



Australian Government

Department of the Environment and Energy

Assessment of the
Torres Strait Bêche-de-mer Fishery

December 2017

CONTENTS

Executive summary of the assessment of the Torres Strait Bêche-de-mer Fishery	3
Section 1: Assessment summary of the Torres Strait Bêche-de-mer Fishery against the Guidelines for the ecologically sustainable management of fisheries (2nd edition), consistent with the EPBC Act.....	4
Section 2: Detailed analysis of Torres Strait Bêche-de-mer Fishery against the Guidelines for the ecologically sustainable management of fisheries (2nd edition)	6
Section 3: Assessment of the Torres Strait Bêche-de-mer Fishery against the requirements of Parts 12, 13, 13A and 16 of the EPBC Act.....	15
Section 4: Torres Strait Bêche-de-mer Fishery – summary of issues requiring conditions....	20
References	23

© Copyright Commonwealth of Australia, 2017.



Assessment of the Torres Strait Bêche-de-mer Fishery December 2017 is licensed by the Commonwealth of Australia for use under a Creative Commons By Attribution 3.0 Australia licence with the exception of the Coat of Arms of the Commonwealth of Australia, the logo of the agency responsible for publishing the report, content supplied by third parties, and any images depicting people. For licence conditions see: <http://creativecommons.org/licenses/by/3.0/au/>.

This report should be attributed as '*Assessment of the Torres Strait Bêche-de-mer Fishery December 2017*, Commonwealth of Australia 2017'.

Disclaimer

This document is an assessment carried out by the Department of the Environment and Energy of a commercial fishery against the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition*. It forms part of the advice provided to the Minister for the Environment and Energy on the fishery in relation to decisions under Parts 13 and 13A of the *Environment Protection and Biodiversity Conservation Act 1999*. The views expressed do not necessarily reflect those of the Minister for the Environment and Energy or the Australian Government.

While reasonable efforts have been made to ensure that the contents of this report are factually correct, the Australian Government does not accept responsibility for the accuracy or completeness of the contents, and shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of this report. You should not rely solely on the information presented in the report when making a commercial or other decision.

EXECUTIVE SUMMARY OF THE ASSESSMENT OF THE TORRES STRAIT BÊCHE-DE-MER FISHERY

On 12 April 2017, the Australian Fisheries Management Authority (AFMA) submitted an application on behalf of the Torres Strait Protected Zone Joint Authority (PZJA), for assessment of the Torres Strait Trochus Fishery under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as a Wildlife Trade Operation.

The Department of the Environment and Energy assessed this application against the Australian Government 'Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition'. Public consultation on the application was undertaken between 26 April and 31 May 2017. No submissions were received.

The Torres Strait Bêche-de-mer Fishery operates in the Torres Strait Protected Zone using hand collection, including diving, to target various bêche-de-mer species. A number of these species are either overfished or have uncertain stock status, and one species may be subject to overfishing (uncertain status due to illegal fishing). Overfished species and are now subject to zero catch limits.

Although the Department's assessment identified a number of risks, the fishery is unlikely to have an unsustainable ecological impact during the period of the proposed approval (three years).

The Department has proposed conditions, specified in Section 4 of this assessment, to ensure risks continue to be managed. These proposed conditions include implementing strategies to manage the risk of overfishing and localised depletion for all species harvested in the fishery, ecological risk assessment and risk mitigation to ensure all environmental and ecological risks are appropriately managed; and ongoing efforts to facilitate reporting of interactions with species listed in Part 13 of the EPBC Act.

The Department considers that, subject to the conditions specified in Section 4 of this assessment, the Torres Strait Bêche-de-mer Fishery should be declared an approved Wildlife Trade Operation for three years until 18 December 2020. Product derived from the fishery should be included on the List of Exempt Native Specimens while a declaration for an approved wildlife trade operation is in place.

Unless a specific time frame is provided, each condition must be addressed within the period of the approved wildlife trade operation declaration for the fishery.

SECTION 1: ASSESSMENT SUMMARY OF THE TORRES STRAIT BÊCHE-DE-MER FISHERY AGAINST THE GUIDELINES FOR THE ECOLOGICALLY SUSTAINABLE MANAGEMENT OF FISHERIES (2ND EDITION), CONSISTENT WITH THE EPBC ACT.

	Meets	Partially meets	Does not meet	Details
Guidelines				
Management regime	3 of 9 & 1 N/A	5 of 9	0 of 9	The management regime is poorly defined. Actions are underway to address this. No systems are in place to measure the effectiveness of fishery arrangements, or assess ecological or management risk.
Principle 1 (target stocks)	2 of 11	9 of 11	0 of 11	Competitive catch limits are in place for all species. However, many are not species-specific or based on the biology of the species. Recommendations to address risks, including those associated with external factors such as climate change, have not been addressed. These issues are expected to be addressed when a harvest strategy is introduced for the fishery within the next two years.
Principle 2 (bycatch and TEPS)	2 of 12 & 6 N/A	3 of 12	1 of 12	No ecological risk assessment has been undertaken for TEP species and there is no provision for reporting interactions. No bycatch usually occurs in hand collection fisheries and risks are likely to be low.
Principle 2 (ecosystem impacts)	0 of 5	5 of 5	0 of 5	No ecological risk assessment has been undertaken and no risk mitigation, monitoring or data collection for ecological impacts is in place. Notwithstanding, risks are likely to be relatively low.
EPBC requirements				
Part 12				Not applicable. There are no marine bioregional plans applicable to the Torres Strait.
Part 13	Meets			No interactions with EPBC Act listed species based on available records (1 January 2012 – 30 September 2017).
Part 13A	Meets			The fishery is consistent with the Objects of Part 13A. Declaration of the fishery as a Wildlife Trade Operation for three years, until 18 December 2020 is recommended, subject to conditions detailed in Section 4 of this report.
Part 16	Meets			Precautionary measures are in place to prevent serious or irreversible environmental damage by the fishery.

Assessment history:

- 1st assessment finalised 2005 – 3 conditions and 11 recommendations.
- 2nd assessment finalised 2008 – 3 conditions and 4 recommendations.
- 3rd assessment finalised 2011 – 3 conditions and 4 recommendations.
- 4th assessment finalised 2014 – 3 conditions and 4 recommendations.

Fishery reporting:

Annual reports have not been provided to the Department, however the PZJA has published the following which provides some information on the fishery: [Combined Torres Strait Protected Zone Joint Authority annual report 2011-2012, 2012-2013, 2013-2014](#)

Fishery Status Reports Torres Strait Bêche -de-mer and Trochus Fisheries - [2016](#) and [2017](#).

