

Annual status report

Gulf of Carpentaria

Developmental Finfish Trawl

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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Introduction

The Gulf of Carpentaria Developmental Finfish Trawl Fishery (DFTF) is a limited-entry, quota-managed, semi-demersal trawl fishery that has operated under Queensland Fisheries Joint Authority (QFJA) jurisdiction since June 1998. Demersal fish trawling by foreign and domestic operators has occurred extensively across northern Australia since the 1970s. DFTF operators predominantly capture red snappers (*Lutjanus erythropterus*—crimson snapper and *L. malabaricus*—saddletail snapper). Most of the product is sold to domestic processors as whole fish.

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

This report covers fishing activity during the 2006 calendar year.

Fishery profile 2006

Total harvest from all species: 613 t

Commercial harvest: 613 t

Recreational harvest: not applicable to the fishery

Indigenous harvest: not applicable to the fishery

Charter harvest: not applicable to the fishery

Commercial Gross Value of Production (GVP): approximately \$2.5 million

Number of Authorities: 3

Commercial boats accessing the fishery: 2

Fishery season: all year

Description of the fishery

Fishing methods

Operators in the DFTF use a semi-demersal fish otter trawl. The net fishes from the sea floor to a distance of approximately 5.5 m above the sea floor. Trawling speeds are between 3.5 and 4 knots, and trawl duration ranges from 30 to 90 minutes.

Fishing area

The DFTF operates in Gulf of Carpentaria (GOC) waters beyond 25 nautical miles (nm) from the Queensland coast to the boundary of the Australian Fishing Zone in the north (Figure 1). The western boundary of the fishery is the Queensland – Northern Territory border and the southern boundary is 15° S.

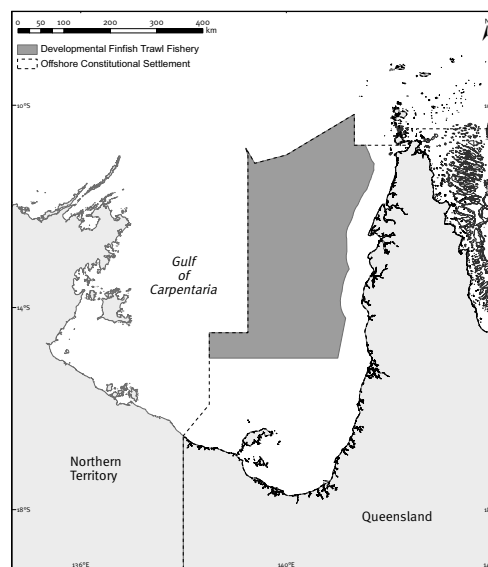


Figure 1: Area of the Developmental Finfish Trawl Fishery.

Main management methods used

The DFTF is a quota-managed fishery which has a maximum allowable level of 1500 t of crimson snapper, saddletail snapper, red emperor and other emperor that could be allocated to commercial operators. The current commercial total allowable catch (TAC) allocation has been conservatively set at 1250 t, well below the estimated sustainable yields for the combined species of tropical snappers in the Australian sector of the GOC of between 2900 t and 9000 t,¹ noting that the demersal fisheries resources on the Northern Territory (NT) side of the Gulf are managed under NT legislation.

The QFJA manages the DFTF on the Queensland side of the Gulf under Queensland law. The QFJA was established under the *Fisheries Act 1994* to manage all northern demersal and pelagic finfish in waters adjacent to Queensland in the GOC.

A detailed description of input and output controls in this fishery can be found in the Department of Primary Industries and Fisheries (DPI&F) 2004 report *Ecological assessment of the Gulf of Carpentaria Developmental Finfish Trawl Fishery*.²

Approximate allocation between sectors

The DFTF is an entirely commercial fishery. The Indigenous, recreational and charter harvest of this fishery's target, by-product and bycatch species is very low and is considered negligible.

