



Strategic Assessment Report  
Torres Strait Finfish Fishery  
February 2012

Prepared by the Australian Fisheries Management Authority on behalf of the Torres Strait Protected Zone Joint Authority

[www.afma.gov.au](http://www.afma.gov.au)

 Protecting our fishing future

# CONTENTS

Torres Strait Finfish Fishery Strategic Assessment Report .....	3
Executive Summary .....	4
<b>PART I Overview of the Torres Strait Finfish Fishery .....</b>	<b>5</b>
1 Description of the Fishery.....	5
1.1 Target/permitted/prohibited species.....	5
1.2 Fishing methods employed .....	6
1.3 Fishing area .....	6
1.4 Allocation between sectors .....	7
1.5 Governing legislation/fishing authority .....	7
1.6 Catch data.....	9
1.7 Harvest by each sector .....	11
1.8 Effort data including information on any trends .....	11
1.9 Spatial issues/trends.....	11
1.10 Catch sharing arrangements with Papua New Guinea.....	11
2 The Environment likely to be affected by the fishery .....	12
2.1 Results of any Ecological Risk Assessments .....	12
2.2 Nature of impacts on the ecosystem .....	12
2.3 Management action taken to reduce impacts and results of such action .....	12
3 Proposed Management Arrangements for the fishery .....	12
3.1 Responsible Agency .....	12
3.2 Description of cross-jurisdictional management arrangements .....	13
3.3 Changes to management arrangements .....	14
<b>PART II Environmental assessment against the ‘Guidelines for the ecologically sustainable management of fisheries’ .....</b>	<b>17</b>
4 Assessment of ecological sustainability .....	17
4.1 Principle 1 .....	17
4.1.1 Objective 1 .....	17
4.1.2 Objective 2.....	22
4.2 Principle 2 .....	23
4.2.1 Objective 1 .....	23
4.2.2 Objective 2.....	23
4.2.3 Objective 3.....	26
5 Management Measures and Safeguards to Ensure Ecological Sustainability.....	27
5.1 Actions taken to maintain sustainability .....	27
5.2 Results of any research completed relevant to the fishery, including how results will be incorporated into management of the fishery .....	28
5.3 Description of monitoring programs used to gather information on the fishery and results of these.....	28
6 Information Sources .....	29

# Torres Strait Finfish Fishery Strategic Assessment Report

## February 2012

### Introduction

This draft assessment report for the Torres Strait Finfish Fishery (TSFF) has been prepared in accordance with the *Terms of Reference – Environmental Assessment of the Torres Strait Finfish Fishery* (Attachment 1). The report provides the basis for the strategic assessment of the Torres Strait Finfish Fishery consistent with the requirements of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

### Consultation

Prior to being finalised AFMA consulted with the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) on drafts of *Terms of Reference for the Strategic Assessment of the Torres Strait Finfish Fishery* and the strategic assessment report. AFMA also consulted with the Torres Strait Regional Authority (TSRA) and Queensland Department of Employment, Economic Development and Innovation (DEEDI) in preparing the strategic assessment report.

### Contact details

Environment Section	Torres Strait Finfish Fishery
Paul Ryan Manager Environmental Assessments AFMA Phone: (02) 6225 5555 Fax: (02) 6225 5466	Annabel Jones Manager Torres Strait Fisheries AFMA Phone: (07) 4069 1990 Fax: (07) 4069 1277

## Executive Summary

The Torres Strait Finfish Fishery (TSFF) under the current management arrangements was strategically assessed in September 2008 under Parts 10, 13 and 13A of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Export approval was granted through declaring the TSFF a Wildlife Trade Operation (WTO) for a period of three years, valid until 29 November 2011. An extension was granted in October 2011 pending the implementation of a management plan in 2012.

A formal management plan (*Torres Strait Finfish Fishery Management Plan 2012*) for the TSFF is being considered by the Torres Strait Protected Zone Joint Authority (PZJA). This strategic assessment report has been developed in accordance with AFMA's obligations under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the fishery under new management arrangements included in the pending *Torres Strait Finfish Fishery Management Plan 2012*.

The report comprises two parts. Firstly, it provides an overview of the new management arrangements and secondly, it details how the proposed arrangements address the *Guidelines for Assessing the Ecological Sustainability of Commercial Fisheries – 2<sup>nd</sup> Edition* (the Guidelines). The Guidelines form part of the generic *Terms of Reference – Environmental Assessment of Commonwealth Fisheries* and are a central component of the *Terms of Reference for the Torres Strait Finfish Fishery* (Attachment 1).

Consistent with AFMA's legislative objectives and the Ministerial Direction delivered to AFMA in 2005, the AFMA Commission has decided to manage all Commonwealth fisheries using output based management in the form of Individual Transferable Quotas. While the Plan will provide for the grant of quota Statutory Fishing Rights (SFRs) replacing existing management arrangements based mainly on input controls on fishing effort, quota will not be implemented until such a time that quota management is necessary to maintain the sustainability of the fishery.

AFMA will continue to develop its research and data collection programs to assist ecologically sustainable fisheries management. In accordance with the requirements of the *Torres Strait Fisheries Act 1984*, AFMA must set reference points for monitoring fishery objectives to monitor the management arrangements capacity to meet the objectives of the fishery.

# **PART I Overview of the Torres Strait Finfish Fishery**

## **1 Description of the Fishery**

### **1.1 Target/permitted/prohibited species**

The Torres Strait Finfish Fishery (TSFF) (Figure 1) is an important fishery, particularly for Traditional Inhabitants of the Torres Strait. The fishery is comprised of the Torres Strait Spanish Mackerel Fishery, the Torres Strait Reef Line Fishery and the Torres Strait Barramundi Fishery. The word 'finfish' is generally used as a collective term to describe these fisheries.

The Reef Line Fishery targets high value species including the coral trout species group (*Plectropomus* spp and *Variola* spp), Red emperor and Barramundi cod. However, up to 100 species of fish may be taken in the fishery and sold as "reef fish". The Spanish Mackerel Fishery targets predominately Spanish mackerel (*Scomberomorus commerson*).

Non-Traditional Inhabitant fishing operations in the Reef Line and Spanish Mackerel Fisheries generally consist of a primary vessel which accommodates the skipper and crew and between one and four smaller tenders. Fishing is most often conducted from the tenders, but may also be conducted from the primary vessel. Product is transported for processing and storage on the primary vessel. Product is generally transhipped from Torres Strait to Cairns by motherships operating from Cairns.

Traditional Inhabitant fishing operations in the Reef Line and Spanish Mackerel Fisheries generally operate from vessels operating from Island communities in the Torres Strait. Product is transported for processing and storage to processing plants operating on various Island communities.

The non-Traditional Inhabitant sector was previously licensed under a Transferable Vessel Holder Licence (TVH), however during 2007/08 a voluntary buy-back of all TVH licences was undertaken. All catch entitlements from the surrendered licences were held aside to provide for catch sharing obligations with Papua New Guinea<sup>1</sup> (PNG) with the remaining entitlements transferred to the Traditional Inhabitant sector to achieve a 100 per cent ownership of the resource. Non-Traditional Inhabitants can still participate in the fishery by leasing a temporary (Sunset) Licence from the Torres Strait Regional Authority (TSRA).

Traditional Inhabitants are licensed under a Traditional Inhabitant Boat licence (TIB). TIB licences are restricted to Traditional Inhabitants living in Torres Strait but there is currently no restriction on the number of TIB licences that can be issued.

The majority of the catch is taken by a small number of commercial operators. In 2010/2011 only three non-Traditional Inhabitant operations leased a temporary Sunset Licence to fish for Spanish mackerel and one leased a licence to fish in the Reef Line Fishery. The Reef Line Fishery is not as important to the Traditional Inhabitant sector as the Lobster Fishery, however, there are a large number of Traditional Inhabitants who are entitled to fish in this fishery and opportunistically take mackerel or reef species; there were 161 Traditional Inhabitant Boat (TIB) licences with mackerel entries and 145 with Reef Line entries as at 30 June 2010.

A stock assessment of the Torres Strait Spanish mackerel stocks during 2006 indicated that the stock was fished at maximum sustainable levels (Begg *et al*, 2006). Since then there has been a significant decline in effort and catch as a result of fewer people fishing. The Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES) have now assessed the fishery as being not overfished or subject to overfishing (ABARES 2011).

