

Offshore Tropical Snapper Fishery

R. Clarke, Aquatic Resource Manager and J. Lloyd, Marine Fish Research Scientist, Fisheries, Darwin
(Replaces Fishnotes 15 and 17)

KEY FEATURES

Fishery	Timor Reef	Demersal	Finfish trawl
Fishery status or development stage:	Nearing full utilisation.	Under-utilised.	Developing, but under-utilised.
Stock assessment reliability:	Low. Although there is a long time series of commercial catch and effort data, there is little information about stock status.		
Commercial harvest 2000:	397.9 t.	68.4 t.	Confidential (<5 operators).
Value of commercial harvest (including byproducts):	\$2.1 m.	\$364,217.	Confidential (<5 operators).
Five year trend and average (commercial):	Catch: Fluctuating, average 359 t. Effort: stable 848 fishing days (five year average 845 days).	Confidential (<5 operators).	
Recreational harvest 1999	Nil.	Unknown.	
Commercial licences issued:	Fifteen licences. Five licensees land 90% of catch.	60	1
Number of FTOs landing offshore tropical snappers	Unknown, but probably very low.		
Management arrangements, general:	Commercial: Input controls. Limited entry, licence transfer arrangements, gear restrictions. Recreational: Output controls, possession limits, FTO licensing.		
Management arrangements, fishery specific:	Limited entry, 2 for 1 licence transfer reduction scheme. Gear and area restrictions.	Limited commercial entry. Gear and area restrictions.	One licence only. Gear and area restrictions.

INTRODUCTION

Goldband snapper is the most important commercial species landed in the Timor Reef fishery in terms of quantity and value, with red emperor landings increasing significantly as operators now prefer to use baited traps instead of mechanised droplines. The value of the trap and dropline fishery in 2000 was approximately \$2.1m for reported landings of 359 t.

A relatively low level of fishing effort continues in the demersal fishery, with the majority of the fishing activity targeting goldband snapper and emperors in waters of a similar habitat and depth as the adjacent Timor Reef fishery. The remainder of the demersal trap and line fishery is underdeveloped.

While ruby emperor (or saddletail snapper) and red snapper dominate the trawl catch, overall landings remain well below estimated sustainable limits. Confidentiality considerations preclude the publishing of catch information for the single trawl operator.

Timor Reef Fishery

The offshore Timor Reef fishery extends from the WA/NT border to the northwest of Darwin and to the outer limit of the Australian Fishing Zone (AFZ) (see map).

Current legislative arrangements allow fishers to use droplines, handlines, mechanically assisted haul lines and traps to land tropical snappers and emperors. Despite the use of traps by some operators in the early development of the fishery, most operators in the past chose to use buoyed individual droplines, and then mechanised droplines to target schools of goldband snapper. With improved catch rates and profitability, the majority of operators now use baited traps. Squid is the preferred bait by dropline fishers whilst trap fishers prefer to use small baitfish such as pilchards.

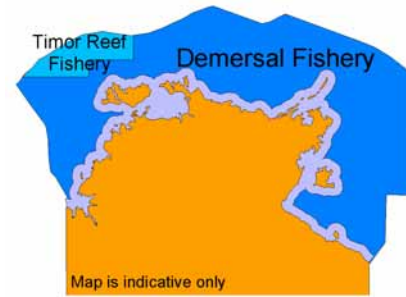


Figure 1. Offshore fishery zones

The Timor Reef commercial fleet operates semi-displacement vessels between 15 and 24 m in length, with four to six crew members. Fishing trips are generally seven to 10 days in duration depending on fish availability and market demands.

