



Australian Government

Australian Fisheries Management Authority


ANNUAL STATUS REPORT

Western Tuna and Billfish Fishery

August 2009

This report has been prepared by AFMA for consideration by the Department of the Environment, Water, Heritage and the Arts (DEWHA) in relation to the export approval of the Western Tuna and Billfish Fishery under the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*.

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Introduction

This assessment covers fishing methods in the Western Tuna and Billfish Fishery (WTBF), for the methods of longline and minor line, such as poling or trolling, as managed by the *Western Tuna and Billfish Fishery Management Plan 2005*. In December 2004, the Delegate of then the Minister for the Environment and Heritage declared the WTBF exempt from the export controls under Part 13A of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for a period of five years until 1 December 2009. A copy of the letter to AFMA, including conditions and recommendations can be found at: [Southern and Western Tuna and Billfish Fishery](#).

1. Description of the Fishery

For a brief overview of the fishery including information on target species, fishing techniques, number of operators, stock status and management arrangements see the [Fishery at a glance](#) page on AFMA's website.

1.1 Target and byproduct species

Under the *Fisheries Management Act 1991* and the *Western Tuna and Billfish Management Plan 2005* (the Plan), the target species are tuna and billfish. The majority of targeted effort is at **Yellowfin Tuna**, **Bigeye Tuna**, **Broadbill Swordfish** and **Striped Marlin**. **Blue Shark**, and **Mahi Mahi**, are also an important component of the catch.

An overview of the target and byproduct species can also be found in the BRS fisheries [status review for the WTBF \(Attachment 1\)](#).

1.2 Management arrangements

The fishery is currently managed by the granting of annual fishing permits which apply conditions and limit the number of boats operating. However there have been major changes to the WTBF management with the provisional grant of Statutory Fishing Rights (SFRs) under the Plan. Once SFRs have been granted the annual fishing permits for the WTBF will cease to have effect. Instead, access to fish in the fishery will be provided through tradeable SFRs granted under the Plan.

Current management arrangements in the WTBF include:

- Operators in the WTBF are allowed to fish using pelagic longline, minorline or purse seine equipment. Purse seine may not be used to target skipjack tuna.
- WTBF operators are permitted to fish for bait in the area of the WTBF, including State waters. Bait must only be taken for the boat SFR holder's own use for fishing in the WTBF, and the boat SFR holder is not permitted to take bait for fish farms, for sale or other fishing operations.
- Western Australian State trip limits on a number of species when fishing in the area of the WTBF
- Reporting obligations including logbooks, carriage of observers and independently verified catch disposal records (CDRs)

- All Commonwealth concession holders are required to fit their vessel with an Integrated Computer Vessel Monitoring System (ICVMS) which continually reports the vessel's location to AFMA
- Bycatch reduction measures including use of tori lines, weighted lines, thawed baits, ban of the use of wire trace and any offal discharge and bycatch trip limits on sharks.

These arrangements will continue up until and also once quota Statutory Fishing Rights (SFRs) are allocated in the fishery.

Once the SFRs are granted under the Western Tuna Management Plan the fishery will be managed by output controls in the form of Individually Transferable Quotas (ITQs). A Total Allowable Catch (TAC) will be set for the major target species (Yellowfin Tuna, Bigeye Tuna, Broadbill Swordfish and Striped Marlin) on an annual basis before each fishing season. The amount of target species that may be caught will be determined by the number of Quota SFRs that are held for these species, as well as by the Total Allowable Catch (TAC) for these species in the fishing season.

For further information see AFMA's [website](#).

1.3 Fishing methods

The methods used to target tuna and billfish in the WTBF are pelagic longline, trolling, handlining and rod and reel fishing.

Pelagic longline fishing (**Figure 1**) involves the use of branch lines attached to a mainline. Each branch line is fitted with one or more baited hooks. The longline is set in the sea in such a manner that the mainline, branch lines and hooks are suspended in the water column by floats at the sea surface.

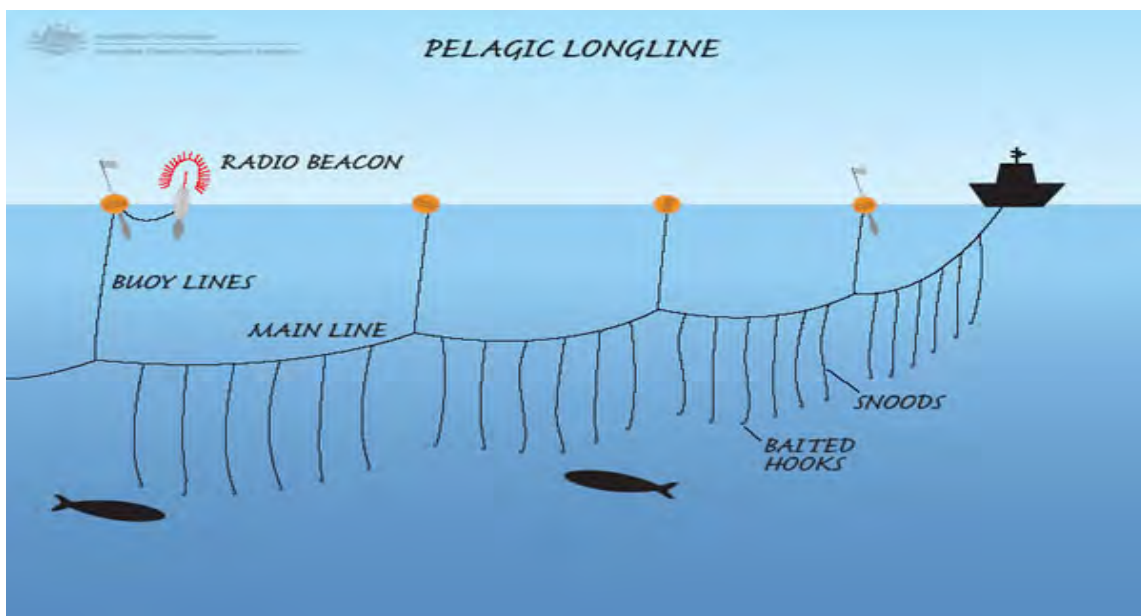


Figure 1: Illustration of a pelagic longline (a longline [baited] hook is attached to each snood and termed a longline clip)

1.4 Fishing areas

The Western Tuna and Billfish Fishery extends from Queensland's Cape York Peninsula west to the South Australia–Victoria border. It also includes waters around Christmas Island and the Cocos (Keeling) Islands and a high seas fishing zone. The area of the WTBF fishery is detailed at:

http://www.afma.gov.au/information/maps/pdfs/wtbf_area20070905.pdf (**Attachment 2**). For more information on where effort is concentrated see [Section 5.4: Spatial issues/trends](#)).

