



**Australian Government**

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**Department of the Environment and Heritage**

Assessment of the  
**Queensland Finfish (Stout Whiting) Trawl Fishery**

November 2004

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This document is an assessment carried out by the Department of the Environment and Heritage of a commercial fishery against the Australian Government Guidelines for the Ecologically Sustainable Management of Fisheries. It forms part of the advice provided to the Minister for the Environment and Heritage 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 Heritage or the Australian Government.

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# Assessment of the ecological sustainability of management arrangements for the Queensland Finfish (Stout Whiting) Trawl Fishery

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## EXECUTIVE SUMMARY

### Background

The Queensland Department of Primary Industries and Fisheries (DPI&F, formerly the Queensland Department of Primary Industries) has submitted a document for assessment under Parts 13 and 13A of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The draft document, *Ecological Assessment of the Queensland Finfish (Stout Whiting) Trawl Fishery* (the submission), was received by the Department of the Environment and Heritage (DEH) in January 2004. The submission was released for a 35-day public comment period that expired on 5 March 2004. Two public comments were received, and DPI&F provided a response to the issues raised. No changes were made to the submission as a result of public comment.

The submission reports on the Queensland Finfish (Stout Whiting) Trawl Fishery (QTF) against the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries*. The DEH assessment considers the submission, associated documents, public comments and the DPI&F response to the comments.

**Table 1: Summary of the Queensland Finfish (Stout Whiting) Trawl Fishery**

<b>Area</b>	State and Commonwealth waters between Caloundra and Sandy Cape in depths ranging between 36 and 90 metres.
<b>Fishery status</b>	Harvest levels for the target species were within the maximum sustainable yield in 2003.
<b>Target Species</b>	Stout whiting ( <i>Sillago robusta</i> ).
<b>Byproduct Species</b>	Red spot whiting (by regulation). Pinkies, octopus, cuttlefish, Balmain bugs, yellowtail scad and goatfish (under Permit, reviewed annually).
<b>Gear</b>	Single otter trawl gear. Maximum combined headrope/footrope length of 88 m, mesh size 38-60 mm, maximum sweep length of 128 m. Vessels maximum length of 20 m.
<b>Season</b>	1 April to 31 December (with a voluntary closure from 20 September to 1 November annually).
<b>Commercial harvest 2002</b>	855 tonnes of stout whiting.
<b>Value of commercial harvest 2002</b>	\$2.7 million.
<b>Recreational harvest</b>	Not targeted by recreational fishers.
<b>Commercial licences issued</b>	5 endorsements, held by 4 operators.
<b>Management arrangements</b>	Output controlled through a voluntary Total Allowable Catch (800 t in 2003). Input controlled through limited entry, seasonal closures (mandatory and voluntary), gear and vessel restrictions and trip limits for permitted byproduct species.
<b>Export</b>	Exported to Japan and Taiwan.
<b>Bycatch</b>	Include elasmobranchs, mixed finfish, prawns, crabs, echinoderms, anthozoans, bivalves, gastropods and tunicates.
<b>Interaction with Threatened Species</b>	Potential for direct interaction with syngnathids, seasnakes, turtles, grey nurse sharks. Potential for indirect interaction with cetaceans.

The fishery operates in waters off the southern Queensland coast, between Caloundra and Sandy Cape, in depths ranging between 36 and 90 metres. Part of the fishery area is in Commonwealth waters, however the entire fishery is managed by Queensland under an Offshore Constitutional Settlement (OCS) agreement between the Australian Government and the Government of Queensland.

The fishery targets stout whiting (*Sillago robusta*). Red spot whiting (*S. flindersi*) is a permitted byproduct species under regulation while a number of other species including pinkies, octopus, cuttlefish, bugs and squid are taken as byproduct under permit. The species list and trip limit conditions for permits are reviewed annually.

Stout whiting is endemic to Australia, occurring in an eastern and western population. The eastern population extends from Bustard Head south to northern New South Wales and is thought to be a single stock. The western population extends from Shark Bay south to Fremantle (O'Neill *et al*, 2003). Stout whiting is a demersal species, inhabiting the continental shelf and upper continental slope.

Stout whiting have a peak spawning time in summer (December to February), however, sexually mature fish occur in the fishery for more than 8 months of the year. There is spatial separation between juvenile and adult stout whiting, with juveniles less than one year of age occurring in shallow water adjacent to beaches. When they are approximately one year old (10 to 13 cm fork length), stout whiting move offshore into depths of greater than 30 metres. Stout whiting attain their maximum size of 23 cm fork length at approximately five years of age. Adult stout whiting often form dense schools over sandy substrates (O'Neill *et al*, 2003), making them susceptible to trawling.

The stout whiting fishery has an annual gross value of approximately \$3 million, however this is variable depending on market prices and volume caught. Production from overseas fisheries can cause gluts in the supply of stout whiting to the market, causing highly variable prices. Stout whiting is principally exported to Japan, Taiwan, Thailand, China and Vietnam for processing. Some product is re-exported to local Australian markets.

The fishery began in 1981 with one operator targeting red spot whiting. The fishery progressively began targeting stout whiting as new grounds identified that a commercially viable fishery existed for this species. The fishery underwent rapid expansion between 1989 and 1990, with 10 boats landing a catch of 1789 tonnes of stout whiting in 1990. The fishery was restructured in 1991 as a limited entry (5 operators), developmental fish-trawling fishery. The licensing structure was further refined with the introduction of the *Fisheries Act 1994*, which defined a specific finfish endorsement (T4) for the stout whiting trawl fishery and a management area for operation. Five T4 endorsements are currently issued and landings from the fishery have ranged from 2227 tonnes in 1996 to 489 tonnes in 2000.

The gear used in the fishery is a single, demersal otter trawl net. A number of restrictions are placed on the gear including the total length, the sweep length and the mesh size. Restrictions are also placed on the size of the vessel that can be used in the fishery. Other fishery management arrangements include a seasonal closure and a voluntary, industry-agreed Total Allowable Catch (TAC).

Direct information on bycatch in the QFTF is limited. Research has been undertaken in the QFTF area using fish trawl gear (Butcher, 1992), which suggested an average bycatch to target species ratio of 3.3:1, with an average of 69% of the catch comprising non-target finfish (Robins and Courtney, 1998). Some species that may be affected by the QFTF are currently listed protected species under the EPBC Act. Possible protected species interactions in this fishery include the

capture of marine turtles, sharks, syngnathids and seasnakes. Interactions with cetaceans and seabirds are also possible. Limited evidence to date suggests that interactions with any protected species group are low. These interactions are assessed under Principle Two of this report.

While the whiting species targeted in the QFTF are not caught by the recreational fishing sector, public comments on the submission raised concerns over the quantity of juvenile recreationally recognised species taken as bycatch by the QFTF. There are no data on the indigenous harvesting of species targeted by the QFTF, however given the offshore area of operation and the specialised gear required, it is unlikely that the target species would be harvested by this sector.