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

The DFTF was granted a Wildlife Trade Operation (WTO) approval under Part 13A of the Commonwealth *Environment Protection and Biodiversity Conservation 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 the fishery. The approval expires in December 2007.

Catch statistics

Commercial

Total catches in the DFTF have been increasing since 2001, total catches in 2006 were the highest reported between 1998 and 2006 (Table 1, Figure 2). Fishing effort in 2006 was marginally higher than 2005 levels, but catch per unit effort (CPUE) in tonnes/day was similar (Figure 2). The total harvest of quota species in 2006 was about 444 t, representing 72% of the total catch and substantially less than the 1250 t allocated. Crimson and saddletail snapper catches were higher in 2006, while mangrove jack remained steady around the 70 t mark. Crimson snapper continues to be the main species harvested (Table 1), comprising 39% of the total catch by weight. The catch of saddletail snapper in 2006 was over double that harvested in 2005.

¹ K McLoughlin, B Wallner & D Staples (eds), *Fishery Status Reports 1994: Resource assessments of Australian Commonwealth Fisheries*, Bureau of Resource Sciences, Canberra, 1995.

² A Roelofs & J Stapley, *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*, Queensland Department of Primary Industries and Fisheries, Brisbane, Australia, 2004. This can be downloaded from www.environment.gov.au/coasts/fisheries/

There were no other notable increases in the harvest of other species recorded in the logbooks during the 2006 reporting year. The mixed reef fish catch group remained at 15 t. The higher level of reported catches of unidentified species in 2005 was reasonable, considering that an additional boat with an inexperienced crew began operating in the fishery in late 2004. DPI&F had expected that the accuracy of catch reporting would improve in 2006. DPI&F fisheries observers provided these inexperienced fishers with species identification photographs to assist with their catch recording. However, as there was opportunity for only one observer trip in 2006 (February), it is likely that this education opportunity was not fully realised. DPI&F expects logbook catch recording to be more accurate with the introduction of a new logbook into the fishery in 2007.

Table 1: Species composition of the total catch in tonnes (t) for the DFTF from 1998 to 2006 (Source: DPI&F CFISH database, 5 July 2007).

Common name	1998	1999	2000	2001	2002	2003	2004	2005	2006
Crimson snapper*	41	20	5	4	61	98	143	178	238
Saddletail snapper*	14	13	1	1	53	48	59	76	171
Mangrove jack	4	6	2	<1	35	37	48	74	71
Painted sweetlip*	8	6	<1	<1	10	12	30	30	24
Spotted scale seaperch		1			6	25	28	23	33
Gold band snapper*					7	11	22	17	24
Trevally—unspecified	<1				<1	3	16	28	9
Red spot emperor*	2	3	<1	<1	10	11	12	8	7
Fish—mixed reef	<1						<1	14	15
Cod—unspecified	1	1	<1	<1	1	2	5	8	6
Red emperor*	3	2	<1	<1	2	2	<1	2	3
Moses perch	<1				<1	1	1	4	4
Spanish mackerel		1	<1	<1	4	<1	<1	1	<1
Sweetlip—unspecified*	2							2	2
Other emperor*	<1						<1	<1	<1
Other fish	3	<1	<1	<1	3	2	5	20	5
Total	78	55	9	7	194	252	371	484	613

* Quota species.

