



Australian Government

Australian Fisheries Management Authority


STRATEGIC & EXPORT REASSESSMENT REPORT

Torres Strait Bêche-de-mer Fishery

April 2008

This report has been prepared by AFMA for consideration by the Department of the Environment, Water, Heritage and Arts in relation to the Wildlife Trade Operation declaration for the Torres Strait Beche-de-mer Fishery under the *Environment Protection and Biodiversity Conservation Act 1999*.

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Box 7051, Canberra Business Centre, ACT 2610 Tel (02) 6225 5555 Fax (02) 6225 5500

AFMA Direct 1300 723 621

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1 Description of the Fishery

1.1 Target/permitted/prohibited species

The Torres Strait Bêche-de-mer Fishery (TSBDMF) is based on the collection of several species of sea cucumber, holothurians or (incorrectly) sea slugs. The terms sea cucumber and bêche-de-mer are often used interchangeably to refer to holothurians however, bêche-de-mer, also called trepang, is the common name given to the dried product processed (body wall) from the marine animals (Preston, 1993). There are over 1400 species of holothurians recognized worldwide, 34 of which have been recorded in shallow water surveys in Torres Strait (Williams, 2000). At least seventeen of the species in the two families Holothuriidae and Stichopodidae are taken commercially in the management area (Table 1).

Historically, sandfish (*Holothuria scabra*), pacific black teatfish (*Holothuria whitmaei*) and surf redfish (*Actinopyga mauritiana*) were the main target species in the TSBDMF due to their high commercial value. The aforementioned species became prohibited for commercial harvest in 2003 due to concerns of overfishing. Catches have substantially diminished since prohibition of the take of such high value species. Catches have since been dominated by black fish (*Actinopyga miliaris*) prickly redfish (*Thelenota ananas*) and white teatfish (*Holothuria fuscogilva*) (see section 2 for further information).

1.2 Management arrangements employed in the fishery

Management objectives for the fishery, in accordance with the Torres Strait Treaty (the Treaty) and *Torres Strait Fisheries Act 1984* (TSF Act), are:

- i) to ensure the sustainable use of all sea cucumber in Torres Strait;
- ii) to ensure that utilisation of the sea cucumber resources is for the direct benefit of the Australian traditional inhabitants of the Torres Strait;
- iii) to ensure increased involvement in the management and control of all aspects of the fishery by the Australian traditional inhabitants of the Torres Strait;
- iv) to promote a cooperative approach to management with Papua New Guinea; and
- v) in consultation with industry and traditional fishers, to ensure the recovery of the sandfish stock on Warrior Reef by adopting a precautionary approach when setting catch levels in the early years of rebuilding the fishery.

Table 1: Total Allowable Catches (TACs) and size limits of commercially harvested species in the Torres Strait Bêche-de-mer Fishery.

Commercial value	Common name	Scientific name	Total Allowable Catch (TAC) Tonnes	Size Limits (mm)
High	Sandfish	<i>Holothuria scabra</i>	0	180
	White teatfish	<i>Holothuria fuscogilva</i>	15	320
	Pacific black teatfish	<i>Holothuria whitmaei</i>	0	250
Medium	Surf redfish	<i>Actinopyga mauritiana</i>	0	220
	Deepwater redfish	<i>Actinopyga echinites</i>	Combined TAC of 80 with all other species	120
	Blackfish	<i>Actinopyga miliaris</i>	Combined TAC of 80 with all other species	220
	Prickly redfish	<i>Thelenota ananas</i>	20	300
Low	Stonefish	<i>Actinopyga lecanora</i>	Combined TAC of 80 with all other species	NA
	Lollyfish	<i>Holothuria atra</i>	Combined TAC of 80 with all other species	150
	Elephant's trunkfish	<i>Holothuria fuscopunctata</i>	Combined TAC of 80 with all other species	240
	Greenfish	<i>Stichopus chloronotus</i>	Combined TAC of 80 with all other species	NA
	Curry fish	<i>Stichopus hermanni</i> * (* previously <i>S. variegatus</i>)	Combined TAC of 80 with all other species	270
	Amberfish	<i>Bohadschia vitiensis</i>	Combined TAC of 80 with all other species	NA
	Brown sandfish	<i>Bohadschia argus</i>	Combined TAC of 80 with all other species	NA
	Leopardfish* (*also known as Tigerfish)	<i>Holothuria edulis</i>	Combined TAC of 80 with all other species	NA
	Pinkfish			NA

The TSBDMF is managed through a combination of input controls (limited entry and gear restrictions) and output controls (total allowable catch). Regulation currently implemented in the TSBDMF includes:

- Limiting the method of taking sea cucumber to either hand or a hand held non-mechanical implement;
- A ban on the use of hookah or SCUBA gear to assist in breathing underwater;
- Limiting Islander dinghies to less than 7 metres in length;
- Limiting the activities of the one non-Islander licensed operator to primarily involve the participation of Islanders in those activities;
- Minimum size limits apply (table 1);
- Bag limits apply to traditional fishing under Fisheries Management Notice 64; and
- A competitive TAC (measured in wet-weight gutted, table 1).

