

Annual status report 2009

Deep Water Fin Fish Fishery



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Fishery profile 2008–09

Species targeted Blue eye trevalla, shark, bar cod, bass groper	Total number of commercial licences in 2008–09 7
Total harvest from all sectors 171 tonnes	Commercial licences accessing the fishery in 2008–09 4
Commercial harvest 171 tonnes	Fishery season Predominantly the winter months
Recreational harvest (2005) Nil using multi-hook apparatus	Fishery symbols L8 (in conjunction with RQ when coral reef fin fish are retained)
Indigenous harvest Nil using multi-hook apparatus	Monitoring undertaken Commercial logbooks (CFISH), at-sea observing, quota monitoring
Charter harvest Nil using multi-hook apparatus	At-sea observer days conducted in 2008 Nil
Commercial Gross Value of Production (GVP) Approximately \$705 000	Accreditation under the EPBC Act Expires 28 October 2011
Allocation between sectors Commercial fishery only using multi-hook method	Logbook validation Yes—completed September 2006
Total exports Negligible—most product sold domestically	Quota managed Yes—for reef quota (RQ) species only. Five L8 operators hold an RQ symbol.
Key fish resources	Stock status
Bar cod (<i>Epinephalus ergastularius</i>)	Uncertain
Comments: Age and length data is required to confidently attribute an exploitation status. This species will be assessed through the ecological risk assessment process in 2010, and is already monitored through the performance measurement system (PMS).	
Rosy jobfish (<i>Pristipomoides filamentosus</i>)	Uncertain
Comments: Consideration will be given in future assessment to combine the jobfish species group. This species is monitored through the PMS.	
Blue eye trevalla (<i>Hyperoglyphe antarctica</i>)	Not yet assessed

Introduction

The Deep Water Fin Fish Fishery (DWFFF) is a small commercial multi-hook line fishery that operates in Queensland east coast waters east of the 200 m bathometric line (Figure 1). Target species include blue eye trevalla, various coral reef fin fish (e.g. hapuku, emperors, cods and lutjanids) and rocky reef fin fish (e.g. pearl perch) as well as a range of other species. Most product is landed whole and sold domestically, with occasional exports.

This report covers the period 1 July 2008 – 30 June 2009.

Fishery Description

Fishing area and methods

Commercial operators working in the DWFFF are permitted to use multi-hook apparatus on trotline or dropline. A maximum of six vertically set droplines, with not more than 50 hooks on each, can be used at one time. Alternatively, operators can use up to three bottom set trotlines, with no more than a total of 300 hooks. No more than three lines with a total of six hooks per line can be used by operators in the GBRMP.

Key Species

Blue eye trevalla (*Hyperoglyphe antarctica*) inhabit the outer continental slope and shelf waters of the southern hemisphere and are found as far north as Tin Can Bay in Qld (White & Sumpton, 2002). Juveniles inhabit surface waters and exhibit schooling behaviour making them easier to catch. Adults are most common over or near rocky areas, especially at edges of canyons at 100–300m depth, but are caught at depths of over 600m. They generally remain close to the seabed during the day and move up in the water column at night, following concentrations of food.

Blue eye trevalla attain a maximum length of 140cm TL and live to at least 42 years. The average sizes at which sexual maturity is reached are 72cm (11-12 years) for females and 62cm (8-9 years) for males. A brief two month spawning period occurs from early March–May each year. Females spawn

between 2 and 11 million eggs yearly depending on their size (Baelde, 1995).

Bar cod (*Epinephalus ergastularius*) are the dominant species caught by the NSW deep water line fishery and makes up a significant proportion of the catch in the Queensland fishery. Adults are found at depths of 110-370m and juveniles 15-130m. Bar cod are only known to exist in the south west Pacific off the eastern coast of Australia between 18°S and 36°S. The greatest reported size is 157cm TL and 66kg (Heemstra & Randall, 1993). Nothing is known about their biology.



Figure 1: Map of fishery area

Rosy jobfish (*Pristipomoides filamentosus*) are caught by handline and dropline in Queensland and, in some years, make up a significant proportion of the catch of the L8 fishery. Rosy jobfish occur over rocky bottoms at depths of 40–400m and are widespread in the tropical Indo-Pacific. The high catch rates of rosy jobfish in particular areas might be due to its tendency to aggregate in large shoals in up-current localities (Mees 1993). The maximum reported length is 90cm TL (Maturing at 35-50cm TL) (Polovina and Ralston 1987) and the maximum reported age is 30 years. The potential vulnerability of rosy jobfish to overexploitation has been shown in Samoa, where commercial development of a multiple hook fishery saw a subsequent depletion of rosy jobfish over the

seamounts and large fish (over 61cm) had disappeared altogether in just nine years (Langi and Langi 1989).

