Annual status report 2009

East Coast Trochus Fishery

Queensland Government

On 26 March 2009, the Department of Primary Industries and Fisheries was amalgamated with other government departments to form the Department of Employment, Economic Development and Innovation.

Fishery profile 2008–09	
Species targeted Trochus (*Trochus niloticus*)	**Fishery season** All year with collection effort concentrated August–February
Total harvest from all sectors 44 t	**Total number of commercial licences in 2008–09** 6 authority holders with a maximum 10 persons operating under an authority
Commercial harvest 44 t	**Commercial licences accessing the fishery in 2008–09** 3
Recreational harvest No estimate level of harvest for 2008–09	**Fishery symbol** J1
Indigenous harvest No estimate level of harvest for 2008–09	**Monitoring undertaken** Commercial logbooks (CFISH)
Charter harvest Not applicable to the fishery	**Accreditation under the EPBC Act** Expires 3 June 2010
Commercial Gross Value of Production (GVP) No estimate available	**Logbook validation** Yes–completed May 2007
Sector contribution to total harvest Predominately commercial	**Quota managed** Yes–250 t Total Allowable Commercial Catch (TACC)

Key fish resources	Stock status
Trochus (*Trochus niloticus*)	Not assessed
Comment: This species will be considered for assessment as a part of the Fisheries Queensland[1] stock status reporting program roll out in 2009–10.	

[1] Fisheries Queensland (formerly Queensland Primary Industries and Fisheries), a service of the Department of Employment, Economic Development and Innovation.

Introduction

The Queensland East Coast Trochus Fishery (ECTF) is a single species harvest fishery managed by Fisheries Queensland.

Trochus niloticus, also known as topshells or topsnails, are targeted for their shells which contain a layer of mother-of-pearl. The shell is utilised both domestically and internationally in the manufacture of jewellery, buttons, ornaments and cosmetics. Trochus meat is of secondary importance to the shell.

Harvest trends in the ECTF have historically been driven by price fluctuations and market demand (Nash 1985; Ryan 1999). This status report covers the period for the 2008–09 financial year.

Fishery Description

Fishing area and methods

The commercial (J1) and recreational fishery area for the east coast of Queensland comprises all tidal waters south of latitude 10°41′ south, and east of longitude 142°31′49″ east (Figure 1). Closures under Marine Park legislation further limit the available area. The focus of the commercial fishery is mainly offshore from Mackay.

Traditional and customary Indigenous fishing for trochus is legally permitted in all Queensland waters, including Marine Park Zones closed to commercial and recreational fishing. The majority of trochus harvested for 'customary or traditional purposes' has been reported to occur in waters north of Palm Island, near Townsville.

Commercial trochus fishers are permitted to harvest with hand-held non-mechanical implements. Trochus are collected from the intertidal zone and from reefs by divers, usually on SCUBA or hookah apparatus. Recreational fishers are not permitted to use SCUBA or hookah apparatus.

Most commercial collection occurs between the months of August and February when there are more favourable diving conditions (Brayshaw 1998). Trochus are unevenly distributed across a wide area; fishers typically select fishing sites based on prior knowledge of reefs with historically high trochus abundances (Ryan 1999).

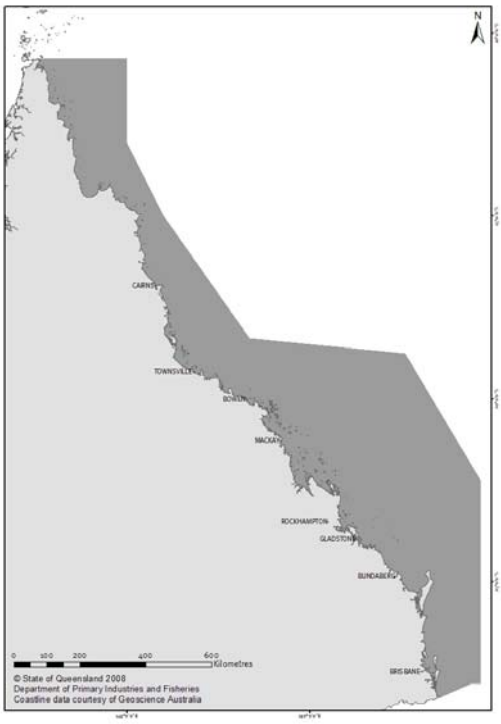

Figure 1: Area of the East Coast Trochus Fishery.