1.5 Allocation between sectors

There are two commercial sectors in the WTBF, the pelagic longline and minor line sector. Under the Plan the operators in each sector will be granted either longline and/or minor line boat SFRs. For a season, each quota SFR entitles the holder to expend an equal share of the TAC for the species in the fishery. TACs will be determined annually by AFMA in accordance with the Plan.

The TAC will be formally determined by AFMA when SFRs are granted in consultation with Tropical Tuna Management Advisory Committee (TTMAC) and Western Tuna Resource Assessment Group (WTRAG).

The Department of Agriculture, Fisheries and Forestry (DAFF) have been working with the commercial and recreational fishing sectors seeking to reach an equitable agreement on the allocation of resources between the commercial and recreational sectors.

1.6 Governing legislation/fishing authority

All Australian fisheries are managed under the [Fisheries Management Act 1991](#) and their respective management plan which for this fishery is the [Western Tuna and Billfish Fishery Management Plan 2005](#). The fishery is continuing to be managed by annual fishing permits (through transitional arrangements under the Management Plan) until SFRs are granted sometime in 2009. This grant is currently awaiting a Federal Court decision on appeals lodged with the Statutory Fishing Rights Allocation Review Panel (SFRARP).

Australian commitments and obligations under the [Indian Ocean Tuna Commission \(IOTC\)](#) are put in place through the Management Plan and conditions on SFRs and permits.

1.7 Status of export approval under the Environment Protection and Biodiversity Conservation Act 1999

In December 2004, the Delegate of the then Minister for the Environment and Heritage declared the WTBF exempt from the export controls under Part 13A of the EPBC Act for a period of five years until 1 December 2009. A copy of the letter to AFMA and the conditions and recommendations are located at: [Southern and Western Tuna and Billfish Fishery](#).

2. Socio-economic environment

2.1 Value of the fishery

Estimated catch and value for WTBF in 2007-2008¹ –

Yellowfin Tuna	14 t (\$A 0.081 million);
Albacore Tuna	10 t (\$A 0.02 million);
Bigeye Tuna	42 t (\$A 0.37 million);
Billfish	219 t (\$A 1.2 million);
TOTAL	305 t (\$A 1.67 million)

2.2 Economic assessment

[ABARE's Fishery Economic Status Report](#) brings together available indicators of the economic performance of each of the diverse fisheries managed by the Australian Fisheries Management Authority (**See Attachment 3**).

2.3 Quality assurance and control

Australian seafood destined for export is subject to Commonwealth regulation under the *Export Control Act 1982* and Export Control (processed food) Orders to ensure compliance with food safety and trade description requirements. All land based processing establishments and vessels which process on board are required to be registered by the Australian Quarantine and Inspection Service (AQIS).

3. Management

3.1 Changes to management

Since accreditation of the WTBF in 2004, one amendment has been made to the Plan. This amendment can be found at the following [link \(Attachment 4\)](#). The amendment to the WTBF plan was to correct technical errors identified by AFMA between late 2005 and early 2006. Although the errors in the Plan were technical in nature, they had the effect of rendering the SFR allocation provisions non-functional and preventing AFMA from undertaking the allocation process (see current management arrangements discussed in [Section 1.2: Management Arrangements](#)).

3.2 Performance of the fishery against objectives, performance indicators and performance measures

A statement of the performance of the WTBF against its objectives, performance indicators and performance measures is made annually in AFMA's annual report. A copy of the current statement can be found on AFMA's [website](#).

¹ Source: AFMA catch figures with ABARE GVP values for 2007-08

3.3 Compliance risks present in the fishery and actions taken to reduce these risks

Compliance risks

The unique and dynamic nature of fisheries presents great challenges to the effective management of risk. In the fisheries compliance context, risk equates to the failure of fishing operators to comply with fisheries management arrangements and/or fishing permit/concession conditions. AFMA's Centralised Compliance Program is a risk based compliance methodology program. While AFMA compliance has an education and liaison role, the goal of the Centralised Compliance Program is to have a targeted approach to facilitate voluntary compliance with the fishery industry. AFMA compliance conducts a risk assessment each financial year of all risks to compliance across the major Commonwealth fisheries to direct resources towards high risks that are identified.

Compliance management tools

To address these risks AFMA's compliance program contains seven main elements:

Integrated Computer Vessel Monitoring System (ICVMS)

ICVMS is used to monitor pelagic longline operations and the movement of boats in and out of ports. AFMA monitors the activity of the fleet through ICVMS, at least three times per day during office hours. ICVMS allows AFMA to contact vessels whose reports are overdue within three hours of the missed position report and to ensure that the vessel and ICVMS is working in accordance with conditions imposed on fishing permits. Temporary reporting schedules are to be arranged for vessels whose ICVMS has stopped working while at sea.

Vessel Inspections

Random in-port vessel inspections are to be carried out on active boats in the fishery during the year. Additional inspections may be carried out on targeted vessels if intelligence indicates further attention is warranted.

Fish Receiver Inspections

Regular inspections of fish receiver premises will be carried out during the year. Additional inspections may be carried out on targeted receivers if intelligence indicates further attention is warranted.

At-Sea Compliance

AFMA each year determines an appropriate number of sea patrol days to be undertaken in Commonwealth waters.

Aerial Surveillance

AFMA each year determines an appropriate number of aerial surveillance flights to detect offences particularly related to the Threat Abatement Plan for Seabirds (eg: use of tori lines).

Intelligence reports

State Fisheries officers are required to submit intelligence reports to AFMA outlining any suspected breaches or significant information concerning the fishery that they obtain while working in the field.

Information Program

Centralised compliance officers maintain a client liaison role to gauge operator response to compliance. Centralised compliance provides fishers and processors with regular feedback on the level of compliance with the management arrangements.

3.4 Consultation processes

AFMA actively involves a wide range of stakeholders in the process of developing and implementing fisheries management arrangements. This approach is supported by specific consultative processes which are embodied in the Authority's governing legislation and undertaken as part of effective fisheries management practice

The Plan and associated management arrangements in place were developed in consultation with the Western Tuna Management Advisory Committee (WTMAC), the Western Tuna Resource Assessment Group (WTRAG), operators and other stakeholders. The Plan details the objectives for the fishery, measures to achieve these objectives and criteria to assess the Plan's performance. Australia is a member of the IOTC for highly migratory fish stocks, and therefore any conservation and management measures implemented by the Commission are binding. Therefore the AFMA Commission, WTMAC and IOTC (and its science and compliance committees) are all involved in determining management measures for the fishery.

