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SPECIAL

**Great Barrier Reef Marine Park Act 1975**

**Notice Pursuant to Clause 4.3.2 of the Far Northern Section Zoning Plan**

The Great Barrier Reef Marine Park Authority has, for the purposes of clause 4.3.2 of the Far Northern Section Zoning Plan tabled in both Houses of the Commonwealth Parliament on 6 March 2000, accredited the *Fisheries (East Coast Trawl) Management Plan 1999* (as amended) under the *Fisheries Act 1994* of Queensland as ensuring an ecologically sustainable fishery for trawling in the Far Northern Section of the Great Barrier Reef Marine Park.

The aforesaid Management Plan may be inspected at the Queensland Fisheries Service at 157 Ann Street, Brisbane Qld 4000 and copies may be obtained from GoPrint at 371 Vulture Street, Woolloongabba Qld 4102 or from the website of the Queensland Parliamentary Counsel at <http://www.legislation.qld.gov.au>.

Consistent with the resolutions of the Great Barrier Reef Ministerial Council at its 28<sup>th</sup> Meeting on 13 October 1999, the Great Barrier Reef Marine Park Authority ("the Authority") will conduct an annual audit on the progress of the East Coast Trawl Fishery in achieving the objectives of the *Fisheries (East Coast Trawl) Management Plan 1999* (as amended). This audit will include an assessment by the Great Barrier Reef Marine Park Authority of an annual report provided by the Queensland Fisheries Service to the Authority in respect of the East Coast Trawl Fishery. The Authority will report annually to the Great Barrier Reef Ministerial Council on the findings of this audit.

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## PART 2—OBJECTIVES OF PLAN AND THEIR ACHIEVEMENT

### 4 Objectives

The objectives of this plan are to—

- (a) manage the fishery in a way that gives optimal, but sustainable, community benefit; and
- (b) ensure fisheries resources taken in the fishery are taken in an ecologically sustainable way; and
- (c) ensure the sustainability of the fishery’s ecological systems; and
- (d) provide for an economically viable, but ecologically sustainable, trawl fishery; and
- (e) ensure fair access to fisheries resources taken in the fishery, on a sustainable basis, among the following groups and persons in the groups—
  - (i) commercial fishers;
  - (ii) recreational fishers;
  - (iii) Aboriginal and Torres Strait Islander fishers;<sup>2</sup>
  - (iv) other users of the fisheries resources.  
*Example of ‘other users’—*  
 Divers who view or photograph fish, but do not take them.

### 5 How objectives are to be achieved—sch 2

- (1) Schedule 2 states how the objectives are to be achieved.
- (2) The achievement of each objective must be—
  - (a) measured only in the way stated in schedule 2; and
  - (b) reviewed by the chief executive under section 2303 if a review event stated in schedule 2 for the objective happens.

## SCHEDULE 2 HOW THE OBJECTIVES ARE TO BE ACHIEVED

section 5

### PART 1—MANAGING THE FISHERY IN A WAY THAT GIVES OPTIMAL, BUT SUSTAINABLE, COMMUNITY BENEFIT

#### 1 Definition for pt 1

In this part—

**“objective”** means the objective of managing the fishery in a way that gives optimal, but sustainable, community benefit.

### **2 How objective is to be achieved**

The objective is to be achieved by providing fair fishing opportunities for commercial and recreational fishers and Aborigines and Torres Strait Islanders.

### **3 How achievement is to be measured**

Achievement of the objective may be measured only by—

- (a) surveys, accepted by the chief executive, of fishing for fisheries resources taken in the fishery by commercial and recreational fishers and Aborigines and Torres Strait Islanders; and
- (b) commercial fishing catch and effort data for the fishery received by the chief executive.

### **4 Review events**

The review events for the achievement of the objective are—

- (a) a survey mentioned in section 3(a) shows a significant decline in the catch of principal fish; or
- (b) data mentioned in section 3(b) shows a significant decline in the commercial catch of principal fish.

## **PART 2—ENSURING FISHERIES RESOURCES TAKEN IN THE FISHERY ARE TAKEN IN AN ECOLOGICALLY SUSTAINABLE WAY**

### **5 Definition for pt 2**

In this part—

**“objective”** means the objective of ensuring fisheries resources taken in the fishery are taken in an ecologically sustainable way.