Main management methods used

A comprehensive set of management arrangements is in place under the *Fisheries Regulation 2008* and the Fisheries (Coral Reef Fin Fish) Management Plan 2003 to manage the coral reef fin fish harvest component of this fishery. The range of input and output controls used to manage the DWFFF includes:

- Limited entry
- Prohibition on taking barramundi (*Lates calcarifer*), pink snapper (*Pagrus auratus*), Spanish mackerel (*Scomberomorus commerson*), red emperor (*Lutjanus sebae*), and coral trout (*Plectropomus spp*) when using multi-hook apparatus.
- Minimum size limits
- Restrictions on the type of apparatus that can be used (i.e. number of lines and hooks).
- Restriction on the size of boat that can be used in the fishery.
- Requirement to have an RQ fishery symbol and quota to retain any coral reef fin fish that are taken.

Catch statistics

In 2008–09, the top ten species¹ captured were:

- Blue eye trevalla (*Hyperoglyphe antartica*)
- Shark (unspecified)
- Mahi mahi (*Coryphaena hippurus*)
- Bar cod (*Epinephalus ergastularius*)
- Bass groper (*Polyprione americanus*)
- Pearl perch (*Glaucosoma scapulare*)
- Wahoo (*Acanthocybium solandri*)
- Flame snapper (*Etelis coruscans*)
- Rosy jobfish (*Pristipomoides filamentosus*)
- Mako shark (*Isurus spp.*)

¹ The total weights recorded for each species cannot be reported due to Fisheries Queensland five-boat confidentiality policy, however Fisheries Queensland do monitor catch rates and compositions annually.

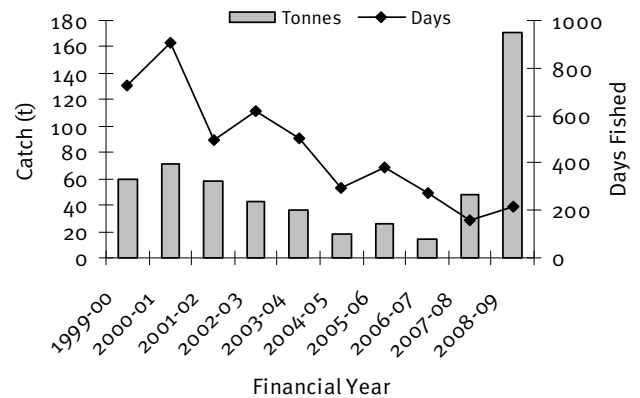


Figure 2: Total catch and days fished in the L8 fishery 1999–00 to 2008–09 (Source: Fisheries Queensland CFISH database; accessed 28 January 2009)

Figure 2 summarises the variability in catch and effort as reported in logbooks for 1999–00 to 2008–09. Previous to 2007–08 Fisheries Queensland data extraction for L8 caught species was extremely difficult (due to a combined line fishing logbook), and was based around calculating catches from specific L8 fishing grids from the main data set. A new logbook, introduced in July 2007, allows for more accurate data reporting and analysis. In 2008–09, the total catch landed for this fishery increased significantly from 47 t to 171 t. Fishing days increased from 155 to 218 in 2008–09, and there were more RQ symbols moved on to L8 licences. A significant component of the catch in 2008–09 was recorded as shark unspecified. In July 2009 new management arrangements for shark were put in place, including a total allowable commercial catch (TACC) and a quota reporting system. There are no S fishery symbols granted to L8 fishers.

There is no recreational, charter or indigenous component to this fishery.

Spatial issues / trends

Most of the fishing effort is applied in areas where the 200 m depth contour is relatively close to the coast. Areas off Fraser Island are regularly fished, particularly over recent years when rocky reef fin fish have been targeted. The current DWFFF operators are based predominantly in the southern section of the state.

Socio-economic characteristics and trends

The DWFFF is primarily a winter fishery. Most product is sold domestically, with occasional exports. Prices obtained on the domestic market range from \$5 to \$8 per kg at the wharf, depending on the species and marketability.

Biological and ecological information

Monitoring programs

There is currently no fishery independent monitoring specific to the DWFFF, however, there is independent monitoring undertaken for coral reef fin fish, which are taken in the DWFFF. Structured line surveys undertaken for the program however occur outside the area of the deep water fishery, using different gear. Notwithstanding this, some biological information is collected on species that overlap line fisheries. Similarly, a new fishery dependent monitoring program has been developed for the rocky reef fishery to collect a range of biological information for inclusion in assessments on a number of species including pearl perch.