TTMAC is the key advisory committee for management of the domestic fishery. The MAC membership is drawn from AFMA (1), scientific agencies (1), an environment/conservation member (1), industry representatives (4), and a recreational fishing member (1). Invited participants from industry (3), recreational fishing member (1) and state government (1) are also permanent observers on the MAC. Agencies such as DAFF, Department of Environment Water Heritage and the Arts (DEWHA) and Bureau of Rural Sciences (BRS) have attended meetings as observers.

WTRAG is the key research and scientific committee for management of the domestic fishery. The RAG membership is drawn from AFMA (1), scientific agencies (2), a conservation NGO (1), the pelagic longline sector of industry (2), a recreational member (1) and a state fisheries member (1). Agencies such as DAFF, DEWHA and BRS have attended meetings as observers. This committee in-part provides advice to the AFMA Board regarding the status of the target species stock in Australia and the Pacific and is the key group in implementing the Harvest Strategy policy.

[Tropical Tuna Management Advisory Committee](#)

[Western Tuna and Billfish Fishery Resource Assessment Group](#)

3.5 Description of cross-jurisdictional management arrangements

Under Offshore Constitutional Settlement (OCS) arrangements the Commonwealth has jurisdiction for tuna and tuna-like species to the high water mark in Western Australia and South Australia. For a description of what other fisheries operate in the same region as the WTBF and any species catches see [Section 5.2: Total catch of target species taken in other fisheries](#).

3.6 Compliance with threat abatement plans, recovery plans and domestic and international agreements

The WTBF Management Plan and supporting instruments implement the requirements of Threat Abatement Plans (seabird TAP), recovery plans (sharks, turtles) and relevant national and international agreements. In compliance with these plans and agreements AFMA has introduced a range of measures see [Section 8.3: Management action taken to reduce interactions](#).

Overall the WTBF has not exceeded the agreed seabird bycatch level of 0.05 birds per 1,000 hooks since 2006 when the revised TAP was implemented, as a result of these management measures. For more information see the [TAP report \(See Attachment 5\)](#).

Australia is a member of the Indian Ocean Tuna Commission (IOTC), and is therefore bound to their international conservation and management measures.

4. Research and monitoring

4.1 Collaborative research and results

Research needs of the fishery are reviewed annually by the WTMAC Research Sub-Committee. This process provides for further research into stock assessment, collection of fishery and biological data as well as providing an ecological and economic assessment of the fishery.

Observers also undertake biological sampling of target and bycatch species. As part of its core functions, AFMA also uses the data collected to assess bycatch species and impact of the fishery on the broader marine environment and assessing effectiveness of management measures and commitments under the Australian Longline Bycatch Work Plan.

AFMA calls annually for research applications to address research priorities and gaps in knowledge, which have been identified for 2009/10 in the Western Tuna Fishery in the WTBF Annual Research Priorities 2009-10 (**Attachment 6**). The Western Tuna Research Sub-Committee, TTMAC and the Commonwealth Fisheries Research Advisory Board (COMFRAB) assess these applications for funding from the AFMA Research Fund, FRDC and the Fisheries Resources Research Fund (FRRF).

Some of the research projects, related to the fishery, that have received funding recently include:

- Size monitoring program – (Kevin Williams, WW Fisheries)
- Implementation of bycatch mitigation measures in Australia's pelagic longline fisheries: quantifying effects on target and non-target catches – (Peter Ward, BRS)
- Population biology and habitat preferences of Striped Marlin - (Peter Davie)
- Integrated evaluation of management strategies for multi-species long-line fisheries - (Campbell Davies, CSIRO)
- Broadbill Swordfish Tag and Release Project (CSIRO and AFMA)

Completed research projects in the WTBF post-2003 include:

- Development and preliminary testing of the Harvest Strategy Framework for the Western Tuna and Billfish Fishery – (Campbell Davies, CSIRO)
- Effects of fishing on high risk bycatch species in the Western Tuna and Billfish Fishery – (Peter Ward and Sheree Epe)
- Western Tuna and Billfish Fishery Size Monitoring Program 2005-2006 – (Kevin Williams, WW Fisheries)
- Western Tuna and Billfish Fishery Size Monitoring Program 2004-2005 – (Kevin Williams, WW Fisheries)
- Determining the nature and extent of swordfish movement and migration in the eastern and western AFZ through an industry-based tagging program – (C.A. Stanley, CSIRO)
- Fishery Assessment Report - Southern and Western Tuna and Billfish Fishery 2004 – (Southern and Western Tuna and Billfish Fishery Scientific Assessment Group)
- Western Tuna and Billfish size monitoring program 2002 - 2003 – (Kevin Williams, WW Fisheries)
- Assessment of blue shark population status in the western South Pacific (Pierre Kleiber, et. al)

The results of these research reports are available on [AFMA's website](#).

4.2 Monitoring programs used to gather information on the fishery

Fishery information in the WTBF is collected mainly through the longline fishing logbook (*AL06 Australian Pelagic Longline Daily Fishing Log*), Catch Disposal Records (CDRs), observer data and a size monitoring program for Yellowfin Tuna, Bigeye Tuna and Broadbill Swordfish.

The first monitoring of fishing activity in the WTBF began in the late 80s, when Australian/Japanese joint ventures began fishing in the fishery. The Australian Government then released a logbook for domestic longliners in 1986 but it wasn't until AFMA enforced its return in 1995 that quality data was available. Australian effort in the WTBF has been monitored since 1994 as the fishing effort increased, when Japanese longline vessels were excluded from the fishery. The logbook provides for the recording of information on the location, time, gear and method of fishing as well as the resultant catch for each fishing operation (For more information on logbooks see [AFMA's website](#)). In 2006, AFMA ensured further accuracy of catch data through the introduction of the Commonwealth Pelagic Fisheries CDR which is an accurate record of all the catch landed, where an independent licensed fish receiver verifies the landed weight of each species.

While logbook information has proved reasonably reliable for target species, catch information about byproduct, bycatch and fishing practices has been less reliable. To address these issues AFMA has implemented an observer program (for information on the observer program refer to: [Section 4.3: Observer program](#))

4.3 Observer program

The AFMA observer program places observers on domestic, and if required, foreign vessels fishing within the Australian Fishing Zone (AFZ) and some adjacent areas under international arrangements. The requirements and priorities for the Observer Program for each fishery are determined by relevant stakeholders and implemented by the AFMA Observer Program.

A pilot observer program was run in the WTBF beginning in April 2003 and finishing in mid 2006. The key objective of the pilot program was to identify coverage levels for an ongoing fishery observer program. The final report from this project was released, however did not recommend specific coverage levels. Currently the Threat Abatement Plan requires a minimum 5% observer coverage by 5° latitude band by season, therefore AFMA will continue to monitor 5% of the effort in all areas of this fishery to meet this requirement.