### **6 How objective is to be achieved**

The objective is to be achieved by the following—

- (a) the provisions of this plan about effort units;
- (b) the closed waters declarations under this plan;
- (c) the regulated fish declarations under this plan;
- (d) limiting, under chapters 3 and 4, the commercial fishing

- (e) apparatus that may be used under this plan;  
the boat modification and replacement restrictions under chapter 3, part 8;
- (f) the main engine power restrictions under chapter 3, part 8, division 2 for boat modification or replacement.<sup>42</sup>

### 7 How achievement is to be measured

Achievement of the objective may be measured only by the following—

- (a) the level of compliance with this plan;
- (b) catch and effort data received by the chief executive for principal fish;
- (c) the abundance of principal fish;
- (d) how many effort units are surrendered under sections 117, 118 and 132(2);
- (e) studies or surveys accepted by the chief executive on the average size, or the main engine power, of boats in the fishery.

### 8 Review events

Each of the following is a review event for the achievement of the objective—

- (a) CPUE for the following principal fish in the following periods is less than 70% of the average CPUE for principal fish from 1988 to 1997—
  - (i) for bay prawns (greasy prawns)—1 November to the end of February;
  - (ii) for eastern king prawns—1 November to the end of February and 1 May to 31 August;
  - (iii) for bugs—1 November to the end of February or 1 May to 31 October;
  - (iv) for red spot king prawns—1 June to 30 September;
  - (v) for saucer scallops—1 November to the end of February;
  - (vi) for tiger prawns—1 March to 30 June and 1 September to 31 December;
- (b) the chief executive accepts a study of catch and effort data that shows a significant decline in a principal fish species;
- (c) the chief executive accepts a scientific study that shows a significant decline in the abundance of a principal fish species;
- (d) more than 5% of boats in the fishery in 2000 or a subsequent year

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<sup>42</sup> Chapter 3, part 8, division 2 (Restrictions on amending licence to modify or replace boat)

- are used to commit an offence under this plan;
- (e) the number of effort units has not decreased by—
  - (i) 13% or more in the first effort year; or
  - (ii) 1% or more in any subsequent effort year; or
  - (iii) 2% or more during 2 consecutive effort years for any licence;
- (f) the chief executive accepts a study or survey that shows—
  - (i) a significant change in the relative distribution of boat hull units in the fishery; or
  - (ii) average main engine power for boats in the fishery is increasing

## **PART 3—ENSURING THE SUSTAINABILITY OF THE FISHERY’S ECOLOGICAL SYSTEMS**

### **9 Definition for pt 3**

In this part—

**“objective”** means the objective of ensuring the sustainability of the fishery’s ecological systems.

### **10 How objective is to be achieved**

The objective is to be achieved by—

- (a) the closed waters declarations under this plan; and
- (b) limiting, under chapters 3 and 4, the commercial fishing apparatus that may be used under this plan; and
- (c) the requirements under this plan for using a BRD or TED.

### **11 How achievement is to be measured**

Achievement of the objective may be measured only by surveys or studies, accepted by the chief executive, of commercial fishing for principal fish by trawling in the fishery.

### **12 Review events**

**(1)** Each of the following is a review event for the achievement of the objective—

- (a) a scientific study, showing levels accepted by the chief executive, shows the amount for any of the following is not, by 1 January 2005, reduced by the following percentage compared with an amount reported in a scientific study showing the levels

before the notification day—

- (i) benthos—25%;
- (ii) the amount of fish taken other than principal fish—40%;
- (b) more than 5% of boats in the fishery in 2000 or a subsequent year are used to commit an offence under this plan;

### SCHEDULE 2, part 3—Sustainability of ecological systems (continued)

- (c) turtle capture or mortality for any of the following species is in any year more than 5% of the average level of turtle capture or mortality for the species in the Robins report—
  - (i) flatback turtle;
  - (ii) green turtle;
  - (iii) hawksbill turtle;
  - (iv) leatherback turtle;
  - (v) loggerhead turtle;
  - (vi) olive ridley turtle;
- (d) the chief executive receives a logbook return for the fishery that shows trawling has happened in an area represented on a grid stated in the logbook where trawling has not previously been recorded in a logbook return;
- (e) the chief executive accepts a scientific study or survey that shows the level of winter whiting by-catch between 1 April and 1 June has not significantly declined in the area mentioned in schedule 3, section 72(1), 43 before 2003.