---

<sup>1</sup> Under obligations set out in the Torres Strait Treaty.

There is currently no stock assessment of the Reef Line Fishery therefore the current status of this stock is uncertain. In 2010 ABARES assessed the fishery as being not overfished or subject to overfishing (ABARES 2011).

The Barramundi Fishery (for *Lates calcarifer*) is restricted to Traditional Inhabitant Fishers and is currently not active.

## 1.2 Fishing methods employed

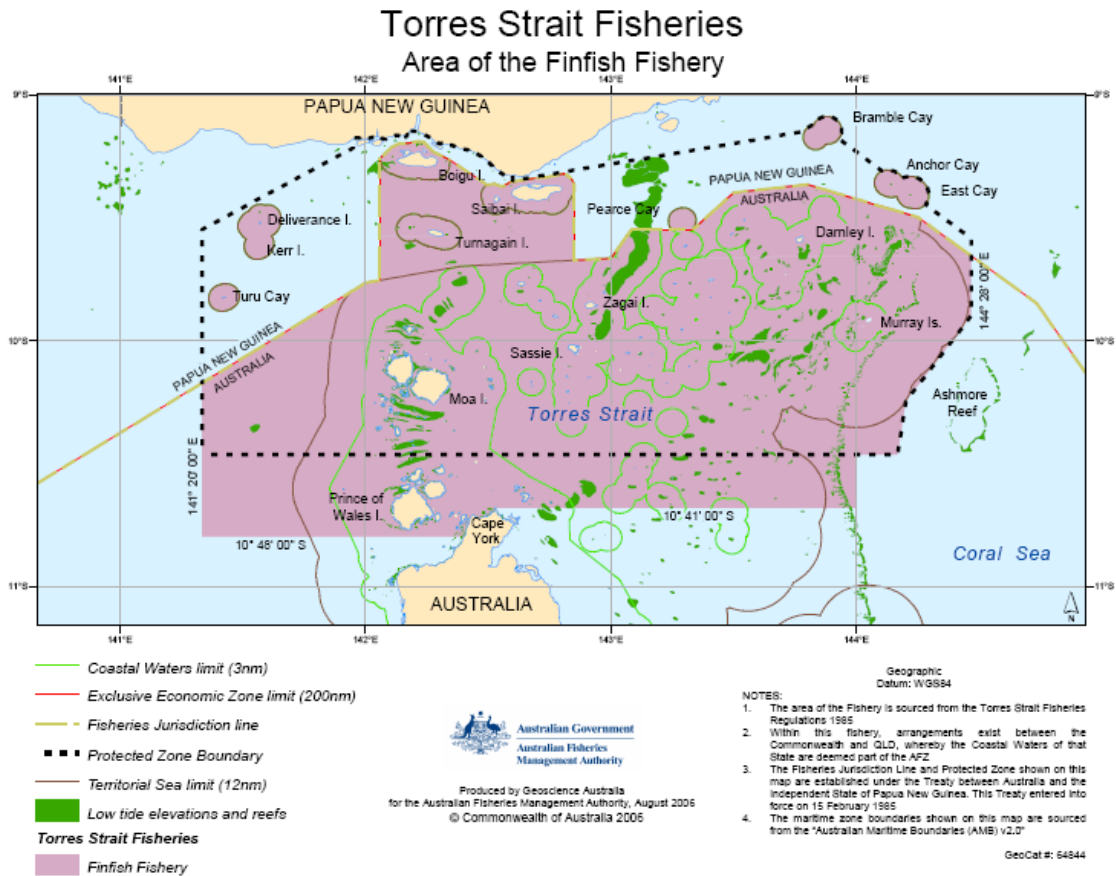
Spanish mackerel is targeted using troll lines with hooks baited with garfish or, occasionally, an artificial lure. Troll lines are deployed from dories of between five and six metres in length. Non-Traditional Inhabitant fishers operate dories from a primary vessel that are typically between nine and sixteen metres in length with freezers allowing them to stay at sea for over a month. Traditional Inhabitants fish from smaller vessels with limited holding capacity and return their catch to island community freezer facilities. The catch from both sectors is predominately processed to fillet for the domestic market in fish and chip shops in Queensland.

The Reef Line Fishery mainly use hand lines with single hooks baited with pilchards. Fishing rods or mechanically operated reels may also be used. Fishers fish from dories of less than six metres in length. Non-Traditional Inhabitant fishers operate dories from larger primary vessels of up to 18 metres in length. Traditional Inhabitants return their catch to island community freezer facilities. Catch is filleted or gutted and gilled and stored as frozen product for the domestic or export market.

## 1.3 Fishing area

The TSFF comprises tidal waters within the Torres Strait Protected Zone (TSPZ) and the area declared under the *Torres Strait Fisheries Act 1984* (the Act) to be 'outside but near' the TSPZ for commercial fishing for finfish (Figure 1). For the TSFF, the outside but near area extends to waters just south of Prince of Wales Island to the west and to due east of Cape York Peninsula.

There is a closure to the Reef line fishery west of Longitude 142°31'49" set out in Fisheries Management Instrument No. 8. In addition, there are restrictions on fishing within 10nm of Mer (Murray) Island, Ugar (Stephen) Island, Masig (Yorke) Island, and Erub (Darnley) Island for those fishers operating under a sunset licence. These restrictions are implemented through conditions on the licence.



**Figure 1:** Area of the Torres Strait Finfish Fishery.

## 1.4 Allocation between sectors

Following the restructure of the fishery in 2007/2008, 100% of the Australian share of the fishery is now allocated to Traditional Inhabitants, however, non-traditional inhabitants may lease licences temporarily. A Quota Management Committee (QMC) determines the amount of Coral trout and Spanish mackerel that will be available annually (in kilograms) for non-Traditional Inhabitant leasing. This amount is a balance between allowing for TIB harvest and the supply required by processors and suppliers.

An unknown quantity, but presumably small catch of finfish is taken by Traditional Inhabitants for subsistence.

The Spanish Mackerel Fishery is an Article 22 fishery under the Torres Strait Treaty and the resource is shared between PNG and Australia under guidelines set out in the Treaty. The Reef Line Fishery is not an Article 22 fishery.

## 1.5 Governing legislation/fishing authority

### 1.5.1 Legislation in the Torres Strait

The jurisdiction and management framework for commercial and traditional fisheries in the Torres Strait is governed by the provisions of the *Torres Strait Treaty 1985*, enacted between Australia and PNG. The Treaty describes an area in the Torres Strait known as the TSPZ. The TSPZ consists of areas in which Australia and PNG have jurisdiction over certain swimming marine species and sedentary marine species.

The principal purpose of the parties in establishing the Protected Zone is to acknowledge and protect the traditional way of life and livelihood of the Traditional Inhabitants including their rights in relation to traditional fishing and free movement. A further purpose of the Parties in establishing the Protected Zone is to protect and preserve the marine environment and indigenous fauna and flora in and in the vicinity of the Protected Zone.

In order to implement Australia's fisheries-related treaty obligations in relation to traditional fishing, the principal commercial fisheries were placed under the jurisdiction of the Act, in February 1985. The Act provides for the Torres Strait fisheries to be managed under the laws of the Commonwealth or Queensland. In 1999 the Protected Zone Joint Authority (PZJA) agreed that all commercial fishing activity in Torres Strait would be managed under the laws of the Commonwealth (see section 31 (2) of the Act).

The Finfish Fishery, whilst governed by the Act is managed by the PZJA. The PZJA members comprise of the Commonwealth and Queensland Ministers responsible for fisheries and the Chairperson of the Torres Strait Regional Authority. The Australian Government Minister is the Chairperson of the Authority.

The Act itself sets out the functions of the PZJA. These functions consist of:

- keeping constantly under consideration the condition of the fishery; and
- formulating policies and plans for the good management of the fishery.

And for the purposes of the management of the fishery:

- exercising the powers conferred on it; and
- co-operating and consulting with other authorities (including Joint Authorities established under the *Fisheries Act 1952* or the *Fisheries Management Act 1991*) in matters of common concern.