AFMA Observers are trained and briefed to collect and verify fishery data on both target and non-target species. The information collected by observers is extensive and includes details of daily fishing operations, the mitigation measures employed and any non-target interactions. In terms of non-target species, observers aim to record the number (and weight where appropriate) of each species caught, the life status and whether it was retained or discarded for each shot observed.

5. Catch data

5.1 Total catch of target, byproduct and bycatch species (including retained and discarded catch)

No recent catch data is available for the WTBF due to the small number of operators in the fishery (fewer than five active vessels since 2007). Current AFMA policies restrict AFMA from the publishing of catch information. The only catch information available for the WTBF is the catches published in the recent 2008 ABARE Australian fisheries statistics (**Table 1**).

Table 1: Estimated catch for WTBF in 2007-2008²

Species	Total Catch
Yellowfin Tuna	14 t
Albacore Tuna	10 t
Bigeye Tuna	42 t
Billfish	219 t
TOTAL	305 t

For more information on interactions with protected species see [Section: 7.1 Frequency and nature of interactions](#)

² Source: AFMA catch figures with ABARE GVP values for 2007-08

5.2 Total catch of target species taken in other fisheries

Catches of tuna in other fisheries is generally low and restricted by small trip limits. Commonwealth fisheries that operate in the same region as the WTBF include the Northern Prawn Fishery (NPF), SBT fishery, North West Slope (NWS) fishery, Great Australian Bight (GAB) fishery, and the Gillnet, Hook and Trap (GHAT) fishery (See **Table 2**). The ETBF operates in waters adjacent to the WTBF but genetic studies have found differences between target species stocks in the Pacific Ocean compared to the Indian Ocean, although with the current level of knowledge this still remains unclear. Many state finfish and shark fisheries operate adjacent to the waters of the WTBF, such as the:

- West Coast Demersal Gillnet and Demersal Longline Fishery (WA)
- South Coast and West Coast Purse Seine Fisheries (WA)
- Western Australian North Coast Shark Fishery (WA)

There are also two Western Australian fisheries that are jointly managed by the State and Commonwealth governments:

- Joint Authority Southern Demersal Gillnet and Demersal Longline Fishery (WA and Commonwealth)
- Joint Authority Northern Shark Fishery (WA and Commonwealth)

More information on the management of state fisheries can be found at the individual states websites:

Western Australia – <http://www.fish.wa.gov.au/>

South Australia – <http://www.pir.sa.gov.au/fisheries/home>

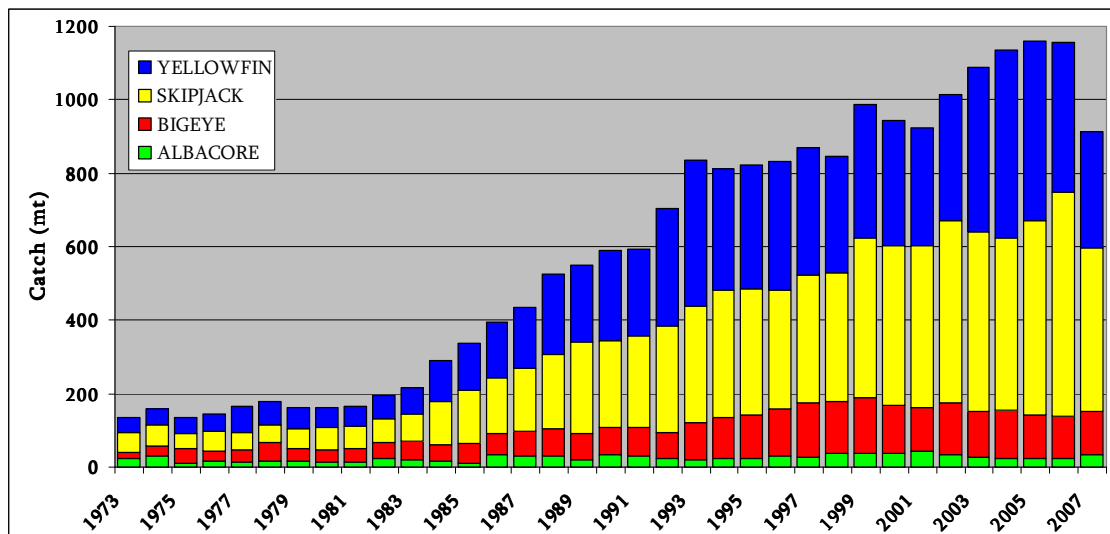
For information on overlapping recreational catch and effort from the 2001 National Recreational Fishing Survey see the [DAFF website](#).

Table 2: Catch of WTBF target species in other Commonwealth fisheries 1 January 2006- 31 December 2008

Gillnet Hook and Trap Fishery		
<i>Species</i>	<i>Estimated kgs kept</i>	<i>Estimated kgs discarded</i>
Albacore Tuna	21	0
Broadbill Swordfish	1996	0
Southern Bluefin Tuna Fishery		
<i>Species</i>	<i>Estimated kgs kept</i>	<i>Estimated kgs discarded</i>
Albacore Tuna	2	0

Internationally, the IOTC monitors catches of tuna and tuna-like species in the Indian Ocean and adjacent seas. The provisional catch of Tuna species in 2007 was estimated at 913,100t, a reduction of around 250t compared with the 2006 catch (1,157,600t). Catches of Yellowfin Tuna in 2007 declined by 22% from 2006 levels to 316,700t, which was around 80t below the average catch level for the period 2000-2007. Catches of Bigeye Tuna in 2007 increased slightly from 2006 levels to 117,900 t, but was still lower than the average catch level for the period 2000-2007. Catches of Albacore Tuna in 2007 increased substantially by 30% from 2006 levels to 32,200 t which was slightly higher the average catch level for the period 2000-2007 (**Figure 2**).

Figure 2: Catch (t) of Albacore, Bigeye, Skipjack and Yellowfin Tuna in the Indian Ocean from 1973 until 2007 (Source: IOTC, 2008³)



5.3 Observer data

No recent observer data can be published for the WTBF due to the small number of operators in the fishery (less than five active vessels). Current AFMA policies restrict AFMA from the publishing of catch information.