1.3 Fishing methods employed

TSBDM are collected by walking on reef tops as tides permit or by free diving on reef tops and reef edges. The depth ranges of the most frequently sought species occur in a range of 0 - 20m. Combined with the hookah/SCUBA ban it is estimated that most fishing occurs within 0 - 10m.

1.4 Fishing area

The TSBDMF comprises tidal waters within the Torres Strait Protected Zone (TSPZ) and the area declared under the TSF Act to be '*outside but near*' the TSPZ for commercial fishing for sea cucumber (Figure 1). For the TSBDMF, 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.

Historically, sea cucumbers are generally harvested in eastern Torres Strait. The limited amount of sea cucumbers taken at Thursday Island or Inner Island cluster may be a combination of a lack of commercial stocks, traditional inhabitants being licensed in more lucrative fisheries (ie tropical rock lobster), or marine habitat. The western Torres Strait reefs were documented as having a very low abundance of all holothurian species during a broad-scale survey of sea cucumbers in 1995. The habitats of these western reefs appear to be similar to reefs that contain commercial species in other areas of Torres Strait (based on gross environmental parameters). However, the low density of species is attributed to a naturally low carrying capacity since there has been little or no recent fishing effort on these reefs before the survey.

Recent data collected from Torres Strait seafood buyers and processors docket books showed that the majority of *bêche-de-mer* during 2005 were harvested from the central eastern Torres Strait regions comprising of the Great North East Channel, Don Cay and Cumberland regions (Fig. 2).

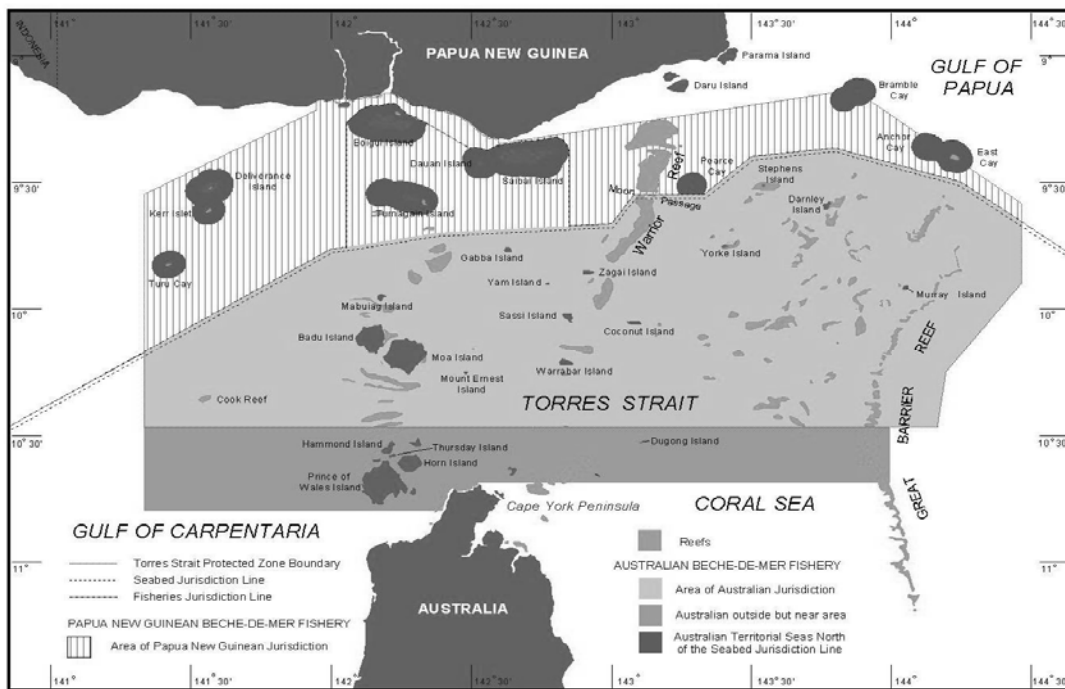


Figure 1: Area of the Torres Strait bêche-de-mer fishery.

