

Annual status report

Queensland East Coast Tropical Rock Lobster Fishery

January 2007



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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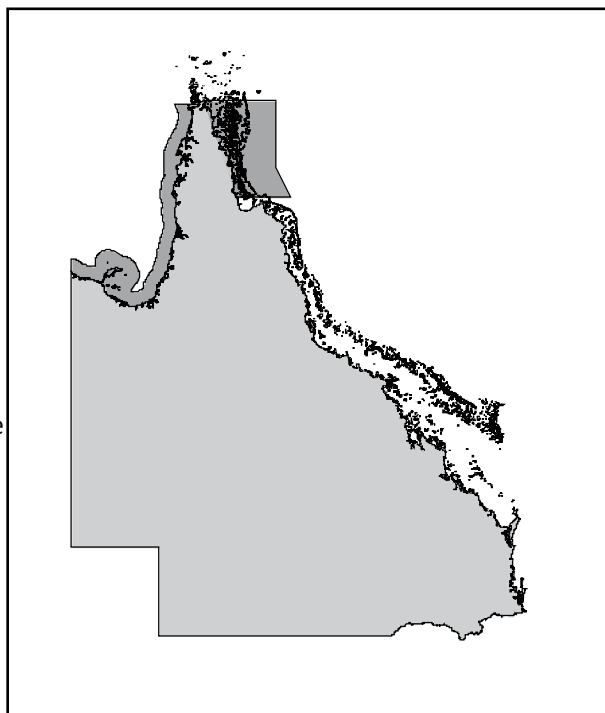
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Introduction

Queensland tropical rock lobsters are highly sought after by commercial, Indigenous and recreational fishers. While 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. 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 market. 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 2005 calendar year.

Fishery profile 2005

Total harvest from all species: 136 t

Commercial harvest: 136 t

Recreational harvest: no estimate of level of harvest for 2005—likely to be low

Indigenous harvest: no estimate of level of harvest for 2005—likely to be low

Charter harvest: no estimate of level of harvest for 2005—likely to be low

Commercial Gross Value of Product (GVP): approximately \$4.9 million

Number of authorities: 28 'R' primary licences and 93 tender licences

Commercial boats accessing the fishery: 17 primary vessels

Fishery season: 1 February to 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 spear guns/hand spears while diving with a Self Contained Underwater Breathing Apparatus (SCUBA) or hookah.

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

The ECTRLF is a limited entry fishery with a cap placed on new primary boat and tender boat licences since 1996.

Management measures predominantly apply to the commercial fishery only. A seasonal closure is in place from 1 October to 31 January to reduce fishing mortality on breeding stocks. Mated (tar spotted) and egg-bearing female lobsters are not allowed to be taken in the commercial fishery. There is a minimum size limit of 115 mm carapace length in the commercial fishery.

A recreational size and in-possession limit is also in place (3 per person/6 per boat north of 14°S latitude, 5 per person/10 per boat south of 14°S).

Approximate allocation between sectors

Due to 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.

Catch statistics

Commercial

The total catch in 2005 was lower than that of 2004; however, catch rates were marginally higher (Figure 1, Table 1). Effort levels (number of tender days) were approximately 26% less than 2004 mainly due to a large part of the fleet spending most of the year in the Torres Strait Tropical Rock Lobster (TRL) Fishery where high catch rates were experienced in 2005.