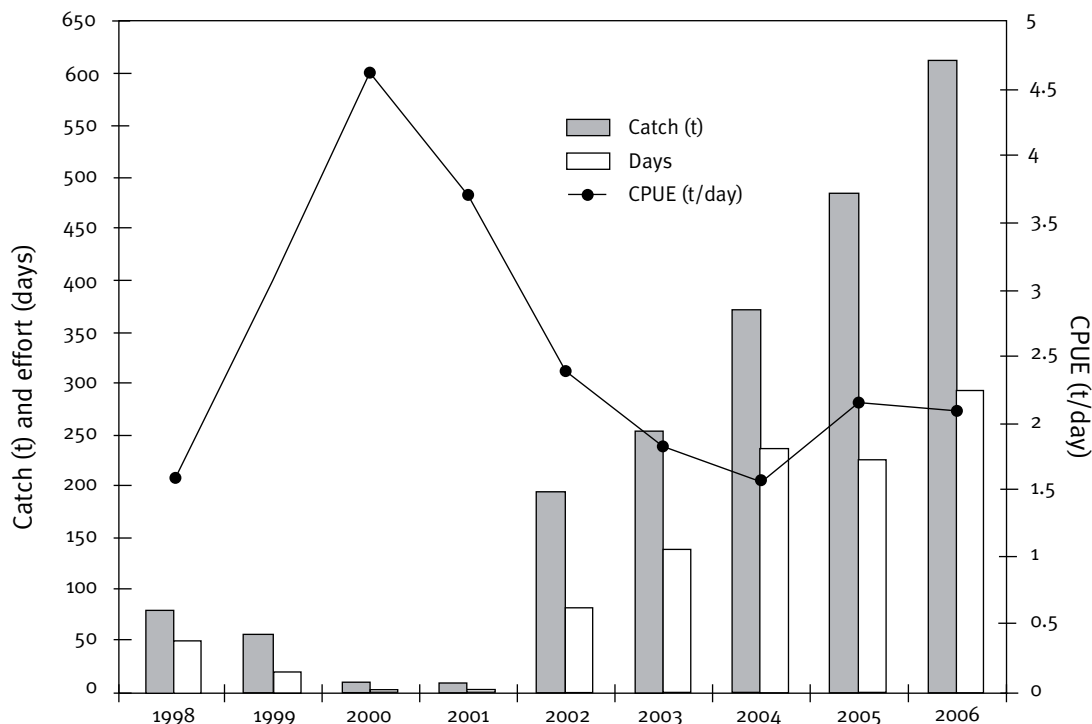


Figure 2: Total harvest (t) of all species combined in the DFTF from 1998 to 2006 (Source: DPI&F CFISH database, 5 July 2007).

Spatial issues/trends

Catch and effort were effectively spread throughout the fishery area. Good catches of crimson snapper, saddletail snapper and mangrove jack were again recorded from the south-western corner of the fishery in 2006.

Socio-economic characteristics and trends

The DFTF relies on bulk tonnages of low-value (about \$4 per kg) unprocessed whole fish for a profitable return on the domestic market. Catches in 2006 equated to a GVP of \$2.5 million for the fishery.

Fishery performance

Appraisal of fishery in regard to sustainability

From 2004, the DPI&F Fisheries Observer Program (FOP) for the DFTF has collected biological information on target and by-product species. The program also collects information on the size and composition of bycatch. The information is being used to assess the current status of target and by-product species and help determine sustainable exploitation levels for the DFTF.

Concern for the future sustainability of red snapper stocks across northern Australia was expressed in the 2005 Australian Centre for International Agricultural Research (ACIAR) project *Shared stocks of snapper in Australia and Indonesia*³ More recently, however, a genetic population study has shown that the GOC crimson and saddletail snapper stocks are separate

³ S Blaber, C Dichmont, R Buckworth, B Badrudin, B Sumiono, S Nurhakim, B Iskandar, B Fegan, D Ramm & J Salini, '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*, vol. 15, 2005, pp. 111–27.

from those in Indonesia (which were considered to be overfished).⁴ Projects are under way in collaboration to quantify the level of illegal, unlicensed and unreported (IUU) fishing for red snappers by foreign vessels in the GOC, as this issue is of particular potential concern to DPI&F.

