SUBMISSION NO. 49
Inquiry into the Role of Science for Fisheries and Aquaculture

Australian Government
Department of Sustainability, Environment, Water, Population and Communities

The Hon Dick Adams MP
Chair
House of Representative Standing Committee on Agriculture, Resources, Fisheries and Forestry
Parliament House
CANBERRA ACT 2600

Dear Chair

Thank you for the opportunity to give evidence to the Standing Committee on Agriculture, Resources, Fisheries and Forestry inquiry to the role of science for the future of fisheries and aquaculture. I write to you in reference to two statements I made during the hearing.

Firstly, I indicated to the Committee that "something like 260 meetings [were] held around all the regions and several thousands of people engaged in that process as well as receiving a large number of submissions". I would like to confirm that for the first formal public consultation process on the Commonwealth marine reserves network proposals which were conducted over at least 90 days in each marine region, 245 meetings were held involving 1953 people. A total of 566,377 submissions were received across all regions.

Secondly, I wish to amend my statement to the Committee that "As for the areas for further assessment, the first of those were released three years ago, on 22 September". Please note that the first areas for further assessment were released for the South-west Marine Region on 6 May 2009. Areas for further assessment for the North and North-west marine regions were publicly released on 21 September 2009, and for the East Marine Region (including the Coral Sea) on 24 March 2010.

Information requested by the Committee is enclosed.

Yours sincerely

Stephen Oxley
First Assistant Secretary
Marine Division
12 October 2012

Enc

GPO Box 787 Canberra ACT 2601 • Telephone 02 6274 1111 • Facsimile 02 6274 1666
www.environment.gov.au

Development of a national marine monitoring strategy and development of information on the biodiversity of the South-east Marine Region

A monitoring strategy is being developed for the management of the national Commonwealth marine reserves network. This monitoring strategy will enable the review of effectiveness of management in reserves over time.

Monitoring of the marine environment is a challenging task, both scientifically and logistically.

Much of the investment in the development of the monitoring strategy from 2006 to 2010 centred on modelling (how do certain key ecological features operate), prediction (how will those features change given changes in pressures) and what attributes can be used as indicators of changing pressure. This work has been undertaken by the CSIRO, which will soon publish a series of reports on it. This foundational research is feeding into work currently being undertaken through the National Environmental Research Program (NERP) Marine Biodiversity Hub.

A key theme of the NERP Marine Biodiversity Hub research work is that of National Monitoring Evaluation and Reporting. One project undertaken through the Hub is sourcing and analysing available relevant data sources to validate predictions associated with indicators for national-scale marine ecosystem health. The project will develop new techniques to analyse time series data for seasonality, change point and trend detection. This project will also source available data relevant to the operational objectives for the South-east Marine Reserve Network, a process that will provide a framework for monitoring across the national Commonwealth marine reserves network.

Another project being undertaken through the marine Biodiversity Hub will analyse approaches for monitoring biodiversity in Commonwealth waters. The project will design and test ways to integrate new and existing survey and monitoring methods at three locations, including the shelf of the Flinders Commonwealth Marine Research in the South-east Marine Region. The project will access existing monitoring datasets and extend the spatial coverage of survey and monitoring methods to include all depths and habitat-types contained in the Commonwealth South-east Marine Reserve Network (excepting the abyssal plain). The project will use these new and existing datasets to examine: economic and logistical issues and scientific and statistical survey design issues.

A summary of these two projects is available at http://www.nerpmarine.edu.au/sites/nerpmarine.edu.au/files//NERP_Theme1_progress.pdf.

Baseline data collection has been undertaken through a number of vessel surveys. For instance, in 2009, a four week expedition was undertaken through the Tasman Fracture Commonwealth Marine Reserve, south-west of Tasmania. Surveys explored the Tasman Fracture Zone, which drops from approximately 2000 metres to over 4000 metres in depth. Sampling documented the deepest known Australian fauna, including a carnivorous sea squirt, sea spiders and giant sponges, and previously unknown marine communities dominated by gooseneck barnacles and millions of round, purple-spotted sea anemones. All of these species were located at depths of more than 2000 metres. Information from this survey is available at http://www.csiro.au/multimedia/Deep-Sea-Coral-Reveals-History.