Key links:

Fishery information page on agency website – <http://pzja.gov.au/the-fisheries/torres-strait-beche-de-mer-fishery/#.Wi89jP6pUy8>

Management plan:

There is no formal management plan, but management arrangements are outlined in the following:

- [A guide to management arrangements for Torres Strait Fisheries, June 2004](#),
- [Community Fishing Notice No. 1](#) (pdf copy on PZJA website but not found on legislation.gov.au)
- [Torres Strait Fisheries Management Instrument No. 15](#)
- [Fisheries Management Notice No. 47](#)

Enforcing legislation:

- [Torres Strait Fisheries Act 1984](#)
- [Torres Strait Fisheries Regulations 1985](#)
- [Torres Strait Treaty \(Miscellaneous Amendments\) Act 1984](#)
- [Torres Strait Fisheries Act 1984 - Proclamation \(17/03/1999\)](#)

Harvest strategy or document that articulates control rules – No harvest strategy for the fishery.

Ecological Risk Assessment – No ERA for the fishery.

SECTION 2: DETAILED ANALYSIS OF TORRES STRAIT BÊCHE-DE-MER FISHERY AGAINST THE GUIDELINES FOR THE ECOLOGICALLY SUSTAINABLE MANAGEMENT OF FISHERIES (2ND EDITION)

	Comment
THE MANAGEMENT REGIME	
The management regime does not have to be a formal statutory fishery management plan as such, and may include non-statutory management arrangements or management policies and programs. The regime should:	
Be documented, publicly available and transparent	<p>Partially meets</p> <p>Some information is publicly available on the PZJA website. However, important information is unavailable, inaccurate, inconsistent or difficult to locate. This makes it difficult to determine what arrangements apply to the fishery and could affect fishers' ability to understand and comply with requirements.</p> <p>AFMA is currently reviewing the website and expects to address these issues in 2018.</p>
Be developed through a consultative process providing opportunity to all interested and affected parties, including the general public	<p>Meets</p> <p>The management regime was developed through a consultative process. The PZJA established advisory bodies in 2003, and meeting records are published on the PZJA website. Proposed agendas for these meetings are published on the PZJA website in advance, and members of the public are provided the opportunity to attend as observers.</p> <p>The PZJA consults Australian traditional inhabitant fishers (commercial and traditional fishing), non-traditional inhabitant commercial fishers, Australian and Queensland government officials, and other technical experts. Significant management changes are typically subject to a public consultation process.</p>
Ensure that a range of expertise and community interests are involved in individual fishery management committees and during the stock assessment process	<p>Meets</p> <p>Consultative groups include relevant expertise and community interests.</p> <p>The policy guiding membership, operation, administration and key decision making processes of the advisory bodies (other than the Torres Strait Protected Zone Joint Authority Standing Committee) is documented in Fisheries Management Paper No. 1 on the PZJA website.</p> <p>The Hand Collectables Working Group includes an independent Chair, one member from each PZJA agency (QDAF, AFMA, TSRA), scientific members, Traditional Inhabitant industry members and an Executive Officer. The working group provides advice on management issues concerning hand collection fisheries to the PZJA for decision.</p>
Be strategic, containing objectives and performance criteria by which the effectiveness of the management arrangements are measured	<p>Partially meets</p> <p>There are no documented criteria against which management effectiveness is measured. Catches are assessed against the total allowable catch limits each year by the Hand Collectables Working Group. More strategic performance measures are expected to be included in the harvest strategy for the fishery which is being developed in 2018.</p>

Be capable of controlling the level of harvest in the fishery using input and/or output controls

Partially meets

The fishery is currently subject to the following input and output controls:

- Total allowable catch limits for all species (some limits applied at species-level while others are applied as a multi-species catch limit).
- Minimum size limits for key target species
- Boat size limit (≤ 7 m)
- Gear restrictions – hand collection only, no breathing apparatus
- Recreational bag limits
- Licences issues to Traditional Inhabitants only (though the number of licenses is unlimited).

Traditional fishing is subject to a bag limit of three bêche-de-mer per person or six bêche-de-mer per boat, but exempt from size limits. Given traditional fishing and commercial fishing can occur on the same boat at the same time, this may affect capacity to enforce commercial limits.

On 1 December 2017, AFMA introduced a requirement for all commercial fishers to unload their catch to licensed fish receivers. Fish receivers can only receive catch from licenced fishers and are required to weigh all catch and return the associated paperwork to AFMA within three days of receiving the catch. This allows AFMA to better monitor and manage catches than was possible under the voluntary reporting arrangements.

Additional measures have also been identified in Management Strategy Evaluation, stock assessment and other management reviews ([Skewes et al 2010](#); [Haddon 2012](#); [Plaganyi et al 2013](#)) which are being considered as part of the harvest strategy being developed in 2018.

These measures include control rules to manage localised depletion, increases to certain minimum size limits, establishment of more species-specific catch limits and/or triggers, and measures to limit effort pulses and collect fishery independent data. These input and output controls are applied through the *Torres Strait Fisheries Act 1984* and associated instruments, and some are also included in fishing permit conditions. Existing management arrangements are not always clear, based on a review of the PZJA website, and various exceptions exist which may make enforcement difficult. For example, under the *Torres Strait Fisheries Act 1984*, persons are prohibited from taking, processing or carrying bêche-de-mer unless they hold a licence; do so in the course of traditional fishing; or do so for private purposes with the use of an Australian boat. Commercial-licenced fishing boats can be used for traditional fishing, including during commercial fishing operations. While this traditional fishing is subject to bag limits, size limits do not apply. Recreational fishing is also allowed, subject to recreational rules and regulations. It is likely to be difficult to determine what catch is commercial and what is traditional, recreational or for private purposes.

Contain the means of enforcing critical aspects of the management arrangements	<p>Meets</p> <p>The <i>Torres Strait Fisheries Act 1984</i> outlines penalties for non-compliance with management arrangements and the Queensland Boating and Fisheries Patrol currently enforces these arrangements for Australian fishers in the Torres Strait. AFMA, in co-operation with the Papua New Guinean National Fisheries Authority and Australian Border Force - Maritime Border Command, maintain a compliance presence in the Torres Strait to minimise the risk of incursions by foreign fishing vessels. The enforcement program is cost constrained and made difficult as most fishing occurs in remote areas, amongst many boats spread over a vast area (Patterson et al. 2016).</p> <p>AFMA and the Queensland Boating and Fisheries Patrol undertake an annual compliance risk assessment for the Torres Strait. Recent compliance priorities have included enforcement of zero-catch limits for sandfish, black teatfish and surf redfish as well as unlicensed fishing.</p> <p>Skewes et al (2010) reported significant illegal fishing activity having occurred in Torres Strait by Papua New Guinean fishers over the decade to 2010. Relatively small quantities of sandfish have been taken illegally by Papua New Guinean Nationals in 2014, 2015 and 2016 (Patterson et al. 2016; Patterson et al. 2017). It is not clear whether the quantity of illegal catch detected represents the full extent of illegal, unreported and unauthorised fishing, or if these catches will impair the recovery of the stock (Patterson et al. 2017).</p>
Provide for the periodic review of the performance of the fishery management arrangements and the management strategies, objectives and criteria	<p>Partially meets</p> <p>There do not appear to be any performance reviews built into the management arrangements. The Australian Government Bureau of Agricultural and Resource Economics and Sciences undertakes annual assessments of the fishery using available information (Patterson et al. 2016; Patterson et al. 2017).</p> <p>A Management Strategy Evaluation was undertaken in 2012 (Haddon 2012). AFMA intends to use the Management Strategy Evaluation to assess the likely performance of the proposed harvest strategy, for completion in 2018.</p>
Be capable of assessing, monitoring and avoiding, remedying or mitigating any adverse impacts on the wider marine ecosystem in which the target species lives and the fishery operates	<p>Partially meets</p> <p>The risks associated with hand-collection fisheries are likely to be relatively low. However there has been no ecological risk assessment, and there is no independent monitoring or data collection to assess potential impacts or emerging issues. AFMA anticipates completing an ecological risk assessment for the fishery in 2018-2019.</p> <p>Stock surveys undertaken in the fishery provide some limited information on habitats (e.g. changes to seagrass and sand incursions), but are not designed to collect information on impacts associated with fishing.</p> <p>On 1 December 2017, AFMA introduced a requirement for all commercial fishers to unload their catch to licensed fish receivers. AFMA is also developing a harvest strategy which should facilitate better monitoring and management of catches and the effects of fishing on target species. Development of the harvest strategy will also consider risk of localised depletion as identified by Haddon 2012 and Pagyani et al 2013).</p>
Requires compliance with relevant threat abatement plans, recovery plans, the National Policy on Fisheries Bycatch, and bycatch action strategies developed under the policy	<p>Not applicable</p> <p>There are no threat abatement plans, recovery plans, the National Policy on Fisheries Bycatch, and bycatch action strategies applicable to this fishery.</p>
<p>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.</p>	
<p>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.</p>	