The QFTF management arrangements are set out under Section 35 (General Fisheries Permits) and Schedule 14 of the *Fisheries Regulation 1995*. There is also a voluntary agreement between DPI&F and QFTF operators regarding the annual TAC level for stout whiting.

### **Overall assessment**

The material submitted by DPI&F demonstrates that the management arrangements for the QFTF meet most of the requirements of the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries*. Management measures include limited entry (5 endorsements), a voluntary TAC, seasonal closures (both legislated and voluntary) and gear and boat restrictions. A comprehensive stock assessment was undertaken for the QFTF in 2003 and was used to inform the setting of the TAC of stout whiting for the 2003 fishing season.

While the fishery is relatively well managed, DEH has identified a number of risks that must be managed to ensure that their impacts are minimised:

- the QFTF does not have fishery specific objectives, performance indicators or performance measures;
- many of the management arrangements for the QFTF are voluntary and are not documented and publicly available;
- the commercial logbook data for stout whiting that are used to assess the performance of the fishery are not validated;
- limited fishery specific data is available on the composition and quantity of bycatch and protected species captured by the fishery; and
- the fishery does not use any mitigation measures to reduce the capture of bycatch and protected species.

Recommendations to address these issues have been developed to ensure that the risk of impact is minimised in the longer term. Through the implementation of the recommendations and the continuation of a responsible attitude to the management of the fishery, management arrangements are likely to be sufficiently precautionary and capable of controlling, monitoring and enforcing the level of take from the fishery while ensuring the stocks are fished sustainably.

The management regime aims to ensure that fishing is conducted in a manner that does not lead to over-fishing and for fishing operations to be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem. On balance, the fishery is being managed in an ecologically sustainable manner and is working to address existing problems and minimise environmental risks.

The operation of the fishery is consistent with the objects of Part 13A of the EPBC Act. Given the management measures outlined in the submission, DEH considers that the fishery will not be detrimental to the survival or conservation status of the taxon to which it relates in the short term.

Similarly, it is not likely to threaten any relevant ecosystem in the short term. DEH therefore recommends that the fishery be declared an approved Wildlife Trade Operation (WTO) with the actions specified in the recommendations to be undertaken by DPI&F to contain the environmental risks in the long term. DEH considers that the fishery, as managed in accordance with the management regime is not likely to cause serious or irreversible ecological damage over the period of the export decision. Specifically, the WTO declaration would allow the export of product from the fishery for a period of 3 years. The WTO declaration will require annual reporting on the progress of implementing the recommendations of this report and other managerial commitments. The implementation of the recommendations will be monitored and reviewed as part of the next DEH review of the fishery in 3 years time.

As the official fishery area encompasses Commonwealth as well as State waters, consideration under Part 13 of the EPBC Act is required regarding the impact of the fishery on listed threatened species, listed migratory species, cetaceans and listed marine species.

Protected species that may occur in the fishery area include marine turtles, grey nurse sharks, great white sharks, syngnathids, seasnakes, various cetaceans and seabirds. Very few interactions with protected species have been reported in the QFTF, the exception being the capture of 9 syngnathids between the period 1999 to 2002. Since 2002 the QFTF logbooks have had provisions for recording turtle and syngnathid capture and release. With the introduction of the Species of Conservation Interest (SOI) logbook in 2005, operators in the QFTF will be able to record any interactions with a range of protected species including grey nurse sharks, seasnakes, dugong, cetaceans and seabirds. DPI&F has also committed to introducing Turtle Excluder Devices (TEDs) into the QFTF by April 2005, which will further reduce the risk of capturing marine turtles. The actual and potential impact on Part 13 species under the management arrangements is considered low and adequate protection is provided. There are no listed threatened ecological communities in the fishery area.

DEH recommends that the Queensland *Fisheries Act 1994* and the *Fisheries Regulation 1995*, to the extent that they relate to the Queensland Finfish Trawl Fishery, be declared an accredited management plan under Sections 208A, 222A, 245 and 265 of the EPBC Act. In making this judgement, DEH considers that the fishery to which the regime relates does not, or is not likely to, adversely affect the survival in nature of listed threatened species or a population of that species, or the conservation status of a listed migratory species, cetacean species or listed marine species or a population of any of those species. DEH also considers that the management regime requires that all reasonable steps are taken to avoid the killing or injuring of protected species, and the level of interaction under current fishing operations is low. On this basis, DEH considers that an action taken by an individual fisher, acting in accordance with the Queensland Finfish Trawl Fishery management regime, would not be expected to have a significant impact on a listed threatened species or listed migratory species protected by the EPBC Act.

The implementation of recommendations and other commitments made by DPI&F in the submission will be monitored and reviewed as part of the next DEH review of the fishery in 3 years time.

## **Recommendations**

1. DPI&F to inform DEH of any intended amendments to the management arrangements that may affect sustainability of the target species or negatively impact on byproduct, bycatch, protected species or the ecosystem.

2. By December 2006, DPI&F to develop fishery specific objectives linked to performance indicators and performance measures for target, byproduct, bycatch, protected species and impacts on the ecosystem.
3. DPI&F to monitor the status of the fishery in relation to the performance measures, once developed. Within 3 months of becoming aware of a performance measure not being met, DPI&F to finalise a clear timetable for the implementation of appropriate management responses.
4. DPI&F to formalise and make publicly available all of the management arrangements for the Queensland Finfish Trawl Fishery (QFTF), including the process for setting the Total Allowable Catch, the use of vessel monitoring systems, spatial and/or temporal closures and any fishery specific objectives, performance indicators and performance measures developed for the QFTF.
5. From 2005, DPI&F to report publicly on the status of the fishery on an annual basis, including explicit reporting against each performance measure, once developed.
6. DPI&F to continue to cooperate with New South Wales to pursue complementary management and research of shared stocks for all target and byproduct species in the QFTF which may be affected by cross-jurisdictional issues.
7. DPI&F to develop and implement a robust system to validate catch and effort logbook data and the accuracy of the Species of Conservation Interest (SOCI) logbook data, once the SOCI logbook is implemented.
8. By the end of 2006, DPI&F to develop and implement a system sufficient to identify changes in the composition and quantity of bycatch in the QFTF over time.
9. DPI&F to conduct a risk assessment of bycatch captured in the QFTF. Appropriate management responses will be developed to reduce risks to species or groups identified as high-risk.
10. DPI&F to pursue a reduction in the amount of bycatch taken in the QFTF and continue to support the investigation of methods for increasing the survivability of bycatch species. Any effective and appropriate methods identified should be implemented within 18 months of identification.
11. DPI&F to promote research into the impact of the fishery on protected species and implement measures to reduce protected species interactions.
12. The spatial management system in the East Coast Otter Trawl Fishery (ECOTF) is to be reviewed by DPI&F. Should this review identify any ECOTF areas that overlap with the QFTF for closure, DPI&F to consider also closing those areas to the QFTF.