In June 2011, scientists mapped the seafloor and acquired underwater video of previously unmapped areas of granite reef located in coastal and inner shelf waters of northeast Tasmania. Initial findings from the survey led to the discovery of granite reefs in the near shore waters of Cape Barren Island (part of the Furneaux Group) and narrow rock ledges on the

outer shelf within the Flinders Commonwealth Marine Reserve. These offshore reefs support a variety of biota including kelp in shallow water and sponge gardens on the shelf reefs. At the edge of the continental shelf, the survey was also able to map two submarine canyons in detail for the first time. Further information on this work is available at http://www.ga.gov.au/about-us/news-media/news-2011/seafloor-secrets-from-northern-tasmania.html.

In June of 2012, as part of the NERP National Monitoring Evaluation and Reporting theme, a vessel survey was undertaken in the Flinders reserve in the South-east. A final report from this survey will be available shortly. Other scientific efforts to support the development of a monitoring strategy for Commonwealth marine reserves include mapping and analysis of pressures and interactions with the seabed in the South-east Marine Region (http://www.nerpmarine.edu.au/sites/nerpmarine.edu.au/files//NERP%20Seabed%20assessment%20-%20MBH%20template%20-%20short%20version.pdf) which will enable the development of models and methods to assess risk and evaluate alternative management options.

The information base for other marine regions is also being added to through the NERP, including through the recent expedition to remote marine regions in the north. In September 2012, the RV Solander travelled to remote waters of Australia's north-west to gather information on the banks, pinnacles, terraces, valleys and basin areas that make up this environment. In addition, baited videos captured images of sharks, pelagic fish and cetaceans, while observers on board recorded sea birds, dolphins and killer whales on the surface. A range of survey techniques are being used to capture information on these landscapes and the marine life they support.

Public access and scrutiny to the science informing marine management is being accommodated through the NERP Marine Biodiversity Hub via the development of an Australian Oceans Data Network (www.aodn.org.au). This network is directed at making existing and new datasets readily accessible to all.

Australian Government

Department of the Environment and Water Resources

GUIDELINES FOR THE ECOLOGICALLY SUSTAINABLE MANAGEMENT OF FISHERIES - 2007

1. Introduction

The management of fish stocks and the ecological sustainability of global fisheries are issues that attract considerable attention internationally. It is well recognised that many of the world's fisheries are being exploited at, or beyond, their sustainable yield, with many fishing fleets overcapitalised, and the status of many fish stocks unknown.

While in general the status of Australian fish stocks is better than that of many countries, some species and fisheries are overfished, many are fully-fished, some are underfished and many have an uncertain status due to inadequate or inappropriate information to form a reliable assessment of status.

High levels of uncertainty extend to bycatch and by-product species, and the impact of fishing on the marine environment in many fisheries. Unfortunately, at present very few fisheries have robust information on the impacts of fishing on the broader marine environment, however fisheries agencies nationally, have been committing significant resources to obtaining this information. A difficulty in assessing stock status and the level of impact on other parts of the ecosystem is in part a consequence of the inherent variability in marine systems. Those who depend on our oceans for their social, economic and cultural requirements recognise the need for ecosystem based fisheries management, particularly the need for precautionary management of fisheries.

Ecological sustainability of Australia's fisheries is essential not only for long-term species and ecosystem viability but also to underpin economic sustainability. Management practices must be set so as to maintain ecological processes and conserve ecosystems for the benefit of future generations, while meeting the needs of Australian's today.

To achieve ecologically sustainable development, decision-makers must ensure that fishing activities do not pose a risk of unsustainable or unacceptable impacts on the marine ecosystem. Ecological sustainability can only be achieved and maintained through an integrated approach to fisheries management that considers all the natural and anthropogenic impacts on ecosystem components, including bycatch, by-product and ecologically related species.

To ensure an ecosystem approach to fisheries management the Commonwealth has incorporated ecological sustainability requirements into Commonwealth environmental and fisheries legislation.

Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) the Australian Government, through the Minister for the Environment and Water Resources, holds a legislative responsibility to ensure that:

1. all Commonwealth managed fisheries undergo strategic environmental impact assessment before new management arrangements are brought into effect; and
2. all fisheries, from which product is exported, undergo assessment to determine the extent to which management arrangements will ensure the fishery is managed in an ecologically sustainable way.

To assist in this assessment process the Australian Government developed, after extensive consultation with industry, governments and environmental groups, the *Guidelines for the Ecologically Sustainable Management of Fisheries* (the Guidelines). These Guidelines aid in ensuring rigorous and transparent assessments are conducted in close cooperation with fisheries agencies, the fishing industry and the wider community.