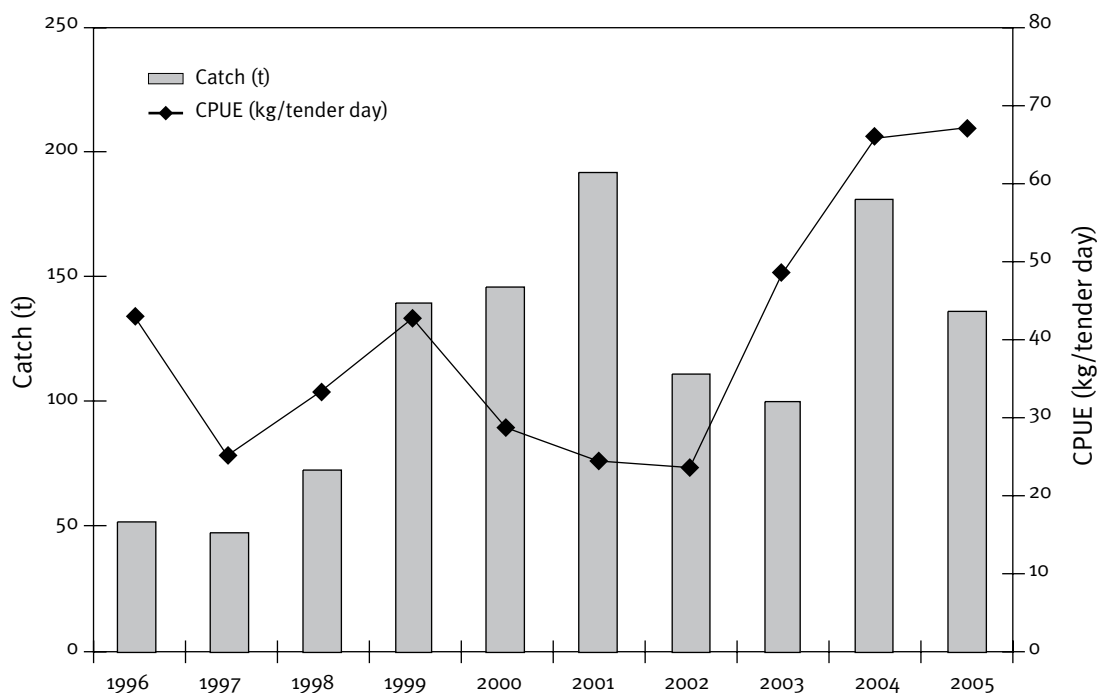


Figure 1: Total catches (tonnes) and Catch per unit effort (CPUE) (kg/tender day) for the East Coast Tropical Rock Lobster Fishery since 1996.

Table 1: Fishery details for the East Coast Tropical Rock Lobster Fishery since 2000.

Fishery descriptors	Year					
	2000	2001	2002	2003	2004	2005
Primary boats ¹	23	24	18	15	17	17
Primary days	1750	2747	1424	522	722	677
Tender days	5069	7891	4778	2078	2747	2026
Weight (t)	146	192	112	101	181	136
GVP ² annual	\$5.3 million	\$7.0 million	\$4.0 million	\$3.6 million	\$6.6 million	\$4.9 million
Average primary days/boat	76	114	79	35	42	40
Average tender days/boat	220	329	265	139	162	119
Average catch (kg)/boat	6359	8015	6194	6709	10 653	7997

Recreational and charter

There are no estimates for the area of the ECTRLF for 2005. Recreational and charter sector catch and effort are likely to be minimal due to the remoteness of the fishery area from population centres (i.e., north of 14°S). The National Recreational and Indigenous Fishing Survey (NRIFS) estimated in 2001 that approximately 20 000 lobsters were taken recreationally in the whole of Queensland³.

Possession and size limits apply to recreational sector.

Indigenous

There are no estimates available for the harvest taken for traditional purposes in the area of the fishery in 2005. Similar to 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 coast in the fishery area. The NRIFS estimated approximately 13 000 lobsters were harvested in north Queensland waters by Indigenous fishers in 2001.

¹ Note: The primary boats row indicates the number of licenses that fished each year.

² Gross Value of Production (GVP) estimates are derived from average prices paid to fishers for 2005. Total estimates are calculated using the following breakdown of product form—80% live, 20% frozen tails.

³ Henry, GW and Lyle, JM eds 2003, National Recreational and Indigenous Fishing Survey (FRDC Project No. 99/158), NSW Fisheries, 187 pp.

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 licenses allowing harvest from both fisheries.

During 2005 the Torres Strait TRL Fishery had a 30% reduction in the number of tenders that could be used for each non-traditional inhabitant license (e.g., a three tender license was restricted to two tenders). This was not expected to cause any major problems to the ECTRLF and there was no significant increase in effort observed in 2005. However, it is believed that this was primarily due to good catch rates in the Torres Strait area in 2005 influencing fleet dynamics, which resulted in only a few dual-endorsed vessels fishing in the ECTRLF during that year.

The commercial fishery in the Gulf of Carpentaria is essentially unfished⁴—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 paid to fishers for tropical rock lobster averaged approximately \$40/kg for live product and \$50/kg for frozen lobster tails. Approximately 80% of the ECTRLF product is live lobsters and the remaining 20% is lobster tails.⁵

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 under-exploited at current harvest levels. A preliminary Maximum Sustainable Yield (MSY) has been determined and will be used in developing a reference level in the development of a performance measure for target species stock sustainability. This performance measure will be reviewed annually from 2006.

⁴ Pitcher, CR, Turnbull, C, Atfield, J, Griffin, D, Dennis, DM and Skewes, TD, 2005, *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.

⁵ B Arlidge, M.G. Kailis Pty Ltd, pers. comm., November 2006.