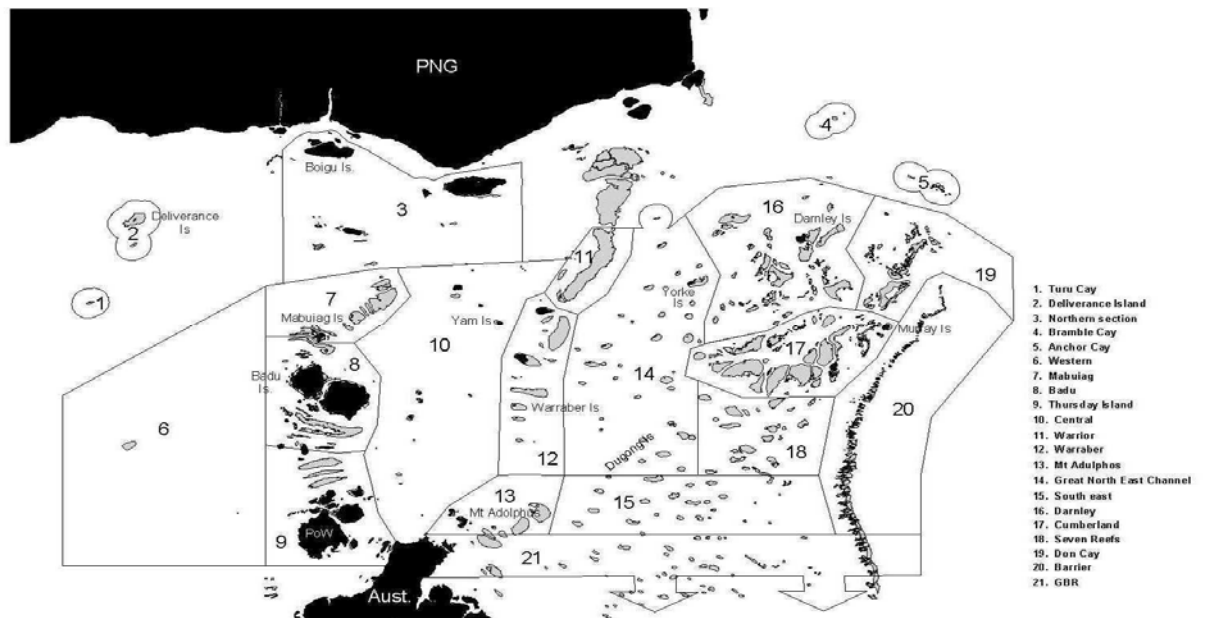


Figure 2: Torres Strait bioregions.

1.5 Allocation between sectors

The TSBDMF is wholly a commercial indigenous fishery (with exception of one non-indigenous fisher) as all catch is sold to buyers in South East Asia.

1.6 Governing legislation/fishing authority

The TSBDMF is managed by the Protected Zone Joint Authority (PZJA) considering advice from its consultative bodies. This Authority consists of the Australian Government (represented by the Minister for Fisheries, Forestry), the Queensland Government (represented by the Minister for Primary Industries and Fisheries) and the Torres Strait Regional Authority (represented by the Chair). The Australian Fisheries Management Authority (AFMA) coordinates and delivers fisheries management and surveillance/enforcement programs in the Torres Strait in conjunction with the Queensland Department of Primary Industries and Fisheries (DPI&F) on behalf of the PZJA and in accordance with the TSF Act. Recreational fishing, including charter fishing, is managed under Queensland law.

Since 1999, when management of the fishery was transferred from the Queensland Government to the PZJA, the fishery has been managed under the TSF Act. The management regime is legislated through Fisheries Management Notices (FMN) under the TSFA and conditions on fishing permits. FMNs are issued under the TSF Act and give effect to the fisheries responsibilities of the Torres Strait Treaty and related subsidiary management arrangements between Australia and Papua New Guinea. Under Section 16 of the TSF Act any formal amendments regulating fishing activities requires the Minister to issue a FMN published in the Commonwealth Gazette.

1.7 Status of export approval/accreditation under the *Environment Protection and Biodiversity Act 1999*

The TSBDMF was strategically assessed in 2005 under Parts 10, 13 and 13A of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and declarations made accrediting the TSBDM management arrangements under s33, for protected species interactions and also for the export of native wildlife. The export approval was granted through declaring the TSBDM a Wildlife Trade Operation (WTO) for a period of three years, which is valid until 20 June 2008.

This Assessment Report for the TSBDMF is submitted as the basis for reassessment of the fishery against Part 13 of the EPBC Act, but will also be used to review whether the impact of the fishery has changed since the last assessment against Parts 10 and 13.

2 Management

2.1 Changes to management arrangements

At the 14th meeting of the Protected Zone Joint Authority (PZJA) in November 2003, the PZJA approved a new Torres Strait consultative structure established by the Torres Strait Regional Authority (TSRA). With the adoption of a new Torres Strait consultative structure, the Bêche-de-mer Working Group (BDMWG) was disbanded and the functions of the BDMWG were rolled over into the Torres Strait Fishery Management Advisory Committee (TSFMAC). Experience with the new TSFMAC highlighted that it was difficult to give sufficient attention to all of the lower value Torres Strait harvest fisheries. Consequently, the PZJA at its 18th meeting in July 2005 formally approved the establishment of a Hand Collectables Working Group (HCWG) to include harvest fisheries such as bêche-de-mer, trochus, pearl shell and sponge.