Adequate performance of fishing in relation to the Guidelines will see that the management arrangements demonstrate a precautionary approach, particularly in the absence of information. A precautionary approach should be used in all stages of fishery management, from planning through to assessment, enforcement and then re-evaluation. A precautionary approach requires managers utilise the best scientific evidence available when designing a management regime. It also requires that a minimum level of information be available before a fishery is established. Thus information collection and ongoing research is of significant importance and maybe inversely proportional to the level of precaution that a fishery takes in setting management measures. Sources of uncertainty within the data should be identified and where possible quantified. Until research on the specific stock provides information, a precautionary approach should set conservative limits to account for the unknown level of uncertainty.

To streamline the approach across all Australian jurisdictions, the Australian Government Minister for the Environment and Water Resources may accredit environmental assessments undertaken by State and Territory authorities. Accreditation may be granted provided the assessment process meets the *Accreditation Benchmarks for the Environmental Assessment of Fisheries* (Section 4). The benchmarks require that agreed terms of reference for the assessment are developed, the Guidelines are addressed, and provision is made for public input into the assessment.

Since 2000, this extensive assessment process has assisted in the implementation of ecosystem based fisheries management and in driving continuous improvement in fishery management performance. As a result of the assessment process, a broad range of recommendations have been agreed between the Australian Government Department of the Environment and Water Resources and fishery management agencies. These recommendations require fishery management agencies to demonstrate improved environmental performance, and actively enhance the ecologically sustainable

management of fisheries in the short to medium term. The outcomes of all assessments are published on the department's web site at www.environment.gov.au/coasts/fisheries

Following the completion of the first round of fishery assessments a substantial level of information is now publicly held on the environmental performance of each fishery. In order to focus resources on continuous improvement within each fishery and build on the findings from the initial assessment rounds, future submission requirements will be streamlined and align with each jurisdiction's annual reporting requirements.

Reporting and submission requirements will be determined through the process outlined in Section 2, which will align the level of change within a fishery since the last assessment with the submission requirement (outlined in Appendix A) in order to conduct an assessment against the Guidelines.

The new process requires annual reporting for all fisheries of any changes since the last report. It is envisioned that this will provide up to date information on the fishery, whilst being less resource intensive. It is important to note that fisheries which have not yet been assessed under the EPBC Act, will be automatically required to complete a full comprehensive submission. Ideally at least six months is needed to complete this assessment prior to export approval being granted.

Further information on the Guidelines and the assessment process can be obtained from:

The Director	GPO Box 787
Sustainable Fisheries Section	CANBERRA ACT 2601
Marine and Biodiversity Division	email:
Department of the Environment and Water Resources	sustainablefisheries@environment.gov.au

Further information on Commonwealth fisheries management can be obtained from:

The Senior Manager	Box 7051, Canberra Business Centre
Environment Section	CANBERRA ACT 2610
The Australian Fisheries Management Authority	fax : (02) 6225 5500

Relevant websites

Australian Government	
Department of the Environment and Water Resources - Sustainable Fisheries Section	- www.environment.gov.au/coasts/fisheries
Department of Agriculture, Fisheries and Forestry	- www.daff.gov.au
The Australian Fisheries Management Authority	- www.afma.gov.au
State Government	
Department of Primary Industries, NSW	- www.dpi.nsw.gov.au/fisheries
Department of Primary Industries and Fisheries, Queensland	- www.dpi.qld.gov.au/fishweb
Department of Fisheries, Western Australia	- www fish.wa.gov.au
Department of Primary Industries, Fisheries and Mines, Northern Territory	- www nt.gov.au/dpifm/fisheries
Department of Primary Industries, Victoria	- www.dpi.vic.gov.au/fishing
Department of Primary Industries and Water, Tasmania	- www.dpiw.tas.gov.au
Primary Industries and Resources, South Australia	- www.pir.sa.gov.au/fisheries

2. Submission requirements for subsequent fishery assessments

In light of the level of information obtained from the initial EPBC Act fishery assessments, submission requirements for subsequent EPBC Act fishery assessments will be streamlined and determined using the assessment process outlined below. This process will determine **what level of change** has occurred within the fishery **since** the last assessment, which has not been reported in annual reports, and therefore what level of information is required in the submission in order to make a robust reassessment of the fishery against the Guidelines.

As a **minimum** all fisheries, granted export approval under the EPBC Act will be required to produce annual reports containing the information[1] outlined in Appendix B. This information will form the substantive part of the fishery's submission against the Guidelines. The assessment process below will determine if information in **addition** to the annual reports is required as outlined in Appendix A.

Information requirements will be determined by the Department of the Environment and Water Resources, in conjunction with relevant fishery management agencies, preferably at least six months prior to each fishery's export accreditation expiry date.