## PART I - MANAGEMENT ARRANGEMENTS

The Queensland Finfish (Stout Whiting) Trawl Fishery (QFTF) is managed by the Queensland Government Department of Primary Industries and Fisheries (DPI&F).

The management regime is described in the following documents, all of which are, or will be publicly available:

- the Queensland *Fisheries Act 1994*;
- the Queensland *Fisheries Regulation 1995*; and
- relevant Gazetted notices and permit and licence conditions.

A number of other documents, including condition and trend reports, stock assessment reports, research reports and scientific literature, are integral to the management of the fishery. A number of voluntary management measures are used in the QFTF and these are outlined in the submission.

The Department of the Environment and Heritage (DEH) considers it important that management arrangements remain flexible to ensure timely and appropriate managerial decisions. Due to the importance of the documents referred to above to DEH's assessment of the fishery, an amendment could change the outcomes of our assessment and decisions stemming from it. Decisions resulting from this assessment relate to the arrangements in force at the time of the decision. In order to ensure that these decisions remain valid, DEH 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.

**Recommendation 1:** *DPI&F to inform DEH of any intended amendments to the management arrangements that may affect sustainability of the target species or negatively impact on byproduct, bycatch, protected species or the ecosystem.*

The management regime for the QFTF has been developed through discussion papers released in 1995 and 2000. Stakeholder input was sought on these discussion papers. Since 1995, developments regarding the management regime for the QFTF have been considered by the Queensland Trawl Management Advisory Committee (TrawlMAC). Specific stakeholder meetings have also been conducted regarding resource sharing issues in the QFTF. Representatives from the recreational, game and charter fishing sectors were invited to participate.

The TrawlMAC consists of an independent chair, Queensland Government representatives from the DPI&F (managers and researchers) and the Environmental Protection Authority (EPA), commercial fishing industry representatives, a representative from the Great Barrier Reef Marine Park Authority (GBRMPA), a recreational fishing representative, a conservation group representative, a processing representative and the Chair of the Scientific Advisory Group (SAG). DEH is a permanent observer on the TrawlMAC. The SAG provides scientific advice to the TrawlMAC to assist in its deliberations.

The TrawlMAC provides advice and recommendations to DPI&F regarding the management of the East Coast Trawl Fishery (ECTF), of which the QFTF is one component. Other components of the ECTF, including the East Coast Otter Trawl Fishery (ECOTF) and the River and Inshore Beam Trawl Fishery (RIBTF), are the subject of separate assessments under the EPBC Act.

Management of the fishery incorporates a sound range of consultative mechanisms and a clear commitment to effective consultation with a variety of stakeholders. DEH considers the level of consultation to be adequate and is confident that the management agency will continue to ensure that interested parties are consulted appropriately. Recommendations regarding the need for fishery specific objectives, performance indicators and performance measures for target, byproduct,

bycatch, protected species and impacts on the ecosystem (**Recommendation 2**) and annual public reporting of fishery performance (**Recommendation 5**), should ensure that concerns raised in public comments, about consultation focussing on the target species alone, are addressed.

The fishery is managed according to the regime described in the Queensland *Fisheries Act 1994* and *Fisheries Regulation 1995*. The main purpose of the *Fisheries Act 1994* is to provide for the use, conservation and enhancement of the community's fisheries resources and fish habitats in a way that seeks to (a) apply and balance the principles of ecologically sustainable development and (b) promote ecologically sustainable development. The stock assessment undertaken for the QFTF utilizes a management strategy evaluation (MSE) approach that should be underpinned by management objectives for the fishery. However, this fishery does not have any documented management objectives, performance indicators or performance measures. DEH believes that such objectives, performance measures and performance indicators need to be developed for target, byproduct, bycatch, interactions with protected species and ecosystem impacts to ensure that the performance of the fishery can be measured and management action taken as required. DEH does not necessarily require that these be expressed in a statutory management plan, rather that they are developed, regularly reviewed and made publicly available. A clear process for responding to breaches of performance measures is also required.

**Recommendation 2:** *By December 2006, DPI&F to develop fishery specific objectives linked to performance indicators and performance measures for target, byproduct, bycatch, protected species and impacts on the ecosystem.*

**Recommendation 3:** *DPI&F to monitor the status of the fishery in relation to the performance measures, once developed. Within 3 months of becoming aware of a performance measure not being met, DPI&F to finalise a clear timetable for the implementation of appropriate management responses.*

Management of the fishery is based on a mixture of input and output controls. Such controls include:

- a voluntary Total Allowable Catch (TAC) for stout whiting that is set annually based on the stock assessment results and industry input;
- restrictions on the species of byproduct that may be retained and trip limits for permitted byproduct species;
- limited entry, with currently 5 endorsements to operate in the QFTF;
- gear and vessel restrictions, including a maximum combined headrope/footrope length of 88 m, a maximum sweep length of 128 m, a mesh size range between 38 and 60 mm and a maximum vessel size of 20 m; and
- seasonal closures (one mandatory from 1 January to 31 March, and one voluntary to match the southern closure operating in the ECOTF).

The legislated management arrangements for the QFTF are contained in Schedule 14 of the *Fisheries Regulation 1995*. This schedule specifies the fishery area, permitted species, permitted gear and the 1 April to 31 December fishing season. The submission also refers to a number of voluntary management arrangements, including the TAC and additional seasonal closure, between 20 September and 1 November, to mirror the southern closure specified in the Trawl Plan. The requirement to have vessel monitoring systems (VMS) operational in the QFTF is also unclear. At present this appears to occur as the boats currently operating in the QFTF are also endorsed in the ECOTF, where VMS is a requirement. DEH understands that DPI&F may not wish to legislate all the management arrangements for the QFTF to enable flexibility, however, all of the management arrangements, along with the objectives, performance indicators and performance measures

required in **Recommendation 2**, should be formalised (for example in a policy paper or by licence conditions) and made publicly available.

**Recommendation 4:** *DPI&F to formalise and make publicly available all of the management arrangements for the QFTF, including the process for setting the TAC, the use of VMS, spatial and/or temporal closures and any fishery specific objectives, performance indicators and performance measures developed for the QFTF.*

The management regime is enforced using a range of tools. All vessels currently operating in the QFTF are equipped with VMS. The Queensland Boating and Fisheries Patrol (part of the DPI&F) also undertakes an average of two to three at-sea and at-port inspections per vessel annually. These inspections focus on checking gear compliance, logbook records and trip limits for byproduct species taken under permit. As a condition of permits for the retention of byproduct species, fishers are required to report prior to landing product, allowing for targeted at-wharf inspections if required. DEH considers that these compliance measures contain the means of enforcing critical aspects of the management arrangements for the fishery.