The first Torres Strait HCWG was held on the 11-12 October 2007. The working group was an opportunity for all representatives to discuss Hand Collectable Fisheries issues and prioritise research and management needs. As it was the first working group for these fisheries no specific management changes were proposed, although a number of action items were raised to be investigated and acted upon for the next working group in June 2008. Specific action items related TSBDM included:

- A new Harvest Strategy will be drafted by AFMA to investigate the possibility utilising precautionary low TACs for species with unknown abundances. The Harvest Strategy Policy will also investigate Community Based Management plans proposed by Community representatives. The draft Harvest Strategy Policy will be discussed at the next working group meeting (June 2008) and following approval will be distributed to all relevant stakeholders for public comment before any proposed legislative changes are made.
- The working group will issue a strong statement to the next PZJA meeting raising concerns of the effects of illegal fishing on Hand Collectable Fisheries and will seek further AFMA and Queensland compliance resources to be committed to these fisheries.
- AFMA will seek significant funding to enable a better understanding of standing stocks of bêche-de-mer and trochus. Research will also further investigate Traditional fisheries practices in order to prevent localised depletion by incorporating voluntary seasonal and/or area closures and rotational harvest practices into management arrangements.

In addition the Torres Strait seafood buyers and processors docket book reporting will become compulsory after July 2008. Docket book returns have been a promising source of data regarding effort for other Torres Strait fisheries and catch reporting is expected to improve once it has become compulsory. AFMA will produce an annual data summary for distribution to all stakeholders (Attachment A).

AFMA will keep the Department of the Environment, Water, Heritage and the Arts (DEWHA) regularly informed of the progress of the aforementioned projects.

2.2 A statement of the performance of the fishery against objectives, performance indicators and performance measures

The TSBDMF is managed in accordance with the objectives specified in *Torres Strait Fisheries Act 1984* (the Act). The performance of the fishery is reported in the annual report available at webpage:

<http://www.pzja.gov.au/resources/publications/reports.htm>

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

Compliance in the TSBDMF is difficult 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.

The most significant compliance risk in the fishery is illegal fishing by foreign nationals mainly from Papua New Guinea and Indonesia. The TSBDMF shares an international boundary with Papua New Guinea. Due to stock collapses of beche-de-mer (BDM) and other fishery resources, combined with difficult socio-economic conditions within Papua New Guinea, there has been an increase foreign illegal fishing within the TSBDMF.

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:

- Two daily Coastwatch flights
- One Customs ACV and one Australian Navy platform patrolling the Warrior reef complex daily
- At least one additional Navy vessel patrolling the Torres Strait region daily.

The aforementioned increased coverage has resulted in the seizure of 13 foreign fishing vessels and the repatriation of 103 foreign nationals since December 2007 with the majority of these apprehensions involving illegal take of BDM. In addition AFMA has sought increased co-operation with National Fisheries Authority (NFA) of Papua New Guinea during Bi-lateral meetings and with community groups during Treaty Village liaison visits.

Under current management arrangements domestic compliance is enforced by the Queensland State government via the Queensland Boating and Fisheries Patrol (QBFP). There are currently two programmed days per year for surveillance and enforcement dedicated to the TSBDMF. Due to the small extent of these current activities, as performed by QBFP, are focused towards education of controls (ie legislative requirements being communicated to communities) rather than enforcement of these controls. In addition AFMA will seek to incorporate Traditional fisheries practices into future management arrangements to encourage stakeholder involvement in compliance issues.

2.4 Consultation processes

The PZJA at its November 2003 meeting established a new consultative structure of advisory bodies, which allows for greater participation from Islander representatives at all levels of the consultative process. Islander representatives, together with industry and government representatives, actively participate in the development of management arrangements (Figure 3). The PZJA also approved changing the Torres Strait Fisheries Management Committee (TSFMC) to the TSFMAC.

