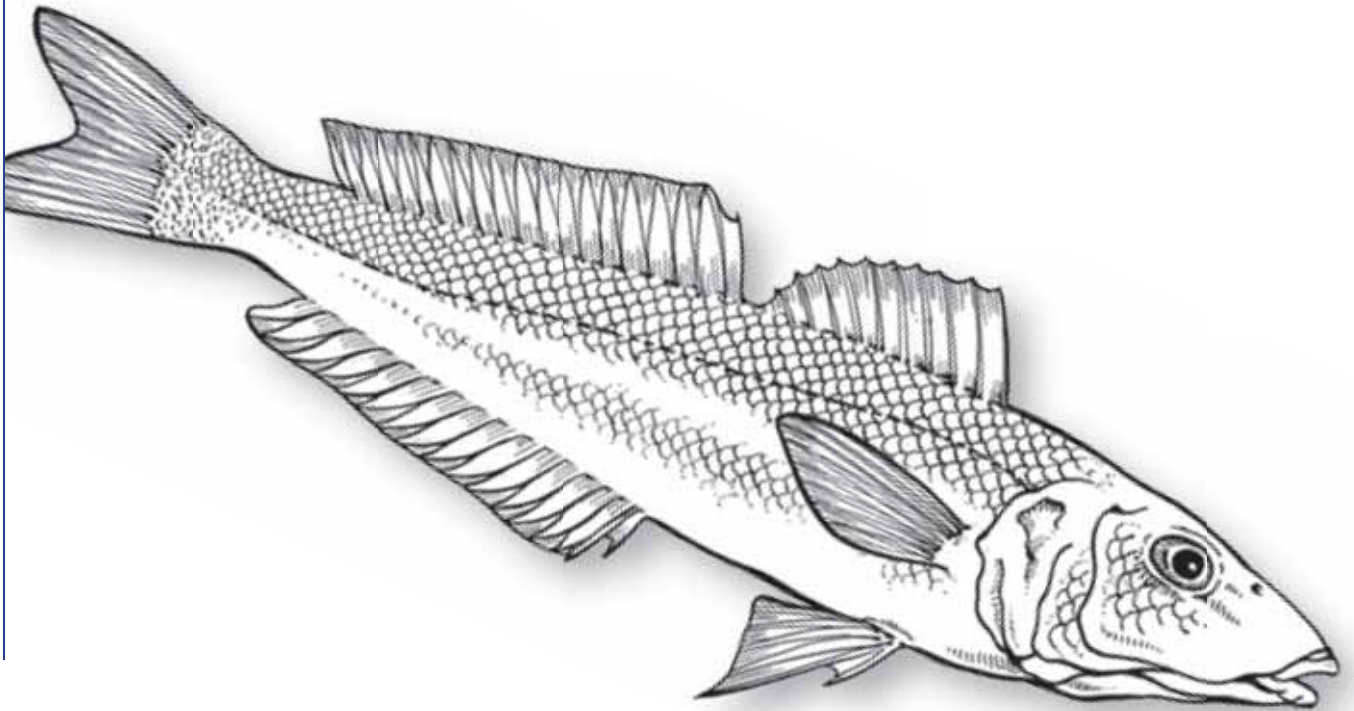


# Annual status report 2005

## Finfish (Stout Whiting) 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 Finfish (Stout Whiting) Trawl Fishery.

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## Introduction

The eastern population of stout whiting (*Sillago robusta*) extends from Bustard Head, southern Queensland to Coffs Harbour, New South Wales<sup>1</sup>. The Queensland Finfish (Stout Whiting) Trawl Fishery (FTF) comprises demersal otter trawl fishers operating under a T4 fishery symbol, harvesting stout whiting and other byproduct species from a limited area off the south-east coast of Queensland from Sandy Cape south to Caloundra. Stout whiting also form part of the discards from the Queensland East Coast Otter Trawl Fishery (ECOTF) operating under a T1 fishery symbol and are part of the retained catch of the New South Wales Ocean Prawn Trawl Fishery (OPTF).

The FTF differs from most other Queensland fisheries in that the fishery is managed based on a co-operative model with licence holder involvement in management initiatives. This co-operative model includes a range of legislative and voluntary management arrangements with greater licence holder involvement in the management and monitoring processes.

## Description of the fishery

### Fishing methods

The FTF employs otter trawl methods, whereby single multi-filament nets pass over the sea bed to harvest stout whiting living near the bottom. Nets currently used in the fishery are approximately 66 m in length and have a mesh size of approximately 55 mm.