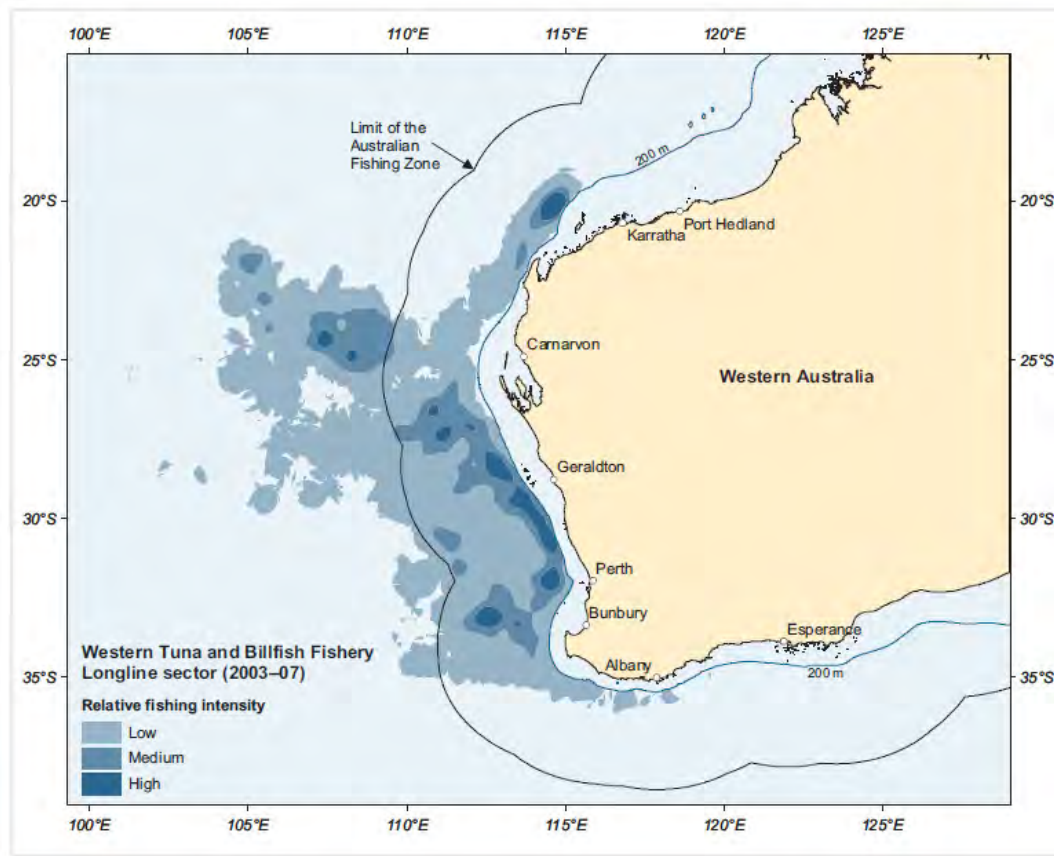
For information on the observer program and collection of data refer to [Section 4.3: Observer Program](#).

5.4 Spatial issues/trends

Due to the limited number of active boats in the WTBF (less than five vessels), AFMA cannot publish catch and effort information from the fishery. Since 2000 the number of vessels in the fishery has reduced from 45 to less than five vessels operating in the fishery since 2007. The figure below shows the relative fishing intensity in the WTBF between 2003 and 2007 (Source: 2007 BRS Status Report).

³ IOTC (2008) Indian Ocean Tuna Commission. Scientific Committee, Eleventh Regular Session Victoria, Seychelles 1-5 December 2008. Final Report.

Figure 3: Relative Fishing intensity in the longline sector of the WTBF from 2003 – 2007.



5.5 Effort data

Due to the limited effort in the WTBF, less than five boats have been active since 2007, AFMA can only publish catch and effort information prior to 2007. Therefore the table below shows the WTBF effort from 2000 until mid-2007, after which the effort reduced below five boats in the fishery.

Table 3: Total longline hooks and shots deployed by year (2000 – 2006) for all WTBF vessels.

Year	Hooks (millions)	Shots	Hooks per shot	Active vessels
2000/01	5.02	4,704	1,067	46
2001/02	6.08	5,420	1,121	50
2002/03	4.93	4,253	1,159	45
2003/04	2.61	2,067	1,264	25
2004/05	1.02	830	1,223	17
2005/06	0.81	675	1,195	7
2006/07	0.71	523	1,361	7

6. Status of target stock

6.1 Resource concerns

The four target species in the WTBF are highly migratory and internationally managed by IOTC, therefore it is important to note that any assessment of resources is based on the IOTC assessment ([See Section 6.2: Stock assessments and recovery strategies](#))

Table 4: BRS Fishery Status Report 2007 results for target species in the WTBF (Source: BRS, 2008⁴)

Yellowfin Tuna	Overfishing in the broader Indian Ocean, but stocks not overfished
Bigeye Tuna	Not overfished in the Indian Ocean, overfishing status uncertain
Albacore Tuna	Overfished and overfishing status uncertain in the Indian Ocean
Broadbill Swordfish	Overfishing in the broader Indian Ocean, but stocks not overfished
Striped Marlin	Overfished and overfishing status uncertain in the Indian Ocean

6.2 Stock assessments and recovery strategies

Albacore Tuna

A stock assessment for Indian Ocean Albacore Tuna (*Thunnus alalunga*) was attempted in 2004 by the Working Party on Temperate Tunas. Results of the analyses conducted were considered unreliable, although one of the results suggested that current catch levels might not be sustainable. Other indicators, such as the average size in the catch and catch rates, have not shown declines in recent years.

Taking into account the absence of a reliable assessment of the status of Albacore Tuna and the need for a precautionary approach, the SC recommended that the Commission be very cautious in allowing increases in catch or fishing effort until the problems with the assessments have been resolved.

Striped Marlin

No quantitative stock assessment is currently available for Striped Marlin in the Indian Ocean and no assessment has been undertaken by the IOTC Working Party on Billfish. Due to a lack of fishery data for several gears, only preliminary stock indicators can be used, therefore the stock status is uncertain.

A preliminary estimation of stock indicators was attempted on the longline catch and effort datasets from Japan, Taiwan and China that represent the best available information. Nominal CPUE exhibited dramatic declines since the beginning of the fishery in two major large fishing grounds (West Equatorial and north-west Australia) and

⁴ BRS (2008) "Fishery status reports 2007: status of fish stocks managed by the Australian Government". Bureau of Rural Sciences. 285pp.

the catches in the initial core areas also decreased substantially. There is considerable uncertainty about the degree to which those indicators represent abundance. Further work must be undertaken to explore and refine those parameters as such approach represents the only way to progress into the analysis of this stock that might be severely affected by fisheries.

Broadbill Swordfish

The most recent assessment for Broadbill Swordfish was undertaken in 2006. On the basis of this assessment and stock indicators the IOTC Scientific Committee concluded that the level of catch in 2004 (about 32,000 t) is above the MSY and unlikely to be sustainable. Furthermore, while the assessments indicated that the stock for the Indian Ocean overall is probably not currently overfished, catch rate data from the southwest Indian Ocean suggest that overfishing of swordfish may be occurring in localised areas, in particular in the southwest Indian Ocean off South Africa.

The IOTC Scientific Committee recommended that management measures focussed on controlling and/or reducing effort in the fishery targeting swordfish in the southwest Indian Ocean be implemented. Similar measures may be needed in the future if reductions in catch rates are detected in other areas of the Indian Ocean.