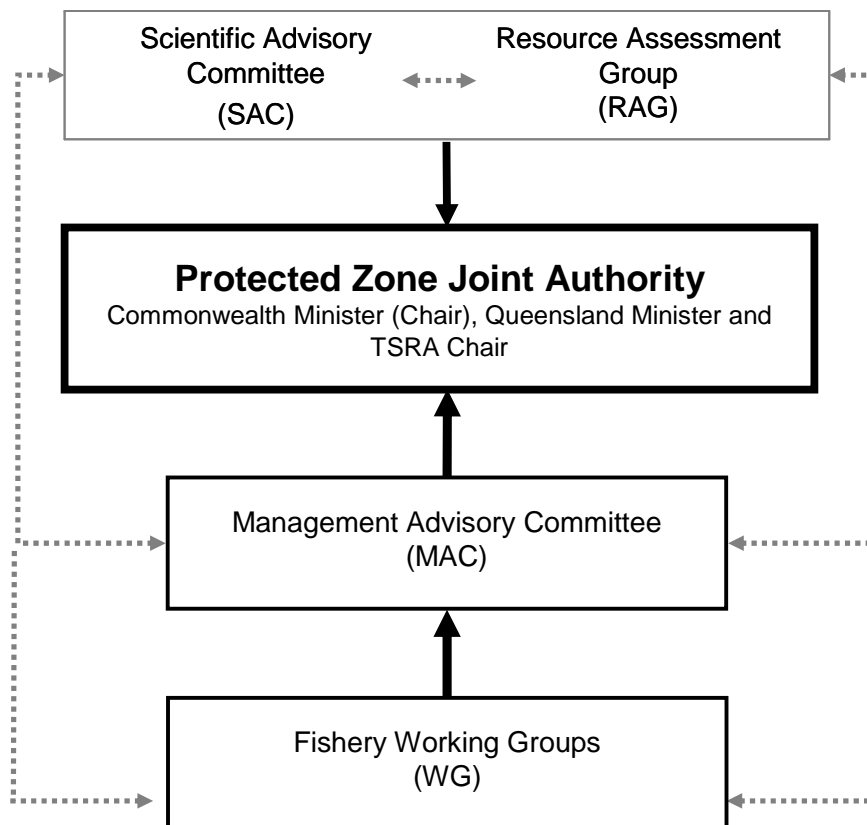


Figure 3: The consultative structure of the Torres Strait Protected Zone Joint Authority (PZJA). Solid lines and dashed lines indicate primary and secondary lines of communication respectively

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 DEWHA in regard to proposed management arrangements.

2.5 Description of cross-jurisdictional management arrangements

Australia and Papua New Guinea entered into the 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 and livelihood 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 Commonwealth parliament passed the TSF Act to give effect to the fisheries provisions of the Treaty. The TSF Act established the PZJA. The PZJA comprises both the Commonwealth and State (Queensland) Ministers responsible for fisheries and since October 2001, has included the chair of the Torres Strait Regional Authority (TSRA). 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 QBFP 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 TSF Act.

2.6 Outcomes of review processes

There are currently no review processes. A harvest strategy is currently being prepared for the TSBDMF and will be implemented in 2009. The harvest strategy will include additional trigger points and decision rules and processes which will guide management in all sectors of the TSBDMF.

2.7 Demonstration of compliance with threat abatement plans, recovery plans, etc and also relevant domestic and international agreements.

Due to the TSBDMF being restricted to hand collection and a lack of activity the fishery there has no relevance to threat abatement plans, recovery plans, etc and also relevant domestic and international agreement.

3 Catch data

3.1 Total catch of target species (including retained and discarded catch)

There has been no reported catch from docket book returns since 2005 (Fig. 3). The lack of returns is attributed to a lack of activity in the fishery due to the poor market price obtained for the remaining BDM species open to fishing. There have been no reported domestic illegal catch in the fishery for the past three years. Illegal foreign catch of BDM is limited to species currently closed to fishing (sandfish and surf redfish). For catch older than 2 years old refer to Attachment A.

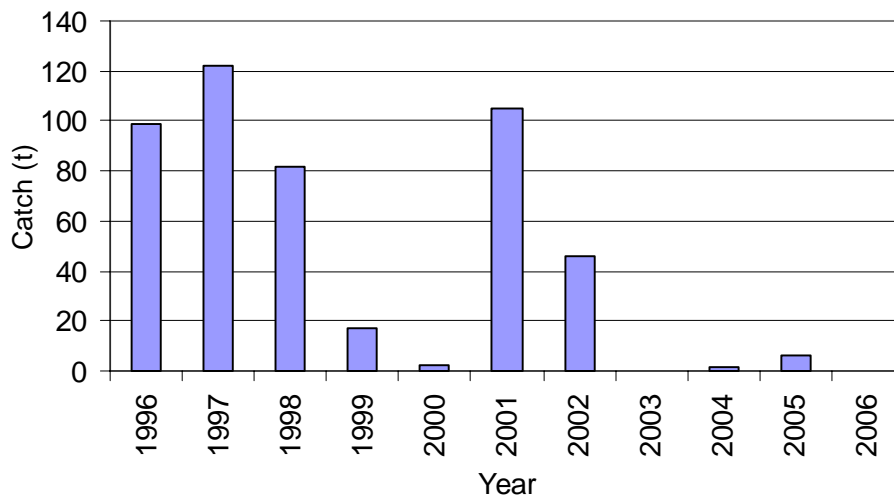


Figure 3: Torres Strait BDM catch from 1996 to 2006.