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

Recommendation	Progress	Improvements to management regime
<p>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 protected species or the ecosystem.</p>	<p><i>Ongoing</i></p> <p>There was one administrative amendment to permit conditions in 2006. The requirement to report the landing from each trip was increased from two hours to at least 24 hours to provide greater lead time for the Queensland Boating and Fisheries Patrol (QBFP) to arrange for catch inspection at the dock.</p> <p>There have been no other management changes during the reporting period. Future management arrangements and commercialisation of the fishery are to be considered during 2007.</p>	<p>N/A</p>
<p>By the end of 2006 DPI&F to develop fishery specific objectives, performance indicators and precautionary performance measures for target, byproduct, bycatch, protected species and impacts on the ecosystem. Data collection programs appropriate to monitor the performance measures to be implemented.</p>	<p><i>In progress</i></p> <p>DPI&F held a workshop with fisheries managers, researchers and industry representatives in 2006 to develop operational objectives and performance measures for the DFTF. Outcomes of this process were reviewed by the Gulf Management Advisory Committee (MAC) and the final version will be implemented as policy and provided to DEW in 2007.</p>	<p>The effectiveness of fisheries management in ensuring the sustainable use of DFTF fish stocks and minimising any impacts on the broader ecosystem is to be measured.</p>

⁴ JP Salini, JR Ovenden, R Street, R Pendrey, Haryanti & Ngurah, 'Genetic population structure of red snappers (*Lutjanus malabaricus* Bloch & Schneider, 1801 and *Lutjanus erythropterus* Bloch, 1790) in central and eastern Indonesia and northern Australia', *Journal of Fish Biology*, vol. 68(SB), 2006, pp. 217-34.

Recommendation	Progress	Improvements to management regime
<p>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.</p>	<p><i>In progress</i> Performance measures will be regularly assessed and reported against in the time frames specified within the Performance Measurement System (PMS) itself. The PMS is proposed to be implemented by DPI&F in 2007.</p>	<p>N/A</p>
<p>From 2005, DPI&F to report publicly on the status of the fishery on an annual basis, including explicitly reporting against each performance measure, once developed.</p>	<p><i>Ongoing</i> The 2007 Annual Status Report will be the third to be completed for the DFTF.</p>	<p>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.</p>
<p>DPI&F to maintain data validation mechanisms for target, byproduct, bycatch and protected species interactions and implement alternative data collection validation techniques if observer trips are no longer feasible or are insufficient to provide robust information on the fishery.</p>	<p><i>Ongoing</i> Fisheries observers assist with validating of logbook data for the DFTF. One observer trip was conducted in 2006. The DPI&F FOP is to continue in this fishery.</p>	<p>N/A</p>

Recommendation	Progress	Improvements to management regime
<p>Within 18 months, DPI&F to develop a process to improve estimates of recreational and Indigenous take and factor these into stock assessments and management controls to ensure overall catch levels are sustainable.</p>	<p><i>In progress</i> DPI&F is assessing methods and approaches to collect Indigenous fisher data and improve the collection of Recreational Fisheries Information System (RFISH) data. Initial pilot studies on information-collecting schemes for Indigenous fisheries are being developed in collaboration with southern GOC communities. The challenge is to develop an information system that is culturally appropriate and respects intellectual protocol for recording traditional ecological knowledge.</p>	<p>Although harvest by the Indigenous and recreational sectors is currently considered negligible, improvements in the level of knowledge of this harvest will provide for more accurate estimates of sustainable yields of major target species in the GOC. It will also increase our understanding of the breadth of fish species important to these sectors, which can be used in future ecosystem-based fisheries modelling.</p>
<p>DPI&F to continue to seek out alternative cost effective fishery independent sampling techniques, particularly for target species, and report outcomes in the annual status report from 2005.</p>	<p><i>In progress</i> DPI&F is continuing to seek out alternative cost-effective, fishery-independent sampling/monitoring techniques, particularly for target species in the DFTF.</p>	<p>N/A</p>
<p>DPI&F to continue to cooperate with other relevant jurisdictions to pursue complementary management and research of shared stocks for all target and byproduct species that may be affected by cross-jurisdictional issues.</p>	<p><i>In progress</i> DPI&F has management and scientific representation at the Northern Australia Fisheries Management (NAFM) workshop, at QFJA meetings and on Gulf MAC. A revised stock assessment of red snappers collaboratively between DPI&F, Northern Territory, Western Australian and Commonwealth Scientific and Industrial Research Organisation (CSIRO) scientists is planned to be undertaken in 2008.</p>	<p>N/A</p>