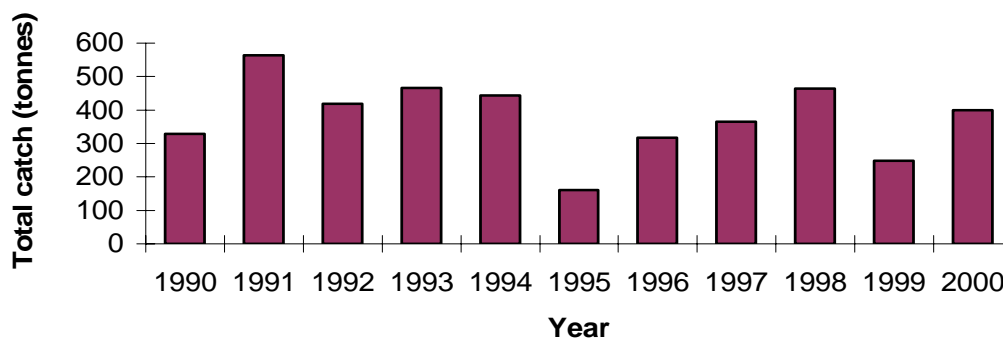


Figure 2. Catch for the Timor Reef fishery for the period 1990 to 2000

Demersal Fishery

The demersal fishery operates in waters seaward of 15 nautical miles from the shore to the outer limit of the AFZ. The Timor Reef fishery was annexed from the demersal fishery due to concerns about the likely impact on the resource given the level of interest expressed by commercial operators participating in the fishery, particularly those displaced through restructuring of other Australian fisheries.

With simplified jurisdictional arrangements following the passage of the Offshore Constitutional Settlement of 1995, the boundaries of the inshore and offshore fisheries were realigned to more accurately define the distribution of inshore and offshore fishery resources. Sixty fishery licences were issued for the demersal fishery.

Finfish Trawl Fishery

A single trawl operator continues to harvest the demersal finfish resources in waters adjacent to the Northern Territory. The finfish trawl fishery operates adjacent to the northern and northeastern coast of the NT and the northern portion of the Gulf of Carpentaria.

Fishing operations are conducted using a semi pelagic demersal trawl thereby limiting any damage to the seabed. This trawl net was cooperatively developed by the industry and Government to minimise habitat disturbance while ensuring commercial catch rates were maintained. The quality of the retained catch has also improved in reducing the incidence of sponges and other unwanted species associated with the operations of traditional demersal trawls.

HISTORY

Historically, foreign fishing vessels have operated throughout the Timor Sea and Arafura Sea. Japanese stern trawlers fished in northern waters from the late 1950s to the early 1960s, Thai and Taiwanese pair trawlers intensively fished waters throughout northern Australia during the 1970s. Foreign fleets continued fishing under licence agreements following the ratification of the AFZ in November 1979. Overall catches from the Arafura Sea peaked at approximately 10,000 t in 1983.

Dropline fishing in the Timor and Arafura Seas by Japanese vessels from 1975 to 1982 resulted in substantial landings of tropical snapper. Droplining by domestic vessels commenced in the Timor Sea in 1987. Access arrangements to foreign fleets ceased in 1991 following increased interest by domestic operators and concerns about over-fishing of snapper resources.

In 1991, six Australian trawlers were licensed to operate in the then Commonwealth managed Northern Trawl Fishery, which extended from WA, across the NT and into Queensland waters of the Gulf of Carpentaria. Further management controls were introduced to link access with sustainable yield estimates. The remote location and associated high costs of operation have hindered the development of the fishery, with only a single operator demonstrating an ongoing interest in the fishery.

SUSTAINABLE YIELD ESTIMATES

Sustainable yield estimates have been determined from catch and effort information gathered from Taiwanese, Thai and Chinese trawlers, trawl research surveys and details provided by the Timor Reef and finfish trawl fishers.

Resource estimates were initially conducted by CSIRO in 1991. The estimates were updated in 1992 following trawl surveys undertaken by DPIF. The research undertaken by DPIF sought to estimate the herding effect and swept area of trawl nets to refine yield estimates, while CSIRO provided age and growth estimates for red snappers. A co-operative approach was engendered with the joint 1992 Australian-Indonesian Workshop on the Arafura Sea Fisheries. This workshop sought to review the available information on both the Australian and Indonesian components of the Arafura Sea. Yield estimates were 7,500 to 19,500 t for the Australian and Indonesian jurisdictions of the Arafura Sea, 4,000 to 10,000 t for Australian waters of the Arafura Sea and 4,100 to 16,500 t for the entire Gulf of Carpentaria.

As an outcome of a second workshop held in October 1994, sustainable yield estimates were revised to 3,700 to 6,800 t for the Australian area of the Arafura Sea and between 2,900 and 9,000 t for the Gulf of Carpentaria.

The most recent yield estimates for these fisheries may be found in the Northern Territory Fishery Report No. 39 "*Towards the Sustainable Use of Northern Territory Fisheries Resources*" (1996).