3.2 Total catch of target species taken in other fisheries

As for section 3.1

3.3 Catch of by-product species (reported by species)

As for section 3.1. By-product species are unlikely due the fishery being restricted to hand collection.

3.4 Total catch of bycatch species (reported by species if possible)

As for section 3.1. Bycatch species are unlikely due the fishery being restricted to hand collection.

3.5 Harvest by each sector (commercial, recreational, indigenous and illegal)

As for section 3.1. The sole non indigenous commercial (TVH) fisher has not been active in the fishery since 2001. Recreational catch is assumed to be minimal as Traditional

catch does not form part of Indigenous diets and has historically sold to south east Asian traders. Illegal catch data is not available for the fishery although the majority of foreign illegal catch is limited to species currently closed to fishing such as sandfish and surf redfish. AFMA will seek to obtain recent catch estimates from the Papua New Guinea fishery during bilateral meetings to be held in late 2008..

3.6 Effort data including information on any trends

As for section 3.1.

3.7 Spatial issues/trends

As for section 3.1.

4 Status of target stock

4.1 Resource concerns

The CRC Torres Strait project '*Sustainability Assessment of the Torres Strait Sea Cucumber Fishery*' was finalised during July 2006. Surveys conducted as part of the project showed that the three species currently closed to fishing, sandfish (*Holothuria scabra*), black teatfish (*Holothuria whitmaei*) and surf redfish (*Actinopyga mauritiana*), had not recovered from their low densities observed in previous surveys. Following these findings the BRS Fishery Status Report 2006 stated the status for these species remained as 'overfished'. The lack of recovery for these species was attributed to a natural tendency for BDM stocks to recover slowly from overfishing and/or illegal fishing activities.

Of the remaining fished species, prickly redfish (*Thelenota ananus*) and white teatfish (*Holothuria fuscogilva*) showed decreases in average density and/or average size. The report however, did not propose any changes to the recommended TACs of these species as catches have remained low since 2002. The BRS Fishery Status Report 2006 stated that all other BDM species status remained 'uncertain'. Due to a lack of activity in the fishery since 2005 TAC's have not been adjusted. A proposed Harvest Strategy for TSHCF will investigate precautionary based TAC for all BDM species.

4.2 Results of any stock assessments

The CRC Torres Strait project '*Sustainability Assessment of the Torres Strait Sea Cucumber Fishery*', completed in July 2006 was not by definition a stock assessment analysis. This report investigated the relative abundances of BDM species with previously investigated during a stock assessment conducted in 2002. These studies were conducted in the central and western Torres Strait regions, with a primary focus on the Warrior Reef complex. As stated in Section 4.1 the study found that the majority of species had not recovered from their low densities observed in previous surveys.

4.3 Results of any stock recovery strategies (if applicable)

Analysis of stock recovery strategies (prohibition of the take of overfished species and increased foreign compliance capabilities) has not been undertaken for the fishery.

5 Interactions with protected species

5.1 Frequency and nature of interactions

Due to the fishery being restricted to hand collection only; no interactions with protected species have been recorded or are considered likely.

5.2 Management action taken to reduce interactions and results of such action

See section 5.1.

6 Impacts of the fishery on the ecosystem in which it operates

6.1 Results of any Ecological Risk Assessments

Due to the small size of the fishery and lack of activity over the past 3 years, an Ecological Risk Assessments (ERA) has not been conducted. A timeframe for an ERA for this fishery will be considered before 2009.

6.2 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:

- Concerns about exploitation levels of target species;
- Concerns about translocation of species via hull and anchor fouling; and
- Anchoring/mooring and other anthropogenic activities such as treading on reef top habitat.

6.3 Management action taken to reduce impacts and results of such action

As there has not been on ERA conducted for this fishery to date, there have been no formal management actions taken. Despite this, the issues raised Section 6.2 will be considered during the drafting of a proposed Harvest Strategy for the fishery before 2009.

7 Progress in implementing recommendations and conditions resulting from the Department of the Environment and Heritage assessment of the fishery

7.1 Description of progress in implementing each recommendation and condition

Progresses regarding the implementation of DEWHA recommendations are listed in Table 2.

Table 2: Recommendations to the Australian Fisheries Management Authority (AFMA) on the ecologically sustainable management of the Torres Strait Bêche-de-mer Fishery.

