

Schedule A

Terms of Reference – Environmental Assessment of Torres Strait Turtle and Dugong Fisheries

1. Description of the fishery

The assessment must include a comprehensive description of the fishery and its characteristics including (but not limited to) the agency responsible for management of the fishery, species caught, fishing methods, the area fished (including a map), the number of hunters and historic and current fishing effort.

2. The environment likely to be affected by the fishery

The assessment must provide a detailed description of the environment likely to be affected by the fishery. This description must identify significant environmental characteristics of the area likely to be affected by the fishery: for example; marine protected areas, components of biodiversity, threatened and other protected species (including target and bycatch species which also fit into this category), a description of seagrass and benthic communities, important features such as coral reefs, seamounts and estuaries, and other aspects of the biophysical environment potentially affected by the operation of the fishery.

3. Proposed Management Arrangements for the fishery

The assessment must include a description of legislation, and policies, that are relevant to the management of the fishery and its environmental impacts and the agencies that are responsible for administration of relevant legislation and the policies. International agreements that affect the management of the fishery should also be identified.

The assessment must set out the specific management arrangements that will be applied to the fishery. Accordingly, the assessment must identify (amongst other things) any management plan for the fishery, any bycatch action plan, relevant regulations and any strategic research plan for the fishery.

The assessment must specifically identify elements of the management regime for the fishery that are intended to ensure that the fishery operates in an ecologically sustainable manner. (See item 5 below.)

4. Environmental Assessment of the Fishery

The assessment must include a comprehensive analysis of the potential impacts of the fishery on the environment.

The assessment must specifically address those aspects of the *Guidelines for the Ecologically Sustainable Management of Fisheries* (available separately) relevant to ensuring the fishery is managed in an ecologically sustainable manner. An appropriately amended version of the *Guidelines*, that recognises that the fishery directly involves the take of endangered, threatened and protected species is at Attachment A.

In particular, the assessment must demonstrate that the fishery is ecologically sustainable in terms of its impact on:

- a) target species;
- b) non-target species and bycatch; and
- c) the ecosystem generally (including habitat).

In particular, the assessment must include:

- a) a description of the potential impacts of the fishery on the environment (including, to the extent possible, information on the degree of confidence with which the impacts can be predicted and quantified);
- b) an analysis of the nature and extent of the likely environmental impacts including whether the impacts will be short term or long term impacts;
- c) an assessment of whether any environmental impacts are likely to be unknown, unpredictable or irreversible;
- d) an analysis of the significance of the potential impacts; and
- e) reference to the technical data and other information relied upon in assessing the environmental impacts of the fishery.

The assessment shall include consideration of impacts associated with the conduct of the fishery, such as the discharge of waste and other pollution risks (including lost gear).

5. Management measures and safeguards to ensure ecological sustainability

This section of the assessment must provide a detailed analysis of the specific elements of the proposed management regime for the fishery that are designed to ensure the fishery is ecologically sustainable. In particular, this section of the assessment must demonstrate that the management arrangements for the fishery are consistent with the requirements of the fishery specific *Guidelines* at Attachment A.

The assessment must identify and describe the specific measures intended to prevent, minimise or compensate for

the potential environmental impacts of the fishery, and any measures to rehabilitate damage to the environment.

The assessment should include an analysis of the expected or predicted effectiveness of these measures. (The assessment should distinguish between measures designed to protect target species, and those measures designed to protect the ecosystem generally including non-target species and habitats).

A consolidated list of relevant measures should be included.

The assessment should identify the basis (eg, statutory or policy) for implementation of each measure and the agency or authority responsible for ensuring implementation. The assessment must also identify how the relevant agency or authority will ensure compliance with these measures, and what steps will be taken in the event of non-compliance. The assessment should also identify any legislative or institutional impediments to implementation.

The assessment should identify the mechanisms for reviewing the environmental impact of the fishery during the life of the proposed management arrangements, and for adjusting the life of the proposed management arrangements, and for adjusting elements of the management arrangements as necessary in response to the outcome of these reviews.

The assessment must also identify any program that is proposed to be put in place to monitor the impacts of the fishery on the environment in the short and long term.

Any proposed independent environmental auditing mechanism should be identified.

The assessment should, to the extent reasonably practicable, describe any feasible alternatives to the proposed management arrangements (or elements of those arrangements). The alternatives should be discussed in sufficient detail to make clear the reasons for preferring certain options and rejecting others. Discussion should cover matters such as alternative fishing methods and technologies, increasing or reducing permitted levels of effort, alternative mechanisms for controlling effort, and other alternative measures for preventing or minimising environmental impact.

6. Information Sources

For information in the assessment, the assessment must state:

- a) the source of the information;
- b) how recent the information is;
- c) how the reliability of the information was tested; and

- d) what uncertainties (if any) are in the information.

