

# Finfish Trawl Fishery Status Report 2004

## INTRODUCTION

The trawl fishery was intensively fished by Thai and Taiwanese pair trawlers during the 1970s. Foreign fleets continued fishing, under licence agreements, following the ratification of the Australian Fishing Zone (AFZ) in November 1979. Taiwanese pair trawlers (1979-1990), Thai - Australian stern trawlers (1985-90) and Chinese pair trawlers (1989) operated in the AFZ waters adjacent to the Northern Territory. In 1983, overall catches peaked at around 10,000 tonnes from the Arafura Sea.

The Finfish Trawl Fishery today comprises of a single finfish trawl operator fishing in offshore waters east of Darwin and includes the northern region of the Gulf of Carpentaria. The fishery is co-managed with the Australian Government under the legislative framework of the Northern Territory *Fisheries Act 1988*.

The principal species landed are red snappers (*Lutjanus malabaricus* and *L. erythropterus*). Around 70% of the landed catch is sold in interstate markets.

The Finfish Trawl Fishery has received the highest level of export accreditation against the Australian Government *Guidelines for the Sustainable Management of Fisheries* under the *Environment Protection and Biodiversity Conservation Act* (the EPBC Act). The management arrangements of the fishery are recognised by the Australian Government to be operating in a sustainable manner, and thus the fishery is exempt from export regulations for five years.

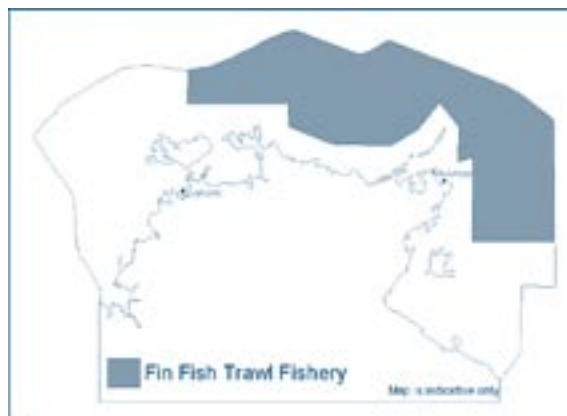
## PROFILE OF THE FISHERY

### Commercial Sector

#### Area

The Finfish Trawl Fishery operates in waters east of Darwin to the outer limit of the AFZ, excluding the area of the Timor Reef Fishery (Figure 1).

Within this overall area, only a relatively small portion is currently fished due to the single



**Figure 1.** Fishing area available to the commercial Finfish Trawl Fishery.

operator targeting the higher yield red snapper fishing grounds. Although legally able, the finfish trawl operator does not presently fish the same grounds as the Demersal Fishery licensees.

#### Fishing Method

This fishery has been limited to a single trawl operator. Fishing operations are conducted using a semi pelagic demersal trawl. This trawl net was developed cooperatively by industry and the Fisheries Group to minimise habitat disturbance whilst ensuring commercial catch rates were maintained. The quality of the retained catch was also improved by the reduction in the number of sponges and other unwanted species associated with the operations of traditional demersal trawls.

#### Catch

Saddletail snapper (*Lutjanus malabaricus*) and red snapper (*Lutjanus erythropterus*) are the **target species** of the Finfish Trawl Fishery, comprising 80% of the total catch (Figure 2).

Since 1995, catches have increased steadily, peaking in 2001 (Figure 3). In 2004, the catch was 1005 tonnes. As there is only one operator in this fishery, care must be taken in interpreting catch trends as they may reflect business decisions rather than fishery trends.

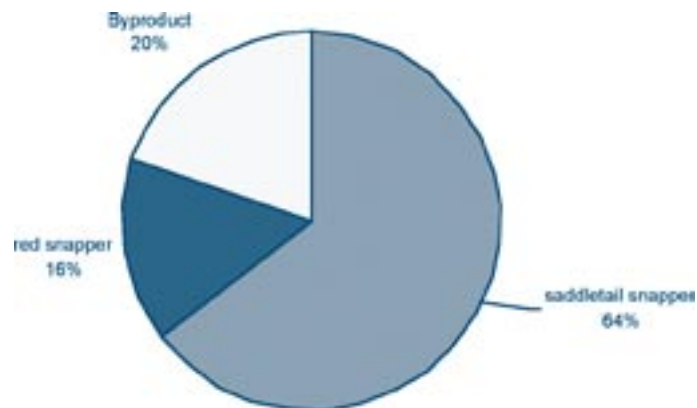


Figure 2. Catch composition for the Finfish Trawl Fishery, 2004.