Information requirements	
<p>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.</p>	<p>Partially meets</p> <p>On 1 December 2017 AFMA introduced a requirement for all commercial fishers to unload their catch to licensed fish receivers. However fishers are not required to report information on their fishing activity. Mandating this reporting would require legislative amendment to remove the current exemptions for Traditional Inhabitant fishers. Information is therefore limited to quantities of species landed.</p> <p>Catch is processed in various ways prior to being unloaded to fish receivers and where necessary AFMA applies conversion factors to reconcile the processed weights reported by fish receivers, against catch limits which are in gutted wet weights.</p> <p>Plagyani et al (2013), evaluated risk management tools under changing climate and recommended harvest control rules with triggers and spatial management, as well as data collection protocols and simple analyses to manage the risk of overall and localised stock depletion and significant changes in species composition. These recommendations are expected to be considered in development of the harvest strategy for the fishery in 2018.</p>
Assessment	
<p>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.</p>	<p>Partially meets</p> <p>Assessment and review is intended to occur triennially, however, with the exception of a limited survey for sandfish at Warrior Reef in 2012, has not occurred since 2009. Previous assessments occurred in 1995, 2002, and 2005.</p> <p>Frequency of assessment was based on growth rates and biology of bêche-de-mer, but assessment has been deferred until the harvest strategy is developed.</p> <p>The surveys are used to inform the setting of annual catch limits, including zero catch limits for three species which were found to be overfished (Skewes et al. 2010).</p> <p>The 2009 stock survey estimates of catch for most years between 1996 and 2005 but little data analysis is presented in the report (Skewes et al. 2010).</p> <p>The Australian Bureau of Resource Economics and Sciences reviews the estimates of fishery catch and any stock survey results each year to determine fishery status (Patterson et al. 2016; Patterson et al. 2017).</p>
<p>1.1.3 The distribution and spatial structure of the stock(s) has been established and factored into management responses.</p>	<p>Partially meets</p> <p>Stock surveys, most recently undertaken in 2009, are designed around the known geographical distribution of stocks and focus on particular areas of the fishery. Distribution and spatial structure of the stocks is not reflected in the fishery's management arrangements.</p>
<p>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.</p>	<p>Meets</p> <p>Participation in the fishery is restricted to traditional inhabitants and (as of 1 December 2017) all commercial fishers are required to unload their catch to licensed fish receivers. Bêche-de-mer are not caught by any other commercial or non-commercial fishers in the area.</p>
<p>1.1.5 There is a sound estimate of the potential productivity of the fished stock/s and the proportion that could be harvested.</p>	<p>Partially meets</p> <p>Productivity is not well understood. Stock surveys have considered abundance and size distribution to infer relative stock status. The last survey occurred in 2009.</p>

Management responses	
<p>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.</p>	<p>Partially meets No target or limit reference points exist for this fishery. AFMA intend to complete a fishery-wide harvest strategy in 2018. This harvest strategy is expected to include biological reference points and be subject to a Management Strategy Evaluation. Competitive species-level total allowable catch limits are in place for five species, and a multi-species total allowable catch limit exists for the remaining species. The limits are however poorly communicated and the multi-species catch limit has been identified as a potential risk (Haddon 2012; Patterson et al. 2017). The harvest strategy is also expected to address these issues. Setting and monitoring catches against precautionary reference points would likely assist in managing catches and avoiding overfishing, as well as determining when total allowable catches should be increased and decreased.</p>
<p>1.1.7 There are management strategies in place capable of controlling the level of take.</p>	<p>Partially meets The fishery is currently subject to the following input and output controls:</p> <ul style="list-style-type: none"> - Total allowable catch limits for all species (some limits applied at species-level while others are applied as a multi-species catch limit). - Minimum size limits for key target species - Boat size limit (≤ 7 m) - Gear restrictions – hand collection only, no breathing apparatus - Recreational bag limits - Licences issues to Traditional Inhabitants only (though the number of licenses is unlimited). <p>Traditional fishing is subject to a bag limit of three bêche-de-mer per person or six bêche-de-mer per boat, but exempt from size limits. Given traditional fishing and commercial fishing can occur on the same boat at the same time, this may affect capacity to enforce commercial limits.</p> <p>On 1 December 2017 AFMA introduced a requirement for all commercial fishers to unload their catch to licensed fish receivers. Fish receivers can only receive catch from licenced fishers and are required to weigh all catch and return the associated paperwork to AFMA within three days of receiving the catch. This allows AFMA to better monitor and manage catches than was possible under the voluntary reporting arrangements.</p> <p>Additional measures have also been identified in Management Strategy Evaluation, stock assessment and other management reviews (Skewes et al 2010; Haddon 2012; Plaganyi et al 2013) which are being considered as part of the harvest strategy being developed in 2018.</p> <p>These measures include control rules to manage localised depletion, increases to certain minimum size limits, establishment of more species-specific catch limits and/or triggers, and measures to limit effort pulses and collect fishery independent data.</p> <p>These input and output controls are applied through the <i>Torres Strait Fisheries Act 1984</i> and associated instruments, and some are also included in fishing permit conditions. Existing management arrangements are not always clear, based on a review of the PZJA website, and various exceptions exist which may make enforcement difficult. For example, under the <i>Torres Strait Fisheries Act 1984</i>, persons are prohibited from taking, processing or carrying bêche-de-mer unless they hold a licence; do so in the course of traditional fishing; or do so for private purposes with the use of an Australian boat. Commercial-licenced fishing boats can be used for traditional fishing, including during commercial fishing operations. While this traditional fishing is subject to bag limits, size limits do not apply. Recreational fishing is also allowed, subject to recreational rules and regulations. It is likely to be difficult to determine what catch is commercial and what is traditional, recreational or for private purposes.</p>