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Amended Fishery Specific: Guidelines for the Ecologically Sustainable Management of Fisheries

To satisfy the Australian Government requirements for a demonstrably ecologically sustainable fishery, the fishery or fisheries if a species is caught in more than one fishery, must operate under a management regime that meets Principles 1 and 2. The management regime must take into account arrangements in other jurisdictions, and adhere to arrangements established under Australian laws and international agreements.

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;
- be developed through a consultative process providing opportunity to all interested and affected parties, including the general public;
- ensure that a range of expertise and community interests are involved in individual fishery management committees and during the stock assessment process;
- be strategic, containing objectives and performance criteria by which the effectiveness of the management arrangements are measured;
- be capable of controlling the level of harvest in the fishery using input and/or output controls;
- contain the means of enforcing critical aspects of the management arrangements;
- provide for the periodic review of the performance of the fishery management arrangements and the management strategies, objectives and criteria;
- 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; and
- require compliance with relevant threat abatement plans, recovery plans, the National Policy on Fisheries Bycatch, and bycatch action strategies developed under that policy

The management regime also must comply with any relevant international or regional management regime to which Australia is a party. Compliance with the international or regional regime does not mean Australia cannot place upon the management of the Australian component of the fishery management controls that are more stringent than those required through the international or regional regime.

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.

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.

Information requirements

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.

Assessment

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.

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

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.

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

Management responses

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.

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

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

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

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.

Management responses

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.

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.

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.

Assessments

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

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.

2.1.4 An indicator group of bycatch species is monitored.

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

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

Objective 2. The fishery is conducted in a manner that avoids mortality of, or injuries to, endangered, threatened or protected species that are not targeted by the fishery, under provisions of the *Native Title Act 1993*, 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, including information on interactions with targeted species and threatened ecological communities.

Assessments

2.2.2 There is an assessment of the impact of the fishery on endangered, threatened or protected species apart from those targeted by the fishery.

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

Management responses

2.2.4 There are measures in place to avoid capture and/or mortality of endangered, threatened or protected species not targeted by this fishery.

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

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

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.

Assessment

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

1. Impacts on ecological communities

- Benthic communities
- Ecologically related, associated or dependent species
- Water column communities

2. Impacts on food chains

- Structure
- Productivity/flows

3. Impacts on the physical environment

- Physical habitat
- Water quality

Management responses

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.

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.

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

Definitions

The following defines how certain terms will be interpreted in application of the guidelines.

Associated and/or dependent species - species associated with or dependent upon harvested species, for example species which are predator or prey of the harvested species.

Biological diversity, biodiversity - the variability among living organisms from all sources (including marine and other aquatic ecosystems and the ecological complexes of which they are part). Includes 1) diversity within species and between species; and 2) diversity of ecosystems.

Bycatch - species that are discarded from the catch or retained for scientific purposes, and that part of the "catch" that is not landed but is killed as a result of interaction with fishing gear. This includes discards of commercially valuable species.

By-product - species that are retained because they are commercially valuable but are not the main target species.

Ecologically related species - species which, while not associated with or dependent upon a harvested species, nevertheless are affected by the fishing operation.

Ecologically sustainable - use of natural resources within their capacity to sustain natural processes while maintaining the life-support systems of nature and ensuring that the benefit of the use to the present generation does not diminish the potential to meet the needs and aspirations of future generations.

Ecologically viable stock - ecological viable stock has a general rather than a specific meaning. It refers to the maintenance of the exploited population at high levels of abundance designed to maintain productivity, provide margins of safety for error and uncertainty and maintain yields over the long term in a way that conserves the stocks role and function in the ecosystem.

Ecosystem - the biotic (living) community and its abiotic (non-living) environment.

Function - relationships between components of the ecosystem, without which individuals could not survive and/or reproduce. eg protection for juveniles provided by marine plants; trophic relationships.

Management regime - In this document, refers to the policies, plans, action plans, strategic research plans, and all documentation that relates to the operations and management of the fishery.

Overfishing - can be defined in two ways which can act independently or concurrently: 1) "recruitment overfishing", where fishing activities are causing a reduction in recruitment in succeeding years and cause the mortality of too many fish in total, too many pre-productive fish, or too many fish that have only spawned a few times. The end result is that the stock can no longer replenish itself adequately. 2) "growth overfishing": where fishing activities lead to a reduction in the size of the individuals of a species, as a consequence of which few specimens grow to the size for optimum yield.

Precautionary approach - used to implement the precautionary principle. In the application of the precautionary principle, public and private decisions should be guided by: 1) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and 2) an assessment of the risk-weighted consequences of the various options.

Precautionary principle - the 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 recovery strategy - Management and operational strategy, designed to increase numbers within the stock, that incorporates the precautionary approach and includes mechanisms to avoid or mitigate adverse ecosystem effects.

Productivity - when applied to fish stocks the term productivity gives an indication of the birth, growth and death rates of a stock.

Reference point - an indicator level of fishing (or stock size) to be used as a benchmark for assessment or decision making.

Stock - In the strict sense, a distinct, reproductively isolated population. In practice, a group of individuals of a species in a defined spatial range which is regarded as having a relatively low rate of exchange with others of the species.