(2) In this section—

**“Robins report”** means Robins, J.B. 1995, ‘Estimated catch and mortality of sea turtles from the East Coast Otter Trawl Fishery of Queensland, Australia’, ‘Biological Conservation’, vol 74, pp 157–67.44

## PART 4—PROVIDING AN ECONOMICALLY VIABLE, BUT ECOLOGICALLY SUSTAINABLE, TRAWL FISHERY

### 13 Definition for pt 4

In this part—

**“objective”** means the objective of providing an economically viable, but ecologically sustainable, trawl fishery.

### 14 How objective is to be achieved

The objective is to be achieved by—

- (a) providing commercial fishers with fair access to permitted fish in the fishery; and
- (b) minimising restrictions, on a sustainable basis, on trawling; and
- (c) the provisions of this plan about effort units.

### 15 How achievement is to be measured

Achievement of the objective may be measured only by—

- (a) studies or surveys accepted by the chief executive on economic aspects of the fishery; and
- (b) how many effort units are surrendered under sections 117, 118 and 132(2).

SCHEDULE 2, part 4—Economically viable, but ecologically sustainable etc. (continued)

### 16 Review events

Each of the following is a review event for the achievement of the objective—

- (a) the chief executive's acceptance of an economic study of the fishery that shows a significant decline in the fishery's economic efficiency;
- (b) the number of effort units decreases by—
  - (i) 4% or more in each of 3 consecutive effort years; or
  - (ii) 5% or more in each of 2 consecutive effort years; or
  - (iii) 6% or more in an effort year after the second effort year;
- (c) the chief executive's acceptance of a study that shows effort units consistently can not be obtained by transfer;
- (d) the chief executive accepts a study or survey that shows a total of more than 15 000 fishing days under 'M1' and 'M2' licences in a year.



## PART 5—ENSURING FAIR ACCESS TO FISHERIES RESOURCES ON A SUSTAINABLE BASIS

### 17 Definition for pt 5

In this part—

**“objective”** means the objective of ensuring fair access to fisheries resources taken in the fishery, on a sustainable basis, among the following groups and persons in the groups—

- (a) commercial fishers;
- (b) recreational fishers;
- (c) Aboriginal and Torres Strait Islander fishers;
- (d) other users of the fisheries resources.

SCHEDULE 2, part 5—Ensuring fair access to fisheries on a sustainable basis  
(continued)

### 18 How objective is to be achieved

The objective is to be achieved by regulating commercial fishers to ensure fair access to and use of fisheries resources taken in the fishery by persons other than commercial fishers.

### 19 How achievement is to be measured

Achievement of the objective may be measured only by—

- (a) surveys, accepted by the chief executive, of fishing for fisheries resources taken in the fishery by commercial and recreational fishers and Aborigines and Torres Strait Islanders; and
- (b) commercial fishing catch and effort data for the fishery received by the chief executive.

### 20 Review events

It is a review event for the achievement of the objective if—

- (a) a survey mentioned in section 19(a) shows a significant decline in the catch of principal fish; or
- (b) data mentioned in section 19(b) shows a significant decline in the commercial catch of principal fish.



### **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.<sup>67</sup>

**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.<sup>68</sup>

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

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

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

**Objective 2. Where the fished stock(s) are below a defined reference point, the fishery will be managed to promote recovery to ecologically viable stock levels within nominated timeframes.**

<sup>67</sup> Review should be undertaken by the relevant management authority in a transparent way

<sup>68</sup> Reference points can allow for seasonal fluctuations in stock recruitment and other areas of uncertainty

### 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.<sup>69</sup>
- 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.<sup>70</sup>

#### 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.<sup>71</sup>

##### 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.<sup>72</sup>

##### 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.

<sup>69</sup> Strategies require that recovery should take place within specified times with certain degrees of probability

<sup>70</sup> The issues addressed under the principle are those that define components of ecosystem integrity

<sup>71</sup> The vulnerability of a bycatch species may be its vulnerability to fishing technology (eg its catchability), or its vulnerability in terms of ecological impact (eg loss of predators or prey)

<sup>72</sup> “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”

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.

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

### **Information requirements**

2.3.3 Information appropriate for the analysis in 2.3.2 is collated and/or collected covering the fisheries [sic] 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**

2.3.4 Management actions are in place to ensure significant damage to ecosystems does not arise from the impacts described in 2.3.1.

