Australian Government

Australian Fisheries Management Authority

# AFMA submission for reassessment of the Western Tuna and Billfish Fishery 2022

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

# Contents

# Introduction

This submission meets the requirements for the strategic assessment and the 2021 annual report. The submissions covers fishing methods in the Western Tuna and Billfish Fishery (WTBF), for the methods of purse seining, longline and minor line, such as poling or trolling, as managed by the *Western Tuna and Billfish Fishery Management Plan 2005* (the WTBF Management Plan). The WTBF was declared an approved Wildlife Trade Operation (WTO) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in December 2004. Since then, the WTBF has been re-approved under the EPBC four times with the current WTO accreditation expiring on 28 November 2022. A copy of the letter to AFMA, including conditions can be found at:

Western Tuna and Billfish Fishery Wildlifetrade operation accreditation.

This submission has been produced to meet the requirements for the strategic assessment and the 2021 annual report and to enable the Department of Agriculture, Water and the Environment to assess the management arrangements under the EPBC Act prior to the expiry of the current WTO.

Please note: AFMA has in place robust information disclosure policy and procedures. In performing its functions, AFMA collects a range of information. Information collected by AFMA is official information which is held on behalf of the Australian community. AFMA must ensure that information disclosed does not include data where an individual may be reasonably identifiable. Due to the low effort in the WTBF (less than 5 active boats), some information in this report is aggregated to the fishery to ensure commercial data is not disclosed. For more information, view AFMA's Disclosure policy on the AFMA website.

# 1 Description of the Fishery

The WTBF operates in Australia's Exclusive Economic Zone west from the tip of Cape York in Queensland, around Western Australia, to the border between Victoria and South Australia and adjacent high seas of the Indian Ocean. In recent years, fishing effort has concentrated off south-west Western Australia, with occasional activity off South Australia. Domestic management arrangements for the WTBF reflect Australia's commitment to the Indian Ocean Tuna Commission (IOTC), see the WTBF page on AFMA's website.

## 1.1 Target and by-product species

Under the WTBF Management Plan, the primary species in the WTBF are broadbill swordfish (*Xiphias gladius)*, bigeye tuna (*Thunnus obesus*), yellowfin tuna (*T. albacares*) and striped marlin (*Tetrapturus audax*). The majority of effort in the fishery is targeted at these four quota (target) species, which are managed through Individual Transferrable Quotas (ITQs).

Important by-product species include albacore tuna, longtail tuna, escolar, rudderfish, ray's bream and moonfish.

An overview of the target and by-product species can also be found in the Australian Bureau of Agricultural and Research Economics and Sciences (ABARES) most recent Fishery Status Reports 2021.

## 1.2 Management arrangements

The WTBF Management Plan, which is based on quota management, came into effect on 22 October 2005 following a process of public consultation. In 2010 the WTBF transitioned from effort-based SFRs to management of the major fishing methods by output controls via quota Statutory Fishing Rights (SFRs) for each of the quota species (bigeye tuna, broadbill swordfish, striped marlin and yellowfin tuna). The move to output based management of the WTBF was in line with the Ministerial Direction given to AFMA in 2005 and adheres to the principles of the Commonwealth Fisheries Harvest Strategy Policy (CHSP 2018).

Output controls regulate fishing activity within a fishery by restricting the amount of fish that can be landed. A Total Allowable Commercial Catch (TACC) is determined for each quota species by the AFMA Commission. This Determination is consistent with the requirements for highly migratory species, outlined in the CHSP 2018, considers Australia's obligations to the IOTC and relevant advice from the Tropical Tuna Management Advisory Committee (TTMAC) and the Tropical Tuna Resource Assessment Group (TTRAG). The TACCs are then divided equally among the total number of quota SFRs for each species.

**Table 1.** TACC for quota species in the WTBF for the 2021-22 and 2022-23 fishing seasons[1].

| Species | TACCs 2021-22 fishingseason | TACCs 2022-23 fishing season |
|---|---|---|
| **Bigeye tuna** | 2,000 tonnes | 2,000 tonnes |
| **Yellowfin tuna** | 5,000 tonnes | 2,000 tonnes |
| **Broadbill swordfish** | 3,000 tonnes | 3,000 tonnes |
| **Striped marlin** | 125 tonnes | 125 tonnes |

The WTBF has extensive by-product trip limits with no take species and different limits in waters adjacent to the states. See the WTBF management arrangements booklet section on catch limits on AFMA's website for more details. The WTBF also has a Bycatch and Discard Workplan. The Bycatch and Discard Workplan aims to minimise bycatch and discarding of high-risk species that have been identified through the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Ecological Risk Assessment (ERA) process. For further information see AFMA's WTBF webpage.

The focus of the ETBF Bycatch and discards workplan is:

- Seabirds
- marine turtles
- marine mammals
- sharks
- other "no take species" (e.g. blue and black marlin).

[1] The fishing season in the WTBF starts on 1 February in a year and ends on 31 January in the following year.

# 1.3 Fishing methods

The methods allowed to target tuna and billfish in the WTBF are pelagic longline, trolling, handlining and rod and reel fishing. Fishing using the purse seine method is permitted in the WTBF for species other than skipjack tuna. However, there has not been any purse seine activity in this fishery.

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 mannerthat the mainline, branch lines and hooks are suspended in the water column by floats at the sea surface.

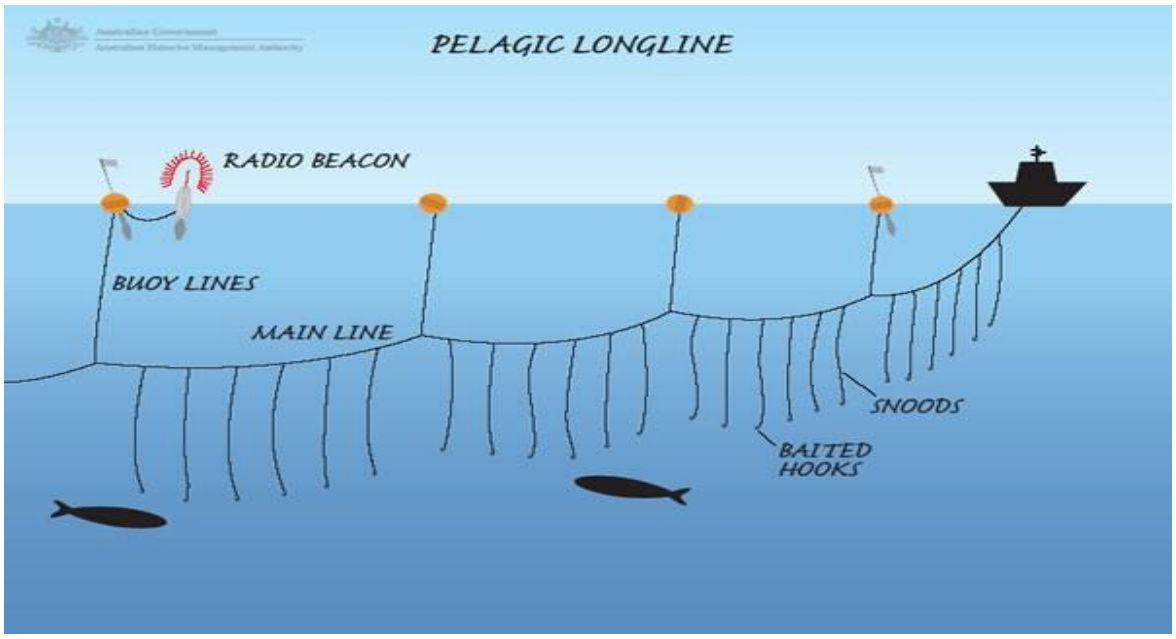


**Figure 1:** Illustration of a pelagic longline (a longline [baited] hook is attached to each snood andtermed a longline clip).

# 1.4 Fishing areas

The area of the WTBF fishery is detailed at **Figure 2**, for more information on where effort is concentrated, see (Section 6.4 Spatial issues and trends).