Level of change, not reported in annual reports, since previous fishery assessment

Issue	Area of interest	YES	NO
Fishery	Has there been any change to management arrangements, and/or fishing practices?		
External influences	Has there been any change to an environmental issue/ influence outside of the fishery management agencies control?		
Interaction with protected species	Has there been any change in the nature, scale, intensity of impact, and/or management response?		
Ecosystem impact (e.g. – habitat, food chains etc)	Has there been any change in nature, scale, or intensity of impact and/or subsequent management response?		
Target stock status	Has there been any change in the target stock status? e.g. Increase or decrease in number of overfished or uncertain stocks, limit reference points or performance indicators have been triggered.		
By-product/ bycatch stock status	Has there been any change in the by-product and/or bycatch stock status? e.g. Performance indicators triggered or risk assessment outcomes show risk levels have changed.		

Subsequent fishery submission requirement

Response	Submission requirement
All no	Standard level of information
1-3 answers are yes	Standard plus ancillary level of information
4-6 answers are yes	Comprehensive level of information

[1] As per Appendix B annual reports will contain only information against those areas of relevance to the fishery and only where there has been a change in that area since the last annual report. The list of suggested areas for reporting are outlined within points 1-8 of Appendix B.

3. Guidelines for the Ecologically Sustainable Management of Fisheries

To satisfy the Commonwealth 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.[2]

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. [3]

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

[2] Review should be undertaken by the relevant management authority in a transparent way

[3] Reference points can allow for seasonal fluctuations in stock recruitment and other areas of uncertainty

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. [4]

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.[5]

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.[6]

[4] Strategies require that recovery should take place within specified times with certain degrees of probability

[5] The issues addressed under the principle are those that define components of ecosystem integrity

[6] The vulnerability of a bycatch species may be its vulnerability to fishing technology (e.g. its catchability), or its vulnerability in terms of ecological impact (eg loss of predators or prey)

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 and avoids or minimises impacts on threatened ecological communities. [7]

Information requirements

2.2.1 Reliable information is collected on the interaction with endangered, threatened or protected 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.

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.

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.

[7] "Protected" species are those which warrant a higher degree of conservation and for which explicit legislative or other mechanisms exist, eg they may be categorised under separate legislation as "endangered", "threatened", "protected"

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. e.g. 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.

4. Accreditation Benchmarks for the Environmental Assessment of Fisheries

1. The environmental assessment must be conducted under state or Commonwealth legislation.

2. Terms of reference for the assessment must require the preparation of an assessment report that assesses all impacts of the fishery on the environment and provides enough information to allow the Commonwealth Minister for the Environment and Water Resources to make an informed decision on whether the fishery is ecologically sustainable.

   In particular, the terms of reference must ensure the assessment report addresses at least the matters set out in Section 4.1.

   The terms of reference must be prepared in consultation with Department of the Environment and Water Resources.

3. A draft assessment report must be prepared in accordance with the terms of reference for the assessment. The draft report must be released for public comment for a period of at least 28 days. The draft report shall not be released for public comment until Department of the Environment and Water Resources has confirmed that the draft report adequately addresses the terms of reference (including the matters set out in Section 4.1).

4. An invitation to the public to provide comments on the draft assessment report must be published in newspapers circulating generally in the relevant state and self-governing Territory and nationally. The invitation must include:
   - a brief description of the fishery;
   - information on how the relevant documents may be obtained; and
   - the deadline for public comments (being a date not less than 28 days after the date of publication of the invitation).

5. Special arrangements should be made, as appropriate, to ensure that affected groups with particular communication needs have adequate opportunity to comment on the assessment. Indigenous people affected by the fishery may have particular communication needs and should have an adequate opportunity, where appropriate, to comment on the assessment.

6. The final assessment report must clearly address any comments received from the public and from Department of the Environment and Water Resources during the public comment period.

7. Documentation about each assessment must be made available to the public. However, access to relevant documents may be restricted to the extent that access to assessment documentation is restricted under Part 8 of the EPBC Act.

4.1. Terms of reference – Environmental assessment of 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 operators 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, 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 (among 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 section 4.1.5)

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 all aspects of the Guidelines. 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 eco-system 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 Guidelines.

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 those measures designed to protect target species, and those measures designed to protect the ecosystem generally including non-target species and habitat).

A consolidated list of relevant measures should be included.

The assessment should identify the basis (e.g. 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 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.