Key Species

Trochus niloticus are gastropods belonging to the family Trochidae. They are marine animals that inhabit intertidal and shallow subtidal areas of coral reefs, mainly in exposed aspects. In Australia, trochus are collected from remote reefs in Western Australia and Queensland either from reef tops at low tide or from the subtidal areas adjacent to the reefs.

In Australia they can attain 16 cm in shell diameter, but are common around 8-12 cm. The average life span for trochus is 15-20 years and most reach reproductive maturity by two years of age in the wild and 12 months in captivity. Trochus are dioecious (separate male and female) broadcast spawners and fertilization takes place in the water column. Spawning occurs throughout the year in low latitudes and only during the warmer months in high latitudes (Nash, 1985).

Main management methods used

The ECTF is managed under the Queensland *Fisheries Act 1994* and in accordance with the Queensland *Fisheries Regulation 2008*. Sections of the fishery operate within the Great Barrier Reef Marine Park (GBRMP) and as such the ECTF is also managed under the *Great Barrier Reef Marine Park Act 1975* and its regulation and zoning plan,

the Queensland *Marine Parks Act 2004* and *Marine Parks Regulation* 2006, and relevant gazetted notices and permit conditions.

The ECTF is managed through a series of input and output controls, which vary between the commercial, recreational and Indigenous sectors.

Commercial:

- commercial total allowable catch (TAC) of 250 t
- transfer of quota between authorities is permitted
- limited entry with a maximum of six authorities
- limited number of assistant harvesters under each authority (10)
- harvest gear restrictions including hand-held non-mechanical implements only
- one primary vessel and a maximum of four tenders (not greater than 7 m each) per authority.

Commercial, recreational and Indigenous:

- only shells sized 8 cm to 12.5 cm may be retained
- zones closed to the fishery within the GBRMP.

Recreational and Indigenous:

- limit of 50 trochus shells in possession, included in the 50 shell limit for all gastropod and bivalve molluscs
- prohibition on the use of underwater breathing apparatus (other than snorkel).

Catch statistics

Commercial

The ECTF is a small-scale harvest fishery. Catches in 2008–09 decreased from the previous year (Table 1, Figure 2) with 44 t landed. The catch rate (692 kg/day) was also lower than 2007–08 levels although this was higher than the 10 year average of 571 kg/day. Participation and catch levels reflect the depressed prices and decreased demand for trochus at present.

Total annual harvest has remained below the commercial TAC of 250 t, with the greatest annual harvest of approximately 223 t in the 1997–98 financial year (Table 1). Annual total harvest weights since 1998 have remained below 200 t.

Table 1: ECTF Annual Data Financial Years 1997–98 to 2007–08 (Source: Fisheries Queensland CFISH database, 6 January 2010).

Note – operators have provided permission to display data derived from fewer than five boats.

Financial Year	Days	Boats	Weight (kg)	Catch per day (kg)
1997–98	338	5	223 436	661
1998–99	202	4	148 373	735
1999–00	239	4	191 160	800
2000–01	211	4	117 475	557
2001–02	237	3	127 304	537
2002–03	114	2	61 337	538
2003–04	64	3	44 498	695
2004–05	157	3	109 757	699
2005–06	247	6	178 429	722
2006–07	226	6	180 961	801
2007–08	166	5	114 852	692
2008–09	77	3	44 005	571

Recreational

There is no information available on the recreational harvest of trochus.

Indigenous

There is no information available on the indigenous harvest of trochus.

Spatial issues/trends

Harvest and effort were spread from reefs east of Ingham to the southern reefs of the Swains reef complex. The majority of harvest (approximately 56%) came from a single 30' logbook grid east of Mackay. This grid has consistently produced high levels of harvest at an average 690 kg/day since 1997–98.

Socio-economic characteristics and trends

The ECTF is a small-scale, single species harvest fishery. Total catches have been highly variable due to the rapid fluctuations in market conditions. There has been decreasing demand for trochus shell and meat in 2008–09. Prices paid for landed product were close to or below the cost of production. Operators have reduced effort in response.

Biological and ecological information

Monitoring Programs

Logbook data provide Fisheries Queensland with detailed information on catch trends in the commercial fishery. No independent monitoring is currently being undertaken.

Interactions with protected species

Commercial operators record interactions with protected species in a Species of Conservation Interest (SOCI) logbook. Because of the selective, relatively benign harvesting method, operators pose negligible risk to protected species. There have been no reported interactions with SOCI during this reporting period.

Ecosystem Impacts

A desktop Ecological Risk Assessment (ERA) in 2009 of the ECTF determined the fishery to have negligible impacts on the ecosystem as a result of the selective fishing method, the small number of operators participating in the fishery and the generalist role of trochus in the ecosystem. There are no endangered, threatened or protected species and no threatened ecological communities that appear to be affected by the trochus fishery.

