

Annual status report 2005

Queensland Gulf of Carpentaria Developmental Finfish Trawl Fishery

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

This publication provides information on the Queensland Gulf of Carpentaria Developmental Finfish Trawl Fishery.

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Introduction

The Gulf of Carpentaria Developmental Finfish Trawl Fishery (GOCDFTF) is a limited entry, quota-managed, semi-demersal trawl fishery that has operated under Queensland Fisheries Joint Authority (QFJA) jurisdiction since June 1998. GOCDFTF operators predominantly capture red snappers (*Lutjanus erythropterus*—crimson snapper, and *L. malabaricus*—saddletail snapper). Most of the product is sold to the domestic processors as whole fish.

The GOCDFTF remains a 'developmental fishery' with any change to 'licensed' status dependent on its continued demonstration of commercial viability, social acceptability and ecological sustainability.

Description of the fishery

Fishing methods

Operators in the GOCDFTF use semi-demersal fish trawl nets separated by two otter boards. The net fishes from the seafloor up to approximately 5.5 m from the bottom. Trawling speeds are between 3.5 and 4 knots and trawls are from 30 to 90 minutes in duration.

Fishery area

The GOCDFTF operates in Gulf of Carpentaria (GOC) waters beyond 25 nm from the Queensland coast to the edge of the Australian Fishing Zone. The western edge of the fishery is bounded by the Queensland–Northern Territory sea border. Most of the fishing effort was concentrated within the north-eastern sector of the fishery adjacent to Weipa.

Main management methods used

The GOCDFTF is a quota-managed fishery and has a maximum total allowable catch of 1500 t of crimson snapper, saddletail snapper, red emperor and other emperor. The total quota has been conservatively set below the estimated sustainable yields for the combined species of tropical snappers in the Australian sector of the Gulf of Carpentaria between 2900 and 9000 t (McLoughlin *et al.* 1995)—1250 t of the 1500 t is currently allocated.

The QFJA manages the GOCDFTF under Queensland law. The QFJA, established under the *Fisheries Act 1994*, manages all northern demersal and pelagic finfish in waters relevant to Queensland in the GOC.

The full description of input and output controls can be found in the Department of Primary Industries and Fisheries (DPI&F) report *Ecological Assessment of the Gulf of Carpentaria Developmental Finfish Trawl Fishery*¹ and can be downloaded from:

<http://www.deh.gov.au/coasts/fisheries/qld/fin-fish/submission.html>.

¹ Roelofs, A.J. and Stapley, J. (2004). Ecological Assessment of the Gulf of Carpentaria Developmental Finfish Trawl Fishery. A report to the Australian Government Department of Environment and Heritage on the ecologically sustainable management of developmental multi-species tropical demersal finfish trawl fishery. Department of Primary Industries and Fisheries, Queensland: 77 pp.

Approximate allocation between sectors

The GOCDFTF is an entirely commercial fishery.

The Indigenous, recreational and charter harvest of target, by-product and bycatch species as caught in the GOCDFTF is very low and considered negligible.

Fishery accreditation under EPBC Act

The GOCDFTF was granted a Wildlife Trade Operation (WTO) approval under Part 13 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 1 December 2004. The WTO approval acknowledges that the fishery is being managed in an ecologically sustainable manner and allows the continued export of product caught in this fishery. The current approval expires in December 2007.

Another approval will be required if product from the fishery is to be exported subsequent to this date.

Fishery profile

Total harvest from all sectors 2004: 341.5 t

Commercial harvest for 2004: 341.5 t

Recreational harvest: Not applicable to the fishery

Indigenous harvest: Not applicable to the fishery

Charter harvest for 2004: Not applicable to the fishery

Commercial gross value of product (GVP) for 2004: A\$1.1 million

Number of authorities: Three

Commercial fishing boats accessing the fishery in 2004: Two

Catch and effort (target species)

Commercial

Fishing effort increased in 2004 with a total of 223 fishing days compared to 141 days in 2003. Consequently, overall catches had also increased, albeit at a slightly lower catch efficiency (Table 1, Figure 1). Crimson snapper continues to dominate the harvest (Figure 2), comprising about 40% of the total catch. Overall catch composition remains similar to the long-term average for the fishery from 1998 to 2003. Red emperor appear to be only a minor component of the overall catches.