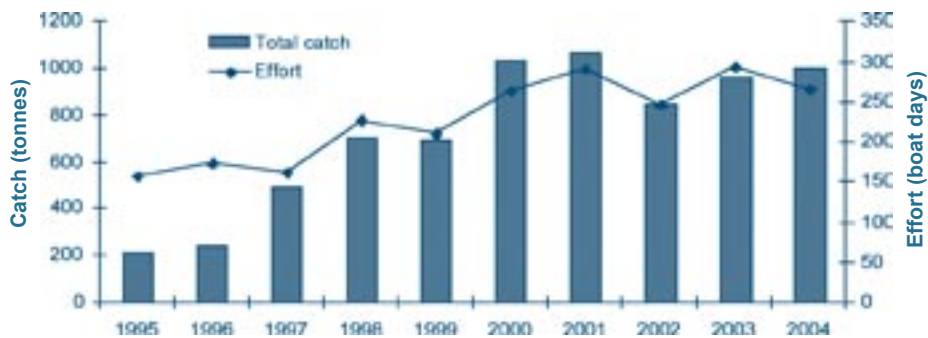


Figure 3. Total catch and effort within the Finfish Trawl Fishery, 1995 to 2004.

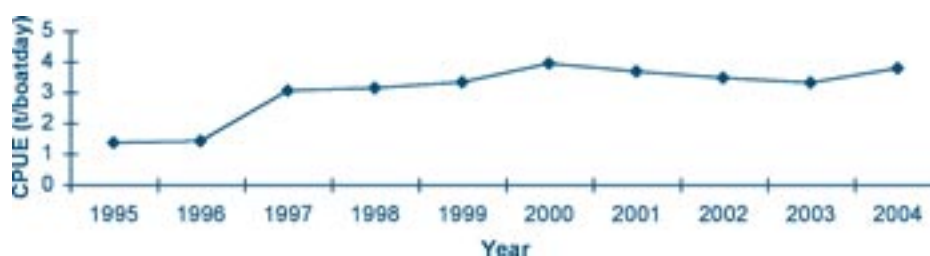


Figure 4. CPUE for the Finfish Trawl Fishery, 1995 to 2004.

In 2004, **byproduct species** was 197.7 tonnes. These species include primarily goldband snappers (*Pristipomoides multidens* and *P. typus*), red spot (*L. lentjan*), and painted sweetlip (*Diagramma pictum*).

### Effort

Effort has increased steadily from 158 boatdays in 1995 to 292 boatdays in 2001. During 2004, effort was 267 boatdays (Figure

3). However, as there is only one operator in this fishery, care should be used in interpreting any trends in this fishery based on effort, as there may be many reasons for any changes in fishing effort.

### Catch Rates

Since 1997 the CPUE has shown little change, ranging from 3.0 to 3.9 tonnes per boat day (Figure 4). CPUE for 2004 was 3.8 tonnes/boat day.

### Marketing

Product is exported from Darwin in refrigerated containers as 70% of the product is sold in Australia as fresh fish. About 5% of the product is trucked to Perth.

### Recreational Sector

Recreational fishers take some of these demersal species, particularly saddletail snapper, red snapper and red emperor from inshore waters, however their impact on the offshore commercial fishery is considered negligible.

### Fishing Tour Operator Sector

The majority of FTO activity is in inshore waters where some of the same species are taken.

### Non-retained Species (Bycatch)

For the commercial Finfish Trawl Fishery, only 17% of the total catch is discarded. High proportions of discarded species (by weight) are sharks and rays (as there is a 'no-take' policy in place with regards to these species). The operator has developed a system comprising grids and rails on the fish hopper to enable sharks and rays to be returned to the water via a chute, alive and in a timely manner.

### Threatened Species Interaction

In 2004, there was no recorded interaction with threatened species in the Finfish Trawl Fishery. The method of fishing and the location of the fishery generally prevent interactions with these species.

### Eco-system Impact

The Fisheries Group has encouraged fishing practices that cause minimal eco-system impact. The development, in conjunction with industry, of a semi-pelagic demersal trawl net that minimises sea bed disturbance and reduces the amount of bycatch was important in reducing the environmental impact of this fishery.

### Social Impact

This fishery directly employs less than 10 people. However there are flow-on benefits from the fishery for other industries (e.g. freight haulage and vessel repairs). Recreational fishers also target some of these species (within coastal waters) and recreational fishing forms an important component of the lifestyle and culture of a large proportion of people residing in the Northern Territory.

