# Annual Status Report

## East Coast Tropical Rock Lobster Fishery

2007

**Queensland** Government
Department of **Primary Industries and Fisheries**

PR07–3041

The Department of Primary Industries and Fisheries (DPI&F) seeks to maximise the economic potential of Queensland's primary industries on a sustainable basis.



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# Introduction

Queensland tropical rock lobsters are highly sought after by commercial, Indigenous and recreational fishers. Although Indigenous and recreational take of tropical rock lobsters occurs along the entire Queensland coast, the commercial harvest fishery area is restricted to a specified region in far north Queensland and the Gulf of Carpentaria. The commercial harvest within the Gulf region is negligible (see Spatial issues/trends). Product from the commercial harvest is sold as whole live animals or as frozen tails on the export and domestic markets. The Department of Primary Industries and Fisheries (DPI&F) is responsible for the management of the East Coast Tropical Rock Lobster Fishery (ECTRLF).

This report covers fishing activity during the 2006 calendar year.

## Fishery profile 2006

**Total harvest from all species:** 188 t

**Commercial harvest:** 188 t

**Recreational harvest:** 2000–01: approximately 20 000 lobsters (north Queensland estimate only—includes east coast and Gulf of Carpentaria communities)

**Indigenous harvest 2000–01:** approximately 13 000 lobsters (north Queensland estimate only—includes east coast and Gulf of Carpentaria communities)

**Charter harvest:** no estimate of level of harvest for 2006—likely to be low

**Commercial Gross Value of Product (GVP):** approximately $7.8 million

**Number of Authorities:** 28 'R' primary licences and 93 tender licences

**Commercial boats accessing the fishery:** 15 primary vessels

**Fishery season:** 1 February–30 September

# Description of the fishery

The ECTRLF is a diver-based, hand collection fishery. The target species is the ornate rock lobster, *Panulirus ornatus*. Three other rock lobster species are sometimes harvested and sold as frozen tails (‹ 2% of the annual catch).

## Fishing methods

Commercial divers use hookah to collect live lobsters by hand or using nooses. Spear guns and hand spearing are also permitted for both commercial and recreational fishers. Recreational fishers, however, are not permitted to use SCUBA or hookah to take any fish, including lobster.

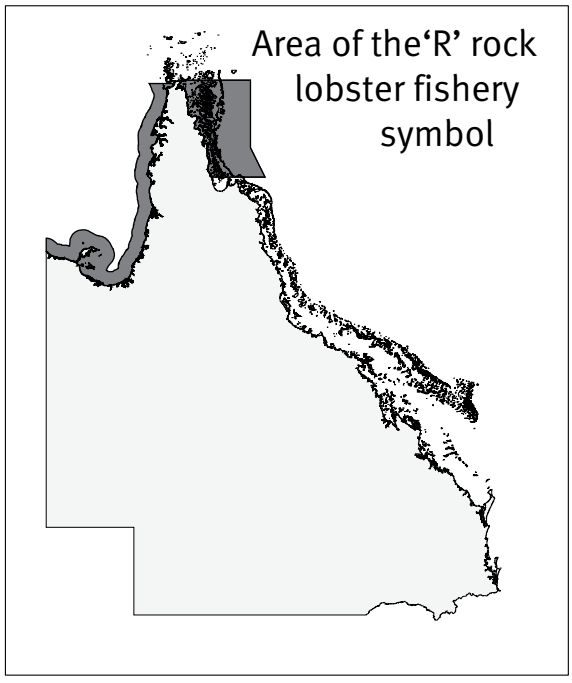


Figure 1: Area of the East Coast Tropical Rock Lobster Fishery.

Commercial divers work from tenders (~ 5 m) attached to a mother ship (~ 20 m). There are limitations on the number of tenders and the number of divers allowed on each tender.

### Fishing area

The commercial fishery area for the east coast of Queensland comprises all tidal waters east of longitude 142° 31' 49" east, south of latitude 10° 41' south and north of latitude 14° south (Figure 1). The fishery also extends out to the 25 nm seabed line along the Gulf of Carpentaria coast.