<p>1.1.8 Fishing is conducted in a manner that does not threaten stocks of byproduct species.</p>	<p>Meets Hand collection methods are highly selective allowing all byproduct to be avoided.</p>
<p>(Guidelines 1.1.1 to 1.1.7 should be applied to byproduct species to an appropriate level)</p>	
<p>1.1.9 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.</p>	<p>Partially meets An evaluation of risk management tools under changing climate concluded that current management would result in half of the species falling below target levels, moderate risks of overall and local depletion, and significant changes in species composition (Plagyan et al 2013). The evaluation recommends harvest control rules with triggers and spatial management, as well as data collection protocols and simple analyses to better manage these risks. AFMA is considering these recommendations in developing and testing a harvest strategy for the fishery in 2018. Notwithstanding the issues identified in items 1.1.1 to 1.1.7 of this report, the management regime is likely to achieve the objective of maintaining ecologically viable stock levels.</p>
<p>If overfished, go to Objective 2: If not overfished, go to PRINCIPLE 2:</p>	
<p>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.</p>	
<p>Management responses</p>	
<p>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.</p>	<p>Partially meets One species is currently overfished and possibly also subject to overfishing. Species that are overfished have been closed to commercial fishing (zero total allowable catch), but there is no documented recovery strategy, staged management, reference points or timeframe for recovery of any species. Another 18 species may also be overfished (uncertain status) but are unlikely to be subject to overfishing (Patterson et al. 2017). These species have a cumulative total allowable catch limit which is significantly higher than any individual species' catch limit in the fishery, is not based on individual species' biology, and is unable to control catches of individual species (Patterson et al. 2016; Patterson et al. 2017). It has been recommended that more species-specific catch limits or trigger limits be introduced to manage risks to these species (Haddon 2012; Patterson et al. 2016). Stock surveys are infrequent (last full survey in 2009, Sandfish survey 2012) and monitoring of stock recovery is limited. AFMA expect to complete a fishery-wide harvest strategy in 2018. This will be subject to a Management Strategy Evaluation and is expected to include a biological target and limit reference points. The last Management Strategy Evaluation (Haddon 2012) considered that sandfish may not recover from their overfished state in the short term, even in the absence of fishing. Haddon (2012) recommended increases to the size limit for sandfish, as well as deepwater redfish, if fishing was to recommence. This will be considered as part of the harvest strategy development in 2018.</p>
<p>1.2.2 If the stock is estimated as being at or below the biological and / or effort bottom line, management responses such as a zero targeted catch, temporary fishery closure or a 'whole of fishery' effort or quota reduction are implemented.</p>	<p>Partially meets While there are no biological or effort-based thresholds specified for any of the species in the fishery, some species have been determined to be overfished and have had zero-catch limits imposed (at least 18 species have uncertain status). Total allowable catch limits are communicated via permit conditions on licences. A Management Strategy Evaluation (Haddon 2012) considered that sandfish may not recover in the short term, even in the absence of fishing, but recommended increases to size limits for this species as well as deepwater redfish if fishing was to occur.</p>

PRINCIPLE 2 - Fishing operations should be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem.	
Objective 1 - The fishery is conducted in a manner that does not threaten bycatch species.	
Information requirements	
2.1.1 Reliable information, appropriate to the scale of the fishery, is collected on the composition and abundance of bycatch.	Not applicable There is no bycatch associated with hand collection fisheries.
Assessments	
2.1.2 There is a risk analysis of the bycatch with respect to its vulnerability to fishing.	Not applicable Although no formal risk analysis has been undertaken, hand collection methods are highly selective and allow all bycatch to be avoided.
Management responses	
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.	Meets Hand collection methods are highly selective and allow bycatch to be avoided.
2.1.4 An indicator group of bycatch species is monitored.	Not applicable Hand collection methods are highly selective and allow bycatch to be avoided.
2.1.5 There are decision rules that trigger additional management measures when there are significant perturbations in the indicator species numbers.	Not applicable Hand collection methods are highly selective and allow bycatch to be avoided.
2.1.6 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.	Meets Hand collection methods are highly selective and allow bycatch to be avoided.
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.	
Information requirements	
2.2.1 Reliable information is collected on the interaction with endangered, threatened or protected species and threatened ecological communities.	Does not meet AFMA has an approved daily fishing logbook available for this fishery, which includes provision to report interactions with endangered, threatened or protected species. Reporting is voluntary. Due to problems with reporting accuracy, fishers are no longer encouraged to use the logbooks. Legislative amendments are required to mandate reporting by Traditional Inhabitant fishers. While there have been no reported interactions with endangered, threatened or protected species and threatened communities in this fishery, and the risks are likely to be relatively low, there is no means to monitor or respond to any changes should they occur.

Assessments	
2.2.2 There is an assessment of the impact of the fishery on endangered, threatened or protected species.	<p>Partially meets</p> <p>No ecological risk assessment has been completed for this fishery. Reports on dugong and turtles in the area provide some insight into potential risks to these species.</p> <p>The fishing methods used (free diving and hand collection with or without the use of a boat) mean that risks to protected species are likely to be relatively low, but may include impacts such as boat strikes, anchoring or trampling.</p> <p>A number of endangered, threatened and protected species occur in the region and assessment and mitigation is recommended as part of any precautionary management regime. Dugongs and turtles are amongst these species. Dugongs spend much of their time in depths of five to 20 meters so may be less at risk of boat strike than turtles which spend more time around reef habitats in waters less than five meters. The large mother-ships from which the tender boats operate, typically anchor in sheltered areas and not over reef. Anchoring of large commercial boats in channels adjacent to dugong feeding grounds was identified as a potential concern in a study on Western and Central Torres Strait (Hagihara et al. 2016).</p> <p>AFMA intends to complete an ecological risk assessment for this fishery by July 2019.</p>
2.2.3 There is an assessment of the impact of the fishery on threatened ecological communities.	<p>Not applicable</p> <p>There are no threatened ecological communities in the area of the fishery.</p>
Management responses	
2.2.4 There are measures in place to avoid capture and/or mortality of endangered, threatened or protected species.	<p>Partially meets</p> <p>The risks associated with hand-collection fisheries are likely to be relatively low. However, there has been no formal risk assessment and there is no means to report, monitor or respond to emerging issues.</p> <p>AFMA intends to complete an ecological risk assessment for this fishery by July 2019. An ecological risk management strategy will then be developed.</p>
2.2.5 There are measures in place to avoid impact on threatened ecological communities.	<p>Not applicable</p> <p>No threatened ecological communities have been identified in the area of the fishery.</p>
2.2.6 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.	<p>Partially meets</p> <p>The risks associated with hand-collection fisheries are likely to be relatively low and unlikely to have significant impact on endangered, threatened or protected species. An assessment would provide greater confidence and allow any potential issues to be monitored and responded to as necessary.</p> <p>AFMA intends to complete an ecological risk assessment for this fishery by July 2019. An ecological risk management strategy will then be developed.</p>
Objective 3 - The fishery is conducted, in a manner that minimises the impact of fishing operations on the ecosystem generally.	
Information requirements	
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.	<p>Partially meets</p> <p>The risks associated with hand-collection fisheries are likely to be relatively low. However, no ecological risk assessment has been undertaken and there is no system for collecting information on the impact of the fishery on the ecosystem and environment generally.</p> <p>AFMA intends to complete an ecological risk assessment for this fishery by July 2019. An ecological risk management strategy will then be developed.</p>