### Fishing area

The fishery area is restricted to State and Commonwealth offshore waters (within 70 km of the coastline) between Caloundra (26°40'S, 153°8'E) and Sandy Cape (24°42'S, 153°15'E) in depths ranging between 36 m and 90 m.

### Main management methods used

Unlike most other Queensland fisheries, management of the T4 fishery is conducted via a combination of voluntary agreement, permit and legislation. FTF licence holders contribute significantly to the management of the fishery through voluntary closures, provision of biological samples for assessment, and monitoring and adherence to the voluntary TAC.

The fishery is managed by a range of input and output controls directed at ensuring the ecologically sustainable harvest of target and byproduct species, while minimising impacts on bycatch and the environment. These include:

- **limited entry** to the fishery with only five licence holders
- a combination of mandatory and voluntary **seasonal closures**
- a **restricted fishery area** which ensures the FTF cannot harvest stout whiting across its entire distribution

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<sup>1</sup> McKay, R.J. 1992. *FAO Species Catalogue Sillaginid fishes of the whiting*, vol 14 (Food and Agriculture Organization of the United Nations, Rome).

- **in-possession limits** on byproduct species to ensure these species are not actively targeted
- **vessel and gear restrictions** comparable to the larger ECOTF which operates in the same region
- an **annually reviewed total allowable catch (TAC)** based on a stock assessment process (FTF operators and the Department of Primary Industries and Fisheries (DPI&F) have previously demonstrated a commitment to the sustainability of the stout whiting stock by reducing the TAC when stock assessments indicated the fishery was being fished unsustainably)
- prevention of interactions with endangered species via **closed waters provisions** and the use of **turtle excluder devices (TEDs)**.

### **Approximate allocation between sectors**

The harvest of stout whiting by recreational, charter and indigenous sectors are considered negligible. Stout whiting are not known to take baited hooks and the stout whiting inhabiting inshore waters are generally juvenile fish and are not large enough to be targeted by recreational or indigenous fishers. As there are no concerns regarding the allocation of the resource between sectors, only the commercial sector will be discussed further in this report.

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### **Fishery accreditation under the EPBC Act**

A Wildlife Trade Operation approval, acknowledging that the fishery was being managed in an ecologically sustainable manner and allowing the continued export of Queensland caught stout whiting, was granted under Part 13 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in December 2004. This approval expires in November 2007.

## **Fishery profile**

**Total commercial harvest in 2004:** approximately 979 t (all species combined).

**Stout whiting catch in 2004:** 957 t of which more than 97% was landed.

**Permitted species harvest in 2004:** approximately 50 t (3 t of cuttlefish, 0.2 t of octopus, 0.5 t of Balmain bugs, 28 t of yellowtail scad, 0.9 t of pinkies and 17.8 t of goatfish).