The recreational fishery differs by operating along the entire coast of Queensland.

Quantifying the area and effort of Indigenous fishing is difficult because of a lack of detailed information. It is most likely concentrated north of Townsville but may extend as far south as the Queensland/New South Wales border.

### Main management methods used

Commercial fishery only:

- The ECTRLF is a limited entry fishery with a cap placed on new primary boat and tender boat licences since 1996.
- Mated (tar spotted) and egg-bearing female lobsters are not allowed to be taken in the commercial fishery.

Recreational fishery only:

- An in-possession limit of 3 per person/6 per boat north of 14° S latitude, and 5 per person/10 per boat south of 14° S, applies for the recreational fishery. This is a combined limit for all *Panulirus* species.

Commercial and recreational fishery:

- A seasonal closure is in place from 1 October to 31 January to reduce fishing mortality on breeding stocks. This closure applies to all commercial and recreational fishing in waters between 10°41' S latitude and 14° S latitude.
- There is a minimum size limit of 90 mm carapace length and 115 mm tail length for *Panulirus ornatus*. The carapace length limit does not apply when only the tails are harvested.

### Approximate allocation between sectors

Because of the limited data available, an approximate allocation between the Indigenous, commercial and recreational sectors cannot be determined.

## Fishery accreditation under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

The Queensland ECTRLF is an accredited Wildlife Trade Operation (WTO) under Part 13A of the EPBC Act. The WTO accreditation allowing export of product expires in December 2007.

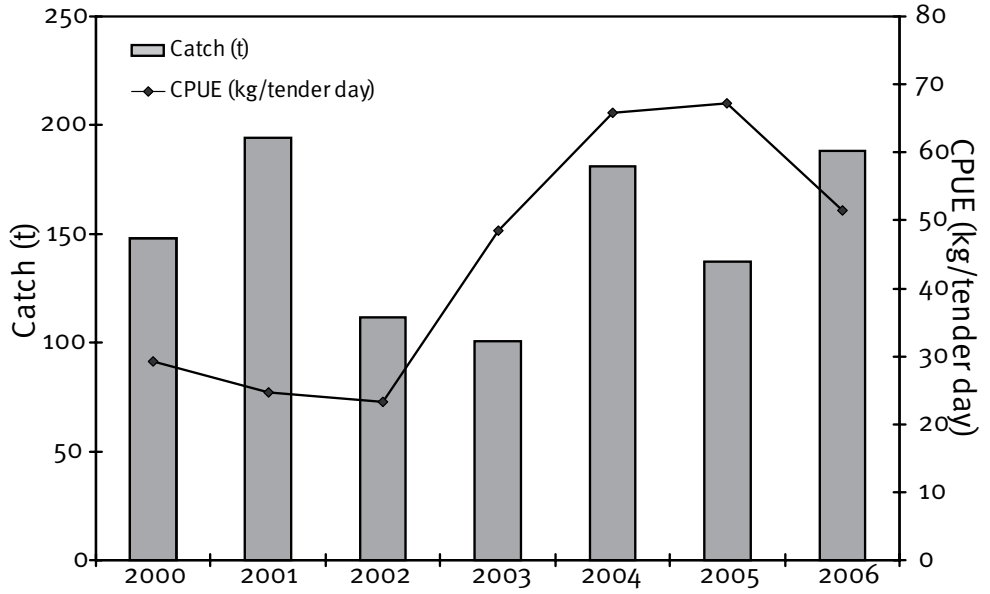


Figure 2: Total catches (tonnes) and catch per unit effort (CPUE) (kg/tender day) for the East Coast Tropical Rock Lobster Fishery, 2000–06 (Source: DPI&F CFISH database, 20 June 2007).

# Catch statistics

## Commercial

The total catch in 2006 was higher than that of 2005 however catch rates were lower (Figure 2, Table 1). Effort levels (number of tender days) were higher than in 2005, but it remained lower than the 2000–05 average of approximately 4100 tender days. The increase in 2006 is due to a large part of the fleet spending less time fishing in the Torres Strait Tropical Rock Lobster (TRL) Fishery, where low catch rates were experienced.