Assessment	
<p>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.</p> <ol style="list-style-type: none"> 1. Impacts on ecological communities <ul style="list-style-type: none"> • Benthic communities • Ecologically related, associated or dependent species • Water column communities 2. Impacts on food chains <ul style="list-style-type: none"> • Structure • Productivity/flows 3. Impacts on the physical environment <ul style="list-style-type: none"> • Physical habitat • Water quality 	<p>Partially meets</p> <p>Information on potential impacts of the fishery on the ecosystem is not collected and there has been no ecological risk assessment conducted for the Torres Strait Bêche-de-mer Fishery.</p> <p>The Department's previous assessment of the fishery noted that AFMA considered that impacts of the fishery on the ecosystem may include: over-exploitation of target species; translocation of species via hull and anchor fouling; and impacts of anchoring/mooring and other anthropogenic activities such as treading on reef top habitat.</p> <p>Hand collection is likely to have a relatively small impact on the physical environment. However, bêche-de-mer are believed to play an important role in the nutrient cycling pathways of benthic environments. Overfishing (including localised depletion) may therefore have an impact on this function.</p> <p>Dugong may also be impacted by the presence of large vessels (mother-ships from which the tender boats operate) anchoring in channels adjacent to dugong feeding grounds (Hagihara et al. 2016). AFMA has advised that these vessels anchor in a small number of areas that provide shelter and access to fishing areas. It is unknown whether these areas correspond to the channels frequented by dugong.</p> <p>Undertaking a risk assessment would provide greater confidence in these assumptions and allow any identified issues to be monitored and responded to as necessary.</p> <p>AFMA intends to complete an ecological risk assessment and ecological risk mitigation strategy for this fishery by July 2019.</p>
Management responses	
<p>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.</p>	<p>Partially meets</p> <p>The risks associated with hand-collection fisheries are likely to be relatively low and unlikely to have significant impact on ecosystems, provided stocks are managed sustainably. AFMA intends to complete an ecological risk assessment for this fishery by July 2019. An ecological risk management strategy will then be developed.</p>
<p>2.3.4 There are decision rules that trigger further management responses when monitoring detects impacts on selected ecosystem indicators beyond a predetermined level, or where action is indicated by application of the precautionary approach.</p>	<p>Partially meets</p> <p>While there has been no ecological risk assessment to identify the risk to the ecosystem, the scale and nature of the fishery suggests any impact is likely to be low.</p> <p>There is no means to monitor interactions, and no plan to manage any current or emerging issues. Undertaking a risk assessment would provide greater confidence in this assumption and allow any identified issues to be monitored and responded to as necessary. AFMA intends to complete an ecological risk assessment for this fishery by July 2019. An ecological risk management strategy will then be developed.</p>
<p>2.3.5 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.</p>	<p>Partially meets</p> <p>The risks associated with hand-collection fisheries are likely to be relatively low. Undertaking a risk assessment would provide greater confidence in this assumption and allow any identified issues to be monitored and responded to as necessary. AFMA intends to complete an ecological risk assessment for this fishery by July 2019. An ecological risk management strategy will then be developed.</p>

SECTION 3: ASSESSMENT OF THE TORRES STRAIT BÊCHE-DE-MER FISHERY AGAINST THE REQUIREMENTS OF PARTS 12, 13, 13A AND 16 OF THE EPBC ACT

The table below is not a complete or exact representation of the EPBC Act. It is intended to show that the relevant sections and components of the EPBC Act have been taken into account in the formulation of advice on the fishery in relation to decisions under Part 13 and Part 13A.

Part 12

Section 176 Bioregional Plans	Comment
(5) Minister must have regard to relevant bioregional plans	There are no marine bioregional plans relevant to the Torres Strait Bêche-de-mer Fishery.

Part 13

Accreditable plan, regime or policy (Divisions 1, 2, 3 and 4)	Comment
s. 208A (1) (a-e) , s.222A (1) (a-e), s.245A (1) (a-e), s.265 (1) (a-e) Does the fishery have an accreditable plan of management, regime or policy?	Yes The “Torres Strait Bêche-de-mer Fishery management policy” was accredited in June 2014 . The management regime for the fishery is described in this assessment report and forms the basis for ongoing accreditation.
Division 1 Listed threatened species, Section 208A Minister may accredit plans or regimes	
(f) Will the plan, regime or policy require fishers to take all reasonable steps to ensure that members of listed threatened species (other than conservation dependent species) are not killed or injured as a result of the fishing?	Yes No formal risk assessment has been undertaken, however the risks associated with the fishery are likely to be very low. No interactions with listed threatened species have been reported.
(g) And, is the fishery likely to adversely affect the survival or recovery in nature of the species.	No Records show no reported interactions with listed threatened species in the fishery during the period 1 January 2012 to 30 June 2017.
Division 2 Migratory species, Section 222A Minister may accredit plans or regimes	
(f) Will the plan, regime or policy require fishers to take all reasonable steps to ensure that members of listed migratory species are not killed or injured as a result of the fishing?	Yes No formal risk assessment has been undertaken, however the risks associated with the fishery are likely to be very low. No interactions with listed migratory species have been reported.
(g) And, is the fishery likely to adversely affect the conservation status of a listed migratory species or a population of that species?	No Records show no reported interactions with listed migratory species in the fishery during the period 1 January 2012 to 30 June 2017.
Division 3 Whales and other cetaceans, Section 245 Minister may accredit plans or regimes	
(f) Will the plan, regime or policy require fishers to take all reasonable steps to ensure that cetaceans are not killed or injured as a result of the fishing?	Yes No formal risk assessment has been undertaken, however the risks associated with the fishery are likely to be very low. No interactions with cetaceans have been reported.