### Economic Impact

The value of this particular fishery (one operator only) is confidential. It is the policy of the Fisheries Group that information obtained from a fishery with less than five active operators will not be released without prior consent from the licensee(s).

## STOCK ASSESSMENT

### Monitoring

Due to resource constraints in 2004, only one monitoring trip was conducted in the calendar year. While on-board, observers document vessel and gear information, location and depth fished, fishing practices, catch composition and measure landed species.

### Stock Assessment Methods and Reliability

Stock assessments for the Finfish Trawl Fishery have been undertaken in 1996 and 2004. The initial assessment used a Stock Reduction Analysis model developed by Prof Carl Walter (1996) and in the more recent assessment, Yield per recruit and Biomass Dynamics models, which incorporated updated biological parameters, were used.

An absolute figure cannot be placed on sustainable harvest, because key parameters (Indonesian catch and effort, and level of interchange of fish and recruits, and the important productivity parameters for red snapper) are not known. However for the

Australian sector of this fishery, the biomass of red snappers has been estimated from a fishery independent survey in 1990 to be 24,000 tonnes. It has been agreed that a trigger point be implemented for management purposes if harvest levels exceed 10 % of the estimated biomass.

Genetic studies undertaken as part of an ACIAR project (FIS/1997/165) indicate that red snapper (*L. erythropterus*) and saddletail snapper (*L. malabaricus*) stocks are shared with Indonesia in the Arafura Sea, but there are indications of relatively little mixing between sections of the Arafura Sea.

### Current Harvest Status

The high level of Indonesian trawl fishing in the Arafura Sea adjacent to the AFZ does not necessarily imply that the Australian sector is unsustainable. The question of sustainability of the Australian sector of this fishery depends upon where recruitment occurs and the level of movement of fish between the two countries. If movement rates of red snapper between Indonesia and Australia are low, and there is good recruitment to the Australian fishery from nursery areas within Australia, then the effect of large-scale Indonesian fishing may be small. However, if recruitment was primarily from Indonesia and movement rates between sectors high, then the effect would be more significant.

In the past five years CPUE has remained relatively constant (Figure 4) and harvest levels in the Australian sector of the Arafura Sea are below current reference points.

### Future Assessment Needs

Future assessment needs to concentrate on the degree of movement of red snapper between Australia and Indonesia to resolve whether Australia is acting as a donor of red snapper to Indonesia. Identification of juvenile habitats and where recruitment occurs is also important.

Previous stock assessment models have used the 1990 trawl survey biomass estimates as a base. This estimate is now 15 years old and an upgraded stock assessment which incorporates current biomass estimates would be desirable.

Modelling needs to be undertaken to investigate different scenarios (using alternative spatial dynamics) for the fishery, as well as exploring the use of alternative management responses.

## RESEARCH

### Summary to Date

A joint project between the Fisheries Group, CSIRO and Indonesia (funded by ACIAR) has investigated the biology, life history and sustainability of the target species for this fishery (*Lutjanus malabaricus*, *L. erythropterus*) which account for 80% of the Finfish Trawl Fishery catch. Findings from this project are outlined in the final report of ACIAR project FIS/1997/165 (available on the ACIAR website, <http://www.aciar.gov.au>).

### Incorporation into Management

Stock assessment findings have been incorporated into management plans, ensuring that trigger points are set within sustainable limits for the Australian sector of these stocks.

### Current Research

Research is presently being undertaken to identify juvenile red snapper grounds.

## MANAGEMENT/GOVERNANCE

### Management

#### Objective

Management of the Finfish Trawl Fishery seeks to ensure the ecological sustainability of target, by-product and bycatch species. The objectives aim to ensure that overall landings of these species are maintained within acceptable levels.

Trigger points and management actions for the Finfish Trawl Fishery are listed in Table 1 (see attached). An appropriate management response would be made in consultation with stakeholder groups should a trigger point be reached. Amended arrangements are to be implemented within 12 months of a trigger being activated.

### History

With the passage of the revised jurisdictional arrangements contained in the Offshore Constitutional Settlement (OCS) of 1995, management of the trawl, shark and line fishing and trapping in waters adjacent to the Northern Territory passed to the Northern Territory Fisheries Joint Authority (NTFJA).