**Commercial gross value of product (GVP) for 2004:** ~ \$3.5 million.

**Number of FTF licences in 2004:** five.

**Commercial fishing boats accessing fishery in 2004:** five.

**Effort in the fishery in 2004:** 5121 hours (296 days)—unstandardised fishing effort.

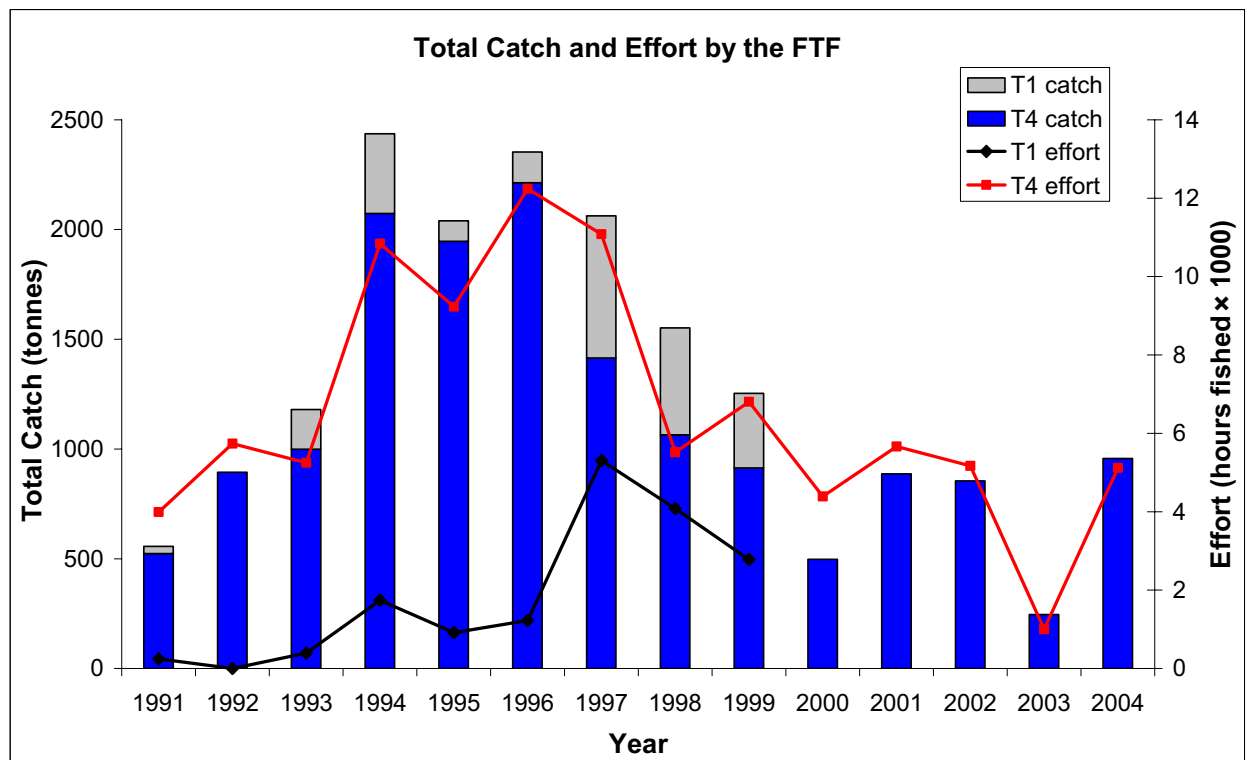
## Catch and effort

### Principle species

All five FTF operators also hold a T1 fishery symbol allowing them to operate in the ECOTF. The reported stout whiting catch by FTF fishers using T1 and T4 gear (Figure 1) increased from 557 t in 1991 to 2436 t in 1994. Annual catches decreased to a low of 498 t in 2000, when a ban was introduced on retaining stout whiting caught with T1 gear.

The annual catch increased in 2001 and has remained stable up to 2004, when the FTF caught approximately 957 t of stout whiting of which more than 97% were retained. Harvest levels were low at 246 t in 2003 because Asian markets were poor and only two boats fished in that year.

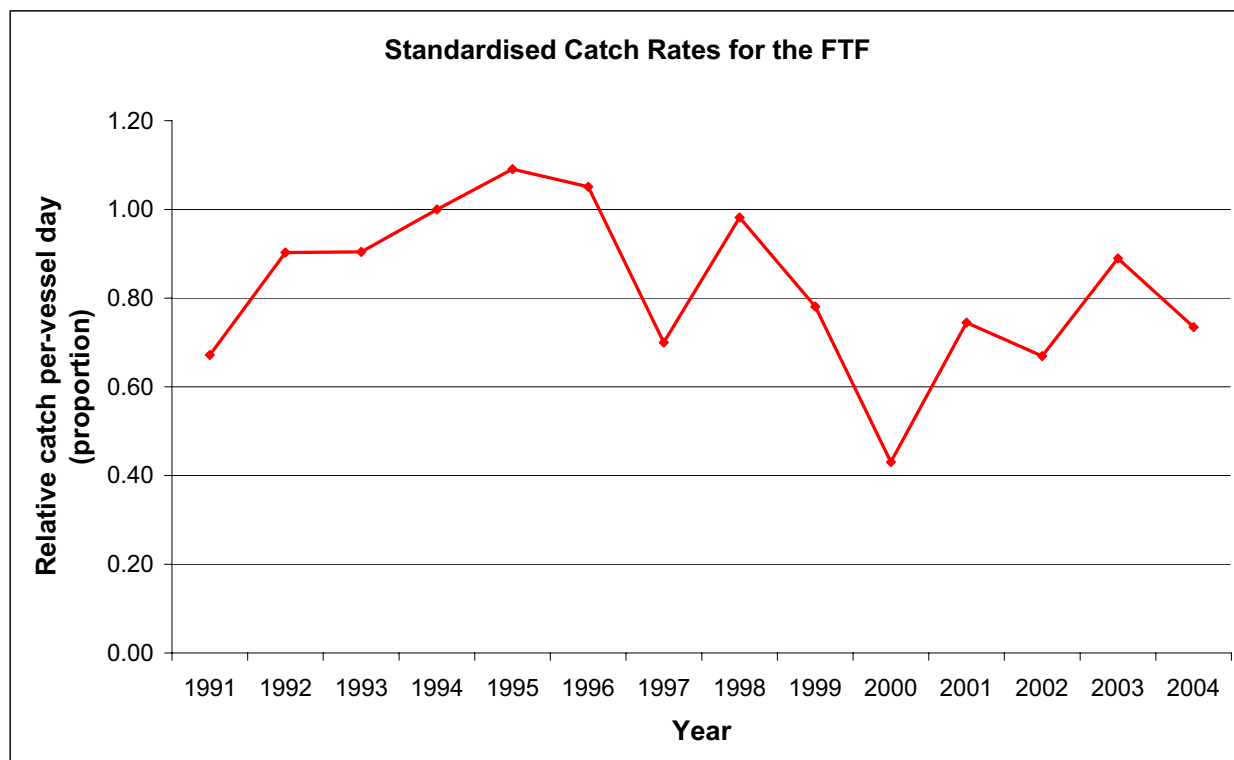
Annual fishing effort follows the same temporal pattern as catch. A substantial increase in effort was seen between 1993 and 1994. Lower effort levels occurred in 2000 and again in 2003 when the resource was being lightly fished.