Table 1: Fishery details for the East Coast Tropical Rock Lobster Fishery, 2000–06 (Source: DPI&F CFISH database, 20 June 2007).

| Fishery descriptors | Year | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
| Primary boats[▽] | 23 | 24 | 18 | 15 | 17 | 17 | 15 |
| Primary days | 1743 | 2748 | 1423 | 523 | 726 | 689 | 1108 |
| Tender days | 5064 | 7895 | 4779 | 2079 | 2752 | 2038 | 3663 |
| Weight (t) | 148 | 194 | 112 | 101 | 181 | 137 | 188 |
| Average primary days/boat | 76 | 115 | 79 | 35 | 43 | 41 | 74 |
| Average tender days/boat | 220 | 329 | 266 | 139 | 162 | 120 | 244 |
| Average catch (kg)/boat | 6359 | 8015 | 6194 | 6709 | 10 653 | 8065 | 12 554 |

[▽] Note: The Primary boats row indicates the number of licences that fished each year.

## Recreational and charter

There are no estimates of recreational and charter catch in the area of the fishery for 2006. Recreational and charter sector catch and effort are likely to be minimal because of the remoteness of the fishery area (north of 14° S) from population centres. The National Recreational and Indigenous Fishing Survey (NRIFS) estimated in 2001 that approximately 20 000 lobsters were taken recreationally in the whole of Queensland.[1]

Possession and size limits apply to the recreational sector.

## Indigenous

There are no estimates available for the harvest taken for traditional purposes in the area of the fishery in 2006. As with the recreational and charter sectors, catch and effort for this sector are likely to be small, given the limited numbers of Indigenous people residing along the east coast of the fishery area and the limited lobster habitat accessible to fishers in the Gulf of Carpentaria. The NRIFS estimated that approximately 13 000 lobsters were harvested in north Queensland waters by Indigenous fishers in 2001.

## Spatial issues/trends

The fishery is characterised as having a highly mobile fleet. Nineteen vessels in the ECTRLF and the Torres Strait TRL Fishery have dual licences allowing harvest from both fisheries.

During the 2006 season the adjacent Torres Strait TRL Fishery continued with a 30% reduction in the number of tenders that could be used for each non–traditional inhabitant licence (for example, a three-tender licence is restricted to two tenders). This policy was not expected to cause any major problems for the ECTRLF, with no significant increases in effort observed in the ECTRLF under a similar management regime in previous seasons.

Although effort and catch did increase in the ECTRLF in 2006, it is believed that the primary driver of effort between the Torres Strait TRL Fishery and the ECTRLF is relative catch rate. Poor catch rates in the Torres Strait are known to influence fleet dynamics, which results in dual-endorsed vessels fishing more in the ECTRLF.

The commercial fishery in the Gulf of Carpentaria is essentially unfished[2]—historically there have been only 49 logbook entries recorded from the Gulf region, with a total combined catch of ‹ 1 t since 1998.

## Socio-economic characteristics and trends

Prices for tropical rock lobster averaged approximately $40/kg for live product and $49/kg for frozen lobster tails. About 80% of the ECTRLF product is live lobsters and the remaining 20% is sold as lobster tails.[3]

1 GW Henry & JM Lyle (eds), *National Recreational and Indigenous Fishing Survey*, FRDC Project No. 99/158, Australian Government Department of Agriculture, Fisheries and Forestry, Canberra, 2003.

2 CR Pitcher, C Turnbull, J Atfield, D Griffin, DM Dennis & TD Skewes, *Biology, larval transport modelling and commercial logbook data analysis to support management of the NE Queensland rock lobster* Panulirus ornatus *fishery*, Final Report to the Fisheries Research and Development Corporation, FRDC Project 2002/008, CSIRO Marine and Atmospheric Research and Department of Primary Industries and Fisheries, Queensland, 144 pp, 2005.

3 B Arlidge, MG Kailis Pty Ltd, phone call, 5 July 2007.

# Fishery performance

## Appraisal of fishery in regard to sustainability

The fishery is regarded as being managed in a precautionary and sustainable manner. The target species are considered fully exploited at current harvest levels. A preliminary Maximum Sustainable Yield (MSY) has been determined and will be used to set a reference level in the development of a performance measure for target species stock sustainability. This performance measure will be reviewed annually after the implementation of the Performance Measurement System (PMS).