Table 1: Species composition of the total catch in tonnes in the GOCDFTF from 1998 to 2004.

Common name	1998	1999	2000	2001	2002	2003	2004
Crimson snapper*	41.2	19.6	5.2	4.0	60.7	98.4	133.6
Saddletail snapper*	13.6	13.5	1.0	1.3	53.4	47.5	58.6
Mangrove jack	3.9	13.1	4.7	1.7	35.4	36.6	41.8
Blackall	7.7	12.5	1.1	1.0	14.7	12.1	24.6
Spotted scale seaperch*		2.3			5.7	24.6	27.6
Gold band snapper*					6.6	11.4	22.1
Red spot emperor*	1.8	3.3	0.5	0.2	9.8	10.5	11.5
Trevally—unspecified	0.1				0.1	2.6	14.6
Red emperor*	2.8	3.5	0.2	0.5	2.3	2.3	0.6
Cod—unspecified	1.1	2.6	0.1	0.4	1.6	1.9	2.5
Spanish mackerel		1.8	0.1	0.5	5.0	1.0	0.1
Other fish	6.4	3.0	0.2	0.6	5.4	3.6	3.8
Total (tonnes)	78.6	75.3	13.0	10.1	200.6	252.4	341.5

* Quota species

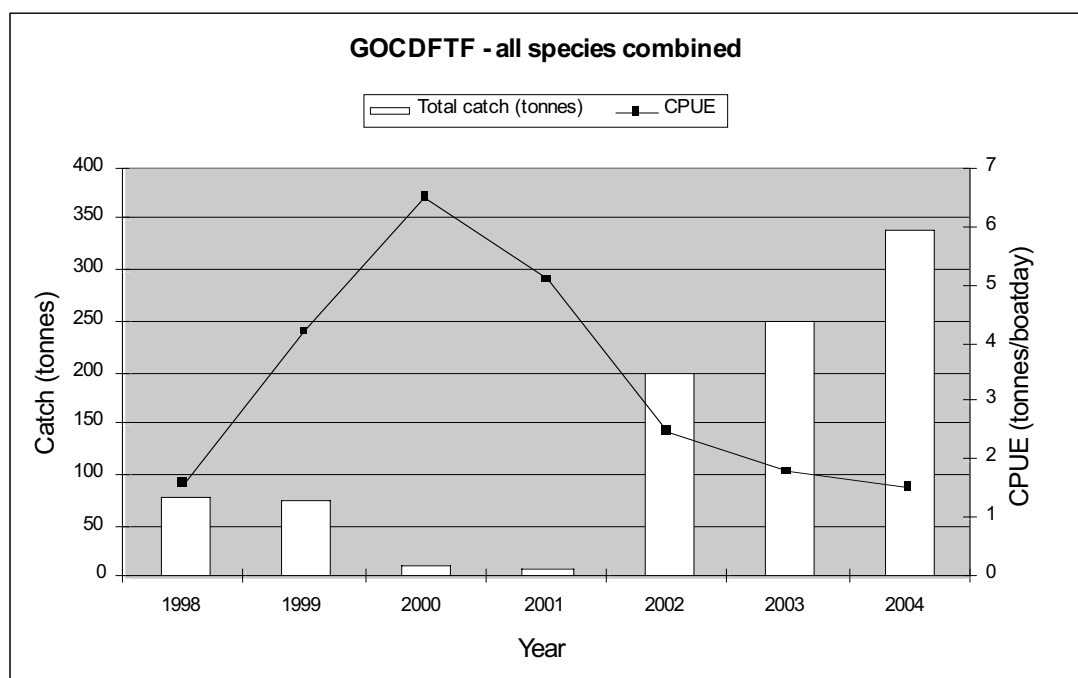


Figure 1: Total harvest (t) of all species combined in the GOCDFTF from 1998 to 2004.