Yellowfin Tuna

The most recent assessment for Yellowfin Tuna was undertaken in 2005. While there was greater consistency in the 2005 assessment results than previously, the IOTC Scientific Committee emphasised that there remain considerable uncertainties in the assessments, as none as yet are able to fully explain the observed trends in standardized longline CPUEs over the duration of the fishery. Fishing mortality rates between 1999 and 2002 were probably slightly below or around F_{MSY} , and total catches during that period, at an average level of 347,000 t, were probably close to or possibly above MSY. Total catches in 2003, 2004 and 2005 were substantially above MSY.

In conclusion, the Scientific Committee recommended that any further increase in both effective fishing effort and catch above average levels in 1999 - 2002 should be avoided.

Bigeye Tuna

The most recent assessment for Bigeye Tuna was undertaken in 2006. Results of this assessment were similar but, in general, more optimistic than the previous assessments. Results indicate that the 2005 catch is close to the MSY.

Furthermore, spawning stock biomass seems to be above the level that would produce MSY, and the fishing mortality in 2004 seems to be below the MSY level. Current (2004) catches of juveniles Bigeye Tuna by the surface fleets are also less detrimental in terms of yield-per-recruit than previous patterns. However, the current outlook could revert to a more pessimistic one, if the exploitation pattern is to return to the pre-2003 levels, as expected.

In view of the 2006 assessment, the IOTC Scientific Committee recommended that catches should not exceed the MSY and fishing effort should not increase further from the 2004 levels.

Table 5: Summary of stock assessments completed by the IOTC for relevant WTBF target species

IOTC Scientific Committee Stock Assessments		
Species	Year of stock assessment	Summary of main results
<i>Yellowfin Tuna</i>	2005	Stock size is close to or has possibly entered an overfished state. Fishing pressure has been too high in recent years, but was somewhat lower in 2007. That the catch of Yellowfin Tuna does not exceed the average catch for the period 1998-2002 (i.e. 330,000 t) and fishing effort does not exceed the level exerted in 2007.
<i>Bigeye Tuna</i>	2006	Stock size and fishing pressure in 2004 were within acceptable limits. Catch rates have gradually declined since 1980. In 2008, preliminary assessment results based on tagging data suggest a high probability that the stock is not in an overfished state. Catches should not exceed the MSY and fishing effort should not increase further from the 2004 levels.
<i>Albacore Tuna</i>	2008	Based on the preliminary analyses undertaken in 2008, the stock is not considered to be overfished and overfishing is not occurring. Stock size and fishing pressure are considered to be within acceptable limits. Catches, mean weight and catch rates of Albacore have been stable for over 20 years. The status of the stock is not likely to change markedly over the next 2- 3 years and if the price of Albacore remains low compared to other tuna species, no immediate action should be required.
<i>Broadbill Swordfish</i>	2006	The overall stock size and fishing pressure are within acceptable limits. However, there have been some localised declines possibly related to high fishing pressure in some areas (e.g. in the southwest Indian Ocean area). Catches should not increase above the 2006 levels and fishing effort should not increase from the 2007 levels. Furthermore, management measures focussed on controlling and/or reducing effort, especially in the south-west Indian Ocean are recommended.
<i>Striped Marlin</i>	2006	No quantitative assessment is available for this species and there are no reliable indicators. Stock status is uncertain.

7. Interactions with protected species

7.1 Frequency and nature of interactions

There are some protected species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) that may interact with the tuna longline and minor fisheries of the WTBF. For more information please visit AFMA's [Protected Species](#) section of the website.

Due to the limited effort in the WTBF, less than five boats have been active since 2007, AFMA cannot publish interactions with protected species after 2006.

7.2 Management action taken to reduce interactions

A number of management measures have been implemented in the WTBF to reduce interactions with protected species including:

- The banning of wire trace in 2005 to reduce interactions with sharks
- TAP requirements to use tori lines, weighted lines, thawed baits and banning offal discharge on all vessels south of 25 degrees to reduce interactions with marine birds.

Compliance operations have not reported any fishers using wire traces but observers have identified several issues with the deployment and effectiveness of tori lines. A combination of education and compliance actions, continue to improve compliance with these requirements.

All interactions with listed protected species must be reported by fishers in their logbook and submitted to AFMA. AFMA is required to provide quarterly summary reports of all interactions in Commonwealth fisheries on behalf of fishers.

8. Impacts of the fishery on the ecosystem

8.1 Results of the Ecological Risk Assessments

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. By assessing the impacts of fishing on all parts of the marine environment, the ERAs encompass an ecosystem-based assessment approach. The ERAs will help to prioritise research, data collection monitoring needs and management actions for fisheries and ensure that they are managed both sustainably and efficiently.

Level 2 ERA Results

A total of 348 species were assessed at Level 2 using the PSA analysis. Of these, 32 were assessed to be at high risk: 2 byproduct species, 3 bycatch species, and 27 protected species. By taxa, the high risk species comprised 6 chondrichthyans (sharks and rays), 21 marine birds, and 5 marine mammals. There were no over rides used on the 348 species assessed. Of the 32 species assessed to be at high risk, three species had more than 3 missing attributes.

Level 2 ERA Residual Risk Results

Due to the semi-quantitative nature of the Level 2 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 of the 32 high risk species was quantified using AFMA developed guidelines with input from CSIRO and stakeholders. Residual risk is broadly defined as the risk remaining after the implementation of mitigation measures.

Following residual risk assessment there was a change from 32 high risk species to eight high residual risk species. These included two bycatch/byproduct shark species (thintail thresher shark and dusky shark) and six TEP species including, five whales (Long-finned Pilot Whale, Andrew's Beaked Whale, Ginkgo Beaked Whale, True's

Beaked Whale and Longman's Beaked Whale) and a shark (white shark). The primary reason for changes in risk scores were due to compliance with the statutory Threat Abatement Plan (TAP) for the incidental catch of seabirds.

Level 3 Quantitative Assessment Results

AFMA commissioned CSIRO to conduct a comprehensive rapid quantitative assessment of the risk from fishing to sustainability of all chondrichthyans and teleost species in several major Commonwealth Fisheries. The project extended the methodology of the previous level 2 PSA to provide quantitative estimates of risk for a large number of fish species. Classifications of risk were divided into: low, medium, high and extreme high with each category having a corresponding precautionary criterion to take into account uncertainty.

One hundred and eighty seven fish species in the WTBF (38 chondrichthyans and 149 teleosts) were examined with no species being classified as *at risk* of potential overfishing. The results of the level 3 assessment will be incorporated with the results of the residual risk assessment and addressed through Environmental Risk Management (ERM) strategies. These strategies include a chondrichthyan working group and the Australian Tuna and Billfish Longline Fishery (ATBLF) bycatch work plan. These will be implemented and reviewed over the coming years.