# Progress in implementing Department of the Environment and Water Resources (DEW) recommendations

| Recommendation | Progress | Improvements to management regime |
|---|---|---|
| DPI&F to inform DEW 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. | *Ongoing*<br>There were no changes to management arrangements during 2006. | N/A |
| DPI&F to continue to ensure that consultative processes are conducted in a manner that enables all stakeholders adequate opportunity for input into the management arrangements essential for the sustainability of the fishery. | *In progress*<br>The Harvest Management Advisory Committee (MAC) met twice in 2006. This forum is the main consultative mechanism for input into the management arrangements. | N/A |
| By the end of 2006, DPI&F to develop fishery specific objectives linked to performance indicators and performance measures for target species and for fishery impacts on the ecosystem. | *In progress*<br>A draft PMS for the ECTRLF was developed in consultation with stakeholders in December 2006. The draft PMS is to be provided to Harvest MAC members for final comment and endorsement. | N/A |
| DPI&F to monitor the status of the fishery in relation to the performance measures once developed. Within 3 months of becoming aware that a performance measure has not been met, DPI&F to finalise a clear timetable for the implementation of appropriate management responses. | *In progress*<br>The draft PMS has been developed. The performance of the fishery in 2006 will be measured against the PMS once it is endorsed by Harvest MAC and implemented by DPI&F. | N/A |

| Recommendation | Progress | Improvements to management regime |
|---|---|---|
| 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. | *Ongoing*<br>The 2007 Annual Status Report is the second to be completed for the ECTRLF | Public reporting on the status of Queensland's fisheries is an important aspect of managing fisheries on behalf of the Queensland community. These reports provide an important catalogue of historical information on the status of Queensland fisheries, links to ecological assessments demonstrating to the Australian Government that fisheries meet sustainability guidelines, assessment of management effectiveness against performance measures, and the most up-to-date information on Queensland's fisheries. |
| DPI&F to implement more comprehensive data collection and validation mechanisms to ensure that adequate and reliable data on catch, effort, stock structure and abundance, appropriate to the scale of the fishery, are collected from all sectors of the fishery to ensure sustainable management of the ECTRL resource. | *In progress*<br>Data collection and validation mechanisms will be reviewed at the same time as the management arrangements are reviewed in 2007. | N/A |
| DPI&F, in conjunction with AFMA and other jurisdictions, to continue to work towards developing sustainable yield estimates of the target species to determine sustainable harvest levels that take account of straddling target species stocks in the NE Queensland, Coral Sea and Torres Strait and Papua New Guinea regions. DPI&F to develop and implement biologically-based reference point(s) for the target stocks. | *In progress*<br>Maximum sustainable yield estimates that incorporate data from 2006 are being developed for the target species in the ECTRLF. These are to be used in the development of the PMS for the fishery. The PMS will take into account the impact of adjoining fisheries on target species stock dynamics. | N/A |

| Recommendation | Progress | Improvements to management regime |
|---|---|---|
| DPI&F to continue to pursue complementary management arrangements with other jurisdictions responsible for managing shared rock lobster stocks to ensure that all removals and other relevant impacts on the stock are properly accounted for in stock assessments and harvest control measures. | *In progress*<br>The Minister for Primary Industries and Fisheries is a member of the Protected Zone Joint Authority (PZJA), which is responsible for the management of the Torres Strait TRL Fishery. Consequently DPI&F officers and scientists are key members of the Torres Strait Management Advisory Committees, working groups and sub-committees. Membership on these committees ensures complementary management arrangements are maintained between the two fisheries and catches in Torres Strait are considered in assessments of the ECTRLF. | N/A |
| DPI&F, within 18 months, to control fishing mortality in sectors under its direct control, through effort controls or other mechanisms, to maintain stocks at ecologically sustainable levels. DPI&F to implement interim measures within 6 months to prevent significant increases in catch and/or effort while the above controls are being formalized. | *In progress*<br>DPI&F plans to review the management arrangements for the ECTRLF in 2007. The objective of the review will be to determine the effectiveness of current arrangements and to develop a quota management system for the fishery that is complementary to that being developed for the Torres Strait TRL Fishery. | N/A |
| DPI&F to conduct a formal compliance risk assessment of the East Coast Tropical Rock Lobster Fishery (ECTRLF) within 1 year and implement any resultant recommendations. DPI&F to periodically review the compliance risk assessment. | *Completed*<br>Outcomes from the compliance risk assessment undertaken in 2005 have been incorporated into the Queensland Boating and Fisheries Patrol (QBFP) current operational plan. | A compliance risk assessment is used by the QBFP in undertaking operational planning activities associated with management of the fishery. Through identification and prioritisation of compliance risks associated with the fishery, planning and operational processes in specific areas may be improved. |