### ***The Torres Strait Protected Zone Joint Authority (PZJA)***

The PZJA is responsible for monitoring the condition of the designated fisheries and for the formulation of policies and plans for their management. In exercising its functions, the PZJA has regard to the rights and obligations conferred on Australia by the Torres Strait Treaty, in particular the protection of the traditional way of life and livelihood of the Traditional Inhabitants, including the capacity to engage in traditional fishing.

The PZJA has delegated day to day management of the fisheries to AFMA, and compliance and licensing in the fisheries to the Department of Employment, Economic Development and Innovation (DEEDI).

Four agencies actively support the PZJA in the administration of its functions being the Australian Fisheries Management Authority (AFMA), Department of Employment, Economic Development and Innovation (DEEDI), Torres Strait Regional Authority and Department of Agriculture Fisheries and Forestry (DAFF).

### ***The Australian Fisheries Management Authority (AFMA)***

AFMA is the Commonwealth Government Fisheries agency. The primary services provided by AFMA to the PZJA are:

- Coordinate the PZJAs consultative mechanism;
- Facilitate the provision of sound scientific data on the condition of the fisheries in support of the PZJAs obligation to keep "constantly under consideration the condition of the fishery";
- Develop and implement regulations to implement the PZJAs policies; and
- Foreign compliance activities;



- Coordinate Australia's participation in the annual Fisheries Bilateral meetings.

***The Department of Employment, Economic Development and Innovation (DEEDI)***

DEEDI is the responsible Queensland Government fisheries management agency and the primary services provided by DEEDI to the PZJA are:

- provide advice to the Queensland PZJA member on PZJA fisheries issues and on his / her statutory obligations;
- administer all PZJA licensing functions (including the establishment of a 'register' to record effort or catch entitlements held by individual fishers under a management plan;
- contribute fisheries management expertise (noting that many fishers in the TSPZ are cross endorsed to fish for similar species in Queensland fisheries); and
- domestic compliance activities.

***The Torres Strait Regional Authority (TSRA)***

The TSRA is a Commonwealth statutory authority forming part of the Government's Indigenous Affairs Portfolio, was established in 1994 in order to strengthen the economic, social and cultural development of the Torres Strait to improve the lifestyle and well-being of indigenous people (Islanders and Aboriginal) living in the Torres Strait.

The primary services provided by the TSRA to the PZJA are:

- provide advice to the TSRA Chair on PZJA fisheries issues and on his/her statutory obligations;
- contribute expertise in relation to traditional fishing in the TSPZ (in particular in relation to the Turtle and Dugong fishery); and
- support and facilitate Islander involvement in the PZJA consultative processes.

***The Department of Agriculture, Fisheries and Forestry (DAFF)***

DAFF provides the following services to the PZJA:

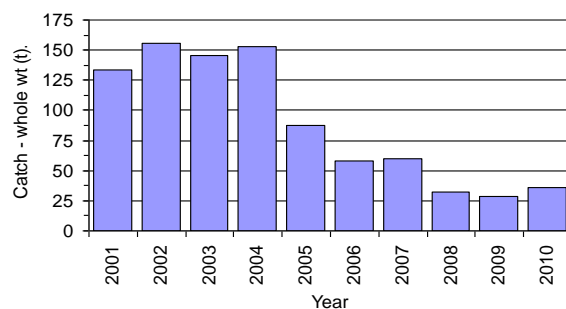
- provide advice to the Australian Government Minister (and Chair) on PZJA fisheries issues and on his/her statutory obligations;
- manage the bilateral relationship with PNG;
- over-arching responsibility for legislative and regulatory compliance.

**1.6 Catch data**

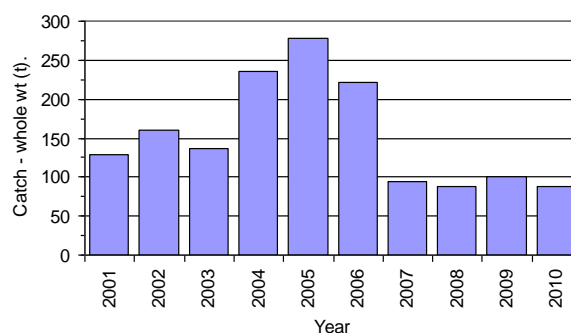
***1.6.1 Total catch of target species (including retained and discarded catch)***

*The total catches of target species for 2010 were:*

- |   |       |
|---|-------|
| • Spanish mackerel ( <i>Scomberomorus commerson</i> ) | 87.6t |
| • Coral trout ( <i>Plectropomus</i> sp.)              | 36.2t |



**Figure 2:** Catches of Coral trout (*Plectropomus sp.*) in the Torres Strait Finfish Fishery (2001-2010).



**Figure 3:** Catches of Spanish Mackerel Fishery (*Scomberomorus commerson*) in the Torres Strait Finfish Fishery (2001-2010).

### 1.6.2 Total catch of target species taken in other fisheries

There is no catch of target species in other fisheries.

### 1.6.3 Catch of byproduct species (reported by species)

The total catches of byproduct species for 2010 were:

- Red emperor (*Lutjanus sebae*) 326.6kg
- Barramundi cod (*Cromileptes altivelis*) 926kg
- Mixed reef fish 2169kg

### 1.6.4 Total catch of bycatch species (reported by species if possible)

Due to the TSFF being restricted to fishing with hand lines rigged with a single hook and the small scale of the fishery all bycatch is returned to the water alive. Observation of fishing practices in Torres Strait indicates that between 40 and 45% of total catch are released (Williams *et al.* 2007). Survival rates for released reef fish are considered to be high ranging from between 40% and 100% depending on species (Released Fish Survival National Strategy, [www.info-fish.net/releasefish](http://www.info-fish.net/releasefish)).

## **1.7 Harvest by each sector (commercial, recreational, indigenous and illegal)**

The reported harvest for the commercial sector in 2010 was 87.6 tonnes of Spanish mackerel and 36.2 tonnes of Coral trout. These figures are likely to be underestimated as reporting in the Traditional Inhabitant sector is voluntary.

The level of harvest within the recreational and traditional fishing sectors is unknown. There was no illegal harvest reported in 2010.

## **1.8 Effort data including information on any trends**

Effort in the non-Traditional Inhabitant sector in 2010 declined from previous years with 280 operation days recorded with catch of mackerel compared to over 1000 days in 1999. Effort in the Reef Line sector was similarly very low with 155 operation days recorded with catch of Coral trout. The low level of effort is due to the small number of active boats in the non-Traditional Inhabitant sector following introduction of leasing in 2008.

During 2009, effort in the Traditional Inhabitant sector declined significantly. Effort in the Reef Line fishery remained low at 189 fisher days. Effort in the Spanish Mackerel Fishery has similarly declined from historic averages of 200-300 fisher days/year to 83 fisher days in 2010; however this was markedly greater than effort in 2009. The increased effort in 2010 is most likely due to the proximity of a buyer boat operating in the eastern area of Torres Strait facilitating activity.

## **1.9 Spatial issues/trends**

Commercial harvest of reef fish is mainly from the north eastern area of Torres Strait. This is partly due to a closure to finfish fishing in Western Torres Strait, but also due to suitable reef habitat in the eastern areas. There are clear differences in the distribution of harvest between the commercial Traditional and non-Traditional Inhabitant sectors. Non-Traditional Inhabitant catch are distributed over a wider area of the fishery but predominately around the north eastern Torres Strait area. Traditional Inhabitant catch is concentrated on reefs near the islands of Masig (Yorke), Mer (Murray), Erub (Darnley) and Ugar (Stephens) (Williams *et al*, 2007).

Spanish mackerel catch from the non-Traditional Inhabitant sector predominately comes from the far northern area of Bramble Cay and Black Rock. The Traditional Inhabitant sector catch tends to be concentrated around Erub Island, although smaller quantities are also recorded from Mer, Masig and Ugar (Begg *et al*, 2006). A 10nm closure around Erub, Mer, Ugar and Masig is in place for non-Traditional Inhabitant fishers leasing temporary licences via leasing conditions but this is not expected to have significantly changed fishing patterns.

## **1.10 Catch sharing arrangements with Papua New Guinea**

Spanish mackerel are currently under catch sharing arrangements with PNG as allowed under Articles 22 and 23 of the Torres Strait Treaty. These arrangements allow for 40 per cent of the total catch of Spanish mackerel from the Australian jurisdiction to be provided to PNG vessels under the Treaty. In recent years, PNG has not requested access to their entitlements.