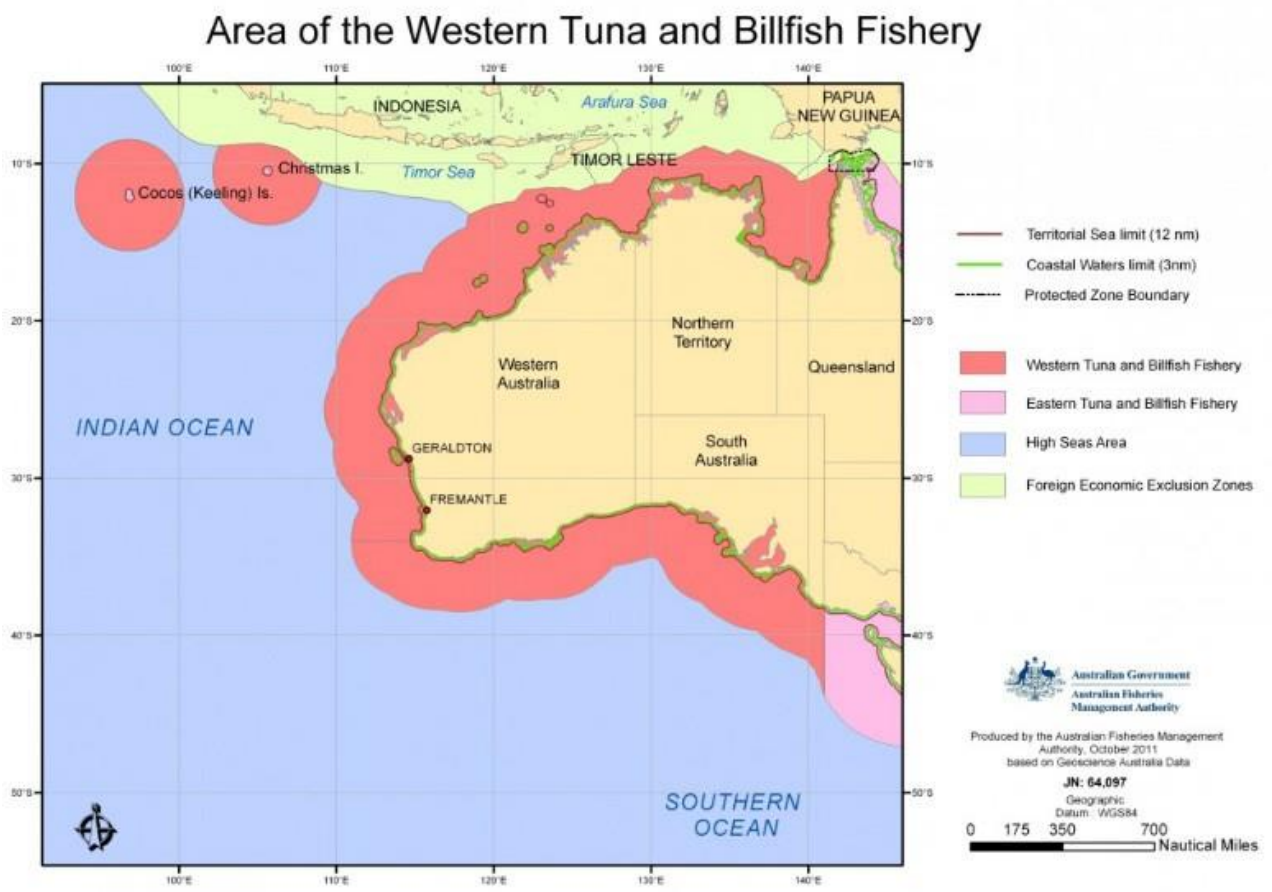


**Figure 2:** Area of the WTBF.

The WTBF has extensive by-product trip limits with no take species and different limits in waters adjacent to the states. See the WTBF management arrangements booklet section on catch limits on AFMA's website for more details. The WTBF also has a Bycatch and Discard Workplan. The Bycatch and Discard Workplan aims to minimise bycatch and discarding of high-risk species that have been identified through the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Ecological Risk Assessment (ERA) process.

## 1.5 Governing legislation/fishing authority

All Australian Commonwealth fisheries are managed under the *Fisheries Management Act 1991*, the *Fisheries Management Regulations 2019* (the Fisheries Regulation) and the respective management plans. The WTBF is managed through the *Western Tuna and Billfish Fishery Management Plan 2005*.

Australian commitments and obligations under the Indian Ocean Tuna Commission (IOTC) are implemented through the WTBF Management Plan, the Fisheries Regulations, the F*isheries Management (International Agreements) Regulations 2009* and conditions on SFRs.

# 2 Socio-economic environment

## 2.1 Value of the fishery

The value of the fishery is confidential. This is due to the small number of boats operating in the fishery. For more information on AFMA's Information Disclosure Policy, please visit the AFMA website.

## 2.2 Economic assessment[2]

Economic surveys of the WTBF have not been conducted recently because of the low level of fishing activity. Declining effort and high latent effort both suggest that permit holders expect low profitability, and that the fishery achieves relatively low economic returns.

In recent years, relatively high-value species such as yellowfin and bigeye tunas have represented an increasing share of the fishery's total catch. The costs of fishing in the WTBF are generally higher than in the Eastern Tuna and Billfish Fishery, and effort in the WTBF is unlikely to improve without a significant decrease in fishing costs (and/or increase in prices for lower-value fish species).

Performance against economic objective

Current net economic returns (NER) are likely to be very low. Given the current market conditions it is likely that potential NER from the fishery are small. Therefore, the current management arrangements of ITQs and TACCs (set in accordance with the IOTC), while minimising the costs of management, appear to be a sensible strategy. If fishing effort does increase in the future, due to a change in the market conditions, then ITQs should provide an incentive for fishers to catch their share in the most efficient way.

## 2.3 Downstream employment resulting from fishing activity

The Commonwealth seafood industry is important to the economy of rural and regional Australia, with direct employment in fisheries production and processing, and a substantial downstream employment effect in supporting industries including the transportation, storage, wholesaling and retailing sectors, and the catering and tourism industries. Operators in the WTBF use the major port of Fremantle to land catch and use the fish receiving and/or processing facilities. This generates employment for cold stores, processing plants, provisioning for the boats and aspects of repairs and maintenance.

## 2.4 Quality assurance and control

Australian seafood destined for export is subject to Commonwealth regulation under the *Export Control Act 2020* and *Export Control (Fish and Fish Products) Rules 2021* to ensure compliance withfood safety and trade description requirements.

[2] Sourced from the ABARES *Fishery Status Reports 2021* chapter on the Western Tuna and Billfish Fishery.

# 3 Management

## 3.1 Changes to management

### 3.1.1 Electronic logbooks (e-logs)

In 2020 industry was notified that paper-based logbooks were being phased out across Commonwealth fisheries, with the WTBF to transition to mandatory e-log reporting in 2021-22. Full implementation of e-logs has been impacted by the COVID-19 pandemic, which influenced uptake in both the 2020 and 2021 fishing seasons.

### 3.1.2 E-monitoring requirements

A new e-monitoring direction *(Fisheries Management (E-monitoring Western Tuna and Billfish Fishery) Direction 2021)* was implemented in April 2021, and requires all concession holders (irrespective of days fished) using pelagic longline methods to implement on-board e-monitoring systems and to comply with e-monitoring obligations. The direction also requires concession holders to monitor the functioning of the e-monitoring system and provide certain information to AFMA.

All current longline operators in the fishery have an e-monitoring system installed and operating, so this requirement did not materially affect any existing operators. However, all new longline entrants into the fishery will need to install and operate an e-monitoring system, regardless of the number of days they intend to fish each season.

### 3.1.3 Fishing season determination

In March 2022 the AFMA commission determined to maintain the fishing season for the WTBF, which has been in place since 2012, starting on 1 February in a year and ending on 31 January in the following year.

### 3.1.4 Yellowfin tuna TACC

In late 2020 the AFMA Commission determined a single year TACC for the WTBF quota species for the 2021-22 fishing season, in recognition that the IOTC was developing allocation criteria to cap catches of the key tuna species in the Indian Ocean. In June 2021, the IOTC agreed to an interim management measure for allocated catch limits for yellowfin tuna 2022 (21/01).

This interim measure sets out conditions to reduce the take of yellowfin tuna in the Indian Ocean across all IOTC signatories. The interim measure stipulates that, based on Australia's historical take of yellowfin tuna Australia will not increase its take of yellowfin tuna to greater than 2,000t. While not an allocation, this measure effectively establishes a maximum catch limit. AFMA sought advice from the TTRAG and TTMAC on the WTBF TACCs, consistent with the TACC setting process across all species in the WTBF. In November 2021, the AFMA Commission determined the yellowfin tuna TACC at 2,000t, which is consistent with interim IOTC measure aimed at reducing yellowfin catch and the whole of Government position on the measure.

### 3.1.5 Bycatch handling requirements

Revised bycatch handling requirements were implemented for the 2020-21 fishing season which made it mandatory that all catch handling (i.e. retention, releases, cut-offs and discards) must occur as close as possible to the fish door and in full view of the electronic monitoring cameras. The only exception to this is when the size or activity of the animal poses an increased risk to crew or vessel safety.