2.3.5 There are decision rules that trigger further management responses when monitoring detects impacts on selected ecosystem indicators beyond a predetermined level, or where action is indicated by application of the precautionary approach.

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

### DEFINITIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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**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.



### Chronology of Key Events in the East Coast Trawl Fishery

Date	Event
1976	Some 700 vessels licensed to fish in the ECTF.
September 1979	Queensland announced effort limitations in the ECTF for the first time, including a moratorium on the number of vessels permitted in the ECTF and a 2:1 boat replacement rule .
1981	Size of the ECTF fleet peaked at 1,413 licences.
December 1984	The Australian Fisheries Service ceased granting licences for vessels to fish in Commonwealth waters (>3nm).
July 1987	OCS between Queensland and the Commonwealth, resulting in amalgamation of the State and Commonwealth components of the ECTF and jurisdiction being passed to Queensland.
1994	Introduction of the new <i>Queensland Fisheries Act 1994</i> , which provided for the establishment of MACs and the introduction of fisheries management plans.
December 1996	Release of the “ <i>Queensland Trawl Fishery – Discussion Paper No.5</i> ” by QFMA.
March 1997	Response by GBRMPA to Discussion Paper No.5.
1998	Release of information paper entitled “ <i>Queensland Trawl Fishery - Proposed Management Arrangements (East Coast – Moreton Bay) 1998 – 2005</i> ” by QFMA.
1998	Establishment of the GBRMPA’s Fisheries Issues Group.
1999	Release of the ECTF Draft Management Plan 1999 and Regulatory Impact Statement.
1999	Submission by GBRMPA to QFMA on the Draft Management Plan for the ECTF, incorporating a GBRMPA – commissioned assessment report on the Draft Management Plan for the fishery by an independent expert panel.
July 1999	GBR Ministerial Council establishes a Trawl Task Force consisting of Commonwealth and Queensland officials to deal with the issues raised in response to the draft plan and RIS.
1999	Port meetings along the Queensland East Coast to discuss the proposed ECTF management arrangements with industry.
1999	Negotiations between the Commonwealth and Queensland over the proposed ECTF management arrangements.
1999	GBR Ministerial Council (GBRMC28) considers the recommendations of the Trawl Task Force and agreed on principles with respect to the ECTF Management Plan; recommends how to progress issues; and the requirement for an annual Audit by the

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	GBRMPA of the ECTF.
1999	Introduction of the ECTF Management Plan, which did not contain measures to address the difficult and controversial issues identified by the Trawl Task Force and agreed by the GBR Ministerial Council.
1999	“Stakeholder Working Group on the Queensland ECTF Management Plan” established to achieve industry acceptance of GBR Ministerial Council outcomes, including effort capping at 1996 levels and further reductions; closure of non fished areas and the mandatory use of TEDs and BRDs.
March 2000	Stakeholder Working group reports to Queensland Premier on recommendations for the Queensland ECTF Management Plan and a proposed timetable.
April	Report on “ <i>Proposed Structural Adjustment in the Queensland ECTF</i> ” by the QFS.
July 2000	External Review of the Queensland Vessel Monitoring System.
November– December 2000	Negotiations about the Commonwealth’s contribution of \$10 Million to the ECTF Structural Adjustment Scheme.
1 January 2001	Implementation of revised ECTF Management Plan, including significant improvements to management of the ECTF: <ul style="list-style-type: none"> <li>- introduction of tradable effort units.</li> <li>- capping of fishing effort at the 1996 level.</li> <li>- voluntary effort reduction by industry of 5%.</li> <li>- effort reductions through effort unit penalties upon trading.</li> <li>- introduction of VMS system.</li> <li>- closure of additional 96,000 sq. km of GBR Marine Park.</li> <li>- introduction of TEDs and BRDs in all parts of the ECTF by end 2001.</li> <li>- only principal species to be targeted.</li> <li>- introduction of sustainability indicators and review events.</li> </ul>
January – March 2001	Finalisation of the \$20 million ECTF Structural Adjustment Scheme, resulting in the voluntary buy-out of 99 licences and 10.86% of effort.
January – June 2001	Negotiations between the Commonwealth, Queensland and industry on options to cap effort in the GBR World Heritage Area.
26 April 2001	QFS issued Regulatory Impact Statement dealing with effort in WHA <ul style="list-style-type: none"> <li>- no mandatory closure of WHA if effort cap is reached.</li> <li>- 3% annual reduction in effort cap.</li> <li>- retrieval of effort units if WHA effort is be reached.</li> </ul>
8 June 2001	Meeting of Great Barrier Reef Ministerial Council; Queensland inclusion of steaming days in WHA effort cap.
15 June 2001	Commonwealth advised Queensland that accreditation of the ECTF Management Plan would be linked to the resolution of the WHA effort issue.
22 June 2001	Revised ECTF Management Plan enters into force:

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	<ul style="list-style-type: none"> <li>- entire ECTF closure if WHA effort cap is reached.</li> <li>- no legislative guarantee of closure.</li> <li>- no ability to reduce effort units on ecological sustainability grounds.</li> </ul>
9 August 2001	<p>Agreement was reached between Commonwealth and Industry on WHA effort issue, involving:</p> <ul style="list-style-type: none"> <li>- automatic closure of WHA fishery if cap is reached.</li> <li>- 3% annual reduction in WHA effort cap during life of Management Plan</li> </ul>
19 September 2001	Marine Park Authority accredits the ECTF Management Plan under the Far Northern Section Zoning Plan;
September 2001	Regulations introduced under Queensland fisheries legislation giving effect to agreement between Commonwealth and Industry.
3 September 2001	QFS releases Review Paper on permitted species and steaming provisions (in line with legislative requirement under the Management Plan).
29 October 2001	QFS releases Regulatory Impact Statement and Draft Amendment Plan on permitted species and steaming provisions in light of comments received in response to Review Paper.
26 November 2001	QFS receives legal advice that the TED guidelines are inconsistent with the <i>Statutory Instruments Act 1992</i> (QLD).
December 2001	QFS proposes changes to management of permitted species and steaming provisions, for introduction by 1 January. 2002.



# Current research of relevance to the East Coast Trawl Fishery

Project Title	Funding source	Project duration	Overall objectives
Development of a genetic method to estimate effective spawner numbers in the NPF and Queensland tiger prawn fishery.	FRDC/AFMA	2 years (Jul 2001-June 2004)	New genetic method being developed, using tiger prawns in Moreton Bay as a model, which will indirectly determine the number of breeding adults; may lead to more accurate predictions of recruitment and improve the spatial resolution of spawning stocks; may be applicable to other heavily exploited fisheries.
Bycatch weight, composition and preliminary estimates of the impact of bycatch reduction devices in Queensland's trawl fishery.	FRDC	3 years (Jul 2000-June 2003)	Aim to measure impact of TEDs and BRDs on prawn, scallop and bycatch catch rates.
Reference point management and the role of catch-per-unit effort in prawn and scallop fisheries	FRDC	3 years (Jul 1999-June 2002)	Quantify effort creep in the eastern king prawn, scallop, tiger/endeavour and Torres Strait tiger prawn sectors.  Undertake assessment of these stocks using both unstandardised and standardised catch per unit of effort data.
Environmental flows for estuaries	CRC/FRDC	5 years (July 2000-June 2005)	Link recruitment, growth and movement of banana prawns with different levels of freshwater flow to catches in the inshore beam trawl and offshore otter board trawl fisheries.
"GBRprawn" an ecosystem model of the prawn trawl fishery in the GBR world heritage area.	DPI/Smithsonian Fellowship	1 year	Evaluate ecosystem management of the commercial fisheries in the GBR World Heritage Area.
Potential of using climate variability in predictive models for Queensland fisheries.	DPI	3 months (end June 2002)	<ul style="list-style-type: none"> <li>Identify key relationships between catch rates and environmental conditions (eg ocean temperature, EAC strength) or pre-conditions (e.g. freshwater river discharge)</li> <li>Quantify long-term variability in these environmental variables, and linkages with key climatic indicators (e.g. El Niño/Southern Oscillation phenomenon, sea-surface temperatures).</li> <li>Use these relationships in stock assessment model for eastern king prawn, spanner crab and scallops.</li> </ul>
Inventory and mapping of seabed biota in the GBRWHA to support	CRC Reef/FRDC(?)	5 years	Map marine biodiversity of the GBR World Heritage Area by extensive acoustic, dredge, trawl sampling