The Reef Line Fishery for demersal reef fish is currently not an article 22 fishery and therefore there are no catch sharing arrangements between Australian and PNG for this fishery. However, if PNG formally requested such an arrangement, it is estimated that 25 per cent of the catch from the Reef Line Fishery (in the Australian jurisdiction) would be set aside for PNG.

## **2 The Environment likely to be affected by the fishery**

### **2.1 Results of any Ecological Risk Assessments**

An Ecological Risk Assessment (ERA) has not been conducted to date due to the highly selective fishing methods utilised and the low level of exploitation resulting in low very low levels of interaction with bycatch species, habitats or the environment. Given the continued low level of effort in the fishery and low Gross Value of Production (GVP) it is uncertain at this time when an ERA will be conducted.

### **2.2 Nature of impacts on the ecosystem**

Although an ERA has not been conducted for the fishery it could be envisaged that impacts on the ecosystem would be restricted to:

- Anchoring/mooring and other anthropogenic activities;
- Vessel accidents leading to pollution such as oil spills; and
- Concerns about translocation of species via hull and anchor fouling.

Due to the nature of the fishing methods used in the fishery being hook and line, the direct impacts on the environment are minimal. Fishing occurs on coral reefs throughout the Torres Strait, however effort is likely concentrated on reefs surrounding islands that have freezer operations such as Mer (Murray) and Masig (Yorke) Island.

As specific species such as Coral trout are targeted, localised declines in abundance may result, however due to the small number of active fisherman in the fishery this is likely to be insignificant.

### **2.3 Management action taken to reduce impacts and results of such action**

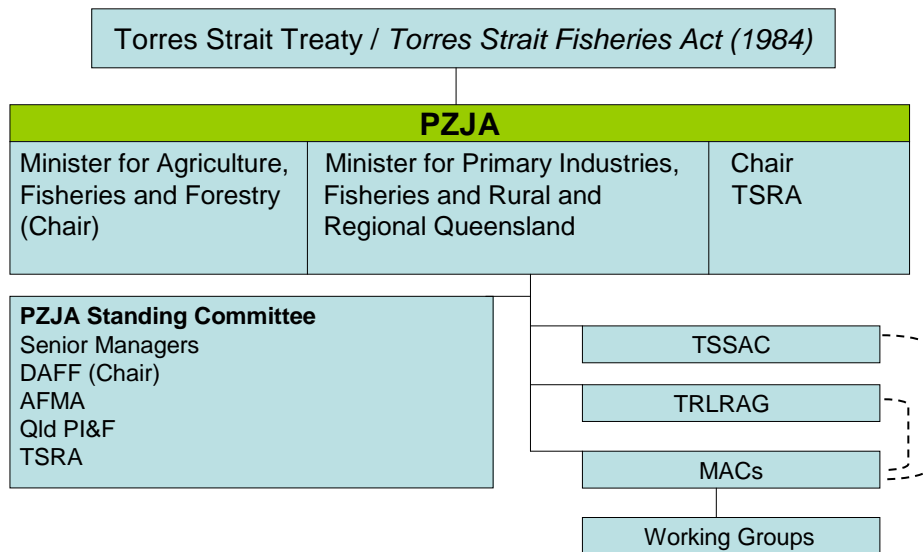
As there is currently no evidence of unsustainable fishing practices it is considered to be unnecessary to implement further management arrangements at this time. A management plan is being considered by the PZJA to formalise current management arrangements and allow for implementation of a quota management system if catch and effort in the fishery increase and warrant such arrangements.

## **3 Proposed Management Arrangements for the fishery**

### **3.1 Responsible Agency**

The PZJA has a well-established consultative structure of advisory bodies, which allows for greater participation from Traditional Inhabitant representatives at all levels of the consultative process. Traditional Inhabitant representatives, together with industry and government representatives, actively participate in the development of management arrangements for all Torres Strait fisheries (Figure 2).

## Protected Zone Joint Authority Structure



**Figure 2:** The consultative structure of the Torres Strait Protected Zone Joint Authority (PZJA). Solid lines and dashed lines indicate primary and secondary lines of communication respectively.

AFMA consults as widely as practicable to develop sound fisheries management arrangements. Before management arrangements are changed, stakeholders and registered interested persons are invited to discuss issues relevant to the fishery and are discussed at regular stakeholder meetings. This allows AFMA to take into account any representations received when making management decisions.

AFMA also consults with the SEWPaC in regard to proposed management arrangements.

### **3.2 Description of cross-jurisdictional management arrangements**

Australia and PNG entered into the Torres Strait Treaty on 15 February 1985. The Treaty is concerned with sovereignty and maritime boundaries in the area between the two countries and the protection of the traditional way of life, livelihoods of Traditional Inhabitants and of the marine environment. The Treaty also establishes the TSPZ in which each country exercises sovereign jurisdiction for swimming fish and sedentary species on the respective sides of the agreed jurisdiction lines. The lines are known as the Fisheries Jurisdiction Line and Seabed Jurisdiction Line (Figure 1).

The Treaty requires Australia and PNG to cooperate in the conservation, management and optimum utilisation of all of the Article 22 commercial fisheries of the TSPZ. It also allows for catch sharing arrangements between the two countries which are negotiated annually at a fisheries bilateral meeting.

In administering the Act, the PZJA has regard to the rights and obligations conferred on Australia by the Treaty, in particular the protection of the traditional way of life and livelihood of the Traditional Inhabitants, including their traditional fishing.

While having obligations to protect the traditional way of life of the Traditional Inhabitants, the PZJA is also responsible for monitoring the condition of Australian fisheries in the Torres Strait and for the formulation of policies and plans for their management. These fisheries are prawn, tropical rock lobster, pearl shell, mackerel, bêche-de-mer, trochus, finfish, barramundi, crab and traditional fishing (including turtle and dugong).

In addition, AFMA in conjunction with the Queensland Boating & Fisheries Patrol (QB&FP) coordinates and delivers fisheries management and surveillance/enforcement programs in the TSPZ on behalf of the PZJA and in accordance with the provisions of the Act.

### 3.3 Changes to management arrangements

It is proposed to formalise management arrangements in the fishery arrangements through implementation of a management plan (*Torres Strait Finfish Fishery Management Plan 2012*) to take effect in 2012-13 pending PZJA approval.

The Plan will formalise the existing management arrangements in the fishery and also allow for quota management to be introduced, if required, to maintain sustainability in the fishery. However in the short term, the current input controls will be maintained until the current status of the fishery changes substantially, for example effort increases significantly.

The main elements provided by the Plan are the:

- option to introduce of a total allowable catch or effort, if required
- streamlined licensing arrangements
- option to limit the number of Reef Line or Mackerel entries in the fishery
- requirement for fishers to sell their catch to a licence Fish Receiver
- option to introduce Vessel Monitoring Systems and observer coverage if required

If quota management is introduced in the future, the system of quota management and monitoring will be developed in consultation with stakeholders.

An appeal mechanism for decisions made by the PZJA will also be included in the Plan.

The draft management plan will be released for public comment in February 2012.

In addition to the proposed management plan, the PZJA have implemented a number of other changes to management arrangements in Fisheries Management Instrument (FMI) No.8 (Attachment B) in 2011 including:

- Introduction of new net size restrictions for traditional fishing to the size of 10cm mesh, 2.5m drop and 100m total length;
- Introduction of a maximum legal size of 62cm for leopard/squaretail coral trout (*Plectropomus areolatus*); and
- The removal of restriction on holding live finfish.

These new management arrangements seek to protect species such as turtle, dugong and shark from inappropriate use of large gauge nets during the course of traditional fishing; protect male leopard/squaretail trout from harvest; and stimulate interest in the Reef Line fishery (particularly leasing by non-Traditional Inhabitant fishers) via opening up new opportunities to add value to catch. The changes to management arrangements included in FMI 8 is considered to be low risk as the fishery is fishing well below potential compared to the agreed annual Total Allowable Catch, and the majority of finfish catch is under output controls through leasing arrangements that restrict the total allowable catch for the lessees.