### 3.1.5 Minor changes to seabird mitigation conditions

Following extensive consultation with Tuna Australia, AFMA developed a revised seabird management approach that was implemented at the start of the 2020 WTBF fishing season. A review of the measures in 2020 identified some improvements that were endorsed by the TTMAC and entered into force for the 2021 season.

The seabird conditions were amended again for the 2022-23 season so that additional seabird mitigation requirements will apply to boats that:

- exceed 10 bird interactions within the current or previous Threat Abatement Plan (TAP) season; and
- are found to have an unreported seabird interaction.

Under the revised arrangements, additional mitigation requirements will cease when a boat achieves a bycatch rate of less than 0.05 birds per 1,000 hooks (rather than the end of each Threat Abatement Plan – TAP season[3]).

To support work undertaken by Tuna Australia reviewing line-weighting mitigation approaches, SFR conditions were amended in mid-2021 to allow the use of both sliding and fixed weight systems. The requirements for weight mass and proximity to the hook were retained, in line with Agreement on the Conservation of Albatrosses and Petrels (ACAP) best practice measures. These amendments are intended to improve the management of seabird mitigation in the fishery.

### 3.1.6 Other

Other changes to management arrangements included:

- General bycatch provisions in all waters have been updated progressively to include EPBC protected species list inclusions and IOTC no take species on Mobulid rays, between 2019 and 2022.

## 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 are made in AFMA's 2020-21 report. A copy of the current statement can be found on AFMA's website.

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

### 3.3.1 Compliance risks

AFMA employs a risk-based compliance strategy. Compliance risk is defined as the risk that fishing operators do not comply with fisheries management arrangements and/or fishing permit/concession conditions. AFMA conducts an assessment two years of all risks to compliance across the major Commonwealth fisheries to direct resources towards high risks that are identified.

WTBF specific risks include:

1. Vessel Monitoring System non-compliance

[3] TAP seasons: winter 1 May – 30 August and summer 1 September and 30 April.

2. Quota evasion:

    i. Misreporting
    ii. Substitution and concealment
    iii. Fish receiver fraud
    iv. Taskforce

3. Electronic Monitoring non-compliance

### 3.3.2 Compliance management tools

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

***Integrated Computer Vessel Monitoring System (VMS)***

VMS is used to monitor the movement of all Commonwealth endorsed boats in and out of ports. AFMA monitors the activity of the fleet through VMS continuously. VMS allows AFMA to contact vessels whose reports are overdue and to ensure that the vessel and VMS is working in accordance with conditions imposed on fishing permits. Temporary reporting schedules may be arranged for a vessel that's VMS has stopped working while at sea or the vessel may be directed to return to port.

***Vessel Inspections***

Random in-port and at-sea inspections are to be carried out on active boats in the fishery during the year. Additional inspections may be carried out on targeted boats 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***

Each year AFMA determines an appropriate number of sea patrol days that will be conducted in Commonwealth waters.

***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 AFMA's governing legislation and undertaken as part of effective fisheries management practices.

TTMAC is the key advisory committee for management of the WTBF domestic fishery. The TTMAC membership is made-up of members from AFMA, scientific agencies, conservation Non-Government Organisations (eNGOs) and the

industry sector. Representatives from the state fisheries agencies, the recreational/charter fishing sectors and invited industry participants have permanent observer status at TTMAC meetings, changes to these representatives are at the Chair's discretion in consultation with AFMA management. Agencies such as DAWE and ABARES attend TTMAC meetings as observers on an as needs basis. All management arrangements, including the current WTBF Management Plan, were developed in consultation with TTMAC, industry and other stakeholders.

The TTRAG is the key research and scientific committee for management of the domestic WTBF fishery. Membership for TTRAG is drawn from AFMA, scientific agencies, ABARES and industry. Agencies such as DAWE and ABARES attend meetings as observers on an as needs basis. The RAG provides advice to the AFMA Commission regarding the status of the target species stock in Australia and the Indian Ocean and is the key group providing advice on the development and implementation of harvest strategies and ecological risk assessments.

Further information on these groups is located on the AFMA website at:

Tropical Tuna Management Advisory Committee

- https://www.afma.gov.au/fisheries/committees/tropical-tuna-management-advisory-committee-tropical-tuna-mac

**Tropical Tuna Resource Assessment Group**

- https://www.afma.gov.au/fisheries/committees/tropical-tuna-resource-assessment-group

## 3.5 Harvest Strategy

The CHSP was first implemented in 2007 in response to a Ministerial Direction (2005) with a subsequent review and revision released in 2018. The CHSP provides a framework for the development of harvest strategies for key commercial species taken in Australia's Commonwealth fisheries and requires appropriate management of by-product species. Harvest strategies consistent with the Policy are intended to:

- provide the Australian community with a high degree of confidence that commercial fish species are being managed for long-term biological sustainability and economic profitability.
- provide the fishing industry with a more certain operating environment.

The CHSP 2018 states that harvest strategies must outline:

- processes for monitoring and assessing the biological and economic conditions of commercial fish species within fisheries in relation to fishery specific reference levels (a reference point or points); and
- pre-determined rules that control fishing activity according to the biological and economic conditions of the fishery (as defined by monitoring or assessment). these rules are referred to as harvest control rules or decision rules.

Control rules are designed to keep the fishery on track in pursuit of its defined objectives by specifying the management actions or decisions that need to be taken. For control rules to be clear and effective, the objectives need to be expressed in the form of quantifiable reference points. These reference points are used to guide management decisions.

The high-level objective of the CHSP (2018) is:

- The ecologically sustainable and profitable use of Australia's Commonwealth commercial fisheries resources (where ecological sustainability takes priority)—through the implementation of harvest strategies.

More specifically, to meet the objective of the CHSP 2018[4], AFMA must implement harvest strategies that:

- Ensure the exploitation of fisheries resources and related activities are conducted in a manner consistent with Ecologically sustainable development (ESD) principles and the precautionary principle.
- Maximise net economic returns to the Australian community—always in the context of maintaining commercial fish stocks at sustainable levels.
- Maintain key commercial fish stocks, on average, at the required target biomass to produce maximum economic yield from the fishery.
- Maintain all commercial fish stocks, including by-product, above a biomass limit ($B_{LIM}$) where the risk to the stock is regarded as unacceptable, at least 90 per cent of the time.
- Ensure fishing is conducted in a manner that does not lead to over-fishing. Where overfishing of a stock is occurring, take action immediately to cease overfishing.
- Minimise discarding of commercial species as much as possible.
- Are consistent with the EPBC 1999 and the associated Guidelines for the Ecologically Sustainable Management of Fisheries (2nd edition).

The CHSP 2018 provide specific guidance for international fisheries such as the WTBF, stating that:

- In the case of fisheries that are managed jointly by an international organisation or arrangement, the Harvest Strategy Policy does not prescribe management arrangements. However, it does articulate the government's preferred approach.
- The government (including AFMA) must implement decisions taken by all relevant RFMOs and other international arrangements that Australia is a party to (except where Australia has made a permissible reservation about the decision).
- Through these forums, Australia will pursue the adoption of measures that are consistent with the HSP and domestic management measures.
- AFMA will set Commonwealth catch levels taking into account available science and evidence, the Australian negotiating position, advice from the government and any relevant decisions of the applicable regional organisation.
- AFMA must determine a domestic catch level that is the same or less than that permitted under the relevant international arrangement and can impose additional constraints on fishing effort and/or biomass based on recommendations or rebuilding targets. AFMA cannot set a domestic catch level greater than that permissible under the relevant international arrangement.
- AFMA may impose additional constraints on fishing effort, biomass-based recommendations or rebuilding targets.
- If Australia is a major harvester of the stock and no harvest strategy has been determined internationally, the AFMA must develop and implement a harvest strategy consistent with the objective of this policy.
- Where Australia is not a major harvester of the stock and no harvest strategy has been determined internationally, the key consideration in setting catch limits will be consideration Australia's negotiating position in bilateral, regional or international negotiations.
- AFMA also takes into account local stock indicators when setting domestic TACCs.

[4] Additional guidance material on the Harvest Strategy Policy available at: Guidelines to the Harvest Strategy Policy (Commonwealth Fisheries Harvest Strategy Policy Guidelines 2018).