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management for ecological sustainability of the QECTF.			
Evaluation of hoppers for reduction of bycatch mortality in the Queensland East Coast Prawn Trawl Fishery.	FRDC	1 year	Evaluate the survival of bycatch using seawater-filled hoppers compared to normal prawn sorting trays.
Recovery of the seabed environment from the impact of prawn trawling in the Far Northern Section of the Great Barrier Reef.			In final stages of writing up.
Development of manufactured attractants as a means to harvest prawns.	FRDC, AIMS	2 years (July 2000-June 2002)	Quantify the attraction and specificity of pheromones from Crustacea in experimental environments.  Develop methods suitable for isolating and concentrating pheromones from crustaceans, especially penaeid prawns.  Identify mechanism for manufacturing a bait incorporating these novel attractants.
Dynamics of large sessile seabed fauna, important for structural fisheries habitat and biodiversity of marine ecosystems – and use of these habitats by key finfish species.			Contact Roland Pitcher, CSIROfor details
Factors affecting the distribution of black tiger prawn <i>Penaeus monodon</i> brood stock and alternative harvest strategies.		3 years	Examine spatial distribution of black tiger prawns in north Queensland and evaluate alternative harvesting (ie., potting) methods for black tiger prawns.
Innovative stock assessment and effort mapping using VMS and electronic logbooks	FRDC	3 years (Jul 2002-June 2005)	Review VMS mapping software.  Develop precise maps of trawl tracks and trawl effort in each trawl sector. Estimate the distribution and extent of trawled and untrawled areas. Map CPUEs. Use these methods to improve Trawl Fishery Review Events, and improve stock assessment approaches for scallops, eastern king prawns and tiger prawns.

## Summary of Stock Assessment Findings for the Principal ECTF Species

Assessment Considerations	Tiger Prawns (Brown & Grooved)	Endeavour Prawns (Red & Blue)	Northern King Prawn (Red Spot & Blue-legged)
<b>Distribution</b>	Brown tigers – WA, NT, QLD, northern NSW; Grooved tigers – WA to mid-QLD; Evidence of localised populations with low levels of cross-migration; Decreasing southerly abundance	Blue endeavours - WA, NT, QLD, northern NSW; Red endeavours - WA to southern NSW; Decreasing southerly abundance	Red spot kings - WA to mid-QLD; Coral reef associated; Blue-legged kings – WA, NT, QLD, northern NSW
<b>Population Characteristics</b>	Highly fecund; Live up to 2 years	Highly fecund	Highly fecund; Blue-legged kings live up to 4 years
<b>Assessment Status</b>	Fully exploited; CPUE – fluctuating (possibly declining); MSY 1,598t/yr in the far northern region	Fully exploited; CPUE – fluctuating (possibly declining); MSY – unknown	Possibly fully exploited; CPUE – fluctuating (possibly declining); MSY – unknown
<b>Effort Creep in Fishery</b>	Low till 1998; More significant since	Low till 1998; More significant since	Unknown
<b>Product Status</b>	Target product	Previously by-product; Now mostly target product	Both target and by- product depending upon area
<b>Species Identification</b>	No species separation in logbooks	No species separation in logbooks	Species separated in logbooks
<b>Catch Composition</b>	Part of multi-species assemblage of tropical penaeid fisheries	Part of multi-species assemblage of tropical penaeid fisheries	Part of multi-species assemblage of tropical penaeid fisheries
<b>Temporal variability - yearly variability - lunar periodicity</b>	High Present	High Present	High No lunar periodicity in red spot king prawns
<b>Spawning Event</b>	Brown tigers – single spawning in summer; Grooved tigers – single spawning from summer to autumn	Continuous spawning (peaking in summer) for both species	Red spot kings – winter to spring; Blue-legged kings –single spawning in colder waters during summer; continuous spawning in tropics
<b>Schooling behaviour</b>	Weak schooling	Weak schooling	Weak schooling
<b>Life History</b>	Juvenile – inshore Adult – offshore	Juvenile – inshore Adult – offshore	Juvenile –inshore Adult – lagoonal