Appendix A - Submission information requirements

	Level of information required for assessment against the Guidelines
Standard	Option 1: All annual reports for each year that has passed since last assessment. Option 2: A summary report for entire period since last assessment. (Note: Option 2 is a transitional option that will not be available in subsequent assessments.) Annual/ summary reports will contain agreed standard information outlined in **Appendix B**.
Standard plus ancillary	Same report(s) as above provided but with the addition of: - detailed information on the specific issues identified during the assessment process.
Comprehensive	Same report(s) as provided in standard with the addition of: - detailed information on the specific issues identified during the assessment process; and - where relevant supporting documentation such as stock assessments, research reports etc. **NOTE – Fisheries undergoing initial assessment will be required to prepare a full comprehensive submission addressing the Guidelines, rather than a submission containing annual reports and supporting documentation.**

All legislated public consultation periods will be adhered to and will be conducted by the Department of the Environment and Water Resources.

Responses to issues raised in public comments will be provided by fishery management agencies and taken into account in conducting the assessment of the fishery.

Appendix B – Content of annual reports

In preparing annual reports to the Department of the Environment and Water Resources as the basis of all subsequent fishery assessment submissions, information on the following areas should be provided. Information is to be provided on those areas which are **relevant** to the fishery and that articulate **'changes'** since the last annual report.

E.g. 1 - Fishery X, a hand collection fishery was assessed as an approved WTO in 2004. There have been no changes in its fishing area, target/permitted/prohibited species, and governing legislation since the last assessment. There is no bycatch.

Therefore Fishery X's 2005 annual reports state "as per 2004 report" against these areas of no change, state "not applicable" against total catch of bycatch species and articulate the changes (such as an increase or decrease in catch or effort) against the remaining areas.

Whilst welcomed, information does not have to be provided in one stand alone document or in the specific format outlined below. However if a range of documents are to be provided as part of the annual report, a covering document must also be submitted outlining exactly where the relevant information can be located within the document.

E.g. 2 - An annual report can provide the majority of the information outlined below and then contain web links or copies of where the remaining relevant components can be found within other publicly available documents.

Progress in implementation of conditions and recommendations from previous assessments **must be** reported to the Department of Environment and Water Resources in line with their associated timeframes. However a consolidated report of annual progress should also be included as a separate section (or document) within annual reports.

1. Description of the fishery
   - Target/permitted/prohibited species
   - Management arrangements employed in the fishery
   - Fishing methods employed (gear types)
   - Fishing area (including total area the fishery is permitted to operate in, as well as location(s) of majority of fishing effort)
   - Allocation between sectors
   - Governing legislation/fishing authority
   - Status of export approval/accreditation under *Environment Protection and Biodiversity Conservation Act 1999*

2. Management
   - Changes to management arrangements (if applicable)
   - A statement of the performance of the fishery against objectives, performance indicators and performance measures
   - Compliance risks present in the fishery and actions taken to reduce these risks
   - Consultation processes
   - Description of cross-jurisdictional management arrangements

- Outcomes of review processes (if applicable)
- Demonstration of compliance with Threat Abatement Plans's, recovery plans, etc and also relevant domestic and international agreements (where applicable)

3. Research and Monitoring
   - Results of any research completed relevant to the fishery, including how results will be incorporated into management of the fishery
   - Description of monitoring programs used to gather information on the fishery (such as validated logbook programs, observer programs, long term monitoring programs etc) and results of these
   - Results of any collaborative research undertaken for the fishery

4. Catch data (should be based on data no more than 2 years old)
   - Total catch of target species (including retained and any discarded catch)
   - Total catch of target species taken in other fisheries (if applicable)
   - Catch of byproduct species (reported by species)
   - Total catch of bycatch species (reported by species if possible)
   - Harvest by each sector (ie commercial, recreational, indigenous and illegal – estimates if necessary)
   - Effort data including information on any trends
   - Spatial issues/trends

5. Status of target stock
   - Resource concerns
   - Results of any stock assessments
   - Results of any stock recovery strategies (if applicable)

6. Interactions with protected species
   - Frequency and nature of interactions
   - Management action taken to reduce interactions and results of such action

7. Impacts of the fishery on the ecosystem in which it operates
   - Results of any Ecological Risk Assessments
   - Nature of impacts on the ecosystem including impacts on any key conservation values
   - Management action taken to reduce impacts and results of such action

8. Consolidated detailed information outlining progress in implementing recommendations and conditions resulting from the Department of the Environment and Water Resource's previous accreditation of the fishery
   - Detailed description and explanation of progress in implementing <u>each</u> recommendation and condition (e.g. not just a statement of "completed")
   - How the measures implemented to address the recommendations and/or conditions have improved management of the fishery