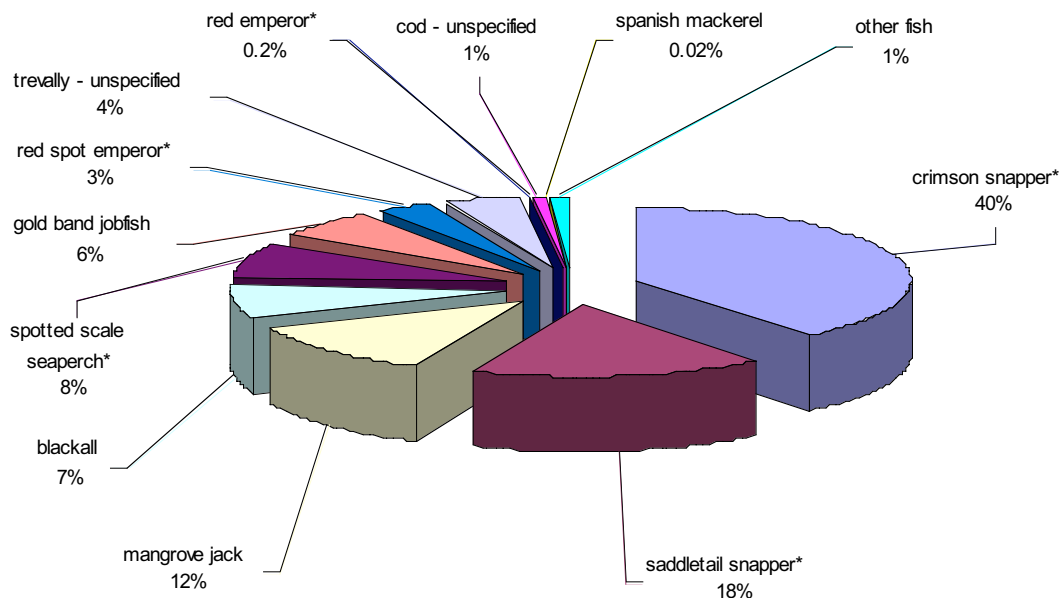


Figure 2: Species compositions of catches in the GOCDFTF in 2004 (total catch = 341 t).

Non-retained species/bycatch

Two types of net are used in the fishery—the full wing Wendy net and the Champion cutaway wing net. Both are considered ‘environmentally friendly’ nets. The full wing Wendy trawl net was designed to minimise habitat disturbance while maintaining viable levels of catch, and was designed cooperatively by industry and government. The bridle design, light weighted footline and cut of the net allow it to lift high off the seabed, allowing the gear to be more workable as the net does not come into contact with the seabed. The net design reduces the occurrences of sponges, corals and other unwanted species that are associated with traditional demersal trawl operations.

Documentation and assessment of bycatch in the GOCDFTF was undertaken in November 2003. The observer program estimated approximately 38% of the catch by weight was discarded as bycatch and was mainly unmarketable finfish and benthos.

DPI&F are continuing to monitor the amount of bycatch in the fishery through onboard observers. Should the observed level of fishery impact show the amount and level of interaction with bycatch and the environment is significant, DPI&F may consider further management measures to mitigate these impacts of the fishery.

Interactions with protected species

Operators in the GOCDFTF occasionally encounter threatened species. Observer reports and advice from the operators indicate sea turtles, sawfish and sea snakes are caught on rare occasions before being released alive almost immediately.

A Species of Conservation Interest (SOI) logbook has been developed to provide more detailed information on the level of interactions with protected species in GOC fisheries. DPI&F plan to implement the SOI logbook along with new catch logbooks during 2006. Fishers are also legally required to report interactions with all protected species to the Department of Environment and Heritage (DEH).