In addition the PZJA agencies are moving towards making Torres Strait seafood buyers and processors' docket book reporting compulsory. Docket book returns have been a promising source of data regarding effort in Torres Strait fisheries and catch reporting is expected to improve once it has become compulsory.

AFMA will keep the SEWPaC regularly informed of the progress of any projects.

**Table 1:** Major changes in the Finfish Management Plan

<b>Management element</b>	<b>Current management arrangements</b>	<b>Changes as part of the TSFF Management Plan</b>
Total Allowable Catch	<p>A nominal TAC has been agreed on for two target species, however, this is not enforced.</p> <p>Management is by input controls only being size limits, gear restrictions etc.</p>	<p>The management plan will allow for the introduction of a quota management system by way of a Total Allowable Catch (TAC) or Total Allowable Effort (TAE) for a species or species group if required.</p> <p>Restricting catch or effort will be facilitated through allocation of Units of Fishing Capacity (UFC).</p> <p>In the short term, the current input controls would be maintained without implementing a quota management system. Quota management would only be implemented if the status of the fishery warrants the increased compliance costs related to monitoring quota, for example if effort increases in the fishery substantially and/or annual catch approaches the currently agreed TAC for Coral Trout or Spanish Mackerel.</p>
Number of fishers in the fishery	<p>There is no restriction on the number of Traditional Inhabitant commercial fishing licenses available in the fishery.</p>	<p>The management plan will allow for the PZJA to limit the number of Reef Line or Mackerel entries allowed in the Finfish Fishery if necessary.</p> <p>In the short term, the current licensing policies would be maintained. Limiting the number of entries in the fishery would only be implemented if the status of the fishery warranted it, for example if the number of active Traditional Inhabitant fishers increased substantially and/or annual catch approached the currently agreed TAC for Coral Trout or Spanish Mackerel.</p>
Sale of catch to holders of Fish Receiver Permit	<p>There are currently no regulations on who licensed Torres Strait fishers can sell commercial product to.</p>	<p>Fishers will be required to sell product only to holders of a Fish Receivers Licence. This will greatly increase effectiveness of catch reporting and will be essential if a quota monitoring system is implemented.</p>

Management element	Current management arrangements	Changes as part of the TSFF Management Plan
Trading units of fishing capacity	As quota is not implemented in the fishery at this time, there are currently no arrangements for trading of units of fishing capacity.	<p>If a quota monitoring system is implemented, the management plan will allow for the holder of units of fishing capacity to trade units to another person who is licensed to fish in the Finfish Fishery under the following conditions:</p> <p>A person or group formally representing traditional inhabitants holding units of fishing capacity may permanently or temporarily transfer units to any other Traditional Inhabitant or group formally representing Traditional Inhabitants.</p> <p>A person or group holding units of fishing capacity may only temporarily transfer units to a non-Traditional Inhabitant.</p>
Licensing	Under the current system, all vessels in a fishing operation, that is the main vessel and tenders operating to the main vessel, must be separately licenced, thus also requiring a Processor Carrier Licence Class A to transfer product from the tenders to the main vessel.	The management plan seeks to streamline licensing by allowing for the main vessel and all tenders operating to a main vessel to be nominated on the single licence. This will also eliminate the need for a Processor Carrier Licence Class A.
Appeal mechanisms	Under the current system there is only limited opportunity for appeal of decisions in the PZJA fisheries (through the Administrative Decisions (Judicial Review) Act in Federal Court).	<p>The management plan will provide an appeal mechanism for decisions made by the PZJA under the management plan. This will comprise of an internal merits review as a first step and an external merits review to be made by the Administrative Appeals Tribunal, consistent with arrangements set out in Section 15A of the <i>Torres Strait Fisheries Act 1984</i> and the <i>Administrative Appeals Tribunal Act 1975</i>.</p> <p>Further, if there are grounds on points of law, then further appeals can be made to the Federal Court.</p>



# **PART II Environmental assessment against the 'Guidelines for the ecologically sustainable management of fisheries'**

The Guidelines consist of two overarching principles and a series of objectives. The objectives specifically relate to target, byproduct and bycatch species; TEP species; and the broader marine environment. They require that the data collection, assessment and management responses in place are adequate to demonstrate that the fishery is managed in an ecologically sustainable manner. The Guidelines are addressed for the TSFF according to these three categories: Information requirements, assessment of the fishery and management responses.

## **4 Assessment of ecological sustainability**

### **4.1 Principle 1**

**A fishery must be conducted in a manner that does not lead to over-fishing, or for those stocks that are over-fished, the fishery must be conducted such that there is a high degree of probability the stock(s) will recover.**

#### **4.1.1 Objective 1**

The fishery shall be conducted at catch levels that maintain ecologically viable stock levels at an agreed point or range, with acceptable levels of probability.

**Guideline 1.1.1** *There is a reliable information collection system in place appropriate to the scale of the fishery. The level of data collection should be based upon an appropriate mix of fishery independent and dependent research and monitoring.*

Catch and effort logbooks are mandatory in the non-Traditional (Sunset licences) and Traditional Inhabitant fishers with vessels over 7m in length. Mandatory reporting is not compulsory in the Traditional fishers in smaller vessels at this time.

Fishers must record all retained catch in the logbook (target and byproduct). An example of the TSF01 logsheet is at Attachment C.

In January 2004, AFMA introduced the Torres Strait Seafood Buyers and Processors Docket Book (TDB01) (Attachment D) to commercial and community freezers to collect data on Islander catch being sold to freezers. While the use of the TDB01 docket book is currently voluntary, it is considered to be successful in monitoring the harvest of finfish by Traditional Inhabitant commercial fishers.

### **Reef-line**

There is not a specific fishery independent data collection program for the fishery due to the low GVP and activity in the fishery. Monitoring of bycatch including fish species in the prawn fishery could provide some fishery independent data on reef fish. CSIRO conducted an assessment of the effects of prawn trawling on commercial and traditional Torres Strait fisheries from 1983 to 1990 (Poiner and Harris, 1991). The assessment was initiated in response to Islander concern that prawn trawling may be affecting fish stocks, including reef fish and mackerel stocks. The CSIRO project investigated the potential impact of trawling on the numbers of fish. It measured both the long and short-term effects of prawn trawling on fish communities and studied the interaction between prawn trawl catches and Islanders' commercial and traditional fisheries. The project provided historical data on catch and effort of Islanders in commercial and traditional fisheries, including harvesting mackerel and reef fish.

Williams *et al.* (2007) noted that around half of the fish by numbers taken during fishing operations were not retained; however, no other organisms were taken in the fishery. Research on survival of reef fish would indicate that these fish would be released alive, and had a good chance of survival, therefore bycatch in the fishery can be considered of low risk to the environment as a whole.

**Guideline 1.1.2**      *There is a robust assessment of the dynamics and status of the species/fishery and periodic review of the process and the data collected. Assessment should include a process to identify any reduction in biological diversity and/or reproductive capacity. Review should take place at regular intervals but at least every three years*

**Guideline 1.1.5**      *There is a sound estimate of the potential productivity of the fished stock/s and the proportion that could be harvested.*

### **Spanish mackerel**

A stock assessment conducted in 2006 considered Spanish mackerel stock fully exploited, despite catch being relatively stable over several decades (Begg *et al.*, 2006). However as a result of a buyout of the non-Traditional sector in 2007-08, total catch has decreased to such an extent that the fishery has since been considered not overfished or subject to overfishing (ABARES, 2011). There has not been a status assessment of the Spanish mackerel fishery since 2006.

### **Reef-line**

A stock status of the target species in the reef line fishery has not been completed, however, Williams *et al.* (2007) completed a management strategy evaluation of the fishery. The outcomes indicated that all of the management strategies evaluated (including the current arrangements) were predicted to maintain Coral trout stocks above 40% available virgin biomass. Though, as a stock assessment has not been completed the status of the stocks of species caught in the reef-line sector is uncertain.

There are size limits on most species taken commercially. The size limits are specified in the schedules to FMI No.8 (Attachment B). Size limits have been chosen to allow at least 50% of the stock to reach maturity and spawn at least once before being taken.

**Guideline 1.1.3**      *The distribution and spatial structure of the stock(s) has been established and factored into management responses*

***Spanish mackerel***

Spanish mackerel are found world-wide between the latitudes of 40 degrees north and 40 degrees south. Mackerel are fished in Queensland, the Northern Territory, Western Australia and New South Wales and sometimes occur as far south as Tasmania, depending on water temperature.