In 2018, the AFMA Commission decided to stop using the Eastern Tuna and Billfish Fishery harvest strategy framework to inform TACC setting in the WTBF. Should fishing effort and catch increase significantly in the WTBF, generating sufficient data to develop stock indicators, then a harvest strategy will be developed. Until this time, the following approaches are implemented:

- Indicators-based and "whole of government position" approach and combines consideration of local and Indian Ocean Tuna Commission stock status indicators with Australia's whole of government position on national allocation (and resource sharing), to determine TACCs for those key commercial species (currently yellowfin and bigeye tuna) for which the Harvest Control Rule based approach has been determined by Management Strategy Evaluation (MSE) testing to be ineffective. For these two tuna species, the application of a domestic harvest strategy is not possible due to the WTBF harvesting only a small proportion of the total catch of these species in the Indian Ocean. Instead, Australia pursues the implementation of harvest strategies for these species at the regional level through the Indian Ocean Tuna Commission; and
- Monitoring rules-based approach — this approach is applied to by-product species (non-quota species) in the WTBF, which are only assessed every five years under the ERA cycle but for which fishery effort and/or catch levels are to be monitored annually against trigger levels in the period in between assessments. By-product species found to be at high risk from the fishery via ERA will have case specific (not pre-specified) management responses designed to reduce catches and risk to acceptable levels. Note: A number of by-product species are also subject to catch limits derived from Offshore Constitutional Settlement (OCS) arrangements between the Commonwealth and States and Territories.

## 3.6 Description of cross-jurisdictional management arrangements

Under OCS arrangements, the Commonwealth has jurisdiction for most tuna and tuna-like species to the high-water mark, except off NSW where the Commonwealth has jurisdiction outside three nautical miles. For a description of the other fisheries that operate in the same region as the WTBF and any species catches see Section 6.1. AFMA continues to work toward complementary fisheries research and management with other jurisdictions.

## 3.7 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 2.2. Management arrangements.

# 4 Research and monitoring

## 4.1 Collaborative research and results

Research projects, related to the WTBF Fishery, that have received funding recently are:

- Provenance and chain of custody of tropical tunas in the north-east Indian Ocean.
- Harvest strategies for Indonesian tropical tuna fisheries to increase sustainable benefits.
- Development of management procedures for IOTC yellowfin and bigeye tuna.
- Design study for a close-kin-mark-recapture (CKMR) study for Indian Ocean yellowfin tuna.
- IOTC Project to determine Stock Structure of target species in the Indian Ocean. Data Management, assessment & implementation of HS for Australia's Tropical Tuna Fisheries 2020/21 to 2022/23 (Dr Robert Campbell and Ann Preece, CSIRO)
- Data Management, assessment & implementation of HS for Australia's Tropical Tuna Fisheries (3-year TTRAG Assessment project),
- Tropical Tuna Size Monitoring Program 2022 (TA Co-management data collection program)

Completed research projects relevant to the WTBF post-2019 reassessment include:

- Implementation of bycatch mitigation measures in Australia's pelagic longline fisheries: quantifying effects on target and non-target catches (Peter Ward, ABARES)
- Population biology and habitat preferences of Striped Marlin (Peter Davie)
- Integrated evaluation of management strategies for multi-species longline fisheries (Campbell Davies, CSIRO)
- Broadbill Swordfish Tag and Release Project (CSIRO and AFMA)
- 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 (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)
- Assessment of Blue Shark population status in the western South Pacific (Pierre Kleiber, et. al)

## 4.2 Monitoring programs used to gather information on the fishery

The key monitoring and data collection programs in the WTBF continue to include the logbook/e-logs, catch disposal record (CDRs)/electronic CDRs, e-monitoring and VMS, size monitoring program, port visits and boat inspections, amongst others.

*Fisheries Management (E-monitoring Western Tuna and Billfish Fishery) Direction 2021* requires all concession holders using pelagic longline methods to implement on-board e-monitoring systems and comply with e-monitoring obligations, irrespective of days fished.

## 4.3 Electronic Monitoring

A typical e-monitoring system uses video cameras and sensors to detect and record fishing activity, which can be reviewed later to validate logbook catch and effort data, verify catch composition, mitigation methods and reporting of EPBC listed species interactions. The AFMA website contains more detailed information regarding e-monitoring at: https://www.afma.gov.au/monitoring-enforcement/electronic-monitoring-program.

Since 1 July 2015, e-monitoring has been implemented in the WTBF for all full-time fishing boats to replace human observers. To meet IOTC requirements, 10% of all footage across the fishery is selected at random and reviewed and relevant data recorded.

The objective of the WTBF e-monitoring program is to validate:

- the commercial catch of WTBF quota and by-product species;
- catch interactions with EPBC Act listed species and other bycatch species and discards to quantify the effects of fishing on these species; and
- the incidence of discarding (including life status) and high grading.

Since the introduction of e-monitoring into the WTBF, preliminary findings have shown improvements in data collection, compliance and fishers behaviour that have resulted in improved overall management of the fishery and increased transparency.
While no observers have been onboard boats in the WTBF since 2017, observers may be required on some fishing trips at the request of the Fishery Managers or the AFMA Observer Program.

## 4.4 Size monitoring program

Stock assessments require a comprehensive understanding of the size/age structure of the catch. Ideally, this catch information is required over a long time period. The TTRAG research priority list highlights the importance of certain specific data as being central to but standing above all other research priorities. Size monitoring is high on this essentials list. Catch length and weight data are essential inputs into any stock assessment. As part of the WTBF fishery stock assessment process, CSIRO require a comprehensive breakdown of the longline fisheries catch by species, and size by area. Accurate information on catch at age structures is also essential to follow cohorts from year to year and to assess the relative abundance of various year classes.

The individual size data, when incorporated into the CSIRO database, allows for various population analyses and stock assessments for the main species, which would otherwise be impossible. The results of these undertakings are reviewed and utilised by TTRAG on an annual basis.

The collection of extensive, individual size data sets from all the major processors ensures that a scientifically robust catch by size matrix can be collated. The size database collects as much as 80-90% of the total landed catch. These data are generally collected as individual landed weights. A scientifically acceptable size database ensures the adequacy of the stock analyses by the scientific agencies involved.

The ongoing Size Monitoring Program, components of which are now undertaken as part of a co-management arrangement with Tuna Australia, has provided a high level of confidence in estimates of the fishery's commercial landings. This program has been running since the 1997-98 fishing season and provides a means of comparing logbook

data with landed catch. The data collected through this program provides independent verified data from a subset of all landed catch. This information is used in conjunction with logbook information to estimate commercial landings for the fishery.

## 4.5 Vessel Monitoring Systems (VMS)

Vessel Monitoring Systems are mandatory for all Commonwealth Fishing boats for the delivery of near real time vessel information in order to effectively monitor the movements of all Commonwealth endorsed fishing boats. VMS enables cost effective monitoring of boats operating in all areas of the fishery including those under specific management arrangements. In addition, where an at-sea or aerial patrol is required, reporting from VMS allows a patrol vessel or plane to be directed to the exact location of the boat, resulting in substantial savings in search time. More information regarding the use of VMS in Commonwealth Fisheries can be found at https://www.afma.gov.au/monitoring-enforcement/satellite-monitoring-fishing-boats.

## 4.6 Licensing and quota management

Licensing and quota management is facilitated through GoFish, an online service that collects andstores information for AFMA's clients. The information held in GoFish includes records of fishing concessions, permit information, SFR leasing and holdings, and quota balances. The AFMA website contains extensive information to assist fishers this service at https://www.afma.gov.au/services-for-fishers.

# 5 Catch data

## 5.1 Total catch of target, by-product and bycatch species (including retained and discarded catch)

Detailed catch data is not available for the WTBF due to the small number of operators in the fishery. The only catch information available for the WTBF is aggregated yearly catches **(Table 2)**.

**Table 2:** Estimated catch for WTBF in 2021

| Species | 2021 | |
|---|---|---|
| | TACC | Catch (t) |
| **Yellowfin tuna** | 5,000 | 23 |
| **Bigeye tuna** | 2,000 | 59 |
| **Broadbill swordfish** | 3,000 | 150 |
| **Striped marlin** | 125 | 0.7 |

# 5.2 Total catch of target species taken in other fisheries

Catches of tuna in other fisheries is generally low and is restricted by small trip limits. Commonwealth fisheries that operate in the same region as the WTBF include; the Northern Prawn Fishery (NPF), Southern Bluefin Tuna (SBT) Fishery, North West Slope (NWS) Fishery, Great Australian Bight (GAB) Fishery, and the Gillnet, Hook and Trap (GHAT) Fishery.

The Eastern Tuna and Billfish Fishery (ETBF) operates in waters adjacent to the WTBF, but genetic studies have found some differences between target species stocks in the Pacific Ocean compared to the Indian Ocean. 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)
- The Southern Demersal Gillnet and Demersal Longline Fishery (WA);

There is also a Western Australian fishery that is jointly managed by the State and Commonwealth governments:

- The Joint Authority Northern Shark Fishery (WA and Commonwealth).