Foreign and illegal fishery activities

The recent reported increase in foreign fishing vessels (FFV) incursions into GOC waters is being viewed by Australian fisheries managers as a serious threat to the sustainability of northern Australian fisheries. FFV appear to be targeting sharks and other pelagics, however the reported take of red snappers is of concern to this fishery.

While harvest levels from FFV are not well known at present, the lack of accurate information is likely to influence the accuracy of resource assessments which in turn will influence the effectiveness of sustainable management practices in the region.

Fishery impacts on the ecosystem

Gear types used in the GOCDFTF have little physical impact on the environment described. The trawl net design minimises habitat disturbance while maintaining viable levels of catch. The net design reduces the occurrences of sponges, corals and other unwanted species that are associated with traditional demersal trawl operations.

Beyond the removal of fish, there is little evidence to suggest that the GOCDFTF impacts significantly on benthic or pelagic ecological communities in the area as a whole, however local impacts may occur.

General ecosystem health

Given the limited effects on the environment caused by this commercial fishery at current levels of fishery effort, the general ecosystem health of the GOC appears under minimal threat from the GOCDFTF.

Spatial issues/trends

Many of the fished species (especially tropical red snappers) in the Queensland section of the GOC are shared with the Northern Territory and Arafura Sea fisheries jurisdictions, including Indonesia. Fisheries researchers and managers from the states, territory and Commonwealth meet annually at the Northern Australian Fisheries Managers (NAFM) Forum to review current research, set research priorities and decide on management strategies and catch quotas to ensure that these shared resources are used in a sustainable manner.

Research and monitoring

DPI&F convened a stakeholder workshop in November 2004 to undertake an ecological risk assessment (ERA) of all retained and non-retained species in the Queensland GOC fisheries. No species populations retained by the GOCDFTF were considered to be at greater than a low risk of being impacted on in an unsustainable manner by the current level of fishing activity.

Recent research and implications

Data, sufficient to undertake fisheries assessments, is being collected on the major harvested species in the GOCDFTF. Recent research² on red snappers in the GOC and Indonesia has determined regional differences in age at first maturity and spawning periods for *L. malabaricus* and *L. erythropterus*. The paper also suggests that Queensland's current size regulations are appropriate to provide protection to immature fish of these species.

An updated assessment of the overall northern Australian and Indonesian stocks of red snappers (*L. malabaricus*, *L. erythropterus* and *Pristipomoides multidens*) has recently been published³. The report contrasts the lightly fished and well-managed Queensland and Northern Territory fisheries with the relatively unmanaged and heavily fished Indonesian sector. It is suggested that the high catches of red snappers and the small individual size of the harvested fish in the Indonesian fishery is unsustainable and that this may impact on Australia's fisheries. The authors promote the importance of maintaining present management controls and effort levels in the Australian sector in order for red snapper stocks to remain sustainable. Also highlighted in the report, however, is the lack of reliable data for the Indonesian sector of the red snapper fishery. This data is crucial to the accuracy and validity of any assessment of the overall red snapper stocks. DPI&F are proceeding to undertake a stock/fishery assessment of the GOC red snapper stocks specifically for the GOC in collaboration with researchers from Northern Territory.

Monitoring programs

The GOCDFTF is monitored through catch and effort data collected through the DPI&F compulsory daily logbook program. The results of this program are outlined in the 'Catch and effort' section of this report.

The GOCDFTF is also monitored through the use of onboard observers as part of its permit conditions. In 2004, fishing activities were observed for six days onboard one vessel. The observer program objectives are formulated alongside scientific and management priorities, and within financial resources as stipulated in the QFJA Developmental Fishery Policy.

DPI&F monitors each fishing operator's adherence to the boundaries of the GOCDFTF through the location data collected from the Vessel Monitoring System (VMS) that each vessel is required to carry. VMS data to date shows good compliance rates for this fishery.