Recommendation	Progress	Improvements to management regime
<p>DPI&F to implement appropriate management measures for species identified through the risk assessment as being high risk within 12 months of completion of the risk assessment.</p>	<p><i>Completed</i> An Ecological Risk Assessment (ERA) of all GOC fisheries species was completed in November 2004. The final report was published in June 2006.⁵ No species in the DFTF were identified as high risk.</p>	<p>The ERA process has provided industry and the public with confidence that DPI&F is managing species impacted by the DFTF in a sustainable manner.</p>
<p>DPI&F to continue to pursue reduction in the amount of bycatch, including protected species, taken in the DFTF through the refinement of management measures and to investigate methods for further increasing the survivability of bycatch species. Any suitable methods identified to be implemented in a timely manner.</p>	<p><i>In progress</i> One operator in the Queensland DFTF has trialed turtle excluder devices (TEDs)/bycatch reduction devices (BRDs) in the finfish trawl fishery in Western Australia. Gulf MAC will consider the use of TEDs, BRDs including square mesh cod ends, and hoppers and advise DPI&F when developing future management arrangements.</p>	<p>N/A</p>
<p>DPI&F to review the appropriateness of the bycatch performance measure within 1 year.</p>	<p><i>Ongoing</i> New bycatch performance reference limits have been developed and endorsed by the Gulf MAC. These are to be incorporated into the fishery's PMS, which is awaiting final DPI&F implementation.</p>	<p>N/A</p>
<p>To support the implementation of the SOCI logbook DPI&F to develop and implement an education program for fishers to promote the importance of protected species protection and accurate incident reporting within one year.</p>	<p><i>Ongoing</i> An education package giving advice on minimising harmful interactions with protected species was provided by DPI&F to all Queensland commercial fishers in 2005. A Species of Conservation Interest (SOCI) logbook has been implemented for the start of the 2007 season. Data collected through the logbooks will improve our level of knowledge of interactions with protected species in this fishery.</p>	<p>N/A</p>

⁵ B Zeller, *Ecological Risk Assessment of Queensland-managed fisheries in the Gulf of Carpentaria. A report to the Australian Government on ecological risk assessment requirements set out in Wildlife Trade Operation approvals for Gulf fisheries under the Environment Protection and Biodiversity Conservation Act 1999*. Department of Primary Industries & Fisheries, Brisbane, Australia, 2005.

Management performance

The DPI&F is satisfied that the DFTF is being managed in an ecologically sustainable manner, particularly given the precautionary level at which the current commercial TAC is set and given that current catch levels are significantly lower than this current allocation.

A new PMS was developed for the DFTF in consultation with the Gulf MAC in 2006. The PMS is awaiting final DPI&F implementation.

Resource concerns

There are no resource concerns for the species at current harvest levels. A revised stock assessment of red snappers, which will take into account catches from Queensland, Northern Territory and Commonwealth GOC fisheries, including indicative harvest estimates for IUU fishing activity, is planned for 2008. New harvest limit reference points are to be developed based on outputs from this stock assessment.

Ecosystem

Non-retained species/bycatch

The nets used in the DFTF are considered 'environmentally friendly'. The correct operation of this net design can reduce the number of interactions with sponges, corals and other unwanted species that are associated with traditional demersal trawl operations.

Documentation and assessment of bycatch in the DFTF was undertaken through the FOP from one trip in 2006, where it was estimated that 43% of the catch by weight was discarded as bycatch and mainly comprised unmarketable finfish (40%) and benthos (3%).

DPI&F is continuing to monitor the amount of bycatch in the DFTF through the FOP. Should the observed level of impact show that the amount of bycatch and the level of interaction with the environment are increasing significantly, DPI&F may consider further management measures to mitigate these impacts.