At-sea observing

The Fisheries Observer Program (FOP) provides an effective method of obtaining a wide variety of information from the DWFFF. The primary objectives for the program are to collect information regarding the species composition of catch and bycatch from this fishery.

To achieve these objectives, information is collected by 'at sea' observers on commercial fishing vessels, including:

- total catch numbers, size and form of product retained (target and non-target species)
- total species catch compositions (target, non-target and bycatch)
- vessel and gear information
- interactions with species of conservation interest.

Due to the size and complexity of Queensland's fisheries, the FOP has designed a new monitoring

strategy that will, over a three year period, allow adequate coverage of a range of fisheries to meet both Fisheries Queensland's data requirements and Commonwealth recommendations.

Since 2005, there has been 10 days observer coverage in the DWFFF fishery and 20 days in a Developmental Deep Water Trap Fishery². The target species of the DWFFF mainly comprised (by number) Flame snapper and Ruby jobfish, with Bar cods representing an appreciable component by weight. Bycatch typically consisted of undersized target species or reef quota species that may only be retained by an operator holding an RQ fishery symbol on their licence. A small number of gummy shark, sandbar whaler and silvertip shark made up the majority of the shark catch component.

In 2009, at the request of Fisheries Managers, this DWFFF coverage was supplemented by 8 days observing L1 fishers using mechanical reels to target deep water species. This observer work has initiated an ongoing collaborative study on deep water cods, including otolith ageing and species identification using morphological and DNA markers. The FOP will next target the DWFFF in 2011, when east coast line fisheries are scheduled to be observed.

Bycatch

Bycatch information is currently collected through LTMP structured line surveys, as well as by fishery observers on commercial operations (see Monitoring Programs and Results section).

Interactions with protected species

One interaction with a white shark was recorded in the 2008–09 period, which was released alive. This is the first interaction reported in this fishery since the SOCI logbook was introduced in 2002, demonstrating of the low-impact nature of the fishery.

² The developmental trap fishery operated under a general fisheries permit system in the 2007 and 2008 calendar years. No further application to continue fishing has been made. Legislation does not permit the use of the traps to take fish in Queensland.

Ecosystem impacts

There are minimal ecosystem impacts associated with selective line fishing.

Sustainability Assessment

Performance against fishery objectives

In 2008, Fisheries Queensland finalised a joint performance measurement system which is reported on annually for the CRFF and DWFF fisheries. The PMS functions as a transparent reporting framework that outlines the measures against which Fisheries Queensland assesses and reports on the performance of the fisheries (Table 3). Within three months of becoming aware that a performance measure has been triggered, Fisheries Queensland is required to finalise a clear timetable for implementation of appropriate management responses.

In the 2008 Annual Status Reports for the DWFF and CRFF fisheries, Performance Measure 5, relating to the catch taken under OS line units, and Performance Measure 10, relating to maximising

economic efficiency, were triggered. These same performance measures were triggered in the coral reef fin fish fishery, which is responsible for the majority of OS catch, and it was agreed through consultation with the ReefMAC and ReefSAG that the changes triggering Performance Measure 5 were likely to be a result of improved species level reporting with the introduction of the new LFO5 logbook on 1 July 2007. ReefMAC and the ReefSAG also considered Performance Measure 10, and advised Fisheries Queensland that the continued under catch of OS quota does not represent a problem with fish stocks, but reflects the lower relative value of OS species. These Performance Measures are also address in the Annual Status Report for coral reef fin fish, with the majority of OS quota taken under L1, L2 and L3 fishery symbols.

This year, the same two performance indicators were triggered. The results of a detailed analysis of the catch and effort data will be considered by Fisheries Queensland, and an appropriate management response determined.

Table 3: Performance measures and outcomes relating to the DWFFF in 2008–09.

Performance measure	Performance
<i>Target species</i>	
(i) The catch of a relevant group of species of coral reef fin fish under OS line units in a quota year is at least 20% higher than the catch of the relevant group of species under the line units in the preceding quota year.	<i>Not triggered</i> In the 2008–09 reporting year, catches of the key OS species listed in the PMS document were minimal in the deep water fishery.
<i>Bycatch and protected species</i>	
(i) <i>Observer information [for a three year collection period] shows the amount of bycatch exceeds 10% of the total catch taken by commercial fishers with a RQ fishery symbol when targeting coral reef fin fish (by numbers of fish).</i>	<i>Not measured</i> Observer information has not yet been collected for a three year period for this fishery.
(ii) <i>Percentage of each category of protected species released alive falls below 90%.</i>	<i>Not triggered</i> There were no interactions with protected species in 2008–09.