Performance Criteria	Level of Achievement as at 1 April 2008.	Deadline
1. PZJA to inform DEWR of any proposed amendment to the management regime for the Torres Strait Bêche-de-mer Fishery to enable DEWR to evaluate any impact on the ecological sustainability of the fishery.	At the nineteenth meeting of the Torres Strait Protected Zone Joint Authority – the PZJA agreed to implement new precautionary species-based total allowable catch limits for white teatfish and prickly redfish of 15 tonnes and 20 tonnes, respectively. This notification gave effect to recommendation 1 and to recommendation 8, below. Apart from this decision, the fishery continues to operate as per the Statement of Management Arrangements.	Ongoing
2. Consultative processes to continue to be conducted in a manner that promotes the timely implementation of management responses essential for the sustainability of the fishery process.	The first HCWG was held during October 2007. The formation of the working group will greatly improve timely implementation of management responses.	Ongoing
3. PZJA to develop fishery specific objectives, performance measures and performance indicators for the fishery relating to target species and ecosystem impacts within 2 years. The performance of the fishery to be reviewed annually against these measures and the outcomes published.	The first HCWG, held during October 2007, recommended a Harvest Strategy for TSHC fisheries be drafted for implementation in 2009. The Harvest Strategy will develop fishery specific objectives, performance measures and performance indicators for the fishery relating to target species and ecosystem impacts.	28 June 2007
4. PZJA to develop and progressively implement, over the next 3 years, strategies to address risks in the Torres	The risk assessment was completed in July 2004. QDPI&F will update compliance risks for all Torres Strait Fisheries once the Management Plans for the Tropical Rock	28 June 2008

Performance Criteria	Level of Achievement as at 1 April 2008.	Deadline
Strait bêche-de-mer fishery, identified in the compliance risk assessment undertaken for the Torres Strait fisheries.	Lobster and Finfish fisheries are completed in 2009. AFMA foreign compliance officers are increasing efforts to curtail illegal PNG fishing on Warrior Reef where the target species is sandfish, the take of which has been prohibited since 1998.	
5. PZJA to continue to work with Torres Strait communities, fishers and processors to ensure that the docket book recording system provides comprehensive and robust data on the Torres Strait bêche-de-mer fishery.	Contact is maintained with buyers of bêche-de-mer as part of the process of running the Torres Strait Docket Book (TDB01) program (see attachment B) A data summary of bêche-de-mer catch data obtained from docket books will be distributed to stakeholders in July 2007. Planned legislative amendments to enforce requirements for seafood buyers and processors to record all docket book returns will strengthen this program considerably.	Ongoing
6. PZJA to continue to co-operate with other management agencies, research institutions, Torres Strait communities and the industry in efforts to identify and undertake research projects to address key gaps in the understanding of bêche-de-mer biology and ecology.	There has been no new activity above what was described in previous updates. A workshop investigated co-operative research options for the fishery with CSIRO, JCU and BRS researchers is to be held 28 April 2008.	Ongoing
7. PZJA to review stock assessment process to ensure that methods used to estimate potential yield and sustainable TACs are sufficiently precautionary, with risk included within 2 years.	Not commenced. This matter is best dealt with by the TS Scientific Advisory Committee when it is reconvened in June 2008.	28 June 2007
8. PZJA to implement more precautionary species-based TACs for white teatfish and prickly redfish within 1 year, and all other species taken in the fishery within 2 years.	The nineteenth meeting of the Torres Strait Protected Zone Joint Authority – the PZJA agreed to implement new precautionary species-based total allowable catch limits for white teatfish and prickly redfish of 15 tonnes and 20 tonnes, respectively. Other former target species will be incorporated into the proposed Harvest Strategy for TSHCF.	28 June 2007
9. PZJA to investigate and progressively implement measures to minimise localised	No progress to date. The proposed Harvest Strategy for the fishery will investigate options including voluntary rotational harvesting and	28 June 2008

Performance Criteria	Level of Achievement as at 1 April 2008.	Deadline
depletion in the fishery.	spatial and/or area closures.	
10. PZJA, within 18 months, to review the minimum size limits to ensure that the measures provide a precautionary level of protection to the breeding stock.	No progress to date. This will be investigated during the next HCWG in June 2008.	28 December 2006
11. PZJA to develop and implement, within 3 years, a precautionary recovery strategy for overfished species that specifies reference points, management actions and timeframes for implementation.	No progress to date. However, importantly each species that was apparently "overfished", i.e. their densities had declined, has been prohibited to take since 1998 in the case of sandfish or 2003 in the case of black teatfish and red surfish.	28 June 2008

7.2 Reasons for any missed deadlines

A number of deadlines for the implementation DEWHA recommendations have been missed. The specific recommendations include:

3. PZJA to develop fishery specific objectives, performance measures and performance indicators for the fishery relating to target species and ecosystem impacts within 2 years. The performance of the fishery to be reviewed annually against these measures and the outcomes published.

