterisation of Discarding

Discarding, in the context of AFMA’s policy refers to target species, be they quota species or primary species targeted in fisheries, managed only through input controls.

Discarding target species in the WDWTF has historically been negligible, as almost all target species are retained for sale. Sponges account for the highest discard and the amount of discard reported by operators is likely underreported. Operators are anxious to avoid sponges in their nets as they damage other species. Mapping of sponge beds may help operators avoid catching and subsequently discarding sponges. In addition, some species are discarded because there is no market for them. Developing new markets may reduce such discard in the future.

Status of Monitoring

Monitoring Program

Monitoring of bycatch in the WDWTF is accomplished mainly through the use of logbooks, which were established in 1983, with sporadic observer coverage. Overall, the current level of monitoring and fishing effort in the WDWTF has been too low and

sporadic to effectively evaluate the levels and nature of bycatch and discarding (19 days of observer coverage in the past several years).

Proposed Monitoring Program

In the future, and with increased funding available, increased observer coverage, planned surveys and further consideration of the monitoring regime in the program should help to enable the fishery to justify the sustainability of operations and address perceived threats. A crew based observer program could be considered for this fishery. This would involve training crew members to collect data on specific target, byproduct and bycatch species. Data collection has also been included as a trigger response for species in the harvest strategy. That is, when the first trigger point for a species is reached, data collection will begin.

Existing Bycatch Reduction Efforts

Although bycatch has been relatively low in the fishery for several years due to low fishing effort, the *Management Arrangements* describe the bycatch reduction measures currently in place in the WDWTF.

Bycatch Reduction Work Plan

Should the level of effort increase in this fishery the work plan would then come into effect and would address the following issues:

- Reduce the level of risk for bycatch identified as high risk through the Ecological Risk Assessment (ERA) process¹;
- Develop and implement cost-effective strategies to pursue continual improvement in bycatch reduction; and
- Assess relative changes in bycatch due to bycatch mitigation and target species management measures.

Table 1. Bycatch work plan 2010 - 2012

Proposed work	Risk to be addressed	Time Frame	Projected Cost	How action will be measured	Responsible
If catch increases to within trigger limits as described in the Harvest Strategy than a review of high risk species will be undertaken.	Species identified as "high risk".	Dependent on fishing activity	N/A	N/A	AFMA
Utilise fishing effort to maximize observer coverage to improve catch and bycatch information.	General improvement of bycatch data and knowledge which can in turn be used to lower bycatch.	Dependent on fishing activity	Budgeted in fishery overheads	Observer information noted by management and Bycatch & Discarding program	AFMA
Better identification of species and more detailed information on distributions collected through monitoring and research.	Several shark and dogfish species identified as high risk due to a lack of information and possible misidentification.	Dependent on fishing activity	Budgeted in fishery overheads	Liaise with CSIRO & chondrichthyan working group to facilitate more research and better identification of dogfish species.	AFMA / industry to provide samples / CSIRO

¹ High risk species are those identified following the residual risk analysis of the level 2 ERA results.

Summary

WestMAC is of the view that the current bycatch and discard levels in the WDWTF are very low and is supportive of measures to reduce these levels even further. The fishery is limited, however, by the low GVP and effort that limits the amount of observer coverage and research that can be conducted as well as the implementation of monitoring programs. Although because of the low effort bycatch is not an issue in this fishery, there is a significant amount of latent effort in the fishery. If fishing effort was to dramatically increase than more observer coverage and monitoring would be required.

Appendix 1. List of species and detail about quantification and biological information for residual risk analysis from the ERAEF Level 2.0.

TAXMONIC_GROUP	SCIENTIFIC_NAME	COMMON_NAME	role	logbook catch (kg) 2001-04	# missing susceptibility attributes	# missing productivity attributes	Productivity (additive) 1 - low risk, 3 - high risk	Susceptibility (multi) 1 - low risk, 3 - high risk	2D risk value (P&S) 1.41 - low risk, 4.24 - high risk	2D P&S risk category
Shark	<i>Deania quadrispinosa</i>	Platypus Shark	BP	0	0	0	2.71	2.33	3.58	High
Shark	<i>Carcharhinus obscurus</i>	Dusky Shark	BP	0	0	0	3.00	1.67	3.43	High
Shark	<i>Deania calcea</i>	Brier Shark	BP	0	0	0	2.71	1.67	3.19	High
Shark	<i>Hydrolagus lemures</i>	Bight ghost shark	BP	0	0	0	2.00	3.00	3.61	High
Shark	<i>Galeorhinus galeus</i>	School Shark, Tope shark	BP	162	0	0	2.57	3.00	3.95	High
Shark	<i>Squatina tergocellata</i>	ornate angel shark	BP	442	0	0	2.43	3.00	3.86	High
Shark	<i>Squalus mitsukurii</i>	Green-Eyed Dogfish	BP	0	0	0	2.43	3.00	3.86	High
Shark	<i>Squalus megalops</i>	Piked Dogfish	BP	279	0	0	2.29	3.00	3.77	High
Shark	<i>Centrophorus moluccensis</i>	endeavour dogfish	BP	2,102	0	0	2.57	3.00	3.95	High
Chimaera	<i>Chimaera sp. C</i> [in Last & Stevens, 1994]	longspine chimaera	BP	0	4	0	2.43	2.33	3.37	High
Chimaera	<i>Chimaera sp. E</i> [in Last & Stevens, 1994]	whitfin chimaera	BP	0	3	0	2.29	3.00	3.77	High
Teleost	<i>Dannevigia tusca</i>	Australian Tusk	BP	41	1	0	1.71	3.00	3.46	High
Teleost	<i>Nelusetta ayraudi</i>	Chinaman-Leatherjacket	BP	64	0	0	1.29	3.00	3.26	High
Teleost	<i>Rexea solandri</i>	Gemfish	T	3,329	0	0	1.71	3.00	3.46	High
Teleost	<i>Nemadactylus macropterus</i>	Jackass Morwong	BP	62	0	0	1.43	3.00	3.32	High
Teleost	<i>Zenopsis nebulosus</i>	Mirror Dory	T	2,208	0	0	1.43	3.00	3.32	High
Teleost	<i>Paristiopterus gallipavo</i>	Yellow-Spotted Boarfish	BP	41	3	0	2.29	2.33	3.27	High
Teleost	<i>Pentaceros decacanthus</i>	Big-spined boarfish	BP	824	3	0	2.00	3.00	3.61	High
Teleost	<i>Dentex tumifrons</i>	Yellowback bream	BP	42	0	0	1.29	3.00	3.26	High
Teleost	<i>Lipocheilus carnolabrum</i>	Tang snapper	T	4,997	0	0	1.43	3.00	3.32	High
Teleost	<i>Plagiogeneion macrolepis</i>	Bigscale rubyfish	BP	0	3	0	2.00	3.00	3.61	High
Invertebrate	<i>Hythlассia acerba</i>	champagne crab	BP	0	4	0	2.29	2.33	3.27	High