Recent research has found that a high level of adult Spanish mackerel tend to remain within a local region (site attachment) with distinct populations existing in the west to those off Weipa, or the Torres Strait or the east coast.

Mackerel occur in the Torres Strait most of the year. During spring and early summer a spawning aggregation occurs around Bramble Cay in the north-eastern region of Torres Strait (Figure 1). Spawning begins in August and continues until anywhere between December and March. Spawning peaks in October. The impact of fishing within and outside the TSPZ on the stock as a whole is unknown.

Industry and management believe there is a continuing need for quality assessment and monitoring of the mackerel stocks to provide a sound information base for management decisions. However, current catch records do not warrant expensive stock assessment research, if catch levels increase by a significant level the Torres Strait Finfish Fishery Working Group (TSFFWG) will consider options on how to respond to these concerns.

***Reef-line***

The distribution and spatial structure of stocks fished in the reef-line sector has been factored into management responses for the reef-line fishery. Since 1999 a seasonal barramundi closure commencing at midday on 1 November ending at midday on 1 February the following year is has been in place to protect spawning fish.

Since March 1999 waters west of 142°31'49" have been closed to commercial fishing (except in the course of traditional fishing). The original purpose of the closure is unclear. However, AFMA management expects that the closure has benefits for protecting reef-line stocks in Torres Strait. There are also closures for the non-Traditional licences of 10nm around Mer (Murray), Erub (Darnley), Ugar (Stephens) and Masig (Yorke) Islands.

The Torres Strait CRC project "Evaluation of the eastern Torres Strait reef-line fishery" provided the best estimate of distribution of commercial harvest of reef line fish.

**Guideline 1.1.4**      *There are reliable estimates of all removals, including commercial (landings and discards), recreational and Indigenous, from the fished stock. These estimates have been factored into stock assessments and target species catch levels.*

There are reliable estimates of removals in the non-Traditional sector. This information is collected through the use of logbooks (see guideline 1.1.1). Community and commercial freezers provide a source of data for Traditional Inhabitant commercial catch. There are no reliable estimates of charter or recreational take of target species.

AFMA introduced docket books to improve the data on Islander catch being sold to freezers. Mapstone *et al.* (2003) identified other sources of data for the fishery to be previous research undertaken, personal information from diaries and logbooks and private records.

Previous research identified by Mapstone *et al.* (2003) included:

- Harris *et al.* (1994), which provided data on all seafood across the Torres Strait
- Resource maps compiled for the Torres Strait by CSIRO in the early 1990's
- Hydrodynamic models of the Torres Strait, such as Wolanski (1986)
- Williams *et al.* (2007) and Mapstone *et al.* (2003) collated information on finfish fishing in Torres Strait and current estimates of removals. Since these reports have been published, monitoring of catch and effort in the fishery indicates that both have decreased significantly in recent times.

### ***Spanish mackerel***

The ABARES reported the Traditional-inhabitant sector commercial catch of the Spanish mackerel was 10 tonnes in 2010, this was up from 2 tonne in 2009 (ABARES, 2011). This is not inclusive of subsistence or recreational fishing which is unknown in the Torres Strait. The non-Traditional sector commercial catch was 78 tonnes which was down from 101 tonne in 2009 (ABARES, 2011). The fishery status was considered to not be overfished and not subject to overfishing in the most recent ABARES status report (ABARES, 2011).

### ***Reef-line***

Non-Traditional catch made up the majority of coral trout catch in 2010, this was possibly the result of the Mer (Murray) Island freezer facility, which processes most Traditional catch, closing in 2010. Total catch for the fishery was 36 tonnes, which was up from 27 tonnes in 2009 (ABARES, 2011).

Following the buyout of the non-Traditional sector in 2007/08, both the level of effort and catch has declined. The implementation of PZJA FMI No.8 lifting the ban on live fish retention may spark interest in the fishery.

Although the status of reef fish stocks in the TSPZ remains uncertain, the 2010 catch records were below all total allowable scenarios run by ABARES and therefore considered the fishery no overfished and not subject to overfishing (ABARES, 2011). Currently, there has not been a formal stock assessment carried out and due to the current low catch rates of the fishery it is unlikely that a reliable stock assessment will be undertaken any time soon.

**Guideline 1.1.6**      *There are reference points (target and/or limit), that trigger management actions including a biological bottom line and/or a catch or effort upper limit beyond which the stock should not be taken*

The management plan currently being considered by the PZJA includes management objectives. It is planned that once the management plan is implemented the PZJA will work with the Torres Strait Finfish Working Group to determine reference points and management actions appropriate to the fishery in line with the objectives set out in the management plan.

While Total Allowable Catch (TAC) for target species in the fishery has not been implemented, a recommended TAC has been agreed on for Spanish mackerel of 187.7 tonnes and Coral Trout at 134.9 tonnes. The fishery is monitored with respect to total catch of Spanish mackerel and Coral trout to ensure that catch is within this level of harvest. The PZJA also monitors catch of byproduct species such as Red emperor.

**Guideline 1.1.7**      *There are management strategies in place capable of controlling the level of take.*

The QMC is responsible for determining the amount of quota allocated to the non-Traditional sector (Sunset licences) which must operate under a quota system. This system effectively limits the most active fishers to a set amount of harvest each year.

The draft management plan has provisions in place to shift from the current input management controls to output controls via a quota management system for both the non-Traditional sector (Sunset licences) and the Traditional sector. A quota system will only be implemented if catch increases to a degree that the fishery is no longer considered to be fishing sustainably.

### ***Spanish mackerel***

Input controls used in the Spanish mackerel sector are:

- limited entry to non-Traditional operators
- the taking of mackerel is restricted to trolling, hand-lining and drop-lining fishing methods
- no vessels may be larger than 20metres in length

### ***Reef-line***

Input controls used in the reef-line sector are:

- limited entry to non-indigenous fishers
- vessels may use a maximum of three fishing lines
- no more than 6 hooks may be attached to each line
- a seasonal barramundi closure commencing at midday on 1 November ending at midday on 1 February the following year
- a permanent closure by line fishing methods in that part of the reef-line fishery west of 142°31'49" (except in the course of traditional fishing)
- vessels must be less than 20 metres in length
- a boat replacement policy that limits the size of replacement boats to close to the size of the original boat

The TSFF is also managed using output controls:

- minimum size limits apply to most species taken commercially and maximum size limits apply to some species
- non-Traditional licences are limited by the amount of quota leased.

**Guideline 1.1.8**      *Fishing is conducted in a manner that does not threaten stocks of byproduct species. (Guidelines 1.1.1 to 1.1.7 should be applied to byproduct species to an appropriate level)*

The fishing practices used in each sector of the fishery are hook and line and limited to three apparatus per vessel, therefore are highly selective in finfish species. The logbook TSF01 allows operators to record byproduct data to a similar level as target species. There have not been stock assessments for byproduct species, however there are reliable estimates of removals based on the same data-sources as the estimates for target species. Shark finning is prohibited in the fishery.

The management strategies for target species are also applied to byproduct species.

There are eight no take species within the fishery which are:

- Potato Cod (*Epinephelus tukula*)
- Queensland Grouper (*Epinephelus laneolatus*)
- Chinaman Fish (*Symphorus nematophorus*)
- Paddletail (*Lutjanus gibbus*)
- Humphead Maori Wrasse (*Cheilinus undulatas*)
- Hammerhead Shark (*Sphyrna lewini*)
- Grey Nurse Shark (*Carcharias Taurus*)
- Tiger Shark (*Galeocerdo curvier*)

Under the draft management plan the PZJA will determine reference points for the fishery as well as byproduct species and required to monitor these reference points. An ERA has never been undertaken for the TSFF, although this would assist in identify the byproduct species to which the fishery poses a high risk, it is unlikely to occur in the near future due to the nature of the fishery and the current low catch levels in the fishery.

**Guideline 1.1.9**      *The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.*

The management strategy evaluation of the reef line fishery by Williams *et al.* (2007) indicated that all of the management strategies tested maintained available biomass and spawning stock biomass above 40% virgin level, indicating high levels of robustness against uncertainty.