DPI&F advises that the management regime for the QFTF is currently under review by TrawlMAC and the SAG. Formal reviews of the QFTF are not undertaken, however, specific issues such as the TAC and trip limits for byproduct species are reviewed annually.

The annual fishery assessment provides a comprehensive assessment of the target species, stout whiting, and this species is also included in the periodic Condition and Trend Reports prepared by DPI&F. However, DEH is concerned that there is no regular public reporting of performance on a fishery specific basis regarding byproduct, bycatch or wider ecosystem impacts of the QFTF. DEH has recommended the development of objectives, performance indicators and performance measures for target, byproduct, bycatch, interactions with protected species and impacts on the ecosystem (**Recommendation 2**). DEH recommends that DPI&F report publicly on the performance of the QFTF against each of these performance measures, once developed, on an annual basis to enhance transparency and public accountability.

**Recommendation 5:** *From 2005, DPI&F to report publicly on the status of the fishery on an annual basis, including explicit reporting against each performance measure, once developed.*

Fishery-dependent data relating to the target species are collected on a regular basis in the fishery. Fishery independent information to inform management is limited. Discussion of the information collection system can be found in Part Two of this report.

The nature of trawl fishing means that species other than those targeted by the fishery are captured, often in significant quantities. The QFTF catches significant amounts of bycatch. Bycatch assessment and management and an analysis of the fishery's capacity for 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, is contained under Principle Two of this report.

The target species (stout whiting) and some of the byproduct species (red-spot whiting, Balmain bugs, cuttlefish and squid) are also taken in the New South Wales (NSW) Ocean Trawl Fishery (OTF). Several of these byproduct species are also taken in a number of other northern Australian fisheries. While the stock assessment considers the bycatch of stout whiting taken by the Queensland ECOTF, there is no discussion in the stock assessment report of the harvest of this species by the NSW OTF. There is evidence to suggest that the Australian East Coast population of stout whiting is a single stock. Ideally, management arrangements affecting a single stock should be under a single jurisdiction or at least complementary. DPI&F has committed to working closely with NSW Fisheries to factor removals of stout whiting in NSW into the fishery assessment. In it's

submission, DPI&F has also indicated that it will consider the benefits of collaborative management of the stout whiting stock with NSW. DEH recommends that DPI&F continue to cooperate with NSW in the assessment, management and research of stout whiting and other shared stocks taken in the QFTF.

**Recommendation 6:** *DPI&F to continue to cooperate with New South Wales to pursue complementary management and research of shared stocks for all target and byproduct species in the QFTF which may be affected by cross-jurisdictional issues.*

A number of national plans and policies are relevant to the operation of the QFTF. DEH considers that the management arrangements will comply with the Recovery Plan for Marine Turtles in Australia, noting the commitment by DPI&F to legislate the mandatory use of Turtle Excluder Devices (TEDs) in the QFTF before 1 April 2005. DEH questions if the QFTF, as it operates currently, complies with the National Policy on Fisheries Bycatch in that there are no management measures aimed at reducing bycatch or improving protection for vulnerable/threatened species, which are two of the core objectives of the policy. This is further discussed under Principle Two, Objective One. While there is no mechanism in the QFTF management arrangements that requires compliance with any future plans or policies, DEH expects that DPI&F will ensure that the QFTF complies with any relevant recovery plans, threat abatement plans or other policies developed.

No regional or international management regimes, to which Australia is a party, are of direct relevance to the fishery. The prime international regime affecting the fishery is the United Nations Convention on the Law of the Sea (UNCLOS). The management regime essentially complies with this. Other international regimes are applicable to fisheries management but do not explicitly involve this fishery, for example the 1992 Convention on Biological Diversity and in particular the 1995 Jakarta Mandate requiring that, in relation to the sustainable use of marine and coastal biological diversity, the precautionary principle should apply in efforts to address threats to biodiversity. While these agreements are not specifically addressed in the submission, the fishery's compliance with their requirements can be assessed by examination of Part Two of this report. The application of the International Convention for the Prevention of Pollution from Ships (MARPOL) to vessels operating in the fishery is explicitly discussed under Principle 2, Objective 3.

DEH considers it is incumbent on all authorities to develop a thorough understanding of the framework of national, regional and international agreements and their applicability to export-based fisheries for which they are responsible.

## **Conclusion**

DEH considers that there is a good consultative and review process regarding the management arrangements for the target species, but more consideration needs to be given to expanding these to include the wider ecosystem impacts of the QFTF. The management arrangements for the QFTF need to be documented and made publicly available to improve transparency and objectives and performance criteria need to be developed so that the effectiveness of the management arrangements can be measured, enforced and reviewed.

The management arrangements are capable of controlling the harvest through a combination of input and output controls appropriate to the size of the fishery. The means of enforcing critical aspects of the management arrangements are also provided for.

DEH considers that there is scope to further refine the management arrangements and has provided a number of recommendations for improvements in the longer term.

## **PART II – GUIDELINES FOR THE ECOLOGICALLY SUSTAINABLE MANAGEMENT OF FISHERIES**

### **Stock Status and Recovery**

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’*

### **Maintain ecologically viable stocks**

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**

Several forms of fishery dependent data are available for the QFTF.

A compulsory daily logbook, which records shot-by-shot catch and effort data by latitude and longitude for stout whiting and incidental species captured, is compulsory in the QFTF. Logbooks have been compulsory in the QFTF since 1999 and have undergone several revisions. In 2001 the logbook was revised to provide for more detailed recording of byproduct, bycatch and protected species. There is no provision on the logbook to record catch data on red spot whiting, however, DPI&F has committed to incorporate reporting of this species in the next revision of the logbook.

Prior to 1999, data on the commercial catch in the QFTF were obtained from fishers personal diaries. These data were used in the annual stock assessment and DPI&F reports that more than 75% of data recorded in diaries were at the shot level and included latitude and longitude information.

Fishery dependent data are available on byproduct species in the QFTF from 2000, with the amount and scale of data collected changing with the introduction of new logbooks. From 2000 to 2001, data were collected on a limited number of species including yellowtail scad and goatfish. Data have been collected on an expanded range of byproduct species since mid-2001. Data are collected on pinkies, octopus, cuttlefish, Balmain bugs, yellowtail scad and goatfish on a shot by shot basis. These species represent the permitted byproduct species for the QFTF in 2002. In 2003 DPI&F added Moreton Bay bugs and squid to the permitted byproduct list for the QFTF but as yet the logbooks have not been updated to collect data on the catches of these species. Data presented in the submission indicates that landings of permitted byproduct are relatively small, with approximately 100 tonnes of permitted byproduct landed between 1999 and 2002. The major byproduct species are goatfish and yellowtail scad, which made up more than 90% of total byproduct landings over this period.