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

- Western Australia – http://www.fish.wa.gov.au/
- South Australia- http://www.pir.sa.gov.au/fisheries/
- Northern Territory - https://nt.gov.au/marine

The last Australia-wide survey of the sector was the 2001 National Recreational and Indigenous Fishing Survey (NRIFS) conducted by Australian Government and state/territory fishery management agencies. For information on overlapping recreational catch and effort from the National Recreational Fishing Survey, see The National Recreational Fishing Survey - National Recreational Survey 2019-2021 (nationalrecsurvey.com.au)

**Table 3:** Catch of WTBF target species in other Commonwealth fisheries 1 January 2021 - 31 December 2021

| Gillnet Hook and Trap Fishery | | |
|---|---|---|
| **Species** | **Retained (kg)** | **Discarded (kg)** |
| Broadbill swordfish | 220 | - |
| Yellowfin tuna | 10 | - |

| Small Pelagic Fishery | | |
|---|---|---|
| **Species** | **Retained (kg)** | **Discarded (kg)** |
| Striped marlin | - | 200 |

| Commonwealth Trawl Sector | | |
|---|---|---|
| **Species** | **Retained (kg)** | **Discarded (kg)** |
| Broadbill swordfish | 211 | 630 |

Internationally, the IOTC monitors catches of tuna and tuna-like species in the Indian Ocean and adjacent seas.

The Australian catch in 2020 was 18.3t of albacore, 26.3t of bigeye tuna, 15.8t of yellowfin tuna, 92.3t of swordfish and <1t of striped marlin. There was no skipjack tuna caught by purse seine fishing **(Figure 3)**.

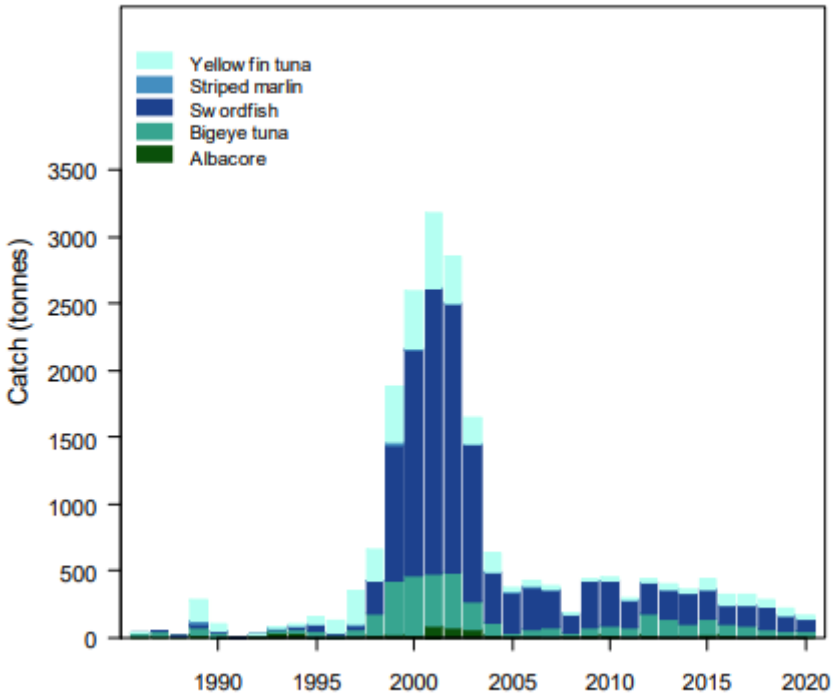


**Figure 3:** Australian annual catch primary species in the longline sector of the WTBF, 1986 to 2020[5].

[5] Source: IOTC Scientific Committee meeting Report 2021

## 5.3 Spatial issues/trends

Due to the limited number of active boats in the WTBF (less than five boats), AFMA cannot publish spatial catch and effort information from the fishery. Since 2000, the number of boats operating in the fishery has reduced from 45 to less than five. **Figure 4** below shows the waters fished in the WTBF in 2020 Source: ABARES Fishery Status Report**.**

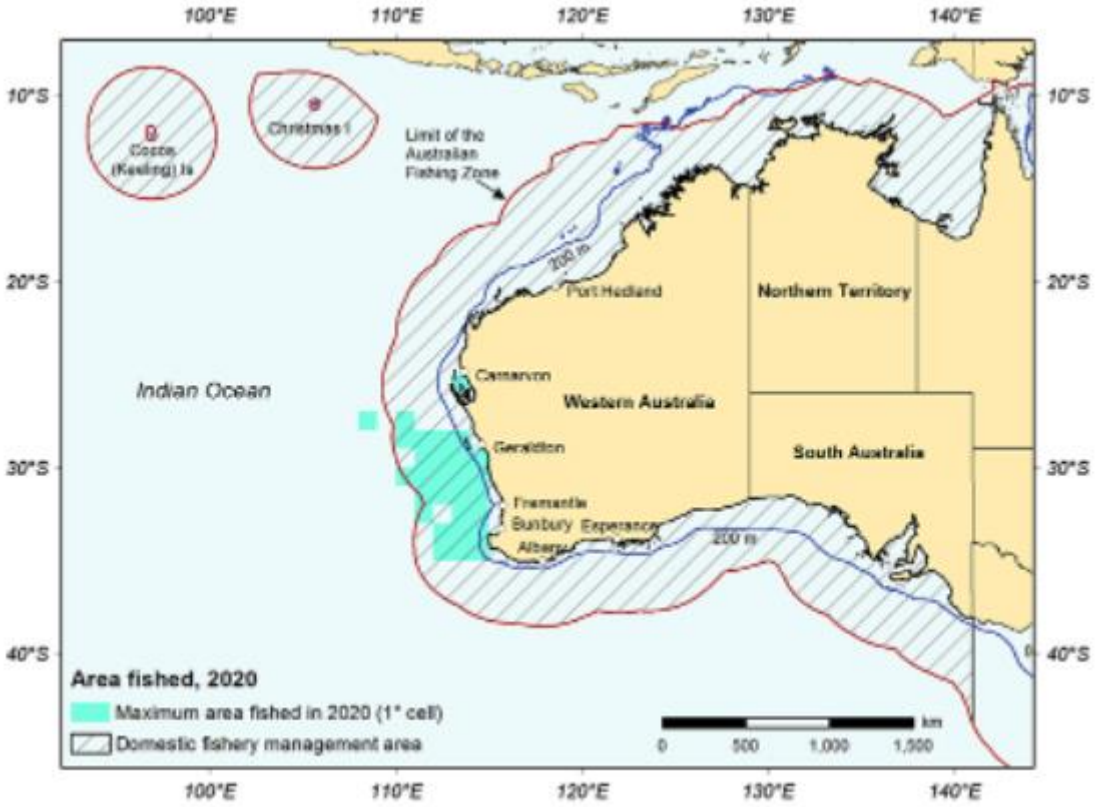


**Figure 4:** Area of waters fished in the longline sector of the WTBF in 2020[6]

## 5.4 Effort data

Detailed effort data is not available for the WTBF due to the small number of operators in the fishery. The only effort information available for the WTBF is aggregated yearly figures **(Table 4)**.

[6] Source ABARES report 2021

**Table 4:** Total longline hooks and shots deployed by year since the last assessment (2014 – 2021) forall WTBF boats.

| Year | Shots | Hooks | Active boats |
|---|---|---|---|
| 2014 | 297 | 452,658 | 5 |
| 2015 | 259 | 421,185 | <5 |
| 2016 | 231 | 352,274 | <5 |
| 2017 | 275 | 417,997 | <5 |
| 2018 | 288 | 404,880 | <5 |
| 2019 | 105 | 366,821 | <5 |
| 2020 | 165 | 231,085 | <5 |
| 2021 | 276 | 304,656 | <5 |

# 6 Status of target stock

## 6.1 Resource concerns

ABARES produces annual status reports for Commonwealth fisheries based on Australian and regional data and stock assessments. The most recent results are provided in **(Table 5)** below, for further information on the WTBF see the ABARES 2021 Report.