From this workshop it has been estimated that the sustainable annual harvest for red snapper is 1,500 t for the Arafura Sea. This estimate is based on the assumption that the stock, prior to commercial fishing, was in the order of 50,000 t and only a small portion can be harvested each year due to its slow growth rates and low natural mortality. Current landings are considerably less than this estimate.

For the Timor Reef fishery, yield estimates range from 3,000 to 20,000 t or more, depending on how the catch rates age and survey details are interpreted. It was also assumed that there was a high level of mixing between Australian and Indonesian stocks. Refinement of the sustainable yield estimates will only be possible with further details on the degree of mixing between the Australian and Indonesian fisheries, information on fishing effort and fishery independent survey techniques.

MANAGEMENT

Management for resource protection and sustainable utilisation of the demersal fishery is achieved through limited entry arrangements and controls on fishing gear.

In response to concerns about long term sustainable use and excess fishing capacity, a “two for one” licence reduction has been agreed for the Timor Reef fishery. All new entrants to the fishery must acquire and surrender two restricted licences for the issuance of an unrestricted licence, or alternatively, obtain an unrestricted licence previously issued on the surrender of two preexisting licences.

RESEARCH

The following projects are presently being undertaken to assist the NT Fisheries Division in providing more accurate stock assessment parameters and a better understanding of these fisheries.

Stock assessment

Professor Carl Walters of the University of British Columbia conducted a stock assessment workshop in August 2000. He was engaged as a consultant to the Northern Territory Fisheries Division to conduct a review of the major fisheries. This review involved industry participants from both the Northern Territory and Western Australia together with scientists and managers from the Northern Territory, Western Australia and the Bureau of Rural Sciences. All available information was drawn together, including details about Indonesian effort from foreign fishing observers in the region immediately adjacent to the Timor Reef fishery. Previous assessments were reviewed and further assessments were undertaken using models assembled by Professor Walters. Full details of this assessment are presently being written up and will be available as a Fisheries Report in the near future.

Monitoring

Monitoring of the Timor Reef fishery has been conducted on commercial boats since 1990. While onboard, officers document fisheries practices, catch composition and, where possible, measure all commercial species landed.

Biological Research

Indonesia and Australia share goldband and red snapper resources in the Timor and Arafura Seas. In order to obtain a better understanding of the biology of these species, together with the stock structure and dynamics, a collaborative Australian Centre for International Agricultural Research funded project with the NT, CSIRO and Indonesia was initiated in 1999. This project is focused on goldband snapper and red snappers (stocks of northern Australia, eastern Indonesia, and East Timor). Monthly samples have been obtained since April 1999 for biological research. Otoliths are removed, sectioned and read to provide growth information, and gonads are initially staged macroscopically, then histology is undertaken to provide reproductive information.

MARKETING

Tropical snappers landed within the line and trap fisheries are sold chilled as fresh whole fish or fillets. As the local Darwin market is small, most tropical snappers are forwarded to interstate markets, and sold at the Brisbane and Sydney fish markets. Increasingly, operators are developing marketing arrangements outside the traditional central marketing systems.

The majority of trawl-caught snappers are sold frozen overseas, particularly at US and European markets. Some trawl-caught fish are sold as fillets to local and international markets.



Figure 3. Saddletail snapper (*Lutjanus malabaricus*)

COMPLIANCE

Compliance with management controls is achieved through wharf-side inspections and as an adjunct to surveillance activities undertaken for other NT and Commonwealth managed fisheries.

For further details contact:

Mr Ray Clarke
Aquatic Resource Manager
Fisheries Division
Department of Primary Industry, Fisheries and
Mines
GPO Box 3000
Darwin NT 0801
AUSTRALIA
Tel: (08) 8999 2179
Fax: (08) 8999 2065
Email: ray.clarke@nt.gov.au

Ms Julie Lloyd
Marine Fish Research Scientist
Fisheries Division
Department of Primary Industry, Fisheries and
Mines
GPO Box 3000
Darwin NT 0801
AUSTRALIA
Tel: (08) 8924 4175
Fax: (08) 8981 3420
Email: julie.lloyd@nt.gov.au

Please visit us at our website:

www.nt.gov.au/dpifm

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