Data on effort are also available from VMS. While VMS is not a specific requirement in the *Fisheries Regulation 1995* for the QFTF, all current operators in the QFTF also hold endorsements in the ECOTF. All vessels operating in the ECOTF are required to have a VMS, therefore all vessels currently operating in the QFTF are equipped with VMS and DPI&F advises that VMS is required to be operational while vessels are fishing in the QFTF. As the use of VMS is enforced as a condition of an authority other than the QFTF, DEH suggests that DPI&F should make this requirement of operating in the QFTF clear in the management arrangements of the fishery. This would alleviate any confusion if, in the future, a QFTF licence was held by a fisher without an endorsement in the ECOTF.

There are no fishery independent sources of data for species targeted within the QFTF. Limited fishery independent data are available on byproduct species taken in the QFTF. The only species retained by the QFTF that is included in DPI&F's Long Term Monitoring Program is Moreton Bay bugs and monitoring of this species is undertaken outside of the QFTF fishery area. DPI&F notes that these data will assist in identifying changes to catches of Moreton Bay bugs in other areas including the QFTF area. DPI&F also notes in their submission that there has been some recent research into the biology (growth and reproduction) of Balmain bugs, pinkies and cuttlefish, although this research has not been published.

Given the lack of any fishery independent data on the target species and the reliance of the stock assessment on catch and effort data, robust validation of logbook data is essential. DPI&F has the necessary tools to validate the amount of effort and fishing location recorded in logbooks through the VMS, but advises that this has not occurred to date. Currently the only mechanism to validate catch data in the QFTF is by random at-sea and targeted in-port inspections. The submission indicates that an average of two to three inspections are carried out on each vessel annually. DEH recommends that DPI&F develop and implement a robust system to validate commercial logbook reporting of catch and effort for target and byproduct species. In addition, the Species of Conservation Interest (SOCI) logbook is due to be implemented in the QFTF at the next revision of the QFTF logbooks. DEH notes the problems associated with validating the often random and rare nature of protected species interactions. Therefore DEH recommends validating the accuracy of protected species interactions reported in the SOCI logbooks, rather than individual events.

**Recommendation 7:** *DPI&F to develop and implement a robust system to validate catch and effort logbook data and the accuracy of SOCI logbook data, once the SOCI logbook is implemented.*

To further inform stock assessments, random samples of stout whiting are taken from the QFTF catch annually to assess length frequency and age composition of the commercial catch. This analysis has been undertaken since 1991.

The amount of effort creep in the QFTF fishery is also estimated and factored into the stock assessment. Since 2001, questionnaires have been completed annually to provide information on changes to the catching ability of each vessel in the fishery.

Overall, given the range of fishery dependent data gathered by DPI&F and the mechanisms for regularly reviewing the data requirements, DEH considers that there is a sound information collection system in place appropriate to the scale of the fishery. Continuation of existing data collection and research programs, combined with some extension and refinement of such activities will be important for the future management of the fishery. Given the reliance of the stock assessment on catch and effort data, DEH considers that more robust validation of logbook data would improve the reliability of the information collection system for the QFTF.

### **Assessment**

A stock assessment for stout whiting was undertaken annually to inform the setting of the TAC between 1997 and 2003 and according to DPI&F this assessment is the most comprehensive regular review of the management arrangements of any Queensland fishery. No formal stock assessment was carried out for 2004 due to some data related issues that have now been independently rectified. The TAC was based on an assessment of the CPUE data from 2003 (which was nearly double that of 2001 and 2002), improved age structure and the relatively light fishing that occurred in 2003. DPI&F advises that a stock assessment will be prepared and used to set the TAC for the 2005 fishing season.

The 2002 stock assessment assessed the fishery against three models, an age-structured model, a virtual population analysis and a surplus production model. The stock assessment found no evidence of an increase in recruitment and biomass of stout whiting and that the fishery had fallen marginally below a biomass/carrying capacity level that defines overexploitation (this is discussed in detail under Principle 1, Objective 2) and recommended a decrease in the TAC for the 2003 season.

Since 1999, the total catch has not exceeded the TAC, in some years, notably 2000 and 2003, being significantly lower than the TAC (489 tonnes landed from 1000 tonnes TAC in 2000 and 249 tonnes landed from 800 tonnes TAC in 2003) due primarily to a lack of market opportunities.

As discussed above, DPI&F has collected data on effort creep and age structure to increase the robustness of the stock assessment, however, DPI&F does acknowledge that the results of all three models should be viewed with caution as their uncertainty is high and the models could be improved. It is DPI&F's intention to have stock assessments for its fisheries independently reviewed, however, in the short term there are no plans for this to occur for the QFTF stock assessment. DEH is highly supportive of the MSE approach that is used in the stock assessment, however, DEH's main concern is that as the fishery has no specific management objectives, it is difficult for the stock assessment to monitor and report on the performance of the fishery.

**Recommendation 2** addresses this concern. DEH is also concerned that the stock assessment has not included stout whiting taken in other fisheries, and this is further discussed below.

Removals of stout whiting from the eastern population include direct harvest by this fishery and incidental capture by the ECOTF and NSW OTF. Since 2000, fishers operating in the ECOTF have not been permitted to retain any whiting species and this has been reflected in commercial logbook reporting. However, stout whiting would still be captured and discarded by the ECOTF and as fishers in the ECOTF do not record discards, the quantity of stout whiting being impacted by the ECOTF is unknown. DPI&F has committed to conducting an observer program to quantify the incidental capture of stout whiting by the eastern king prawn fleet in Queensland so this can be incorporated into future stock assessments. A pilot of this program was run throughout 2004. In the NSW OTF 950 tonnes of school whiting (including both stout whiting and red spot whiting) were harvested in 2000/01. This represents a significant harvest of the two permitted species in the QFTF and DEH notes the important commitment by DPI&F to work closely with NSW Fisheries to factor removals of stout whiting in NSW into the stock assessment. DPI&F has also indicated that it will investigate the benefits of collaborative management of the stout whiting stock with NSW as outlined in **Recommendation 6**.

There is no formal assessment of the permitted byproduct for the QFTF. However, many of the permitted byproduct species are covered in various assessments that have been undertaken. Assessments of Moreton Bay bugs, Balmain bugs and squid were included in the *Queensland's Fisheries Resources current condition and recent trends 1988 – 2000* report (Williams, 2002). A number of QFTF byproduct species were also included in the *Permitted Species Review of the Fisheries (East Coast Trawl) Management Plan 1999* (Queensland Fisheries Service, 2001), including pinkies, octopus and cuttlefish. More recently, the *Review of the Sustainability of Fishing Effort in the Queensland East Coast Trawl Fishery* (Kerrigan *et al.*, 2004) included a risk assessment of the permitted species groups defined in the Trawl Plan. Two species of pinkies and Balmain bugs were assessed as being at 'true high risk'. Octopus and cuttlefish were assessed as being at 'possible high risk', mostly due to a lack of data on which to base the assessment.