8.2 Nature of impacts on the ecosystem

The nature of impacts the WTBF has on the ecosystem were related to direct impacts from primary fishing operations in relation to the take of target, by-product and bycatch species. No habitats or communities were identified as high risk from the effects of pelagic longline fishing in the ERA process.

8.3 Management action taken to reduce impacts

Due to the limited effort in the WTBF there are no major ecological sustainability concerns for the fishery with the current effort. Once TACs are in place the overall effort level will be controlled in the fishery. The non-target group at highest risk from the fishery is seabirds, however this issue is being addressed through the TAP. The TAP requires all longline operators fishing south of 25 degrees to use a tori line, line weighting and thawed baits, whilst there is a total banning of offal discharge throughout the fishery. Overall the WTBF has not exceeded the agreed seabird bycatch level of 0.05 birds per 1,000 hooks since 2006, when the revised TAP was implemented. Broadbill swordfish, the target species at most risk in the fishery, is being addressed in the WTBF Harvest Strategy. A ban on the use of wire trace was introduced in the fishery 2005 to reduce the capture of shark species. Operators are also restricted to a 20 shark trip limit within the AFZ and a 100 shark trip limit on the high seas. All interactions with turtles, sharks, marine birds and marine mammals will continue to be closely monitored in the WTBF through logbooks and observer reports.

Those species identified by the residual risk assessment and the quantitative rapid level 3 assessments for all Commonwealth managed fisheries have been combined with identified protected species to form First and Second Priority lists on which AFMA will focus the ERM process. AFMA will implement measures to mitigate the risks under various actions that are outlined in the following policies: Harvest Strategies, the

Program for Addressing Bycatch and Discards in Commonwealth Fisheries, Byproduct (non key commercial species) and in line with the Shark Policy under the Chondrichthyan Working Group.

In 2008 AFMA has developed a bycatch and discarding work plan for the [Australian Tuna and Billfish Longline Fishery \(ATBLF\)](#) (**Attachment 7**), including both the eastern and western sectors and covers a two year period from 1 November 2008 to the 31 October 2010. The objective of the plan is to develop a longer-term strategy for overall minimisation of bycatch. However, the focus of the ATBLF work plan is on developing management responses to high ecological risks and measures to avoid fishery interactions with species listed under the EPBC Act.

For more information on the [WTBF TAP requirements](#) (See Attachment 5)

For more information on [AFMA's bycatch and discarding implementation strategy](#)

9. Progress in implementation of recommendations and conditions resulting from the previous assessment of the fishery

9.1 Progress in implementing each recommendation and condition

Conditions and recommendations to the Australian Fisheries Management Authority (AFMA) on the ecologically sustainable management of the Western Tuna and Billfish Fishery (WTBF)

Wildlife Trade Operation – 10 November 2004 to 10 November 2009

Performance Criteria	Level of Achievement as at XX August 2009	Deadline
1. Operation of the fishery is to be carried out in accordance with the Western Tuna and Billfish Fishery Management Plan (as determined) including conducting the reviews identified in the management plan against an overarching objective on ensuring that the fishery achieves ecological sustainability. AFMA to inform DEH of any proposed amendment to the management regime for the Western Tuna and Billfish Fishery, including any significant shift in fishing away from the longline method of fishing, to enable DEH to evaluate any impact on the ecological sustainability of the fishery.	<p>The WTBF continues to be managed by fishing permits (through transitional arrangements under the Management Plan) until SFRs are granted. Quota SFRs are due to be granted in late 2009/early 2010, once the allocation appeals are finalised in the Federal Court.</p> <p>A number of measures required by the Plan have been completed, including data, research, communication and compliance plans. Other measures cannot be implemented until quota statutory fishing rights (SFRs) enter into force. The amended Management Plan (November 2006) has been accepted to correct technical errors relating to the SFR allocation process. The provisional allocation of SFRs is scheduled to commence in late 2009/early 2010, once the allocation appeals are finalised.</p> <p>While longline fishing has declined in recent years there has been no shift toward other methods.</p>	Ongoing

Performance Criteria	Level of Achievement as at XX August 2009	Deadline
<p>2. AFMA to develop a process and timelines for responding to triggering WTBF Management Plan performance criteria.</p>	<p>This recommendation has been included in AFMA Management's and the WTBF Management Advisory Committee's work plans. The process and timelines will be in place by the time the Plan comes into force.</p> <p>AFMA and CSIRO have developed and AFMA is implementing harvest strategies for Yellowfin Tuna, Bigeye Tuna, Albacore Tuna, Broadbill Swordfish and Striped Marlin, for joint approaches in the WTBF and ETBF.</p> <p>The harvest strategy framework (HSF) will set agreed target and limit reference points and clear decision rules for each species⁵.</p>	<p>Complete – implementation of Harvest Strategy ongoing</p>
<p>3. AFMA to establish formal consultative mechanisms and subsequently implement research, management, monitoring and compliance approaches to ensure that there is complementary and appropriate management of species taken in the Western Tuna and Billfish Fishery and overlapping State/Territory managed fisheries (as either target, by-product or bycatch).</p>	<p>Formal consultative mechanisms already exist through the Tropical Tuna MAC (TTMAC), RAG and Research Sub-Committee to develop and implement research, management, monitoring and compliance programs.</p> <p>AFMA is part of the formal consultative mechanisms for the Commonwealth's review of the Offshore Constitutional Settlement (OCS) and Memorandum of Understanding (MoU) with Western Australia. Commonwealth legislative amendments instigated by the previous Government are now in place and complementary Western Australian amendments are expected to be put to the State Parliament late this year or in early 2010. This allows broader reform of the OCS without royal assent (sign off by the Governor-General).</p> <p>Western Tuna MAC (WTMAC), now TTMAC identified a number of amendments which would allow industry to better utilise <u>bycatch</u> (within sustainable limits). A proposal has been developed seeking amendments to the OCS Memorandum of Understanding to revise a number of trip limits (not jurisdiction) to be a reasonable option.</p> <p>AFMA is beginning negotiations with interested stakeholders to agree on amendments to the OCS before approaching WA Fisheries for further discussion.</p>	<p>Ongoing</p>
<p>4. AFMA to further develop effective consultative mechanisms with Parks - North in DEH, responsible for the management of the Christmas and Cocos (Keeling) Islands, to ensure that the fishing within the Western Tuna and Billfish Fishery is compatible with the management of species of conservation</p>	<p>No fishing has occurred around the Christmas and Cocos (Keeling) Islands since a small amount of exploratory fishing several years ago. There is no indication that fishing will be conducted in this area in the foreseeable future. AFMA will monitor the fishery and consult with Parks – North as required.</p>	<p>Ongoing</p>