## Management performance

A PMS for the ECTRLF was developed in December 2006 and is awaiting Harvest MAC endorsement and DPI&F implementation.

## Resource concerns

The ECTRLF is currently considered to be fully exploited. The 2006 catch of 188 t is around the preliminary estimated MSY of approximately 170 t.[4] Although the 2006 catch has exceeded the estimate of MSY, the risk is considered acceptable, given the preliminary status of the estimate. DPI&F scientists are reviewing the estimate of MSY in 2007 as part of the review of the fishery. The PMS for the fishery, when implemented, will incorporate an updated MSY as a reference level against which the fishery will be monitored.

The adjacent Torres Strait TRL Fishery (which forms part of the same stock) was considered 'not overfished with the overfished status uncertain' by the Bureau of Rural Sciences (BRS) in 2006.[5] That fishery has a very high number of fishers and significantly higher catches when compared with the ECTRLF. A stock assessment of the Torres Strait TRL Fishery that was completed in 2006[6] indicated that, as the current spawning stocks are similar to the spawning stock needed to produce maximum sustainable yield (SMSY), the Torres Strait TRL Fishery should be regarded as fully exploited, rather than overfished.

## Non-retained species/bycatch

The hand collection methods used mean that there are no non-retained species or bycatch in the fishery.

## Interactions with protected species

No interactions with protected species were reported in 2006. Because of the hand collection techniques employed, it is unlikely that interactions with protected species occur, other than through vessel interactions.

## Fishery impacts on the ecosystem

The fishery is conducted in a way that minimises the impact of fishing on the ecosystem. Collection methods generally do not physically harm the environment and fishery waste products are minimal (limited processing into tails at sea) and are readily absorbed into the food chain.

## General ecosystem health

The fishery operates within the Great Barrier Reef Marine Park, which has spatial management measures in place to protect the biodiversity and health of the park. The impacts of climate change on the reef ecosystem and associated fisheries are still unpredictable.

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4 CR Pitcher, C Turnbull, J Atfield, D Griffin, DM Dennis & TD Skewes, *Biology, larval transport modelling and commercial logbook data analysis to support management of the NE Queensland rock lobster* Panulirus ornatus *fishery*, Final Report to the Fisheries Research and Development Corporation, FRDC Project 2002/008, CSIRO Marine and Atmospheric Research and Department of Primary Industries and Fisheries, Queensland, 144 pp, 2005.

5 J Larcombe & K McLoughlin (eds), *Fishery Status Reports: Status of Fish Stocks Managed by the Australian Government*, Bureau of Rural Sciences, Canberra, 2007.

6 Y Ye, DM Dennis, TD Skewes, TJ Taranto, MDE Haywood, DT Brewer, TJ Wassenberg, D Chetwynd, IM McLeod & AG Donovan, *Sustainability Assessment of the Torres Strait Rock Lobster Fishery*, CRC Torres Strait, 2006.

# Research and monitoring

## Recent research and implications

A Fisheries Research and Development Corporation (FRDC)–funded project investigating tropical rock lobster biology, larval transport modelling and commercial logbook data from the ECTRLF (2002/008) by DPI&F and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) is now complete. Findings from the project have established our current knowledge of recruitment patterns for the fishery. A number of management and research recommendations have arisen as a result of the study and these are being considered by DPI&F. The study also provided a preliminary estimate of the MSY for the Queensland fishery, though additional data is required to provide greater confidence in the findings. An update of the model with 2005–06 catch data is being conducted to inform the development of performance measures for the fishery.