To improve confidence in the sustainable take of byproduct species, especially those identified as 'true' or 'possible' high risk species in the Queensland East Coast Trawl Fishery, and to have a more ecosystem-based approach to the management of the QFTF, the assessment for the QFTF could expand its focus to include byproduct, bycatch and wider ecosystem impacts. DEH expects

this will be facilitated by the development of objectives, performance indicators and performance measures for target, byproduct, bycatch, protected species and impacts on the ecosystem (see **Recommendation 2**).

### **Management response**

The current QFTF management regime is capable of controlling the harvest of stout whiting through a range of input and output controls. These measures were outlined in Table 1 and Part One of this report.

DEH considers that the combination of input controls should ensure adequate protection of the target stock, but notes that this is contingent upon the small number of operators in the fishery and the TAC being set at a sustainable level. While many of the management arrangements are not formalised or publicly available, DEH has addressed this concern in **Recommendation 4**.

The stock assessment provides a variety of management options that are dependent on the yield sought and the risk DPI&F is willing to take for the fishery. DEH is supportive of the MSE approach undertaken in the stock assessment. However, DEH feels that the management arrangements would be more robust if there were fishery specific management objectives and performance measures which the stock assessment could report against. DEH has recommended DPI&F develop fishery specific objectives linked with performance indicators and performance measures for target and byproduct species (see **Recommendation 2**). DEH has also recommended that a process be developed to monitor the performance measures, once developed (see **Recommendation 3**).

The secondary target species in the QFTF is red-spot whiting. This species is not covered by a TAC as for stout whiting and there is no trip limit as for the other permitted byproduct species. DPI&F advises that red spot whiting only make up a small (1%) component of the catch in the southern areas of the fishery. No red spot whiting have been identified in the samples taken for age structure analysis since 1999. DEH expects that if landings of this species were to increase, DPI&F would implement management measures to ensure the stock was being fished sustainably.

Management responses associated with byproduct include trip catch limits that have been based on the historical catch and effort levels in the fishery. No breach of these trip limits has been recorded. As previously discussed, no fishery specific performance measures for byproduct species exist in the QFTF (see **Recommendation 2**) and DEH considers that these, coupled with appropriate management responses, are essential to ensure that stocks of byproduct species are sustainably managed.

### **Conclusion**

DEH considers that the management regime in the QFTF is appropriately precautionary and provides for the fishery to be conducted in a manner that does not lead to over-fishing. DEH considers that the information collection system and stock assessment and management arrangements generally are sufficient to ensure that the fishery is conducted at catch levels that maintain ecologically viable stock levels with acceptable levels of probability.

DEH considers that there is scope to further refine some of the existing information collection, assessment and management responses and has provided a number of recommendations for improvements in the longer term.

## Promote recovery to ecologically viable stock levels

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'*

The 2003 stock assessment for stout whiting identified that the ratio of exploitable biomass to the exploitable component of the virgin carrying capacity (often seen as B/K) was 0.19. A B/K less than 0.2 is generally accepted as a high risk of overexploitation. The stock assessment process included a MSE which suggested the TAC should range between 700 and 900 tonnes, depending on the level of risk and yield sought by the management objectives (O'Neill *et al.*, 2003). In response to this, DPI&F reduced the TAC to 800 tonnes for the 2003 fishing season, however, only 249 tonnes was landed from two operational vessels. The low harvest level achieved in 2003 was attributed to a lack of market opportunities, rather than an inability to catch product. In 2004 the TAC has been set at 1000 tonnes, based on an analysis of CPUE data for 2003 (which was nearly double that of 2001 and 2002) and the relatively light fishing that occurred in 2003.

DEH is concerned that the last formal risk assessment undertaken for stout whiting indicated that there was a high risk of overexploitation of the stock. While only light fishing was conducted in 2003, DEH considers that DPI&F should continue to conduct annual stock assessments of the fishery to ensure any overexploitation of the stout whiting stock is identified and appropriate management responses implemented. DPI&F and the industry have shown a history of lowering the TAC in response to concerns over the sustainability of the stock.

### Conclusion

DEH considers that while the most recent stock assessment of the stout whiting stock showed there was a risk of overexploitation of the resource, it is being suitably managed to be sustainable in the long term. Should stocks fall below accepted performance measures, DPI&F and industry have shown a willingness to ensure appropriate management measures are in place to promote recovery to ecologically viable stock levels within nominated timeframes.

## Ecosystem impacts

Principle 2: *'Fishing operations should be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem'*

### Bycatch protection

Objective 1: *'The fishery is conducted in a manner that does not threaten bycatch species'*

### Information requirements

Information on bycatch in the QFTF is limited in terms of both composition and quantity. No estimate of the total weight of bycatch captured in the QFTF is available. Data from several research trials conducted in the QFTF using fish trawl gear (Butcher, 1992) was used to estimate a bycatch to target species weight ratio of 3.3:1 (Robins and Courtney, 1998). This is significantly lower than the bycatch to target species ratio (11.2:1) estimated for the shallow water eastern king prawn fishery that operates in the same area (Robins and Courtney, 1998). The submission includes a list of bycatch species sampled from the QFTF area in 1991 using fish trawl gear (Butcher, 1992). The list of bycatch includes 95 species or species groups, 61 of which are finfish. Non-target finfish were estimated to comprise 68% of the average weight of the total catch.

Prior to 2000 no fishery dependent data were collected on bycatch species in the QFTF. Since 2000, logbook data have been collected on discards of permitted species including, stout whiting, yellowtail scad, goatfish, cuttlefish, octopus, Balmain bugs and pinkies. The range of bycatch species recorded in the QFTF was expanded again in 2001 to include sharks, prawns, squid, Moreton Bay bugs, whiptails and blue swimmer crab. Data are also collected on a number of protected species and this is further discussed under Objective 2.

Of the bycatch species recorded in the logbook, quantities are low relative to the total catch. From 1999 to 2002, between 0.2 and 28 tonnes of stout whiting, 1.4 to 3.5 tonnes of blue swimmer crab, 4 to 22 tonnes of prawns and 0.4 to 3.3 tonnes of shark were recorded as bycatch in the QFTF. The submission does not provide data on the bycatch of finfish species, other than stout whiting.

Public comments on DPI&F's submission raised concerns regarding the bycatch of juvenile finfish species, a number of which are targeted by the recreational sector. The data provided in the DPI&F submission indicates that the bycatch of finfish is significant. Therefore, the QFTF is likely to be catching and discarding significant quantities of non-commercial finfish. The current information collection system is not adequate to alert managers of concerns with bycatch in the QFTF. DEH considers that fishery specific data on the composition and quantity of bycatch, including protected species, is needed to conduct a robust risk assessment of bycatch in the QFTF.