The ERA determined that the fishery presents a moderate risk to trochus populations at the reef level. This is due to trochus being density dependent spawners and their minimal capacity to replenish populations by migrating between reefs. A performance measure to monitor fine scale catch rates was developed to mitigate local overfishing occurring.

Sustainability Assessment

Performance against fishery objectives

Performance measures for the ECTF (Table 2) were developed in collaboration with stakeholders. The PMS was finalised in January 2010 and provides meaningful, defensible, precautionary and measureable objectives.

Table 2: Performance Measurement System for the East Coast Trochus Fishery.

Performance measure	Performance
Target Species	
Annual catch of trochus reaches 95% of the Total Allowable Commercial Catch.	*Not triggered* 18% of the quota was landed in 2008–09.
Annual catch rate decreases by more than 50% from the average annual catch rate for the previous 10 years across the fishery.	*Not triggered* Annual catch rate decreased by 15% from the average annual catch rate for the previous 10 years across the fishery.
Annual catch rate for CFISH grid R25 decreases by more than 30% from the previous years catch rate for that grid.	*Not triggered* Annual catch rate for CFISH grid R25 decreased by 20% from the previous years catch rate for that grid.
Ecosystem Impacts	
A significant negative impact on the ecosystem is identified as a direct result of fishing activities in the East Coast Trochus Fishery.	*Not triggered* No significant impact on the ecosystem directly related to fishing in the ECTF were detected or identified.
Social (Compliance)	
More than 30% of the active vessels in the fleet are used to commit a serious offence under the Fisheries Act 2004.	*Not triggered* No offences were detected in 2008–09
Economic	
Less than 80% of the combined quota holdings of all active licences in a quota year are landed.	*Triggered* The combined quota holdings of active licences totalled 137.5 t in 2008–09. Approximately 32% of this total was landed by three licence holders. Fisheries Queensland does not consider this a result of management derived impediments to the viability of the fishery. Lack of demand for trochus product and poor prices resulted in low participation in the fishery. Forecasts are that this is unlikely to change for 2009–10. Fisheries Queensland considers this matter to be closed and no further action required. The indicator will continue to be monitored and reviewed annually.

Current sustainability status and concerns

Fisheries Queensland is satisfied that there are no resource concerns in this fishery at the current participation levels and with the suite of management controls that are in place. The commercial TAC is considered to be set at a precautionary level in the absence of recent scientific information on the status of the trochus resource.

Research

Recent research and implications

Fisheries Queensland are not aware of new research related to the ECTF.

Collaborative research

Fisheries Queensland were not involved in collaborative research during the 2008–09 reporting period.

Fishery Management

Compliance Report

During 2008–09, one commercial fishing vessel was inspected in the ECTF with no offences detected. Non-compliance with quota arrangements and size limits have been identified as the highest priorities for enforcement and compliance in this fishery.

Changes to management arrangements in the reporting year

No changes have been made to the management arrangements in the reporting year.

Communication and education

Promotion of regulations applying to both commercial and recreational fishers, including those relating to harvest fisheries, is an ongoing role for Fisheries Queensland.

Consultation with stakeholders in this fishery occurs through many mechanisms:

- On a strategic level the Queensland Fisheries Advisory Committee (QFAC) considers the Queensland Trochus Fishery in the context of all Queensland fisheries and prioritises issues associated with it accordingly. Once fisheries management priorities have been determined, the department may establish a small number of Technical Advisory Groups (TAGs) to provide technical information that will assist Fisheries Queensland to pursue these priorities (which may or may not impact the ECTF).
- The service may also establish technical working groups to generate information upon which to base decisions. These groups may be permanent or ad-hoc and can be fishery-specific or broader. They may be established to provide advice to the Department or to inform the decisions of a body such a QFAC.
- The service consults directly with industry members through attendance at industry association meetings, port visits, newsletters and other means.

There are also legislated requirements for consultation; such as Regulatory Impact Statements (RIS) that ensure stakeholders in the fishery are consulted about significant changes in management arrangements.

References

Brayshaw, P 1998, *Trochus Industry Profile—May 1998*, Department Primary Industries and Fisheries, Brisbane, Australia.

Nash, W 1985, *Aspects of the biology of Trochus niloticus and its fishery in the Great Barrier Reef region. A report submitted to the Great Barrier Reef Marine Park Authority*, Queensland, Australia.

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Information complied by

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Front cover image

Trochus shell (*Trochus niloticus*)