Interactions with protected species

Operators in the DFTF occasionally encounter threatened species. A SOCI logbook has been developed to provide more detailed information on the level of interactions with protected species in GOC fisheries. DPI&F implemented the SOCI logbook along with new catch logbooks for the start of the 2007 fishing season. No SOCI interactions were reported by the operators during the 2006 season and no SOCI interactions were recorded during the single at-sea observer trip.

Fishery impacts on the ecosystem

The semi-demersal trawl net used in the DFTF is designed to minimise habitat disturbance while maintaining viable levels of catch. The net design reduces the catch 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 DFTF impacts significantly on benthic or pelagic ecological communities in the area as a whole. However, local impacts may occur.

Foreign and illegal fishery activities

Australian fisheries managers consider the recently reported increase in IUU fishing vessel incursions into GOC waters to be a serious threat to the sustainability of northern Australian fisheries. IUU fishing activities appear to be targeting sharks and other pelagic species, although demersal finfish are also being taken. Concerns are also held for the take of protected species and other species of conservation interest.

IUU harvest levels are not well known at present. This lack of information may affect the accuracy of resource assessment models, which in turn may influence the measurement of the effectiveness of fisheries management practices in the region. DPI&F continues to seek improved data from Australian Government agencies responsible for fisheries enforcement and compliance. Projects are under way to quantify the level of IUU fishing for red snappers by foreign vessels in the GOC, which remains of particular concern.

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 DFTF.

Research and monitoring

Recent research and implications

A preliminary fisheries assessment by DPI&F of crimson and saddletail snapper harvested in the DFTF began in 2005 using Queensland and Northern Territory logbook data and limited samples collected by the FOP.⁶ The short time series of highly variable commercial catch data available made it difficult to detect statistically significant trends. Variation in the commercial catch and effort data will also affect the resolution of a stock production model.

In recognition of these data limitations, the red snapper stock assessment has been expanded to include a longer time series of data and subsequent information collected by the FOP. A revised stock assessment is planned for 2008, with preliminary work commencing in 2007. The assessment will be a collaborative effort between DPI&F, Northern Territory and CSIRO scientists and will also include data from the Northern Prawn Fishery and any available data on catch levels from IUU fishing activities. New harvest reference limits for red snappers will be developed using the stock assessment estimates.

The outcomes of the ACIAR Shared Snapper Stocks⁷ assessment in 2003 concluded that, on a regional basis, fishing northern red snapper stocks in Australian and Indonesian waters at levels of effort at that time was not likely to be sustainable. The stock assessment report highlighted the lack of reliable quantitative red snapper catch and effort data for the Indonesian fisheries.

⁶ JP Salini, JR Ovenden, R Street, R Pendrey, Haryanti and Ngurah, 'Genetic population structure of red snappers (*Lutjanus malabaricus* Bloch & Schneider, 1801 and *Lutjanus erythropterus* Bloch, 1790) in central and eastern Indonesia and northern Australia', *Journal of Fish Biology*, vol. 68(SB), 2006, pp. 217–34.

⁷ GC Fry, DA Milton, TD van der Velde, IC Stobutzki, R Andamari & Badrudin, '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 and Shelf Science* (in press).

The genetic population structure of red snapper stocks in central and eastern Indonesia and northern Australia was recently more clearly defined.⁸ This study indicated that northern Australian genetic stocks are separate from those identified from central and eastern Indonesia, which is an important consideration for management. Other recent research⁹ on red snappers in the GOC and Indonesia has also revealed regional differences in age at first maturity and spawning periods for *L. malabaricus* and *L. erythropterus*.

Monitoring programs and results

The DFTF 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 commercial catch and effort section of this report.