² Fry, G.C., Milton, D.A., van der Velde, T.D., Stobutzki, I.C., Andamari, R. and Badrudin (2005). 'Are there life history differences between populations of the red snappers; *Lutjanus erythropterus* (Bloch 1790) and *L. malabaricus* (Schneider 1801), across northern Australia and eastern Indonesia?' *Estuarine Coastal Shelf Sci.* (in press)

³ Blaber, S.J.M., Dichmont, C.M., Buckworth, R.C., Badrudin, Sumiono, B., Nurhakim, S., Iskandar, B., Fegan, B., Ramm, D.C. and P., S.J. (2005). 'Shared stocks of snappers (Lutjanidae) in Australia and Indonesia: Integrating biology, population dynamics and socio-economics to examine management scenarios.' *Reviews in Fish Biology and Fisheries* 15: 111–127.

Fishery management

Compliance report

The Queensland Boating and Fisheries Patrol (QBFP) reported that two inspections were conducted on commercial net, recreational and fishing charter boat operations in the GOC during 2004. There were no breaches detected or cautions issued in the period.

A new Compliance Activity System has recently been implemented by DPI&F that will record detailed information on activities performed by the QBFP. The new system records:

1. breach reports issued (including offences and court outcomes)
2. unattended breach reports
3. fisheries infringement notices (FINS) issued
4. all field activities (from new field occurrence logs)
5. complaints made via the Fishwatch hotline (including follow up actions).

All offences and field activities are recoded to 6 nm commercial fishing grids. This will allow enforcement activities and offences to be represented spatially and to guide reviews of compliance strategies. Progress to date includes the development of the new system to record breach reports, unattended breach reports and FINS. The new field occurrence logs were trialled in Cairns and implemented across Queensland in July 2005.

Changes to management arrangements in the reporting year

There were a number of changes made to permits issued for the GOCDFTF during the reporting year. These included an amendment to the area allowed to be fished from 13.5 degrees south to 15 degrees south, a reduction in the minimum legal size for small mouth nannygai from 40 cm to 38 cm, and the introduction of a number of in-possession limits on species including black jewfish, queenfish, king salmon, blue salmon, grey mackerel, Spanish mackerel and squid.

Consultation, communication and education

Promotion of regulations applying to both commercial and recreational fishers is an ongoing role of DPI&F. Approximately 160 000 recreational fishing brochures containing size and possession limit information were distributed in 2004.

Fishery observers also undertake an educational role while on board the GOCDFTF vessels.

Consultation also occurs through the Gulf Management Advisory Committee (GulfMAC), with meetings generally held at least twice a year. GulfMAC provides an opportunity for stakeholders to advise DPI&F and QJFA on management measures for the GOCDFTF.

Complementary management

Queensland, Northern Territory and Commonwealth fisheries managers and researchers are in regular correspondence through forums such as NAFM, QFJA meetings and GulfMAC.

Fishery performance

Appraisal of fishery in regard to sustainability

The target species are considered under exploited in this fishery. While some concern was held by DEH for mangrove jack species following submission of the ecological assessment for the fishery, results from the ERA suggests this species is at low risk of being impacted on by the fishery at its current levels of harvest. Formal stock assessments of the target species (red snapper) are regularly conducted by NAFM and catches by this fishery fall well below what are considered sustainable levels.

The recent report by Blaber *et al.* (2005) has suggested there is concern for the sustainability of red snapper stocks across northern Australia and Indonesia. It should be noted, however, that the report makes a number of assumptions regarding the level of red snapper harvest from the Indonesian sector in the overall stock assessment, which limits the confidence that can be held in the conclusions. Regardless of these uncertainties, closer scrutiny and tighter management control of the shared Australian–Indonesian red snapper stocks will be important in maintaining sustainable populations for these species. Furthermore, the impact of the presently unknown level of harvest of red snapper by illegal foreign fishers in north Australian waters must also be factored into fisheries assessments and management decisions for the fishery.