Progress in implementing Department of Environment and Heritage (DEH) recommendations

Recommendation	Progress
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.	<p><i>On-going</i></p> <p>There have been no management changes during the reporting period.</p>
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.	<p><i>In progress</i></p> <p>Harvest Management Advisory Committee (Harvest MAC) met twice in 2005. This forum is the main consultative mechanism for input into the management arrangements.</p>
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.	<p><i>In progress</i></p> <p>A draft Performance Measurement System (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.</p>
DPI&F to monitor the status of the fishery in relation to the performance measures once developed. Within three 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.	<p><i>In progress</i></p> <p>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.</p>
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	<p><i>On-going</i></p> <p>This annual status report is the second to be completed.</p>
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 fishery resource.	<p><i>In progress</i></p> <p>Data collection and validation mechanisms will be reviewed at the same time as the management arrangements are planned to be reviewed in 2007.</p>

Recommendation	Progress
<p>DPI&F, in conjunction with the Australian Fisheries Management Authority (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 north east 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.</p>	<p><i>In progress</i></p> <p>Maximum Sustainable Yield (MSY) estimates that incorporate data from 2005 are being developed for the target species in the ECTRLF. These are to be used in further development of the PMS for the fishery, taking into account the impact of adjoining fisheries on target species stock dynamics.</p>
<p>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.</p>	<p><i>In progress</i></p> <p>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.</p>
<p>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 formalised.</p>	<p><i>In progress</i></p> <p>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. The review will commence when the final decisions on the Torres Strait TRL fishery are made by the PZJA.</p>
<p>DPI&F to conduct a formal compliance risk assessment of the ECTRLF within 1 year and implement any resultant recommendations. DPI&F to periodically review the compliance risk assessment.</p>	<p><i>Completed</i></p> <p>Outcomes from the compliance risk assessment undertaken in 2005 have been incorporated in to the Queensland Boating and Fisheries Patrol current operational plan.</p>

Management performance

In December 2006, DPI&F held a workshop with stakeholders to develop performance measures for the ECTRLF. The PMS is to be finalised in mid-2007 and will be applied to the fishery thereafter.

Resource concerns

There are no resource concerns in the ECTRLF at current catch levels. A recent preliminary stock assessment⁶ (2005) estimated an MSY at approximately 170 tonnes.

The adjacent Torres Strait TRL Fishery (which forms part of the same stock) was considered overfished by the Bureau of Rural Sciences (BRS) in 2004⁷; however, this 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 completed in 2006⁸ indicated that as the current spawning stocks are similar to the spawning stock needed to produce MSY, the Torres Strait TRL Fishery should be regarded as fully exploited, rather than overfished.

Non-retained species/bycatch

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

Interactions with protected species

No interactions with protected species were reported in 2005. It is unlikely that interactions with protected species would occur in the ECTRLF other than through vessel interactions.

Fishery impacts on the ecosystem

The ECTRLF is conducted in a manner 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 ECTRLF 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.

⁶ Pitcher, CR, Turnbull, C, Atfield, J, Griffin, D, Dennis, DM and Skewes, TD, 2005, *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.

⁷ Caton, A and McLoughlin, K. eds, 2004, *Fishery Status Reports: Status of Fish Stocks Managed by the Australian Government*, Bureau of Rural Sciences, Canberra, Australia.

⁸ Ye, Y, Dennis, DM, Skewes, TD, Taranto, TJ, Haywood, MDE, Brewer, DT, Wassenberg, TJ, Chetwynd, D, McLeod, IM and Donovan, AG, 2006, *Sustainability Assessment of the Torres Strait Rock Lobster Fishery*, CRC Torres Strait.

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 Commonwealth Science 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 more data is required to fully validate the findings. An update of the model with 2005 catch data is being conducted to inform the development of performance measures for the fishery.

Monitoring programs and results

Logbook data provides catch trend data that is assessed by DPI&F. The most recent catch data is presented in Figure 1.

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

Collaborative research

Annual monitoring and biomass assessment is undertaken by the CSIRO in the Torres Strait TRL Fishery which operates on the same stock shared with the ECTRLF.

Fishery management

Compliance report

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

During 2005, 10 inspections were conducted on commercial vessels in the ECTRLF, with no offences detected. In addition, 23 recreational fishing vessels were inspected with three offences detected resulting in Fisheries Infringement Notices (FINs) being issued for possessing either undersized (2 FINs) or female (1 FIN) tropical rock lobster.

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 ECTRLF. There were also a number of activities rated as having a moderate risk, which are also being addressed.

Changes to management arrangements in the reporting year

No changes were made to the management of ECTRLF during 2005.

An investment warning for ECTRLF has been in place since 2001.

A draft policy to remove latent effort from the ECTRLF has been prepared by DPI&F. However, due to 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 ECTRLF that is complementary to that being developed for the Torres Strait TRL Fishery. The review will commence when final decisions on the Torres Strait TRL Fishery are made.

Consultation, communication and education

Consultation with stakeholders in the ECTRLF mainly occurs through the Harvest MAC. Two meetings were held in 2005. 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 *Torres Strait Fisheries Act 1984* (Commonwealth). Tropical rock lobster stocks occurring in the Gulf of Carpentaria outside of the Torres Strait Protected Zone are managed under Queensland law.

The 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 the 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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Image

Panulirus ornatus