⁵ Also reported against in Ministerial Direction Work Plan

Performance Criteria	Level of Achievement as at XX August 2009	Deadline
importance reliant on the waters around these islands.		
<p>5. AFMA to ensure that the observer program is implemented, meets domestic and international data and management needs and is capable of providing the required information at a statistically robust level, including:</p> <ul style="list-style-type: none"> • validation for target and by-product catch information for use in research, particularly stock assessments, and management decision making, including catch rates; • collection of data on bycatch, protected species interactions and ecosystem impacts of fishing operations; including whenever possible information on the life status of all bycatch, by-product and protected species discarded; and • collection of information on the impact of emerging technologies on fishing sustainability (eg the use of lightsticks, circle hooks, bait types). 	<p>A pilot observer program was run in the WTBF beginning in April 2003 and finishing in mid 2006. The key objective of the pilot program was to identify coverage levels for an ongoing fishery observer program. The final report from this project was released, however did not contain specific coverage levels. Currently the Threat Abatement Plan requires a minimum 5% observer coverage by 5° latitude band by season, therefore AFMA will continue to monitor 5% of the effort in all areas of this fishery to meet this requirement.</p> <p>AFMA commenced an observer program in the WTBF after the pilot program was completed. This program aimed to meet the observer requirements required by the TAP and has met these coverage rates with an average 6% coverage between 2003 and 2008.</p>	Ongoing
<p>6. AFMA to monitor the impact of technological advancements in the fishery on the ecological sustainability of target species, by-product and bycatch, and incorporate any mitigation measures into management as necessary and take account of technological advancements in stock assessments and setting of the Total Allowable Commercial Catch.</p>	<p>Fishing practices are monitored through the WTBF observer program.</p> <p>Fishing activity continued at very low levels since 2007 and there were no significant technological advancements.</p>	Ongoing
<p>7. AFMA to implement the Tuna and Billfish Longline and Minor Line Bycatch Action Plan (Longline Fishery BAP) as required under the Western Tuna and Billfish Management Plan (as determined) as a matter of priority and through the actions set in the BAP or through other approaches (eg Directions set under the <i>Fisheries Management Act 1991</i>, regulation or conditions on permits) ensure that the impacts of the fishery on bycatch are minimised and consistent with achieving the objectives of other legislative requirements including:</p> <ul style="list-style-type: none"> • all relevant Recovery Plans (such as the <i>Recovery Plan for Grey Nurse Sharks, <i>Carcharias taurus</i> in Australia</i> 	<p>AFMA has developed the Australian Tuna and Billfish Longline Fishery (ATBLF) Bycatch Work Plan to replace the Bycatch Action Plans. The implementation of this work plan has commenced and will continue throughout 2009 and 2010.</p> <p>An ecological risk assessment, a data plan and a communication plan have been finalised. The development of management responses to the ecological risk assessment will assist in the upcoming implementation of the bycatch work plan.</p> <p>Boats are limited to 20 shark trunks per trip within the AFZ and 100 shark trunks on the high seas. The use of wire trace is also prohibited in the fishery to reduce incidental catch. Operators</p>	Ongoing

⁶ Also reported against Ministerial Direction and Bycatch Action Plan

Performance Criteria	Level of Achievement as at XX August 2009	Deadline
<p>and the <i>White Shark (Carcharodon carcharias) Recovery Plan</i>, the <i>Recovery Plan for Albatrosses and Giant Petrels</i> and the <i>Recovery Plan for Marine Turtles in Australia</i>):</p> <ul style="list-style-type: none"> • all relevant Threat Abatement Plans (such as <i>Incidental Catch (or By-catch) of Seabirds during Oceanic Longline Fishing Operations</i>) or • all relevant National Plans of Action (such as the National Plan of Action for the Conservation and Management of Sharks). 	<p>are required to land sharks with all fins attached.</p> <p>AFMA continues to monitor interactions with TEP species through its logbook and observer programs.</p> <p>AFMA has introduced seabird mitigation measures and reporting structures compliant with the seabird TAP⁶.</p>	
<p>8. AFMA to monitor the compliance of industry with their codes of practice and, where necessary and appropriate, introduce regulatory measures to ensure bycatch is minimised.</p>	<p>AFMA monitored industry compliance using the pilot observer program and through a review by the management advisory committee. This is reported in the BAP implementation reports on AFMA's website.</p>	Ongoing
<p>9. AFMA to investigate the effectiveness of various measures employed in other longline fisheries (such as circle hooks and mackerel type baits) to reduce the incidental take of protected species, particularly marine turtles, and introduce the requirement to use any that reduce the capture and mortality of protected species.</p>	<p>Phase 1 of a research project entitled 'The Effect of Circle Hooks on Target and Non-Target Catches in Australia's Longline Fisheries' has been completed. This project was focused in Eastern Australia, however some of the recommendations could be transferrable to the WTBF. The results of this project indicated that the adoption of small circle hooks by ETBF longliners will not be detrimental to financial returns, at least for longliners targeting Yellowfin and Bigeye Tuna at mid latitudes off eastern Australia. On the other hand, circle hooks may result in increased catches of Striped Marlin and some shark species in a fishery where marine turtle interactions are relatively rare.</p>	Ongoing

Summary

As there is currently limited effort in the WTBF, less than five boats have been active since 2007, there are limited environmental concerns in the fishery while the effort remains at such a low level. However AFMA has addressed, or is currently in the process of addressing some of the environmental concerns relevant to the fishery.

Due to the recent low level of effort in the fishery, observer coverage has been variable ranging from 2% to 17%, however averaging 6.8% over the last 5 years. The data collected in the fishery will assist in the development of solutions to a range of management issues, including bycatch and discarding issues.

Efforts to minimise the impacts from fishery interactions with TEP species have continued with initiatives such as the prohibition on the use of wire traces in the fishery to reduce incidental shark captures and various TAP measures.

AFMA continues to contribute to RFMO negotiations as a member of the Australian delegation to key meetings of the IOTC. This effort will continue to be directed towards developing and implementing effective regional management strategies for highly migratory fish stocks.

Attachments

Attachment 1: BRS 2007 Fishery Status Report for the WTBF

Attachment 2: Map displaying the area of the WTBF

Attachment 3: ABARE Economic Assessment of the WTBF

Attachment 4: *The Western Tuna and Billfish Management Plan Amendment No. 1 2006*

Attachment 5: Threat Abatement Plan 2006 for the incidental catch (or bycatch) of seabirds during oceanic longline fishing operations

Attachment 6: WTBF Research Priorities 2009 – 2010

Attachment 7: Australian Tuna and Billfish Longline Fishery Bycatch Work Plan