**Table 5:** ABARES Fishery Status Report 2021 results for target species in the WTBF (Source: ABARES, 2021)

| Species | Status in Indian Ocean |
|---|---|
| Yellowfin tuna | Subject to **overfishing** and **not overfished** |
| Bigeye tuna | Subject to **overfishing** and **not overfished** |
| Albacore tuna | Subject to **overfishing** and **not overfished** |
| Broadbill swordfish | Not subject to **overfishing** and **not overfished** |
| Striped marlin | Subject to **overfishing** and **overfished** |

## 6.2 Stock assessments and recovery strategies

### 6.2.1 Albacore tuna

In 2019, Stock Synthesis 3 (SS3) was used to assess the Indian Ocean albacore stock and provide management advice (IOTC 2020c). The results from the SS3 model indicated that the current (2017) biomass for the Indian Ocean–wide stock was 26% (CI not available) of unfished (1950) biomass and above the level that supports MSY ($SB_{2017}/S_{BMSY}$ = 128%; 95% CI 57–207%). Fishing mortality for the Indian Ocean–wide stock was estimated to be above the level that supports MSY ($F_{2017}/F_{MSY}$ = 135%; 95% CI 59–217%) (IOTC 2020c). This is an increase since the last assessment in 2016 and is due to increased catches by several countries across the Indian Ocean since 2015.

The assessment indicates that the spawning biomass is above the Commonwealth's biomass limit reference point ($0.2B_0$), and so the stock is classified as **not overfished**. Despite relatively small domestic catches of albacore in the WTBF, fishing mortality for the Indian Ocean–wide stock is above $F_{MSY}$, and so the stock is classified as **subject to overfishing.**

### 6.2.2 Striped marlin

A stock assessment in 2018 for the Indian Ocean–wide stock used 2 assessment models: JABBA, a Bayesian state-space production model, and SS3 (IOTC 2020c). Based on the SS3 model, the 2017 spawning biomass for the Indian Ocean–wide stock was estimated to be 13% (80% confidence interval [CI] 9–14%) of unfished (1950) biomass. Based on the JABBA model, the biomass is 33% (80% CI 18–54%) of the level that supports MSY (IOTC 2020c). Fishing mortality for the

Indian Ocean–wide stock was estimated to be above $F_{MSY}$ (JABBA: $F_{2017}/F_{MSY}$ = 199%; 95% CI 121–362%). Retrospective analysis for both the JABBA and SS3 models produced consistent stock status estimates, thus providing a degree of confidence in the predictive capabilities of the assessments.

Both stock assessment models indicate that the Indian Ocean–wide stock has been heavily depleted and is below the Commonwealth's biomass limit reference point ($0.2B_0$). The stock is therefore classified as **overfished**. Despite relatively small domestic catches of striped marlin in the WTBF, fishing mortality for the Indian Ocean–wide stock was estimated to be well above $F_{MSY}$, so the stock is classified as **subject to overfishing**.

### 6.2.3 Broadbill swordfish

In 2020, the Indian Ocean swordfish assessment was updated using SS3 with data up to 2018 (IOTC 2020c). The SS3 model was spatially disaggregated, sex explicit and age structured. The 2018 spawning biomass for the Indian Ocean–wide stock was estimated to be 42% (80% CI 36–47%) of unfished (1950) biomass and above the level that supports MSY ($SB_{2018}/SB_{MSY}$ = 175%; 80% CI 128–235%) (IOTC 2020c). Fishing mortality for the Indian Ocean–wide stock was estimated to be below $F_{MSY}$ ($F_{2018}/F_{MSY}$ = 60%; 80% CI 40–83%).

Assessments of the Indian Ocean–wide stock indicate that biomass is above the Commonwealth's biomass limit reference point ($0.2B_0$) and that swordfish fishing mortality is below $F_{MSY}$. As a result, the stock is classified as **not overfished** and **not subject to overfishing**.

### 6.2.4 Yellowfin tuna

In 2018, the 2016 Indian Ocean–wide yellowfin tuna assessment was updated using SS3; it incorporated catch data, size frequency data, tagging data and longline catch-per-unit-effort series (IOTC 2020c). Current spawning biomass for the stock was estimated to be 30% (80% CI 27–33%) of unfished biomass and below the level associated with MSY ($SB_{2017}/SB_{MSY}$ = 83%; 80% CI 74–97%). The 2017 level of fishing mortality for the Indian Ocean–wide stock was above the level that would achieve MSY ($F_{2017}/F_{MSY}$ = 120%; 80% CI 100–171%).

The biomass is above the Commonwealth's default limit reference point ($0.2B_0$), and, as a result, the stock is classified as **not overfished**. Despite relatively small domestic catches of yellowfin tuna in the WTBF, the assessments indicate that fishing mortality for the Indian Ocean–wide stock is above the level associated with MSY. As a result, the Indian Ocean yellowfin tuna stock is classified as **subject to overfishing**.

### 6.2.5 Bigeye tuna

In 2019, the 2016 Indian Ocean–wide stock assessment for bigeye tuna was updated using SS3 and JABBA (IOTC 2020c). The SS3 assessment was used to provide management advice. It consisted of 18 model configurations that were designed to account for the uncertainty in the stock–recruitment relationship, the influence of the tagging data and selectivity of longline fleets (IOTC 2020c). The assessment indicated that Indian Ocean spawning biomass was above 31% (80% CI 21–34%) of the initial unfished level. Current (2018) spawning stock biomass in the Indian Ocean was estimated to be above the level that would produce MSY ($SB_{2018}/SB_{MSY}$ = 122%; 80% CI 82–181%). Fishing mortality for the Indian Ocean–wide stock was above the level associated with MSY ($F_{2015}/F_{MSY}$ = 120%; 80% CI 70–205%), which is an increase since the last assessment in 2016 due to a significant increase in estimated purse-seine catches in 2018.

The SS3 assessment indicates that bigeye tuna spawning stock biomass is above the Commonwealth's biomass limit reference point ($0.2B_0$). As a result, the Indian Ocean bigeye tuna stock is classified as **not overfished**. Despite relatively small domestic catches of bigeye tuna in the WTBF, fishing mortality for the Indian Ocean–wide stock is above the level that would produce $F_{MSY}$, so the stock is classified as **subject to overfishing**.

## 6.3 Frequency and nature of interactions

There are some protected species listed under the EPBC Act that may interact with the tuna longline and minor line fisheriesof the WTBF. For more information please visit AFMA's Protected Species section of the website.

There were 9 reported seabird interactions for the summer TAP season in the WTBF in 2020–21. The interaction rate for the summer season was 0.056 interactions per 1000 hooks, which is above the prescribed rate of 0.05 interactions per 1000 hooks. All summer TAP interactions occurred in the latitude band 30° to 35°S In response, AFMA reviewed the interactions and mitigation, emphasised the importance of proper mitigation to the operator concerned and provided advice on seabird mitigation. Subsequent TAP season interaction rates were reduced and below the trigger rate.

Australia is a member of the IOTC and is therefore required implement IOTC conservation and management measures in the WTBF.

**Table 6:** Protected species interactions (defined as hooked, caught or entangled) in 2021 in the WTBF

| Western Tuna and Billfish Fishery Interactions: 1 January - 31 December 2021 | | | | |
|---|---|---|---|---|
| Species | No. Interactions | Life status | | |
| | | Alive | Dead | Unknown |
| Black Marlin[7] | 7 | | | 7 |
| Blue Marlin | 1 | | | 1 |
| Flesh footed shearwater | 8 | 7 | 1 | |
| Leatherback turtle | 5 | 5 | | |
| Pygmy devilray | 1 | | | 1 |
| **Total** | **22** | **12** | **1** | **9** |

Note: report excludes longfin mako sharks and short fin mako sharks.

For information on arrangements to reduce protected species interactions, see below.

[7] Blue and Black Marlin are a no take species and is protected under the *Fisheries Management Act 1991*

# 7 Management action taken to reduce interactions

The suite of longstanding management measures to reduce WTBF interactions with protected species continued to be applied via SFR conditions throughout the reporting period.

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

- Minor changes management measures have recently been implemented in the WTBF to reduce interactions with protected species including:
    - Amendments to seabird conditions 2021, so that additional seabird mitigation requirements will apply to boats that exceed 10 birds within the current or previous TAP season: and
    - are found to have an unprecedented seabird interaction

Under the revised seabird arrangements, additional mitigation requirements will cease when a boat achieves a bycatch rate of less than 0.05 birds per 1,000 hooks (rather than the end of the TAP season).

- The Longline Boat SFR Conditions were amended in 2022 to include Mobulid rays (Mobula sp.) to the list of protected / no take species.
- To support Tuna Australia research into line-weighting mitigation approaches, SFR conditions were amended in mid-2021 to allow the use of both sliding and fixed weight systems. The requirements for weight mass and proximity to the hook were retained, in line with ACAP best practice advice.

# 8 Impacts of the fishery on the ecosystem

## 8.1 Results of the Ecological Risk Assessments

A key component in AFMA's strategy to pursue the ecological component of Ecologically Sustainable Development has been the undertaking of ERAs 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 help to prioritise research, data collection monitoring needs and management actions for fisheries and ensure that they are managed both sustainably and efficiently.