(g) And is the fishery likely to adversely affect the conservation status of a species of cetacean or a population of that species?	No No interactions with cetaceans have been reported between 1 January 2012 and 30 June 2017.
Division 4 Listed marine species, Section 265 Minister may accredit plans or regimes	
(f) Will the plan, regime or policy require fishers to take all reasonable steps to ensure that members of listed marine species are not killed or injured as a result of the fishing?	Yes No formal risk assessment has been undertaken, however the risks associated with the fishery are likely to be very low. No interactions with listed marine species have been reported.
(g) And is the fishery likely to adversely affect the conservation status of a listed marine species or a population of that species?	No No interactions with listed marine species have been reported between 1 January 2012 and 30 June 2017.
Section 303AA Conditions relating to accreditation of plans, regimes and policies	
(1) This section applies to an accreditation of a plan, regime or policy under section 208A, 222A, 245 or 265.	Accreditation is recommended Interactions with protected species are negligible under existing arrangements.
(2) The Minister may accredit a plan, regime or policy under that section even though he or she considers that the plan, regime or policy should be accredited only: <ul style="list-style-type: none"> (a) during a particular period; or (b) while certain circumstances exist; or (c) while a certain condition is complied with. In such a case, the instrument of accreditation is to specify the period, circumstances or condition.	No conditions required
(7) The Minister must, in writing, revoke an accreditation if he or she is satisfied that a condition of the accreditation has been contravened.	Not applicable

Part 13A

Section 303BA Objects of Part 13A	
(1) The objects of this Part are as follows: <ul style="list-style-type: none"> (a) to ensure that Australia complies with its obligations under CITES and the Biodiversity Convention; (b) to protect wildlife that may be adversely affected by trade; (c) to promote the conservation of biodiversity in Australia and other countries; (d) to ensure that any commercial utilisation of Australian native wildlife for the purposes of export is managed in an ecologically sustainable way; (e) to promote the humane treatment of wildlife; (f) to ensure ethical conduct during any research associated with the utilisation of wildlife; and (h) to ensure the precautionary principle is taken into account in making decisions relating to the utilisation of wildlife. 	

Section 303 CG Minister may issue permits (CITES species)	Comment
<p>(3) The Minister must not issue a permit unless the Minister is satisfied that:</p> <p>(a) the action or actions specified in the permit will not be detrimental to, or contribute to trade which is detrimental to:</p> <p>i the survival of any taxon to which the specimen belongs; or</p> <p>ii. the recovery in nature of any taxon to which the specimen belongs; or</p> <p>iii any relevant ecosystem (for example, detriment to habitat or biodiversity).</p>	<p>Not applicable</p>
<p>Section 303DC Minister may amend list (non CITES species)</p>	
<p>(1) The Minister may, by legislative instrument, amend the list referred to in section 303DB [list of exempt native specimens] by:</p> <p>(a) doing any of the following:</p> <p>(i) including items in the list;</p> <p>(ii) deleting items from the list;</p> <p>(iii) imposing a condition or restriction to which the inclusion of a specimen in the list is subject;</p> <p>(iv) varying or revoking a condition or restriction to which the inclusion of a specimen in the list is subject; or</p> <p>(b) correcting an inaccuracy or updating the name of a species.</p>	<p>The Department recommends that specimens derived from species harvested in the Torres Strait Bêche-de-mer Fishery, other than specimens that belong to species listed under Part 13 of the EPBC Act, be included in the list of exempt native specimens while the Torres Strait Bêche-de-mer Fishery is subject to a declaration as an approved wildlife trade operation.</p>
<p>(1A) In deciding to amend the LENS, the Minister must rely primarily on outcomes of Part 10, Div 1 or 2 assessment</p>	<p>Meets</p> <p>The Torres Strait Bêche-de-mer Fishery was assessed under Part 10 of the EPBC Act in June 2005. As a result of the assessment, the Department considered that actions taken in the fishery would not have an unacceptable or unsustainable impact on the environment in a Commonwealth marine area. The management regime was most recently accredited under section 33 of the EPBC Act in June 2014.</p> <p>There have been no significant changes to the management regime since that time.</p> <p>The Department recommends that the LENS is amended under section 303DC(1)(a) to include product derived from the Torres Strait Bêche-de-mer Fishery while the specimens are covered by an approved wildlife trade operation declaration under section 303FN.</p>
<p>(1C) The above does not limit matters that may be considered when deciding to amend LENS.</p>	<p>Meets</p> <p>The management arrangements for the Torres Strait Bêche-de-mer Fishery are consistent with Objects of 13A – see assessment above.</p>
<p>(3) Before amending the LENS, the Minister must consult:</p> <p>(a) other Minister or Ministers as appropriate; and</p> <p>(b) other Minister or Ministers of each State and self-governing Territory as appropriate; and</p> <p>(c) other persons and organisations as appropriate.</p>	<p>Meets</p> <p>The submission for assessment was available for public comment on the Department's website from 26 April 2017 to 31 May 2017 (26 business days).</p> <p>No comments were received.</p>
<p>Section 303FN Approved wildlife trade operation</p>	
<p>(2) The Minister may, by instrument published in the <i>Gazette</i>, declare that a specified wildlife trade operation is an approved wildlife trade operation for the purposes of this section.</p>	

<p>(3) The Minister must not declare an operation as an approved wildlife trade operation unless the Minister is satisfied that:</p> <p>(a) the operation is consistent with the objects of Part 13A of the Act; and</p>	<p>Meets The Torres Strait Bêche-de-mer Fishery is consistent with the Objects of Part 13A – refer assessment above.</p>
<p>(b) the operation will not be detrimental to:</p> <p>i. the survival of a taxon to which the operation relates; or</p> <p>ii. the conservation status of a taxon to which the operation relates; and</p> <p>(ba) the operation will not be likely to threaten any relevant ecosystem including (but not limited to) any habitat or biodiversity; and</p>	<p>Meets Subject to the conditions specified in Section 4 of this report, the Torres Strait Bêche-de-mer Fishery will not be detrimental to the survival or conservation status of a taxon to which it relates, nor will it threaten any relevant ecosystem, within the next three years, given the management measures in place.</p>
<p>(c) if the operation relates to the taking of live specimens that belong to a taxon specified in the regulations – the conditions that, under the regulations, are applicable to the welfare of the specimens are likely to be complied with; and</p>	<p>Not applicable The Environment Protection and Biodiversity Conservation Regulations 2000 (EPBC Regulations) do not specify crustacea or fish as a class of animal in relation to the welfare of live specimens.</p>
<p>(d) such other conditions (if any) as are specified in the regulations have been, or are likely to be, satisfied.</p>	<p>Not applicable No other conditions are specified in relation to commercial fisheries in the EPBC Regulations.</p>
<p>(4) In deciding whether to declare an operation as an approved wildlife trade operation the Minister must have regard to:</p> <p>(a) the significance of the impact of the operation on an ecosystem (for example, an impact on habitat or biodiversity); and</p>	<p>Meets The Torres Strait Bêche-de-mer Fishery will not have a significant impact on any relevant ecosystem within the next three years, given the management measures in place.</p>
<p>(b) the effectiveness of the management arrangements for the operation (including monitoring procedures).</p>	<p>Meets The management arrangements that will be employed for the Torres Strait Bêche-de-mer Fishery as outlined in the assessment above, are likely to be effective.</p>
<p>(5) In deciding whether to declare an operation as an approved wildlife trade operation the Minister must have regard to:</p> <p>(a) whether legislation relating to the protection, conservation or management of the specimens to which the operation relates is in force in the State or Territory concerned; and</p> <p>(b) whether the legislation applies throughout the State or Territory concerned; and</p> <p>(c) whether, in the opinion of the Minister, the legislation is effective.</p>	<p>Meets The fishery will be managed in accordance with the <i>Torres Strait Fisheries Act 1984</i> which applies throughout the area of the Torres Strait Protected Zone. The legislation is likely to be effective.</p>
<p>(10) For the purposes of section 303FN, an operation is a wildlife trade operation if, and only if, the operation is an operation for the taking of specimens and:</p> <p>(a) the operation is a commercial fishery.</p>	<p>Meets The Torres Strait Bêche-de-mer Fishery is a commercial fishery.</p>
<p>(10A) In deciding whether to declare that a commercial fishery is an approved wildlife trade operation for the purposes of this section, the Minister must rely primarily on the outcomes of any assessment in relation to the fishery carried out for the purposes of Division 1 or 2 of Part 10.</p>	<p>Meets The Torres Strait Bêche-de-mer Fishery was assessed under Part 10 of the EPBC Act in June 2005 and the management regime most recently accredited pursuant to section 33 of the EPBC Act in June 2014. The Department considered that actions taken in the fishery would not have an unacceptable or unsustainable impact on the environment in a Commonwealth marine area.</p>
<p>(10B) Subsection (10A) does not limit the matters that may be taken into account in deciding whether to declare that a fishery is an approved wildlife trade operation for the purposes of this section.</p>	