Progress in implementing DEH recommendations

The recommendations made by DEH in regard to addressing any uncertainties or risks that were identified can be found at:

<http://www.deh.gov.au/coasts/fisheries/qld/fin-fish/pubs/finfish-submission.pdf>.

DPI&F has made significant progress in implementing a number of these recommendations. These include:

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DPI&F has reported publicly on the status of the GOCDFTF through this report and will continue to do so annually.

Protected species education

DPI&F has recently delivered a comprehensive education program to commercial and recreational fishers promoting protected species and the need to adopt appropriate fishing practices to help minimise the number of interactions. Education material has been mailed to all licensed commercial fishers, numerous recreational fishing clubs, and bait and tackle stores. A Memorandum of Understanding (MOU) has also been developed between DPI&F and DEH in order to streamline the protected species reporting process.

Performance measurement systems

As part of its obligations under the EPBC Act, DPI&F is required to develop fishery specific objectives linked to performance indicators and performance measures for target, bycatch, protected species and impacts on the ecosystem for all GOC fisheries. DPI&F has recently developed an information paper regarding development of performance measures to help guide fisheries managers and Management Advisory Committees in establishing consistent and appropriate fishery objectives, performance indicators, performance measures and management responses. Performance measures for the GOCDFTF will be developed in 2006. The recently completed ERA of GOC fisheries will inform the performance measures development process.

Ecological risk assessment

DPI&F conducted an ERA workshop in November 2004 that met the DEH recommendation to identify target, by-product and bycatch species most at risk from the fishery. Workshop attendees included representatives from the Indigenous and recreational fishing sectors; commercial net, line and finfish trawl fishing sectors; the Environmental Protection Agency and Queensland Parks and Wildlife Service; local conservation groups; and Northern Territory and Queensland fisheries researchers and managers. Actions will be developed from the ERA that will reduce the risk to species identified as requiring further management responses. Outcomes from the ERA will also assist the development of performance measures and review events for all GOC fisheries.

Improving our knowledge of Indigenous and recreational harvest

Under the Recreational Fishing Information System (RFISH) program, DPI&F conducts a regular recreational fishing phone survey coupled with a recreational fishing diary system. Traditionally, the RFISH data has been used to establish state-wide participation rates for recreational fishing as well as providing regional scale estimates of harvest for the major/popular recreational fish species. In 2005, a feasibility study was undertaken on the statistical capacity of data collected under RFISH to provide finer scale spatial estimates (e.g. at a subregional level) of recreational harvest than has been previously reported. The outcomes of the feasibility study will be considered as DPI&F develops a process to improve estimates of recreational take across all of Queensland's fisheries.

DPI&F are investigating methods to improve estimates of harvest by the Indigenous sector in the GOC. The capacity of processes such as 'sea country planning' and the use of Indigenous Subsistence Fishing Survey Kits are being considered at present.

Protected species interactions

DEH have recommended that DPI&F need to develop a mechanism to improve knowledge of the level of interactions with protected species in the GOC fisheries. An SOCI logbook has now been developed that will provide this information. DPI&F plan to implement the SOCI logbook along with the new catch logbooks during 2006. The new logbooks will provide information on the location of protected species interactions and regular analysis of data collected will identify if there are any interaction 'hot spots' requiring management response.

Fishery independent monitoring

DPI&F are continuing to seek out alternative cost effective fishery independent sampling/monitoring techniques, particularly for target species for the GOCDFTF. The outcomes of independent monitoring and observer programs will be reported on in the annual status reports for this fishery.

Management performance

In its assessment of the GOCDFTF, DEH believes the performance measures for the fishery and their subsequent management actions could be better defined. Consequently, new performance measures and/or reference points will be developed for the GOCDFTF in consultation with GulfMAC by the end of 2006.

Resource concerns

There are no resource concerns for the species harvested by this fishery in Queensland GOC waters.

Information compiled by

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Front cover image

Crimson snapper (*Lutjanus erythropterus*)