**Figure 1:** Total catch (both retained and discarded) and unstandardised fishing effort (hours fished  $\times$  1000) by the FTF using T1 and T4 gears<sup>2</sup>.

<sup>2</sup> Adapted from O'Sullivan, S., Jebreen, E., Leigh, G. and O'Neill, M. 2005 Fisheries Long Term Monitoring Program—Stout Whiting Report: 1991–2004. Department of Primary Industries and Fisheries, Brisbane, Australia.

Questionnaires regarding the catching ability of each vessel in the fishery are used to measure changes in fishing power (effort creep) in the FTF for factoring into stock assessments of the stout whiting resource. Statistical analyses are used to remove the effects of differing vessel characteristics and ensure catch rates between boats and between years are comparable. Catch rates increased from 1991 to 1996 and declined in 1997 to a low level in 2000. From 2001 to 2004, catch rates have remained relatively stable (Figure 2).



**Figure 2:** Standardised catch rates of stout whiting by the FTF using T1 and T4 gears from 1991 to 2004. Note that the values represent the proportional change relative to 1994 (=1)<sup>3</sup>.

### Permitted fish catches

Trip limits for permitted species are reviewed and set annually (Table 1). Permits for byproduct other than yellowtail scad and goatfish were issued for the first time in 2002. In 2004, in addition to stout whiting, the FTF harvested around 50 t of permitted species (Table 2). In 2003, catches of permitted species decreased due to the fact that only two boats were fishing. The increase in catches of Balmain bugs and cuttlefish from 2002 to 2004 are consistent with increases in trip limits for those species.

<sup>3</sup> Adapted from O'Sullivan, S., Jebreen, E., Leigh, G. and O'Neill, M. 2005 Fisheries Long Term Monitoring Program—Stout Whiting Report: 1991–2004. Department of Primary Industries and Fisheries, Brisbane, Australia.

**Table 1:** Trip limits for permitted species in the FTF from 2002 to 2004.

Common name	Species name	2002	2003	2004
Yellowtail scad*	<i>Trachurus novaezelandiae</i>	35 boxes <sup>1</sup>	20 000 kgs <sup>3</sup>	20 000 kgs <sup>3</sup>
Goatfish*	Family Mullidae	70 boxes <sup>2</sup>	20 000 kgs <sup>3</sup>	20 000 kgs <sup>3</sup>
Pinkies	Family Nemipteridae	34 boxes <sup>2</sup>	41 boxes <sup>2</sup>	41 boxes <sup>2</sup>
Octopus	Octopus sp.	17 boxes <sup>2</sup>	20 boxes <sup>2</sup>	20 boxes <sup>2</sup>
Cuttlefish	Metasepia sp. and Sepia spp.	44 boxes <sup>2</sup>	52 boxes <sup>2</sup>	52 boxes <sup>2</sup>
Squid	<i>Loliolus</i> sp., <i>Notodarus</i> spp., <i>Photololigo</i> spp. and <i>Sepioteuthis</i> spp.	Not permitted	52 boxes <sup>2</sup>	52 boxes <sup>2</sup>
Balmain bugs	<i>Ibacus</i> spp.	1000 individuals	10 cm MLS	10 cm MLS
Moreton Bay bugs	<i>Thenus</i> spp.	Not permitted	7.5 cm MLS	7.5 cm MLS

<sup>1</sup> Refers to the standard '10 kg' box, which may hold up to 16 kg of product.