## APPENDIX 6

Assessment Considerations	Banana Prawns (White bananas)	Eastern King Prawn	
<b>Distribution</b>	WA, NT, QLD, northern NSW; Decreasing southerly abundance;	From mid QLD (Mackay) to north-eastern TAS	
<b>Population Characteristics</b>	Highly fecund; Live up to 18 months; Recruitment strongly influenced by climatic conditions	Highly fecund; Live up to 2 years;	
<b>Assessment Status</b>	None	Unknown	
<b>Effort Creep in Fishery</b>	Low	Major effort creep in the shallow EKP Fishery; Lesser effort creep in the deeper EKP Fishery	
<b>Product Status</b>	Target product	Target product	
<b>Species Identification</b>	Species separated in logbooks	Single species	
<b>Catch Composition</b>	Single species fishery with fish and other species as minor by-product	Single species fishery with fish and other species as minor by-product	
<b>Temporal variability</b> - yearly variability; - lunar periodicity;	High Present	High Present	
<b>Spawning Event</b>	Continuous spawning throughout most of the year (peaking in Sep. – Nov. and Mar. – May)	Low level continuous spawning throughout the year but major spawning event May-July	
<b>Schooling behaviour</b>	Strong schooling	Weak schooling	
<b>Life History</b>	Juvenile – in freshwater swamps and rivers; Adult –inshore	Complex life history involving: - inshore nursery habitat; - offshore and longitudinal migration by sub-adults; - offshore adult grounds;	



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Assessment Considerations	Scallops (Saucer & Mud)	Bugs (Mud & Reef Bugs)	Squid (Inshore squid (2 sp.) & Calamary (2 sp.))
<b>Distribution</b>	Saucer scallops – from north QLD to southern NSW; Mud scallops – northern QLD	WA, NT, QLD, northern NSW;;	From WA to southern QLD (Moreton Bay);
<b>Population Characteristics</b>	Highly fecund; Live up to 3 years; Recruitment strongly influenced by oceanic conditions	Low fecundity; Recruitment at 1 –2 years; Live up to 6 years	High fecundity; Live up to 18 months
<b>Assessment Status</b>	Saucer scallops heavily (heavily) exploited	Unknown	Unknown
<b>Effort Creep in Fishery</b>	Unknown	Unknown	Unknown
<b>Product Status</b>	Saucer scallops- target product; Mud scallops - by-product in northern prawn fishery	Principal species can be targeted; usually taken as by-product only; Suggestion that there is escape through TEDs and BRDs	By-product only
<b>Species Identification</b>	One species only	No species separation in logbooks	No species identification in logbooks
<b>Catch Composition</b>	Saucer scallops is a single-species fishery with fish and other species as minor by-product	Mud bugs taken as part of the red spot king prawn fishery; Reef bugs taken as part of tiger/endeavour prawn fishery	Pencil squid are generally taken as by-product to trawling
<b>Temporal variability</b> - yearly variability; - lunar periodicity;	High	Unknown	High
<b>Spawning Event</b>	Continuous spawners throughout winter - spring (peaking in June and August); Broadcast spawners	Two spawning periods (Aug. - Sep. and Jan. – Feb.), with peak spawning in spring; minimum 3 months between spawnings	Continuous spawners throughout the year (peaking in Feb. - May and Aug. – Nov.)
<b>Schooling behaviour</b>	Adults settle on beds (i.e. aggregations)	Aggregations in preferred habitat types	Strong schooling (feeding and spawning aggregations)
<b>Life History</b>	Juvenile – short pelagic phase, settle after about 20 days; Adult – sexually mature after 1 year	Juvenile biology unknown; Adult recruitment into trawl grounds at 1 – 2 years;	Limited information available; Juveniles remain in hatching areas until recruitment where fishery at 12 months



### Provisions for the use of BRDs and TEDs in Trawl Plan (prior to the Trawl Plan amendment in December 2002)

#### PART 4—USE OF TEDs

##### *Division 1—Preliminary*

##### **51 Application and purpose of pt 4**

This part—

- (a) applies if, under chapter 4, a TED must be used with a net used under a provision of that chapter; and
- (b) prescribes an additional condition to which the licence under which the net is used is subject.

##### **52 Purpose of TED**

The purpose of a TED is to allow turtles to escape immediately after being taken in the net.

##### *Division 2—TED use condition*

##### **53 Requirement to achieve purpose**

(1) The licence under which the net is used is subject to a condition (the “**TED use condition**”) that the use of the net must achieve the purpose of a TED.

(2) The TED use condition also applies to anyone acting under the licence.

##### *Division 3—Compliance with TED use condition*

##### *Subdivision 1—General*

##### **54 How to comply**

(1) The TED use condition is taken to have been complied with if a device that complies with section 55 (a “**recognised TED**”) is used with the net.

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