The ERA process has three levels of analysis ranging from a preliminary Level 1 assessment to more comprehensive Level 2 and Level 3 assessments. A summary of the results from the Level 2 and Level 3 assessments are presented here, including the results of a residual risk assessment conducted for the Level 2 assessment.

**Level 2 ERA Results**

The Level 2 productivity susceptibility analysis (PSA) is a semi-quantitative analysis of the risk posed by fishing to all individual species, habitats and communities identified in the scoping stage. At the Level 2 species assessment, a total of 261 species were evaluated. Eight species found to be at potential high risk after PSA or SAFE analyses. A residual risk analysis demonstrated that, after fifteen years of high logbook coverage and ongoing observer data collection (2001-2015, at around 3-5% per year), the low or zero level of reported interactions for seven of the species meant the likely potential risk posed by the WTBF was in fact low. The eighth species, dusky whaler shark (*Carcharhinus obscurus*), required more investigation.

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 potential high-risk species is quantified using guidelines developed by AFMA with input from CSIRO and stakeholders. Residual risk is broadly defined as the risk remaining after the implementation of mitigation measures.

As dusky whaler sharks remained the only species identified as high-risk in the Level 2 ERA, CSIRO subsequently assessed that dusky whaler shark remained high risk after the residual risk assessment.

These findings were presented to the TTRAG and while TTRAG endorsed the findings of the revised ERA, it requested ABARES to conduct some further residual risk analysis on dusky whaler shark, noting in particular that that the SAFE assessment assumed that all dusky whaler sharks are retained and therefore dead and there is significant uncertainty around the proportion of these sharks that would survive post capture.

TTRAG indicated that the level of likely post capture mortality (PCM) should be investigated (through queries of available literature) to better understand the impact of this factor upon the risk posed by the fishery, and whether there was a need to recalculate the risk if more reliable information on PCM was found.

Following further work by ABARES on PCM, presented at the July 2018 TTRAG, CSIRO re-evaluated the analysis, which determined the risk for dusky whaler shark to now be in the low-medium risk range.

Level 3 Quantitative Assessment Results

There was no requirement to progress to Level 3 in the most recent ERA.

Further information and reports for each level of assessment can be found on AFMA's website.

# 8.2 Nature of impacts on the ecosystem

Since the 2019 re-assessment there has been no change to impacts of fishing operations to the ecosystem in which the fishery operates, and how these impacts are managed to minimise any long-term risks or impacts. There has also been no change to the ERA since the 2019 WTO re-assessment. ERAs are scheduled to be undertaken in the WTBF every 5 years. ERAs are scheduled to be undertaken in the WTBF every 5 years.

# 8.3 Management action taken to reduce impacts

## 8.3.1 General management arrangements requirements

The WTBF Management Booklet contains a details of management actions taken to manage the WTBFs interaction with key commercial species, by-product species, general bycatch species, EPBC species and ecological communities.

**Catch Reporting**

Fishers must record all bycatch, byproduct and discards under the 'Catch Details' section of their logbook and any interactions with EPBC listed species under the 'Wildlife and other Protected Species' section of their logbook.

**Bycatch handling/treatment**

Fishers are responsible for handling bycatch species appropriately to maximise the chance of their survival. Mishandling bycatch species can significantly reduce their chances of survival and have long-term impacts on the sustainability of the species.

Fishers must not mistreat bycatch. Mistreat is defined as the taking of an action or actions, or the failure to take an action or actions, which results, or is likely to result, in the death of, injury to, or causing of distress to any bycatch. AFMA has developed six bycatch handling and treatment principles to minimise the risk of breaching bycatch handling and treatment **(Table 7).**

**Table 7:** Overarching principles for bycatch handling

| Principle | | Description |
|---|---|---|
| 1 | Safety of the boat and its crew are paramount | Mishandling does not include actions taken (or not taken), which are reasonably necessary to ensure the safety of the boat and or its crew. |
| 2 | All reasonable steps should be taken | Operators are expected to take all reasonable steps to ensure that bycatch is returned to the water as quickly as practicable and in a manner which does not reduce its chance of survival. |
| 3 | Minor gear recovery is not 'reasonably necessary' | Actions taken for the sole purpose of recovering minor fishing gear, are not considered 'reasonably necessary'. |
| 4 | Expediting removal from gear is not 'reasonably necessary' | It is not 'reasonably necessary' to injure bycatch when removing it from fishing gear to save time. |
| 5 | Harm, injury or death caused during capture is not mishandling | Mishandling does not include where bycatch is already dead, injured or stressed when it is brought on-board |
| 6 | Compliance with approved bycatch management plans | Handling of bycatch in accordance with AFMA approved bycatch management plan(s) is not mishandling. |

For the full AFMA Bycatch Handling and Treatment Guide see the AFMA website

# 9 Species Groups Management Strategies

## 9.1 Sharks and rays

It is recognised that shark populations tend to be more vulnerable to fisheries impacts than bony fish, as they tend to be slow growing, mature at a later age and have few young (Last and Stevens 1994) and some shark species have naturally small population sizes (Shark Plan 2, 2012). There is global concern that high levels of shark catch are affecting shark species in several areas of the world's oceans (FAO 1999; Clarke 2009). In recognition of this, AFMA (and the Commonwealth Government) is committed to minimising, to the extent possible, WTBF and other fishery impacts upon shark populations including shark bycatch species.

Fishery wide measures are in place to reduce the capture and mortality of all shark species, regardless of conservation or ecological risk status. These measures include:

- A ban on the use of wire trace (to minimise shark captures)
- A ban on shark finning
- Requirement for boats to have line cutters (which can be used to release sharks prior to hauling on deck) and dehookers
- A requirement that retained shark numbers (byproduct) per trip do not exceed tuna and billfish quota catch numbers, with a total trip limit of 20 sharks (this effectively prevents trips targeting shark). Any excess sharks are classified as bycatch and must be discarded whether alive or dead.

In addition to these requirements, there are a suite of documents developed to assist fishery managers and fishers with the mitigation of sharks and rays. These include:

- Quick identification guides for shark species (including shortfin mako, longfin mako, dusky shark, silky shark and bronze whaler sharks) to assist operators in accurate identification and reporting of these species:
- Marine species identification manual for horizontal longline fishermen developed by SPC.
- The Chondrichtyan guide for fisheries managers: A practical guide to mitigating Chondrichtyan bycatch. This guide was developed in 2009, by ABARES and AFMA, the guide aims to provide fisheries managers with practical options to mitigate Chondrichthyan TEP and high-risk species bycatch.
- A National Plan of Action for the Conservation and Management of Sharks 2012 Shark-plan 2 developed by the Commonwealth Government. Shark-plan 2 provides an updated assessment of the conservation and management issues concerning sharks in Australian waters and identifies the research and management actions across Australia's state, territory and Commonwealth jurisdictions that will be pursued over the life of the WTBF Management Plan.

Under the EPBC Act taking and retaining of longfin mako, shortfin mako and porbeagle sharks is prohibited in Commonwealth waters. There are exceptions to these prohibitions where species are caught as bycatch in the WTBF in the following specific circumstances:

- All **live** longfin mako, shortfin mako and porbeagle sharks (including those in poor condition or showing minimal signs of life) must be **released** back into the water;
- Only dead on line longfin mako, shortfin mako and porbeagle sharks may be retained;
- All longfin mako, shortfin mako and porbeagle sharks caught, regardless of whether they are returned to the water, must be **recorded on the appropriate logbook.**

**Table 8**. WTBF Shark and Ray interactions 2021 (all interactions logged as hooked, caught or entangled).

| Western Tuna and Billfish Fishery Interactions: 1 January - 31 December 2021 | | | | |
|---|---|---|---|---|
| Species | No. Interactions | Life Status | | |
| | | Alive | Dead | Unknown |
| Porbeagle | 1 | | | 1 |
| Shortfin mako | 113 | | 1 | |
| **Total** | **114** | **-** | **1** | **1** |

## 9.2 Seabirds

The term 'Seabirds' is used generally to describe any species of bird which spends a substantial part of its life foraging and breeding in the marine environment. These species include albatrosses, petrels, gulls, shearwaters, boobies, gannets, cormorants, and terns. Seabird populations globally face threats from various sources including climate change, competition and pests at breeding sites and interactions with commercial fisheries. The latter has led to a suite of global and domestic agreements, plans and measures which aim to mitigate and reduce fishery impacts on seabird populations.

Through measures described in this Bycatch Strategy, and implemented via fishing permit conditions, AFMA aims to ensure that the WTBF is fully compliant with both international agreements, regional fishery management organisation measures, domestic legislation, and policies, and AFMAs Bycatch Strategy.