<sup>2</sup> Refers to the standard '5 kg' box which may hold greater than 5 kg of product.

<sup>3</sup> Refers to an annual limit as opposed to trip limits.

\* Only two vessels operating in the FTF are permitted to take goatfish and yellowtail scad of which the entire catch must be sold to SeaWorld and/or UnderWater World.

**Table 2:** Retained catch (kilograms) of permitted byproduct species in the FTF from 1999 to 2004.

Species	1999	2000	2001	2002	2003	2004
Pinkies	–	–	–	902	330	852
Balmain bugs	–	–	–	205	177	462
Cuttlefish	–	–	–	1943	1992	2953
Goatfish	5	–	13 202	19 913	1805	17 777
Octopus	–	–	–	1929	142	177
Yellowtail scad	–	–	18 685	44 470	5429	28 111
Squid	–	–	20	12	26	–
<b>Total weight (kilograms)</b>	<b>5</b>	<b>0</b>	<b>31 907</b>	<b>69 374</b>	<b>9901</b>	<b>50 332</b>

### Non-retained species/bycatch

In 2004, the FTF discarded around 27 t of stout whiting (Table 3). This is similar to the weight discarded in 2002 (around 28 t). Discards in 2003 were much lower because only two boats fished that year. It is difficult to detect trends in the weight discarded over a longer period, as the logbook reporting methods and vessel owners have changed over the years. This data should therefore be interpreted with caution.

The reported weight of permitted and other bycatch species discarded has varied over recent years with changes in trip limits, reporting requirements, market prices and effort levels. Discards of octopus and cuttlefish have decreased from 2002 to 2004 with an increase in trip limits for those species. Discards of blue swimmer crab in 2004 were almost five times the weight discarded in 2002 at around 15.7 t. This is most likely a reflection of the changing reporting requirements and possibly the different spatial areas being worked in recent seasons (see 'Spatial issues/trends' section).

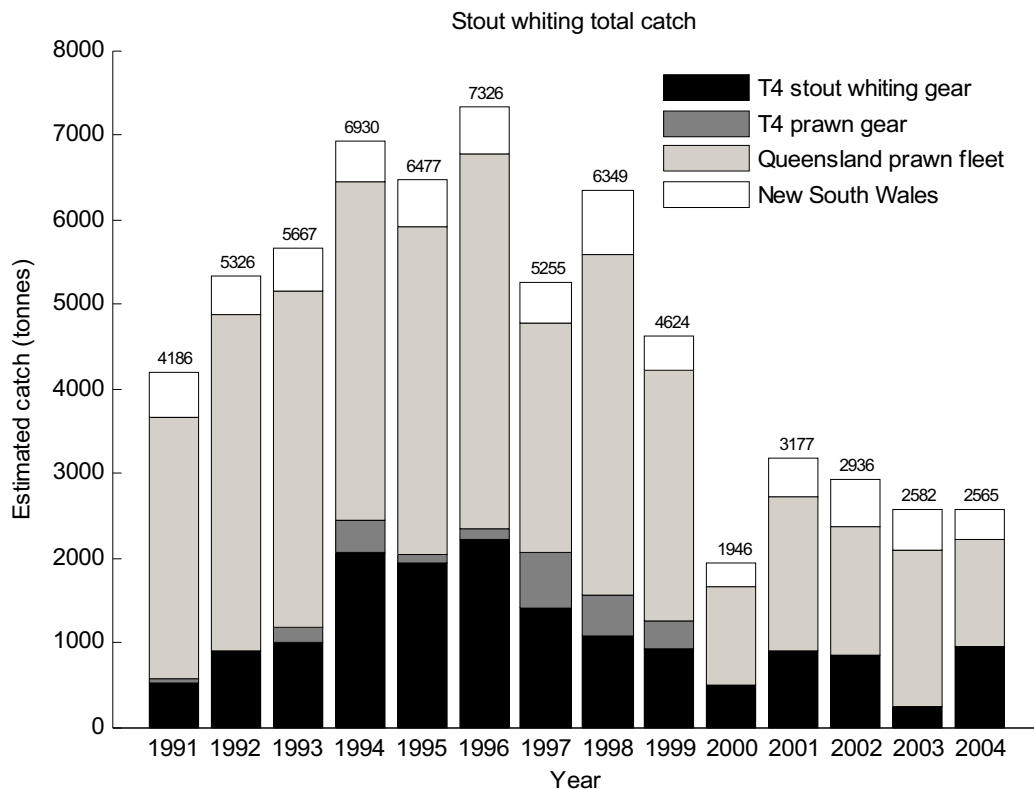
**Table 3:** Weight (kilograms) of species discarded by the FTF.