**Recommendation 8:** *By the end of 2006, DPI&F to develop and implement a system sufficient to identify changes in the composition and quantity of bycatch in the QFTF over time.*

### **Assessment**

Fishery specific assessments of bycatch in the QFTF are limited. DPI&F conducted a brief assessment of bycatch in the QFTF in their submission, which found that due to the small spatial extent, limited number of operators and limited effort (compared to the much larger ECOTF), the potential impact of the QFTF on bycatch is much lower relative to that of the ECOTF. While this assessment is feasible, without some data on the composition and quantity of bycatch caught in the QFTF a robust risk assessment is impossible. DPI&F has committed in their submission to undertake a comprehensive risk assessment for bycatch species in the QFTF once information from a current research project on bycatch in the shallow eastern king prawn sector of the ECOTF is available. While DEH is supportive of this commitment, there may be problems with comparing bycatch data from a survey designed for a prawn trawl fishery to a fish trawl fishery and DEH is concerned about DPI&F relying solely on this data to assess risks to bycatch species in the QFTF. DEH recommends that DPI&F conduct a bycatch risk assessment specific to the QFTF, once DPI&F has a better understanding of bycatch taken in the QFTF.

**Recommendation 9:** *DPI&F to conduct a risk assessment of bycatch captured in the QFTF. Appropriate management responses will be developed to reduce risks to species or groups identified as high-risk.*

### **Management response**

There are currently no management measures in place in the QFTF with the primary objective of reducing bycatch. The use of bycatch reduction devices (BRDs) or TEDs is not mandatory in the QFTF. A discussion of TEDs is included under Objective 2, however, DPI&F has committed to introducing TEDs into the QFTF by April 2005. The use of BRDs in fish trawl fisheries is difficult without losing large quantities of the target species. Research on the efficiency of BRDs in the QFTF would be required before implementation. The common difficulties are compounded in the QFTF given the similarities in size and behaviour of the target and major bycatch species.

The submission indicates that vessels operating in the QFTF are equipped with mechanical hoppers that have the potential to increase the survivability of a number of bycatch species.

DEH notes that many of the management measures in place in the QFTF are precautionary in relation to bycatch species, including the low number of participants in the fishery and the seasonal closures. However, DEH questions whether the management arrangements of the QFTF comply with the National Policy on Fisheries Bycatch. One of the core objectives of the policy is to reduce bycatch. To ensure the QFTF complies with this policy and to ensure that impacts on bycatch species are minimised, DEH recommends the DPI&F reduces the amount of bycatch in the QFTF through the development and implementation of bycatch mitigation measures and continues to work with industry to increase the survivability of bycatch species. Special attention should be given to any species identified as high risk in the bycatch risk assessment (see **Recommendation 9**). DEH will review this issue in the reassessment of the QFTF in three years time, when more fishery specific data and the bycatch risk assessment are available.

**Recommendation 10:** *DPI&F to pursue a reduction in the amount of bycatch taken in the QFTF and continue to support the investigation of methods for increasing the survivability of bycatch species. Any effective and appropriate methods identified should be implemented within 18 months of identification.*

As previously discussed, no bycatch species are currently monitored in the QFTF and there are currently no performance measures related to bycatch. DEH has made recommendations to address both of these issues (see **Recommendation 8** and **Recommendation 2** respectively).

DEH considers that the low numbers of participants in the fishery and the seasonal closures applying to the QFTF are sufficiently precautionary to ensure bycatch species are not threatened by the QFTF. With the implementation of the commitment to introduce TEDs and the recommendations related to bycatch and protected species made in this assessment, DEH considers that the QFTF will ensure compliance with the National Policy on Fisheries Bycatch within the 3 year term of this declaration.

## **Conclusion**

Given the small scale of the QFTF and the management arrangements currently in place, DEH considers it likely that the fishery is conducted in a manner that does not threaten bycatch species. Should this situation change, or a risk assessment process indicate otherwise, DEH expects that DPI&F would undertake appropriate actions to ensure that bycatch species are not threatened by this fishery.

Several recommendations have been developed to ensure that the risk of unacceptable impact on bycatch species is detected and minimised in the longer term.

## **Protected species and threatened ecological community protection**

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

Currently, the QFTF logbooks collect data on syngnathids and turtles captured by the fishery. The condition at release of turtles is also recorded. DPI&F advises that the QFTF fleet will be issued with SOCI logbooks before the start of the 2005 season. The SOCI logbooks will record data on interactions with turtles, syngnathids, seasnakes, dugong, cetaceans and grey nurse sharks.

At the time of writing the submission in late 2003, there had been no reported turtle interactions in the QFTF. This result is somewhat surprising given the fishery operates without TEDs and in an area when turtles are located. The Queensland East Coast Otter Trawl Fishery, which operates over the entire length of the Queensland coast, captured an estimated 5295 turtles per annum prior to the introduction of TEDs in that fishery (Robins, 1995). This study indicated that large number of green turtles (*Chelonia mydas*) and loggerhead turtles (*Caretta caretta*) were captured by the ECOTF in the region of the QFTF. In addition, data presented in the Environmental Impact Statement on the New South Wales Ocean Trawl Fishery (NSW Fisheries, 2004) confirms that turtles are caught by this fishery as far south as Newcastle (3 unidentified turtles species in 590 observed tows). These data raise concern over the accuracy of turtle interaction reports in QFTF logbooks.

Logbook data suggest that the capture of syngnathids is a rare event in the QFTF with 9 individuals reported as captured between 1999 and 2002. Logbook data on protected species interactions will be able to be compared against the results of the bycatch study to determine the accuracy of the QFTF logbooks.

DEH has made a recommendation regarding development of a performance measure for protected species (**Recommendation 2**), public reporting against this performance measure (**Recommendation 5**) and the validation of SOCI logbook data (**Recommendation 7**). In addition, DEH considers that research into the impact of the QFTF on protected species is required, given the different gear employed in this fishery compared to prawn trawl fisheries, where some research in this area has already occurred. While reported protected species interactions in the QFTF are low, there is the potential for the QFTF to interact with a number of protected species and DPI&F should implement measures to reduce the risk of protected species interactions where possible.

**Recommendation 11:** *DPIF to promote research into the impact of the fishery on protected species and implement measures to reduce protected species interactions.*

## Assessment

Currently insufficient data are available to make a robust assessment of the impact of the QFTF on protected species. The DPI&F submission includes a brief assessment of the potential impact of the QFTF on protected species. It notes that one of the grey nurse shark's key aggregation sites is within the QFTF area and thus the potential for interactions may be more likely during seasonal movements to and from this site.