Performance measure	Performance
<i>Ecosystem impacts</i>	
(i) The Shannon-Wiener index for a bioregion shows a decrease of at least 10% in each consecutive year over three years <u>QR</u> decreases by 20% from the preceding quota year. [Future measure]	<i>Not measured</i> Future measure.
<i>Social</i>	
(i) That the rate of compliance falls below 95% in the commercial fishery and/or 95% in the recreational fishery.	<i>Not triggered</i> Compliance rate for the DWFFF was at 100% in 2008–09.
<i>Economic</i>	
(i) The proportion of the available TAC for CT, RTE and OS landed in any year is <80%.	<i>Triggered</i> The available quota at the end of 2008–09 for RTE and OS is 39% and 57%, respectively.

Current sustainability status and concerns

The DWFFF is a relatively small-scale fishery operating over a large geographical area, with multi-hook line apparatus permitted for use on only seven commercial licences. Based on current harvest levels, catch rates and management arrangements, the fishery is considered sustainable.

Research

Recent research and implications

There was no new research undertaken specifically relating to the DWFFF during 2008–09.

Collaborative research

No collaborative research is being undertaken specific to the DWFFF.

Fishery management

Compliance report

During 2008–09, ten commercial fishing vessels and two marketer premises were inspected in the DWFFF with no offences detected.

A compliance risk assessment was completed for this fishery in conjunction with the CRFFF in June

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2006 in order to determine compliance priorities and allow the most effective use of Queensland Boating and Fisheries Patrol (QBFP) resources. The risk assessment identified violation of size and in possession limits; recreational fishers taking fish for commercial purposes; violation of Great Barrier Reef Marine Park zoning provisions; failure to keep required information/ providing inaccurate information as the highest priorities for enforcement and compliance in these fisheries. There are also a number of activities rated as moderate risk, which will be addressed, but at a lower priority. Detailed strategies to address the risks identified by this assessment have been developed through QBFP strategic and operational planning processes. The risk assessment will be reviewed every 3 to 5 years or earlier if there are major changes to the management arrangements for the fishery.

Changes to management arrangements in the reporting year

No changes were made to management arrangements in 2008–09.

Communication and education

Promotion of regulations applying to both commercial and recreational fishers, including

those relating to deep water fin fish species, is an ongoing role for Fisheries Queensland. Approximately 950 recreational fishing survey identification guides containing pictures and other biological information were sent out to diary program participants, as well as a regular recreational fishing update newsletter which is distributed to approximately 500 stakeholders each quarter.

Consultation with stakeholders in the fishery mainly occurs through the Queensland Fisheries Advisory Committee (QFAC) with meetings generally held twice a year. QFAC provides advice to Fisheries Queensland on management measures for the fishery. Consultation with stakeholders also occurred as part of the PMS development process.

Complementary management

Fisheries managers routinely discuss complementary management between jurisdictions for a range of line fisheries. Discussions with the Australian Fisheries Management Authority (AFMA), New South Wales Department of Primary Industries, and industry usually revolve around a range of line and trap fisheries taking these same or similar species, not just the DWFFF.

References

- Baelde, P, 1995. Research suggests caution with blue-eye trevalla. *Professional Fisherman*, 18: 20-21.
- Baelde, P, 1996. Biology and dynamics of the blue-eye trevalla, *Hyperoglyphe antarctica* (Centrolophidae), off Tasmania, southern Australia. *Fishery Bulletin*, 94: 199-211.
- Heemstra, P.C. and Randall, J.E. (1993). FAO Species Catalogue Volume 16 Groupers of the World (Family Serranidae, Subfamily Epinephelinae). Food and Agriculture Organisation of the United Nations, Rome, pp. 382.
- Langi, V.A. and Langi, S.A. (1989). Indicators of fishing pressure in the deepsea snapper fishery of the Kingdom of Tonga. *Fishbyte*, 7: 15-17.
- Mees, C.C. (1993). Population biology and stock assessment of *Pristipomoides filamentosus* on the

Mahe Plateau, Seychelles. *Journal of Fish Biology*, 43: 695-708

Polovina, J.J., Ralston, S. (Eds.) (1987). Tropical Snappers and Groupers. Biology and Fisheries Management. Westview Press, Colorado, p. 659.

White, E and W Sumpton, 2002. Assessment of the Deep Water Line Fishery in Queensland, Department of Primary Industries and Fisheries, Brisbane.

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Image

Flame snapper (*Etelis coruscans*)