## Monitoring programs and results

Logbook data provide catch trend data that are assessed by DPI&F. The most recent catch data are presented in Figure 2.

Summaries of the data are provided to the Harvest MAC for consideration and review by industry and by the Harvest Scientific Advisory Group.

## Collaborative research

Annual monitoring and biomass assessment are undertaken by the CSIRO in the Torres Strait TRL Fishery, which operates on the same stock as the ECTRLF.

# Fishery management

## Compliance report

Compliance and enforcement in the ECTRLF are the responsibility of the DPI&F Queensland Boating and Fisheries Patrol.

During 2006, 71 units (50 commercial, 21 recreational), were inspected in the ECTRLF, with six offences detected.

## Offences

Offences are reported as either a Fisheries Infringement Notice (FIN); Caution (FIN Caution or official caution issued by DPI&F legal officers); or Prosecution (to proceed by complaint summons).

Table 2: Offences recorded in the Queensland ECTRLF during 2006.

| Offence | FIN | Prosecution | Caution |
|---|---|---|---|
| Take or possess TRL regulated by gender (recreational fisher) | | | 1 |
| Take or possess TRL regulated by number (recreational fisher) | 1 | | |
| Fail to comply with a requirement to keep records in approved form | 1 | | |
| Fail to have a document required to be available for immediate inspection | 2 | | |
| Commercial fisher fail to mark dories in prescribed manner | 1 | | |
| **Total** | **5** | **0** | **1** |

Note: Four of the above offences were by commercial operators.

## Compliance risk assessment

A compliance risk assessment was conducted for the ECTRLF in June 2005 in order to determine compliance priorities and allow the most effective use of QBFP resources. The risk assessment identified non-compliance with the annual spawning closure; fishing without an authority; retaining lobster taken by other fishing methods; exceeding the recreational possession limit; and non-compliance with the minimum legal size for painted crayfish, as the highest priorities for enforcement and compliance in the fishery. There were also a number of activities rated as having a moderate risk, which are also being addressed. The risk assessment will be reviewed in 2008.

## Changes to management arrangements in the reporting year

No changes were made to the management of the fishery during 2006.

An investment warning for the fishery has been in place since 2001.

A draft policy to remove latent effort from the ECTRLF has been prepared by DPI&F. However, because of the changed management arrangements in the Torres Strait TRL Fishery, this is no longer considered adequate. Rather, DPI&F will review the management arrangements of the ECTRLF in 2007. The objectives of the review will be to determine the effectiveness of current arrangements and to develop a quota management system for the fishery that is complementary to that being developed for the Torres Strait TRL Fishery.

### Consultation, communication and education

Consultation with stakeholders in the ECTRLF mainly occurs through the Harvest MAC. Two meetings were held in 2006. The Harvest MAC provides advice to DPI&F on management measures for the ECTRLF.

## Complementary management

Tropical rock lobster species in the adjacent Torres Strait Protected Zone waters are managed under the jurisdiction of the Torres Strait Protected Zone Joint Authority and under the Australian Government *Torres Strait Fisheries Act 1984*. Tropical rock lobster stocks occurring in the Gulf of Carpentaria outside the Torres Strait Protected Zone are managed under Queensland law.

ECTRLF ornate rock lobsters are considered to be from the same stock as those from Torres Strait and Papua New Guinean waters. Research suggests that ECTRLF stocks supply recruits to both the northern fishery regions. This highlights the need for complementary management across the region. Consequently, a number of input and output controls in the ECTRLF, such as the main seasonal closure, minimum size limits and recreational bag limits, are mirrored in the Torres Strait TRL Fishery.

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**Acknowledgements**

Shane Gaddes, Clive Turnbull, Tara Smith, Nadia Engstrom, Len Olyott

**Image**

Ornate rock lobster (*Panulirus ornatus*)