The introduction of the SOCI logbook in 2005 will assist in providing information, as will the outcomes of the bycatch monitoring system outlined in **Recommendation 8**. DEH expects that all of this information will be used in the bycatch risk assessment (see **Recommendation 9**) and that this risk assessment will include specific consideration of protected species.

There are no listed ecological communities in the fishery area.

## **Management response**

None of the management measures in place in the QFTF have the primary objective of reducing protected species interactions. The management measures in place in the QFTF, including the temporal closure between January and March each year, as well as a voluntary closure in September/October, all contribute to minimising interactions with protected species. In addition, the amount of effort applied in the fishery is relatively small, between 4000 and 6500 hours annually from 1998 to 2002. All boats currently operating in the QFTF are equipped with hoppers, which have the potential to increase the survivability of protected species incidentally captured, such as syngnathids. DPI&F has recently protected four key aggregation sites of the grey nurse shark, one of which, Wolf Rock, occurs in the QFTF area. The site includes approximately 6.7 km<sup>2</sup> of waters in which all forms of fishing are prohibited. This site represents the only permanent closure in the QFTF area.

DEH notes that TEDs have been trialled voluntarily in the QFTF since 2003 and welcomes the revised commitment by DPI&F to make TEDs compulsory in the QFTF before the start of the 2005 fishing season and considers this an important measure to ensure the management arrangements for the QFTF are ecologically sustainable.

## **Conclusion**

DEH notes that reported interactions with protected species in this fishery are minimal and considers that, given the commitment to implement TEDs before the 2005 fishing season, the fishery will be conducted in a manner that avoids mortality of, or injuries to, endangered, threatened or protected species. Should this situation change, or a risk assessment process indicate otherwise, DEH expects that appropriate actions would be undertaken to ensure the fishery avoids mortality or injury to these species and avoids or minimises impacts on threatened ecological communities.

A recommendation has been developed to ensure that the risk of unacceptable impact on protected species is minimised in the longer term.

## **Minimising ecological impacts of fishing operations**

Objective 3: *'The fishery is conducted, in a manner that minimises the impact of fishing operations on the ecosystem generally'*

## **Information requirements**

Little information is known about the wider ecological impact of the QFTF. Data are available since 1999 on the distribution of effort in the QFTF and the introduction of VMS in the QFTF will allow the collection of finer scale effort distribution data. Little is known about the benthic habitats and communities present in the QFTF area, although information from research surveys carried out in the QFTF area suggests that the benthic substrate is predominantly sandy.

Several research projects have looked at the ecosystem effects of trawling in Queensland. In the far northern section of the Great Barrier Reef Marine Park (GBRMP) work has been done on the impacts of trawling on benthic habitats (Poiner *et al.*, 1999) and the recovery of benthic habitats (Pitcher *et al.*, 2000). A third study is mapping bycatch and seabed biodiversity across the entire GBR region (FRDC project number 2003/021). In addition, a bycatch composition survey has been undertaken in the shallow eastern king prawn fishery. DPI&F acknowledges that caution must be used in applying the results of any of these projects to the QFTF, as the habitats found in the GBRMP and the gear used in these studies are different to those in the QFTF.

DEH is concerned at the lack of information collection and research covering the fisheries impact on the ecosystem and environment generally. However, DEH understands that this lack of information is the case across a range of Australian and international fisheries and until appropriate research techniques and programs are developed and implemented this will continue to be the case. DEH strongly supports research in this area.

### **Assessment**

Given the lack of data on the ecological impacts of the QFTF, a robust risk assessment at this time is not possible. DPI&F has committed to undertaking further assessment once the results of the GBRMP benthic mapping and bycatch composition in the ECOTF projects discussed above become available. DEH have also recommended that the DPI&F develop and implement a system to identify changes in the composition and quantity of bycatch in the QFTF (**Recommendation 8**), which will also provide fishery specific data to inform this assessment.

### **Management response**

The relatively small fishery area and the concentration of effort into two areas within the fishery, along with relatively low effort levels and a limited number of operators, all act to lower the risk of significant impact from the QFTF on the ecosystem. The introduction of TEDs in the QFTF is expected to also minimise the impact of the fishery on food chain structure and productivity by reducing the amount of bycatch (and therefore biological material) taken out of the ecosystem. Ongoing work to refine these devices could be expected to further reduce this impact.

Impacts on water quality through the discharge of plastic wastes and pollution from vessels are controlled under MARPOL legislation. While the submission makes no direct reference to MARPOL, DEH expects that operators are required to comply with the legislation and retain any plastic waste for disposal when the vessel returns to port.

The grounds of the QFTF overlap with the southern area of the ECOTF. In its assessment of the ECOTF, DEH made a recommendation for the DPI&F to initiate a review of the spatial management system in the ECOTF within 3 years to determine whether the system of closures within and outside the GBRMP provides adequate protection to species and benthic communities from fishery impacts and whether additional closures are required outside the GBRMP. DEH considers that is not necessary for DPI&F to conduct a separate review of spatial management in the QFTF area. However, DEH recommends that any closures implemented for ecological or sustainability reasons in the area of the ECOTF that overlaps with the area of the QFTF should also be considered for the QFTF.

**Recommendation 12:** *The spatial management system in the ECOTF is to be reviewed by DPI&F. Should this review identify any ECOTF areas that overlap with the QFTF for closure, DPI&F to consider also closing those areas to the QFTF.*

### **Conclusion**

DEH considers that the fishery is conducted in a sufficiently precautionary manner to minimise the impact of fishing operations on the ecosystem generally. A recommendation has been developed to ensure that the risk of significant impact by the fishery on the marine environment generally is minimised in the longer term.

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## LIST OF ACRONYMS

BRDs	Bycatch Reduction Devices
DEH	Department of the Environment and Heritage
DPI&F	Department of Primary Industries and Fisheries
ECOTF	East Coast Otter Trawl Fishery
ECTF	East Coast Trawl Fishery
EPA	Environment Protection Agency
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
GBRMP	Great Barrier Reef Marine Park
GBRMPA	Great Barrier Reef Marine Park Authority
m	metre
mm	millimetre
MARPOL	International Convention for the Prevention of Pollution from Ships
MSE	Management Strategy Evaluation
NSW	New South Wales
OCS	Offshore Constitutional Settlement
QFTF	Queensland Finfish Trawl Fishery
OTF	Ocean Trawl Fishery
RIBTF	River and Inshore Beam Trawl Fishery
SAG	Scientific Advisory Group
SOCI	Species of Conservation Interest
t	tonnes
TAC	Total Allowable Catch
TEDs	Turtle Excluder Devices
Trawl MAC	Trawl Management Advisory Committee
UNCLOS	United Nations Convention on the Law of the Sea
VMS	Vessel Monitoring System
WTO	Wildlife Trade Operation