Section 303FR Public consultation	
(1) Before making a declaration under section 303FN, the Minister must cause to be published on the Internet a notice: <ul style="list-style-type: none"> (a) setting out the proposal to make the declaration; and (b) setting out sufficient information to enable persons and organisations to consider adequately the merits of the proposal; and (c) inviting persons and organisations to give the Minister, within the period specified in the notice, written comments about the proposal. 	Meets A public notice, which set out the proposal to declare the Torres Strait Bêche-de-mer Fishery an approved wildlife trade operation and included the application from AFMA, was released for public comment between 26 April and 31 May 2017, a total of 26 business days.
(2) A period specified in the notice must not be shorter than 20 business days after the date on which the notice was published on the Internet.	
(3) In making a decision about whether to make a declaration under section 303FN, the Minister must consider any comments about the proposal to make the declaration that were given in response to the invitation in the notice.	Not applicable No public comments about the proposal were received.
Section 303FT Additional provisions relating to declarations	
(1) This section applies to a declaration made under section 303FN, 303FO or 303FP.	A declaration for the Torres Strait Bêche-de-mer Fishery will be made under section 303FN.
(4) The Minister may make a declaration about a plan or operation even though he or she considers that the plan or operation should be the subject of the declaration only: <ul style="list-style-type: none"> (a) during a particular period; or (b) while certain circumstances exist; or (c) while a certain condition is complied with. In such a case, the instrument of declaration is to specify the period, circumstances or condition.	The standard conditions applied to commercial fishery wildlife trade operations include: <ul style="list-style-type: none"> • operation in accordance with the management regime • notifying the Department of changes to the management regime, and • annual reporting in accordance with the requirements of the Australian Government <i>Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition</i>. The wildlife trade operation instrument for the Torres Strait Bêche-de-mer Fishery specifies these standard conditions and others specified in Section 4 of this report.
(8) A condition may relate to reporting or monitoring.	Conditions specified in Section 4 of this report include reporting requirements.
(9) The Minister must, by instrument published in the <i>Gazette</i> , revoke a declaration if he or she is satisfied that a condition of the declaration has been contravened.	
(11) A copy of an instrument under section 303FN, or this section is to be made available for inspection on the internet.	The instrument for the Torres Strait Bêche-de-mer Fishery made under sections 303FN and the conditions under section 303FT will be registered as a notifiable instrument and made available through the Department's website.

Part 16

Section 391 Minister must consider precautionary principle in making decisions	Comment
(1) Minister must take account of precautionary principle.	Meets
(2) The precautionary principle is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage.	Precautionary measures are considered to be in place to prevent serious or irreversible environmental damage being caused by this fishery.

SECTION 4: TORRES STRAIT BÊCHE-DE-MER FISHERY – SUMMARY OF ISSUES REQUIRING CONDITIONS, DECEMBER, 2017

Issue	Condition
<p><u>General Management</u></p> <p>Export decisions relate to the arrangements in force at the time of the decision. To ensure that these decisions remain valid and export approval continues uninterrupted, the Department of the Environment and Energy needs to be advised of any changes that are made to the management regime and make an assessment that the new arrangements are equivalent or better, in terms of ecological sustainability, than those in place at the time of the original decision. This includes operational and legislated amendments that may affect sustainability of the target species or negatively impact on byproduct, bycatch, EPBC Act protected species or the ecosystem.</p>	<p>Condition 1:</p> <p>Operation of the Torres Strait Bêche-de-mer Fishery will be carried out in accordance with the management regime in force under the <i>Torres Strait Fisheries Act 1984</i>.</p> <p>Condition 2:</p> <p>The Torres Strait Protected Zone Joint Authority to inform the Department of the Environment and Energy of any intended material changes to the Torres Strait Bêche-de-mer Fishery management arrangements that may affect the assessment against which <i>Environment Protection and Biodiversity Conservation Act 1999</i> decisions are made.</p>
<p><u>Annual Reporting</u></p> <p>It is important that reports be produced and presented to the Department annually in order for the performance of the fishery and progress in implementing the conditions in this report and other managerial commitments to be monitored and assessed throughout the life of the declaration. Annual reports should follow Appendix B to the 'Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition' and include a description of the fishery, management arrangements in place, research and monitoring outcomes, recent catch data for all sectors of the fishery, status of target stock, interactions with EPBC Act protected species, impacts of the fishery on the ecosystem in which it operates and progress in implementing the Department's conditions. Electronic copies of the guidelines are available from the Department's website at http://www.environment.gov.au/resource/guidelines-ecologically-sustainable-management-fisheries</p>	<p>Condition 3:</p> <p>The Torres Strait Protected Zone Joint Authority to produce and present reports to the Department of the Environment and Energy annually as per Appendix B of the <i>Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition</i>.</p>

Harvest controls

Effective harvest controls are necessary to manage the ecological effects of fishing. The Torres Strait Bêche-de-mer Fishery includes various controls, but these have not always been effective in limiting harvest and avoiding overfishing.

Some catch limits are informed by stock surveys and are applied to individual species. Other catch limits are set much higher and apply to a group of species. These multi-species limits do not reflect the harvest potential of individual species but cater for small catches of the many constituent species. Overfishing can occur if particular species are targeted more than others.

In addition to total catch, it is also important that harvest controls consider the distribution of stocks and spatial distribution of fishing effort. This seeks to manage the effects of localised depletion. Spatial management is used to manage bêche-de-mer in adjacent fisheries (Commonwealth Coral Sea Fishery and Queensland state-managed fisheries), but not in the Torres Strait.