Improved data collection and research would provide better information for future management decisions and assessment of target stocks, however with the current low level of exploitation in the TSFF this would be financially excessive and unnecessary. When implemented, the management plan has comprehensive management strategies in place and the consultative structure used throughout its development will promote effective management of the fishery into the future.

#### **4.1.2 Objective 2**

Where the fished stock(s) are below a defined reference point, the fishery will be managed to promote recovery to ecologically viable stock levels within nominated timeframes.

**Guideline 1.2.1**      *A precautionary recovery strategy is in place specifying management actions, or staged management responses, which are linked to reference points. The recovery strategy should apply until the stock recovers, and should aim for recovery within a specific time period appropriate to the biology of the stock.*<sup>2</sup>

---

<sup>2</sup> Strategies require that recovery should take place within specified times with certain degrees of probability

The 2006 stock assessment determined the Spanish mackerel stock to be fully exploited, this resulted in the 2007/2008 buyout of non-Traditional operators, from suggestions from the Begg *et al.* (2006) research. Since this time a significant decline in effort has occurred and allowed the stock to recover to the point where the fishery status is now considered not overfished and not subject to overfishing (ABARES, 2011).

The draft Plan incorporates the implementation of reference points for both target and byproduct species which if triggered will require AFMA and the TSFFWG to take precautionary measures to address the potential decline of stocks. If these reference points are triggers across multiple seasons the PZJA can approve the implementation of a quota management system. These reference points will be established by the PZJA through the development of a Harvest Strategy which will include actions for stock recovery, should this be necessary, such as compulsory reporting in logbooks and quota management.

## 4.2 Principle 2

**Fishing operations should be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem.**

### 4.2.1 Objective 1

The fishery is conducted in a manner that does not threaten bycatch species.

### 4.2.2 Objective 2

The fishery is conducted in a manner that avoids mortality of, or injuries to, endangered, threatened or protected species and avoids or minimises impacts on threatened ecological communities.

**Guideline 2.2.3**      *There is an assessment of the impact of the fishery on threatened ecological communities.*

There are no declared threatened ecological communities in the area of the TSFF. If threatened ecological communities are declared in the future, AFMA and the TSFFWG will develop appropriate precautionary responses.

**Guideline 2.2.5**      *There are measures in place to avoid impact on threatened ecological communities.*

The TSFF has highly selective fishing methods and therefore has very low impact on ecological communities. It is, therefore, unlikely that the fishery requires additional measure to avoid impact with ecological communities.

**Guideline 2.1.1**      *Reliable information, appropriate to the scale of the fishery, is collected on the composition and abundance of bycatch.*

**Guideline 2.2.1**      *Reliable information is collected on the interaction with endangered, threatened or protected species and threatened ecological communities.*

Both the Spanish mackerel and reef-line fishery use very selective fishing methods. Bycatch incidents are rare and primarily consist of under or oversize target species.

Williams *et al.* (2007) noted that around half of the fish by numbers taken during fishing operations were not retained; however, no other organisms were taken in the fishery. Research on survival of reef fish would indicate that these fish would be released alive, and had a good chance of survival, therefore bycatch in the fishery can be considered of low risk to the environment as a whole.

The major discards in the Spanish mackerel fishery are reported to be:

- tuna species of a small size (longtail tuna, mackerel tuna, and juvenile yellowfin)
- trevally (of a range of species) some reaching 30-40 kg
- barracuda species (probably two species)

Tuna are generally readily and safely returned to the water with no damage to fish or fishers. Trevally are generally released with little apparent damage. Releasing trevally is sometimes difficult, but it poses no real danger to fishers. Releasing barracuda in good condition is very difficult, as they pose extreme danger to fishers.

The TSFF logbook TSF01 provides for operators to report interactions with endangered, threatened and protected species. Reporting is mandatory. There were no reported interactions in either the Spanish mackerel or reef-line fishery during 2010. A copy of the wildlife interaction reporting form from TSF01 is at attachment C.

Data on bycatch are also collected opportunistically by observers and researchers.

### **Seabirds**

Seabirds known to frequent the Torres Strait are primarily boobys and shearwaters.

Boobys of the species Brown Booby (*Sula leucogaster*), Masked Booby (*Sula dactylatra*), and Redfooted Booby (*Sula sula*), are plunge divers and could potentially be caught by line fisheries. The Streak Shearwater (*Calonectris leucomelas*) occurs in Torres Strait from November to May. It is also a diving bird and has potential to take baits. They are often seen over schools of small fish. The Wedgetail shearwater (*Puffinus pacificus*) is a colonial breeder on oceanic islands. There is no evidence that it follows fishing boats.

All these birds are listed as migratory species under the EPBC Act. None are listed threatened species.

The bird species that have been observed showing an interest in baits are capable of diving from heights and would be more than capable of reaching the depths that baits are trolled. Anecdotal information indicates that bird captures during fishing operations are uncommon. Troll fishermen may go for several years without catching a bird. Trolling for Spanish mackerel occurs around major bird rookeries such as Bramble Cay, yet bird strikes are not viewed as a problem in the fishery.

### **Turtle and dugong**

The risk of the Finfish fishery interacting with a turtle or dugong is very low.

Dugongs are herbivorous and feed on sea grass beds. Consequently, they will not take baits or lures. The risk of dugong being snagged while trolling or being hit by the trolling dinghy is low, as Spanish mackerel and dugongs inhabit different environments. The distribution of the dugong in Torres Strait is broadly coincident with that of its seagrass food. Aerial surveys of central and western Torres Strait indicate that the most important areas are the seagrass beds around Badu and extending north across Orman Reef around Buru Island and east to Gabba Island and along the southern Papuan coast south of Boigu Island. Commercial fishing for finfish is concentrated on the eastern Torres Strait.



Turtles have been accidentally hooked or snagged by troll lines. Incidents of this are extremely rare, even in areas adjacent to major turtle nesting sites. Snagged turtles can be released by holding the wire trace taught and removing the hook backwards by pulling the hook with a gaff. However, for a single person to bring a turtle along side a small dory and perform such an operation in open waters may be hazardous. An easier solution in some situations is to cut the trace as close to the hook as possible and release the turtle leaving the hook to rust.

The use of nets for traditional fishing has recently being restricted to a maximum net size to protect turtle and dugong against incidental catch in inappropriate sized nets (FMI No. 8).

### ***Sharks, rays and sawfish***

Sharks, rays and sawfish are not target species and shark finning is prohibited. They may be incidentally caught as a result of depredation of hooked mackerel. Generally the line breaks leaving the animal with the hook in its mouth, which eventually rusts. The survival rate for these species is considered to be high.

**Guideline 2.1.2**      *There is a risk analysis of the bycatch with respect to its vulnerability to fishing.*

**Guideline 2.2.2**      *There is an assessment of the impact of the fishery on endangered, threatened or protected species.*

There has not been a formal risk analysis for either bycatch or threatened, endangered and protected species in the TSFF.

Anecdotal evidence suggests that the TSFF poses a low risk to bycatch and threatened, endangered and protected species, as it uses highly selective fishing methods and bycatch is almost always released alive.

**Guideline 2.1.3**      *Measures are in place to avoid capture and mortality of bycatch species unless it is determined that the level of catch is sustainable (except in relation to endangered, threatened or protected species). Steps must be taken to develop suitable technology if none is available.*

**Guideline 2.2.4**      *There are measures in place to avoid capture and/or mortality of endangered, threatened or protected species.*

Bycatch of all species other than fish is considered insignificant due to the highly selective nature of the gear used in the finfish fishery. Bycatch finfish species are generally released alive and high rates of survival, and the fishery, therefore, is considered of low risk with respect to impact on bycatch species.

Minimising capture of bycatch and threatened, endangered and protected species is in the interests of fishers, as it consumes time that could be spent fishing for target species. Fishers use hooks and bait appropriate to the size and type of fish they are targeting.

Most bycatch individuals, including threatened, endangered and protected species are released alive, and their survival rate is likely to be high.

The use of nets for traditional fishing has recently being restricted to a maximum net size to protect turtle and dugong against incidental catch in inappropriate sized nets (FMI No. 8).