At an international level, this Bycatch Strategy (including the conditions AFMA places on WTBF permit holders) is consistent with the requirements of:

- Convention on the Conservation of Migratory Species of Wild Animals
- Agreement on the Conservation of Albatrosses and Petrels (ACAP)
- The Food and Agriculture Organization of the United Nations (FAO)
- Guidelines for implementing responsible fisheries management practices.
- Code of Conduct for Responsible Fisheries
- International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA – Seabirds)
- The Indian Ocean Tuna Commission (IOTC) Conservation and Management Measure on seabirds (CMM 2012/06)
- The Commission for the Conservation of Southern Bluefin Tuna (CCSBT) non-binding measures relating to seabirds

At a domestic level, oceanic longline fishing is listed as a key threatening process for seabirds under the EPBC Act, and as such required the development of a Threat Abatement Plan (TAP) for the WTBF (by Australian Antarctic Program (AAD) and AFMA), which now forms a key component of this Bycatch Strategy.

The TAP requires the WTBF to:

- Further reduce the bycatch of seabirds in oceanic longline operations and
- Maintain a bycatch rate of less than 0.05 birds per 1000 hooks set in all fishing areas (by five-degree latitudinal bands) and all seasons (1 September – 30 April; 1 May – 31 August).

The TAP requires these objectives are pursued by the following key actions: mitigation, education, international initiatives, research and development and uptake, innovation and data collection and analyses.

Further responses are required by AFMA if the bycatch rate described above is triggered in one season or in consecutive seasons in any five-degree latitudinal band. Details of the required responses are available online: Threat Abatement Plan (TAP).

Guidance for AFMA and industry regarding management of seabird interactions is provided in the AFMA Seabird Bycatch Operational Guidelines for Commonwealth Fisheries (October 2018).

### 9.2.1 Seabirds management measure

In response to its international and domestic requirements (including the TAP), AFMA has implemented fishery wide measures to reduce the interactions with and mortality of all seabird species. These measures stipulate that:

At all times a boat must:

- carry one or more assembled tori lines onboard; and
- not discharge offal while setting and discharge during hauling should be avoided if possible.
- When fishing south of 25° South boats must:
- deploy a tori line before commencing a shot when fishing between the hours of nautical dawn and nautical dusk[8];
- a tori line is not required to be deployed when performing fishing operations between the hours of nautical dusk and nautical dawn.
- use only non-frozen bait;
- weight longlines with either a minimum of:
    - 60g swivels at a distance of no more than 3.5m from each hook; or
    - 98g swivels at a distance of no more than 4m from each hook; or
    - 80g or greater attached within 2 metres of the hook
    - ACAP approved “hook-shielding device” with a cap and weighing at least 38g may be deployed directly at the hook.

Boats tori lines must:

- be a minimum of 100 metres in length;
- be set up from a position on the boat that allows it to stay above the water for at least 75m from the stern;
- have streamers attached at a maximum interval of 3.5m;

[8] Note: Nautical Dawn is defined as the instant in the morning, when the centre of the Sun is at a depression angle of twelve degrees (12°) below an ideal horizon. Nautical Dusk is defined as the instant in the evening, when the centre of the Sun is at a depression angle of twelve degrees (12°) below an ideal horizon. At both times, the sea horizon is not normally visible.

- streamers must be maintained, ensuring lengths are as close to the water as possible; and
- have a towed line, material or object at the end of the line to give sufficient drag to meet the 75m aerial coverage criteria.

In addition to these compulsory measures, Tuna Australia and AFMA has prepared a Tori lines – information to assist in design and implementation guidance document, that is available as an attachment to the Fisheries Management Booklet.

## 9.3 Marine turtles

Six of the seven existing species of marine turtle are found in Australian waters, including the loggerhead turtle (*Caretta caretta*), green sea turtle (*Chelonia mydas*), hawksbill sea turtle (*Eretmochelys imbricate*) olive ridley sea turtle (*Lepidochelys olivacea*), flatback sea turtle (*Natator depressus*) and leatherback sea turtle (*Dermochelys coriacea*).

Most species of marine turtle are considered vulnerable to local and even global extinction due to declining numbers. Reduction in mortality is important for the long-term viability of these species. Two main management measures have been included as compulsory conditions onconcession holder permits aimed at reducing the mortality of turtles interacting with the WTBF. These are:

- Use of de-hookers to remove hooks from turtles.
- Line cutters and de-hookers must be carried on board the boat at all times and must meet strict design criteria (described in permit conditions) to ensure that they are effective in the safe removal of hooks from turtles (and other animals).

## 9.4 Marine mammals

Monitoring data indicates that the WTBF occasionally interacts with marine mammals, predominantly cetaceans (whales and dolphins), and very rarely seals or sea lions.

The majority of interactions with cetaceans (whales and dolphins) involve cetaceans being hooked or entangled in the fishing gear while predating on tuna from longlines. All cetacean species are protected under the EPBC Act. Recent data summaries for the WTBF, including during the recent period of electronic monitoring, show very few interactions occurring with cetaceans.

The WTBF very rarely interacts with seals but such interactions have historically occurred, with one interaction being reported in 2021.

# 10 Progress in implementing each recommendation and condition

The WTBF was assessed under section 303FN of the EPBC Act to be an approved wildlife trade operation in November 2019. In accordance with this approval a set of conditions and recommendations were made for the fisheries continued operation. Below is a summary of the progress and status as May 2022.

| Recommendation | Level of Achievement as at May 2022 | Deadline |
|---|---|---|
| **Condition 1:**<br><br>Operation of the Commonwealth Western Tuna and Billfish Fishery will be carried out in accordance with the *Western Tuna and Billfish Fishery Management Plan 2005* in force under the *Fisheries Management Act 1991* (Cth). | **Achieved**<br><br>The WTBF is managed consistent with the *Fisheries Management Act 1991* and the *Western Tuna and Billfish Fishery Management Plan 2005*, which manages the fishery under catch quotas based on Total Allowable Commercial Caches. | **Lifetime of WTO** |
| **Condition 2:**<br><br>The Australian Fisheries Management Authority to inform the Department of the Agriculture, Water and the Environment of any intended material changes to the Commonwealth Western Tuna and Billfish Fishery's management arrangements that may affect the assessment against which EPBC Act decisions are made. | **Achieved**<br><br>AFMA has informed the Department of Agriculture, Water and the Environment, through annual reports of changes to management arrangements in the WTBF. | **Lifetime of WTO** |

| Recommendation | Level of Achievement as at May 2022 | Deadline |
|---|---|---|
| **Condition 3:**<br><br>The Australian Fisheries Management Authority to produce and present reports to the Department of Agriculture, Water and the Environment annually as per Appendix B of the Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition. | **Achieved**<br><br>Annual strategic assessment reports have been produced and presented to the Department of Agriculture, Water and the Environment, as per Appendix B to the Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition. | **Lifetime of WTO** |
| **Condition 4:**<br><br>The Australian Fisheries Management Authority to consult with Department of Agriculture, Water and the Environment prior to any change to the management arrangements being implemented for a CITES listed species. | **Achieved**<br><br>AFMA has not implemented changes to the management of CITES listed species and reports any changes to management to the Department of Agriculture, Water and Environment in annual reports. | **Lifetime of WTO** |

| Recommendation | Level of Achievement as at May 2022 | Deadline |
|---|---|---|
| **Condition 5:**<br><br>The Australian Fisheries Management Authority to continue efforts to determine the extent of the impact of fishing on shark species, and to make demonstrable progress in improving the status of shark bycatch in the Western Tuna and Billfish Fishery. | **Achieved**<br><br>AFMA continually monitors the impact of fishing in the WTBF to shark species and implements range of management of management measures specifically targeted at reducing the risk to shark species, described in the body of this report.<br><br>The most recent ERA concluded that no chondrichthyan species were at high risk from the operations of the WTBF. | **Lifetime of WTO** |
| **Condition 6:**<br><br>The Australian Fisheries Management Authority, in collaboration with the Department of Agriculture, Water and the Environment, to work with the Indian Ocean Tuna Commission in relation to improving understanding of the status for stocks currently classified as overfished or uncertain. | **Achieved**<br><br>During the period 2019 to 2022, AFMA moved from setting 3-year TACCs to determining TACCs on an annual basis, recognising that the IOTC is in the process of developing allocation criteria to be used to cap catches of the key tuna species in the Indian Ocean.<br><br>AFMA continued to assist the Department of Agriculture, Water and the Environment in its work with the Indian Ocean Tuna Commission in relation to improving understanding of the status for stocks currently classified as overfished or uncertain. | **Lifetime of WTO** |