Harvest controls must also be enforceable. Controls in the Torres Strait are complex and subject to numerous exceptions. They are also poorly communicated via the PZJA website and this may make it difficult for people to understand and comply, and for authorities to enforce the arrangements.

The Torres Strait Protected Zone Joint Authority is in the process of implementing a suite of changes that are expected to address these issues over the coming years. These include:

- requirement for vessels to operate Vessel Monitoring Systems (1 July 2017)
- introduction of a public Torres Strait fisheries licence register (12 October 2017)
- requirement for all commercial fishers to unload catch to licensed fish receivers (1 December 2017)
- development of a harvest strategy, including a review of minimum size limits and conversion ratios describing framework for setting future catch limits (end 2018)

Condition 4:

The Torres Strait Protected Zone Joint Authority to implement a strategy to manage the risks of overfishing and localised depletion for all species harvested in the fishery.

This may include data collection and analysis protocols to manage risks, triggers and/or limits for managing harvest, and should also account for all sources of stock mortality, including commercial, recreational, Traditional and illegal harvest.

Issue	Condition
<ul style="list-style-type: none"> • development of an ecological risk assessment (July 2019) and subsequent development of ecological risk management strategy (TBA). • legislative amendments to provide the capacity to require mandatory reporting and issue fishery infringement notices (TBA but likely outside the timeframe of the approval proposed by this assessment report). 	
<p><u>Ecological risk assessment and mitigation</u></p> <p>Fisheries can have a range of impacts on the environment and ecosystems. Ecological risk assessments are used to inform the fishery’s data collection, monitoring and management systems.</p> <p>A number of endangered, threatened and protected species occur in the region, and assessment and mitigation is recommended as part of any precautionary management regime.</p> <p>AFMA intends to complete an ecological risk assessment for this fishery by July 2019.</p> <p>While the risks are likely to be relatively low, undertaking a risk assessment would provide greater confidence in these assumptions and allow any identified issues to be monitored and responded to as necessary.</p> <p>The Torres Strait Protected Zone Joint Authority has committed to develop an ecological risk assessment by July 2019 and to subsequently develop and implement an ecological risk management strategy.</p>	<p>Condition 5:</p> <p>The Torres Strait Protected Zone Joint Authority to complete an ecological risk assessment and implement an ecological risk mitigation strategy to ensure all environmental and ecological risks are appropriately managed.</p> <p>Condition 6:</p> <p>The Torres Strait Protected Zone Joint Authority to continue to pursue the changes necessary to facilitate reporting of interactions with species listed in Part 13 of the <i>Environment Protection and Biodiversity Act 1999</i>.</p>

REFERENCES

- AFMA (Australian Fisheries Management Authority), 2011. Strategic and Export Reassessment Report, Torres Strait Bêche-de-mer Fishery, April 2011. <http://www.environment.gov.au/system/files/pages/0490a46d-fadf-4823-bcaf-32424191c595/files/submission-april2011.pdf>. Last accessed 3 August 2017.
- Carter, A. B. and Rasheed, M. A. (2016) Assessment of Key Dugong and Turtle Seagrass Resources in Northwest Torres Strait. Report to the National Environmental Science Programme and Torres Strait Regional Authority. Reef and Rainforest Research Centre Limited, Cairns (41pp.). <http://nesptropical.edu.au/wp-content/uploads/2016/04/NESP-TWQ-3.5-FINAL-REPORT.pdf>. Last accessed 10/10/2017.
- Haddon, M. (ed.) (2012) Reducing Uncertainty in Stock Status: Harvest Strategy Testing, Evaluation, and Development. General Discussion and Summary. CSIRO Marine and Atmospheric Research. 42 p. <http://www.agriculture.gov.au/SiteCollectionDocuments/fisheries/domestic/harvest-strategy-policy/russ.pdf>. Last accessed 9/10/2017
- Hagihara, R., Cleguer, C., Preston, S., Sobotzki, S., Hamann, M., Shimada, T., and Marsh, H. (2016) Improving the estimates of abundance of dugongs and large immature and adult-sized green turtles in Western and Central Torres Strait. Report to the National Environmental Science Programme. Reef and Rainforest Research Centre Limited, Cairns (53pp.). <http://nesptropical.edu.au/wp-content/uploads/2016/06/NESP-TWQ-3.2-FINAL-REPORT-2.pdf>. Last accessed 10/10/2017.
- Patterson, H., Noriega, R., Georgeson, L., Stobutzki, I., and Curtotti, R., 2016. *Fishery status reports 2016*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra. pp339-353. http://data.daff.gov.au/data/warehouse/9aam/fsrXXd9abm_/fsr16d9abm_20160930/19_FishStatus2016TorresStraitBeche-de-merBêche-de-mer_1.0.0.pdf. Last accessed 28/07/2017.
- Patterson, H., Noriega, R., Georgeson, L., Larcombe, J., and Curtotti, R., 2017. *Fishery status reports 2017*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra. pp341-355. http://data.daff.gov.au/data/warehouse/9aam/fsrXXd9abm_/fsr17d9abm_20170929/19_FishStatus2017TorresStraitBeche-de-merTrochus_1.0.0.pdf
- Plagányi, É.E., Skewes, T.D., Dowling, N.A. et al. *Climatic Change* (2013) 119: 181. <https://doi.org/10.1007/s10584-012-0596-0>. Last accessed 9/10/2017.
- PZJA (Torres Strait Protected Zone Joint Authority), 2017. Torres Strait Bêche-de-mer Fishery. <http://pzja.gov.au/the-fisheries/torres-strait-beche-de-mer-fishery/#.WXq4UP7QAY8> Last accessed 28 July 2017.
- Skewes, T.D., Taylor, S., Dennis, D.M., Haywood, M.E.D., and Donovan, A., 2006. Sustainability Assessment of the Torres Strait Sea Cucumber Fishery, CRC-TS Project Task Number: T1.4, ISBN 1 921232 04 8. https://www.researchgate.net/publication/286013061_Sustainability_Assessment_of_the_Torres_Strait_Sea_Cucumber_Fishery. Last accessed 28 July 2017.
- Skewes, T., Murphy, N.E., McLeod, I., Dovers, E., Burridge, C. and Rochester, W., 2010. *Torres Strait hand collectables, 2009 survey: sea cucumber*, CSIRO Marine and Atmospheric Research, Cleveland, Queensland. http://pzja.gov.au/wp-content/uploads/2011/06/TSHCWG-Meeting-4-27-28-July-2010_Attachment-2.2a-Torres-Stra.pdf. Last accessed 28/07/2017.
- Taylor, S., Prescott, J. and Kung, J., 2004 (eds and rev.). A guide to management arrangements for Torres Strait Fisheries, June 2004. Australian Fisheries Management Authority. <http://pzja.gov.au/wp-content/uploads/2011/06/6.pdf>. Last accessed 3 August 2017.