Since 2004, DPI&F fisheries observers and the Long Term Monitoring Program (LTMP) have collected age, reproductive status and size structure information for the major red snapper species in the DFTF. The objectives of the LTMP were to obtain the biological parameters and fishery data needed to assess the status of the GOC populations of crimson and saddletail snappers and mangrove jack. Length structure information was also collected for three additional fishery by-product species (red emperor, large-scale seaperch and goldband snapper). The key outcomes from the monitoring were:

- Length/weight relationships have been established for biomass conversions which are to be used in stock assessments.
- Gonosomatic Index values have been established which indicate that spawning is likely to occur all year round for the target snapper species.
- Sex ratio information indicates that there were slightly higher numbers of females than males for both species and that there were more immature individuals in the northern compared with the southern region.

Age structure data, together with the length and reproductive information, will provide an accurate description of the biological characteristics for the major species harvested.

DPI&F monitors each fishing operator's adherence to the boundaries of the DFTF through the location data collected from the Vessel Monitoring System (VMS). Each vessel is required under permit conditions to carry VMS equipment.

Fisheries Observer Program

As part of the permit conditions for the DFTF, fisheries observers monitor retained catches and bycatch. Fishing activities were observed for five days on one trip in 2006. The FOP objectives are formulated alongside scientific and management priorities as stipulated in the QFJA Developmental Fishery Policy.

Collaborative research

A planned revision of the stock assessment of red snappers will be a collaborative effort involving scientists from DPI&F, the Northern Territory, Western Australia and CSIRO.

⁸ JP Salini, JR Ovenden, R Street, R Pendrey, Haryanti and Ngurah, 'Genetic population structure of red snappers (*Lutjanus malabaricus* Bloch & Schneider, 1801 and *Lutjanus erythropterus* Bloch, 1790) in central and eastern Indonesia and northern Australia', *Journal of Fish Biology*, vol. 68(SB), 2006, pp. 217–34.

⁹ GC Fry, DA Milton, TD van der Velde, IC Stobutzki, R Andamari & Badrudin, '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 and Shelf Science* (in press).

Fishery management

Compliance report

Compliance and enforcement in the DFTF are the responsibility of the DPI&F's QBFP.

In 2006, 11 inspections were conducted in the fishery. During the period, two Fisheries Infringement Notices were issued for taking/possessing/selling fish regulated by size. In addition, there was one successful prosecution for contravening a condition of an authority by failing to advise QBFP at least two hours prior to landing fish, and another successful prosecution for taking/possessing fish regulated by size and contravening a condition of an authority by taking fish smaller than that permitted by the authority.

Changes to management arrangements in the reporting year

One amendment was made to the permit conditions for both operators in 2006. The requirement to report the landing from each trip was increased from two hours to at least 24 hours to provide greater lead time for the QBFP to arrange for catch inspection at the dock. There have been no other management changes during the reporting period.

Consultation, communication and education

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

Fishery observers also have an educational role while on board the DFTF vessels, confirming identification of fish species with fishers and ensuring that fishers are aware of their reporting requirements in relation to any protected species interactions.

Complementary management

State, territory and federal fisheries managers meet annually at the NAFM workshop to review recent research results, set research priorities and consider complementary management strategies for shared resources. DPI&F is represented at NAFM and the associated Stock Assessment Group.

The threats posed to northern Australian fisheries by IUU fishing have been discussed recently at NAFM workshops. One of the outcomes of these discussions was the development of a research strategy and a list of short-term projects to assess the ecosystem impacts of IUU fishing on northern Australian target commercial species and species at high risk. Project implementation was discussed at the 2006 workshop.

A management plan for the stocks of red snappers shared with Indonesia is currently being prepared by Australian Fisheries Management Authority (AFMA) in consultation with DPI&F, the Western Australia Department of Fisheries and the Northern Territory Department of Primary Industry, Fisheries and Mines.

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Acknowledgements

Jason Stapley, Kate Yeomans, Dr Tracey Scott-Holland, Shane Hansford, Dr Malcolm Dunning, Mark Doohan, Sue Helmke, Darren Rose, Fiona Hill

Image

Crimson snapper (*Lutjanus erythropterus*)