The NTFJA provides for the Commonwealth and the Northern Territory to jointly manage the fishery given the likelihood of shared resources with adjacent national and international jurisdictions. The Fisheries Group on behalf of the NTFJA undertakes the day-to-day management of the fishery.

### Current issues

The Finfish Trawl Fishery has been assessed against the Australian Government *Guidelines for the Sustainable Management of Fisheries* under the *Environment Protection and Biodiversity Conservation Act* (the EPBC Act). The fishery received the highest level of accreditation and has been added to the list of fisheries exempt from export regulations for five years.

### Future plans

The Fisheries Group in consultation with Industry has held a series of workshops to develop a sectorial plan for offshore snappers.

Fishers in the Demersal Fishery share the same offshore snapper stocks with the Finfish Trawl Fishery and operators from both fisheries are involved in discussions to develop the shared resource. These discussions will continue into 2005.

The Fisheries Group will continue to monitor the fishery to ensure catches are maintained within agreed ranges.

### Compliance

Compliance with the Northern Territory Finfish Trawl Fishery management arrangements are undertaken by the Police Marine and Fisheries Enforcement Section (PMFES) of the NT Police and Fire and Emergency Services, under the NT *Fisheries Act 1988*.

The PMFES effectively monitors and enforces the Finfish Trawl Fishery management arrangements through the inspection of vessel arrivals and departures through the ports of Darwin and Nhulunbuy. This includes verification of catch returns against processor returns (i.e. requirement for all operators to specify where they are selling their product). The PMFES has the power, if necessary, to investigate the records of wholesalers and licensees. In 2004 there were no recorded compliance issues with this fishery.

The compliance operations for the Finfish Trawl Fishery are appropriate to the size of the fishery (i.e. one operator). A compliance risk assessment has been undertaken for the fishery in 2004, with no major domestic fishery issues identified.

### Consultation, Communication and Education

Joint industry/government forums are used to consult with the single finfish trawler. The Fisheries Group also issues publications such as Fisheries reports and newsletters to inform and educate stakeholders.

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### References

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**Table 1.** Management Objectives, Performance Indicators, Trigger points and Management Actions used in the Finfish Trawl Fishery.

Species/Group	Management objectives	Performance indicator	Trigger reference point	Management response to be taken
<b>Red Snappers</b>	Ensure intergenerational equity by maintaining ecologically sustainable annual catches in all sectors.	Sustainable yield estimates for nominated regions.	Combined Finfish Trawl and Demersal Fishery catch levels increase to 2500 tonnes over the next calendar year. Catch levels decline by 30% over the next calendar year (finfish trawl only).	Stakeholders to review fishery and make recommendations to the Executive Director of Fisheries regarding appropriate measures to ensure annual catches do not exceed estimated sustainable yields. Amended arrangements to be implemented within 12 months of trigger being reached.
<b>Byproduct species</b>	Ensure ecological sustainability of byproduct species taken in the Finfish Trawl Fishery.	Monitoring of commercial logbook returns.	Annual catch increase in proportion of the total catch by greater than 35%.	Stakeholders to review fishery and make recommendations to the Executive Director of Fisheries. Amended arrangements to be implemented within 12 months of trigger being reached.
<b>Bycatch species</b>	Ensure ecological sustainability of bycatch species taken in the Finfish Trawl Fishery.	Onboard monitoring of finfish trawl.	Total bycatch within the Finfish Trawl Fishery increases to 35% of total catch or a decline in a species relative numbers without a corresponding change in fishing area or fishing technique.	Stakeholders to make recommendations to Executive Director of Fisheries regarding appropriate remedial action. Amended arrangements to be implemented within 12 months of trigger being reached.
<b>Endangered, threatened or protected species and/or communities</b>	Ensure the continued protection of species and communities listed under the EPBC Act 1999 and the Territory Wildlife and Conservation Act 2000.	Endangered, threatened or protected species and or communities are identified in NT waters.	Identifiable impacts observed by commercial fishers, fisheries observers or other agencies regarding EPBC listed species or communities.	Stakeholders to make recommendations to Executive Director of Fisheries regarding the implementation of a threat abatement plan, if required. Amended arrangements to be implemented within 12 months of trigger being released.
<b>Ecosystem components</b>	Minimise effects on ecosystem components.	Identification of threatening processes.	Identification of significant negative interaction with components of the natural ecosystem present on finfish trawl fishing grounds.	Stakeholders to make recommendations to Executive Director of Fisheries regarding appropriate remedial action. Amended arrangements to be implemented within 12 months of trigger being released.