**Guideline 2.1.4** *An indicator group of bycatch species is monitored.*

AFMA requires interactions with threatened, endangered or protected species to be recorded in logbooks. As the impacts of the fishery on other bycatch species are likely to be sustainable, monitoring interactions with threatened, endangered and protected species is considered the most appropriate group of bycatch species to monitor. There were no reported interactions with threatened, endangered or protected species in the TSFF in 2010. Actions in the draft bycatch action plan to improve data collection for bycatch species are discussed under guidelines 2.1.1 and 2.2.1.

**Guideline 2.1.5** *There are decision rules that trigger additional management measures when there are significant perturbations in the indicator species numbers.*

The management plan currently being considered by the PZJA includes management objectives. It is planned that once the management plan is implemented that the PZJA will work with the Torres Strait Finfish Working Group to determine reference points and management measures appropriate to the fishery in line with the objectives set out in the management plan.

**Guidelines 2.1.6 & 2.2.6** *The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.*

Bycatch issues in the fishery are likely to be a low risk. The logbook and data collection actions for the fishery will provide AFMA management and the TSFFWG with data to review bycatch in the fishery and assess the effectiveness of management measures.

### **4.2.3 Objective 3**

The fishery is conducted in a manner that minimises the impact of fishing operations on the ecosystem generally.

**Guideline 2.3.1** *Information appropriate for the analysis in 2.3.2 is collated and/or collected covering the fisheries impact on the ecosystem and environment generally.*

**Guideline 2.3.2** *Information is collected and a risk analysis, appropriate to the scale of the fishery and its potential impacts, is conducted into the susceptibility of each of the following ecosystem components to the fishery.*

1. Impacts on ecological communities:
  - Benthic communities
  - Ecologically related, associated or dependent species
  - Water column communities
2. Impacts on food chains:
  - structure
  - productivity/flows

### 3. Impacts on the physical environment:

- physical habitat
- water quality

The fishery is not considered to have a significant impact on the above components of the marine environment. The nature of the gear used in the TSFF suggests that the reef line and Spanish mackerel fisheries will have minimal impact on the benthos. An ERA has not been conducted to date due to the highly selective fishing methods utilised and the low level of exploitation resulting in low very low levels of interaction with bycatch species, habitats or the environment. Given the continued low level of effort in the fishery and low GVP it is uncertain at this time when an ERA will be conducted.

The ERA will provide a risk assessment for the fishery. Given the small scale of the fishery and the fishing methods used, the expectation is that the fishery has a minimal impact on ecologically related, associated or dependant species.

**Guideline 2.3.3**      *Management actions are in place to ensure significant damage to ecosystems does not arise from the impacts described in 2.3.1.*

**Guideline 2.3.4**      *There are decision rules that trigger further management responses when monitoring detects impacts on selected ecosystem indicators beyond a pre-determined level, or where action is indicated by application of the precautionary approach.*

AFMA management and the TSFFWG will respond to the ERA if one is appropriate for the fishery. The ERA will inform management of the priorities for research, data collection, monitoring and management in the fishery.

**Guideline 2.3.5**      *The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.*

No specific management responses have been developed, as the components of the marine environment described under guideline 2.3.1 and 2.3.2 are not considered to be significantly impacted by the fishery. If an ERA is complete, the relevant advisory groups will consider appropriate management measures. The management measures will have a high chance of achieving the objective. The ERA will be reviewed as required by the TSFFWG and TSSAC. The ERA will be periodically revised to assess the effect of management measures and whether the measures are effective in reducing the risk to individual species and the ecosystem.

## **5 Management Measures and Safeguards to Ensure Ecological Sustainability**

### **5.1 Actions taken to maintain sustainability**

Under the management plan, the PZJA may change to a quota management system if necessary and or limit the number of licence with entries in the fishery. This course of action would be consistent with the findings of Williams *et al.* (2007) that concluded that reducing effort in the Reef Line fishery was the most robust strategy for achieving stakeholder objectives for fish stocks as well as fisheries economics.

QB&FP enforcement officers check for compliance with regulations such as gear restrictions and size limits, as well as any unlicensed fishing for commercial purposes. QB&FP allocated four patrol days to the Finfish Fishery for 2010-11 however additional patrols are generally undertaken as targeted patrols for other fisheries overlap with this fishery. The *Torres Strait Fisheries Act 1984* outlines the penalties associated with non-compliance.

Compliance in the TSFF is challenging as much of the fishing occurs in remote areas amongst many boats that are spread over a vast area. The current compliance program is restricted by the costs of implementing a program in these circumstances.

Foreign illegal fishing is not considered a risk for the TSFF due to the low level of interest by foreign fishers in finfish. AFMA Foreign Compliance officers have not found any finfish on foreign fishing vessels in Australian waters to date.

Despite this AFMA has sought to reduce foreign compliance risks for all Torres Strait fisheries by increasing response coverage by approximately 80% since September 2007. AFMA compliance capabilities include:

- Daily Coastwatch flights (one to three flights per day); and
- One Australian Customs Vessel patrolling the Warrior reef complex daily (unless tasked otherwise).

## **5.2 Results of any research completed relevant to the fishery, including how results will be incorporated into management of the fishery**

Williams et al. (2007) research on the Reef Line fishery in Torres Strait has provided evidence that reducing effort in the fishery is the most robust strategy for achieving stakeholder objectives for fish stocks as well as fisheries economics. For example, constraining effort levels to a level which would result in a TAC of up to 170t of Coral Trout was predicted to maintain total biomass to above 40% of virgin biomass (Williams et al, 2007). The recent decline in fishing effort in the Reef Line and Spanish Mackerel fisheries and 100% buyout of non-Traditional Inhabitant fishers has more than met the levels of effort modelled by this research.

Further, this research provided new analysis of characteristics of the fishery including catch composition of the various sectors, spatial distribution as well as biological characteristics of Coral Trout and barramundi cod. This research has already provided evidence that has resulted in changes to the size limits for Leopard or Square-tailed Coral trout (*Plectropomus areolatus*) based on its significantly different biological characteristics to other *Plectropomus* species.

## **5.3 Description of monitoring programs used to gather information on the fishery and results of these**

Currently monitoring is based on compulsory logbook returns from non-Traditional Inhabitant fishers and voluntary docket book reports from buyers of fish from Traditional Inhabitant fishers. Due to the low level of catch and effort in the fishery there are currently no planned observer programs or long-term monitoring projects but these provisions have been incorporated into the draft management plan should this be necessary in the future.

## 6 Information Sources

Australian Bureau of Agricultural and Resource Economics and Sciences (2011). *Fishery Status Reports 2010 – Status of Fish Stocks and Fisheries Managed by the Australian Government*, Commonwealth Department of Agriculture, Fisheries and Forestry - Australia, Canberra.

Begg GA, Chen CC, O'Neill MF, Rose DB. 2006. Stock assessment of the Torres Strait Spanish Mackerel fishery. CRC Reef Research Centre Technical Report No. 66. CRC Reef Research Centre, Townsville.

Harris, A.K., *et al.*, 1994. The traditional and island based catch of the Torres Strait Protected Zone. *Final report to the Torres Strait Fisheries Scientific Advisory Committee*. CSIRO, Hobart. Cited in Mapstone *et al.* 2003.

Mapstone B. J. *et al.*, 2003. A review of reef line fishing in the Eastern Torres Strait. CRC Reef Research Centre, Townsville.

Poiner, I.R. and A.N. Harris. 1991. The fisheries of Yorke Island. pp 115-143 in Johannes, R.E. and J.W. MacFarlane. 1991. *Traditional Fishing in the Torres Strait Islands*. CSIRO. Hobart. 268pp

[Released Fish Survival National Strategy](http://www.info-fish.net/releasefish), cited at [www.info-fish.net/releasefish](http://www.info-fish.net/releasefish).

Williams AJ, Begg GA, Little LR, Currey LM, Ballagh AC, Murchie CD. 2007. Evaluation of the eastern Torres Strait Reef Line fishery. Fishing and Fisheries Research Centre Technical Report No. 1. James Cook University. Townsville.

Wolanski, E., 1986. The physical oceanography of the Torres Strait. Pp 275 – 291 in Haines, A.K., Williams, G. C. and Coate, D. 1985. *Torres Strait Fisheries Seminar, Port Moresby*. Australian Government Publishing Service. Canberra. Cited in Mapstone *et al.* 2003.