7. PZJA to review stock assessment process to ensure that methods used to estimate potential yield and sustainable TACs are sufficiently precautionary, with risk included within 2 years.

9. PZJA to investigate and progressively implement measures to minimise localised depletion in the fishery.

10. PZJA, within 18 months, to review the minimum size limits to ensure that the measures provide a precautionary level of protection to the breeding stock.

11. PZJA to develop and implement, within 3 years, a precautionary recovery strategy for overfished species that specifies reference points, management actions and timeframes for implementation.

The primary reason for missing the above deadlines stems from a lack of activity in the fishery since high value species were prohibited from harvest in 2003. As there has been no recorded catch of BDM in the Torres Strait since 2005 it has been difficult to justify the use of management and research resources to the fishery in a competitive research and resource environment. High value Torres Strait fisheries such as Tropical Rock Lobster and Finfish have dominated management and research resources due to structural resource allocation changes which have included new Management Plans.

AFMA has committed increased resources for the TSBDMF since May 2007 with the employment of a Fisheries Officer dedicated to the management of Torres Strait Hand Collectable fisheries (TSHCF). Since May 2007 there has been the formation of the TSHCF Working Group, the creation of the first data summary of TSHCF and increased community consultation. In addition AFMA will seek further research funding to reduce uncertainty as to the stocks of TSBDM.

7.3 Expected completion dates if actions running behind schedule

DEWHA recommendations 3, 9 and 11 (see Section 7.2) will be included into the proposed Harvest Strategy for TSHCF. A draft Harvest Strategy will be presented to the TSHCWG in June 2008. After consideration of the TSHCWG the Harvest Strategy will be sent to all relevant stakeholders for consideration by September 2008. Once stakeholder considerations have been incorporated the draft proposal will be presented to the TSMAC and PZJA for consideration. The implementation of the Harvest Strategy will then be dependant on legislative processes including FMN and should be incorporated into management during 2009. DEWHA will be notified of the progress of the proposed Harvest Strategy on a regular basis.

DEWHA recommendations 7 and 10 (see Section 7.2) will be incorporated into proposed research for TSHCF. A research proposal will be presented to TSSAG when it is reconvened in June 2008. A workshop is to be held at CSIRO Cleveland laboratories on the 28 April 2008. The workshop will be attended by CSIRO researchers, AFMA and BRS managers and James Cook University (JCU) delegates. The workshop will investigate research uncertainties and ways forward for management. AFMA will keep DEWHA informed of the outcomes of the workshop and progress of research applications by July 2008.

7.3 How the measures implemented to address the recommendations and/or conditions have improved management of the fishery

Measures to implement the DEWHA recommendations have improved management of the fishery by increasing stakeholder participation and data analysis of fisheries activity via the establishment of the TSHCWG and TSHC data summary.

8 Research and Monitoring

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

As mentioned in Section 4.2 the CRC Torres Strait project '*Sustainability Assessment of the Torres Strait Sea Cucumber Fishery*' was completed in July 2006. Surveys conducted as part of the project showed that the three species currently closed to fishing, sandfish (*Holothuria scabra*), black teatfish (*Holothuria whitmaei*) and surf redfish (*Actinopyga mauritiana*), had not recovered from their low densities observed in previous surveys. Of the remaining fished species, prickly redfish (*Thelenota ananus*) and white teatfish (*Holothuria fuscogilva*) showed decreases in average density and/or average

size. The report however, did not propose any changes to the recommended TACs of these species as catches have remained low since 2002.

The report included the following recommendations for management:

1. Maintain closures for the currently closed species (sandfish, black teatfish and surf redfish).
2. Implement and monitor individual TACs for at least, the higher value and/or targeted species.
3. Integrate research and management for the Warrior Reef sandfish fishery with PNG.
4. Produce a comprehensive identification guide for Torres Strait sea cucumbers.

All of the above recommendations have been presented to TSHCWG, TSMAC, PZJA and at bilateral meetings with Papua New Guinea. Recommendation 1 has continued via AFMA management. Recommendations 2 and 4 will be incorporated into the proposed Harvest Strategy and upcoming research for TSHCF. Recommendation 3 is ongoing with continued discussions with Papua New Guinea NFA.

8.2 Description of monitoring programs used to gather information on the fishery (such as observer programs, long term monitoring programs etc) and results of these

Monitoring of the TSBDMF is currently undertaken by analyses of TS docket book data. The data is published by AFMA in an annual data summary provided to all stakeholders (Attachment A).

8.3 Results of any collaborative research undertaken for the fishery

None to date. AFMA will keep DEWHA informed of the workshop to be held on 28 April regarding the potential for collaborative research.

References

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