<b>Species</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
Stout whiting	7359	224	2662	28 419	13 949	26 817
Pinkies				4932	17 885	35 997
Yellowtail scad			19 909	56 478	3162	67 033
Goatfish	8929		14 620	7585	510	12 253
Octopus			5467	2751	238	830
Cuttlefish			16 298	2535	121	1681
Balmain bugs				5		56
Moreton Bay bugs				16	120	995
Squid			20 696	6198	1850	6720
Prawns			3956	6260	809	4392
Bugs unspecified			1471	730	10	285
Pipefish						5
Blue swimmer crabs	3482		914	3356	1264	15 653
Whiptail			72 075	80 937	2364	34 730
Shark			3312	42	66	352
Saucer scallop			<1			
<b>Total</b>	<b>19 770</b>	<b>224</b>	<b>161 380</b>	<b>200 244</b>	<b>42 348</b>	<b>207 794</b>

### Catch in other fisheries

Stout whiting also form a significant portion of the bycatch taken with T1 gear operating in the southern part of the ECOTF. Since 2000, there has been a ban on retaining stout whiting caught by T1 gear and all stout whiting caught must be discarded. The weight of stout whiting discarded by the ECOTF has remained relatively stable over the past five years (Figure 3). In 2004, operators in the ECOTF caught and discarded 1255 t of stout whiting.

Stout whiting are also caught in New South Wales by the OPTF. In 2004, the total catch of stout whiting in New South Wales was 353 t, of which approximately 315 t was retained.



**Figure 3:** Estimated total stout whiting catch (retained and discarded) in Queensland and New South Wales waters<sup>4</sup>.

### Interactions with protected species

As all fishers operating in the FTF also hold a T1 trawl licence, they were issued a Species of Conservation Interest (SOCI) logbook (SOCI01) in January 2003 for recording SOCI interactions occurring as a result of fishing with T1 gear. In 2004, FTF fishers were also instructed to use the SOCI01 logbook in conjunction with the stout whiting trawl logbook (SW03) to record SOCI interactions occurring as a result of fishing with T4 gear. There were no interactions with SOCI recorded in the SOCI01 logbook by T4 fishers in 2004. There were also no turtle captures reported through the SW03 logbook. This is to be expected given that TEDs have been trialled by all five vessels operating in the fishery during 2004 and 2005. It is anticipated that TEDs will be mandatory for all FTF vessels by late 2005 or early 2006. This will further ensure the survival of any turtles interacting with fishing gear.

On 19 December 2003, in conjunction with the Queensland Environmental Protection Agency, DPI&F implemented a ban on trawling in key grey nurse aggregation sites. One of these sites, 'Wolf Rock', is contained within the FTF area. While it must be noted that there are no reported cases of the FTF capturing grey nurse sharks, the ban has reduced the risk of FTF gear interacting with grey nurse sharks to a negligible level. There were no interactions with grey nurse sharks recorded in the SOCI01 logbook in the 2004 reporting period.

<sup>4</sup> O'Neill *et al.* (in prep)

Only five individual pipefish were recorded in the SW03 logbook as caught and discarded by the FTF in 2004. The low numbers of pipefish discarded by the fishery (12 individuals reported since 1999) indicates that the FTF poses little risk to these species.

### **Fishery impacts on the ecosystem**

Trawling in the FTF occurs over the mid-continental shelf between 36 m and 90m, and is assumed to be over sandy substrates according to anecdotal evidence from fishers (Robins and Courtney 1998). Trawling over bare, flat substrate is likely to have less of an impact than trawling over more undulating substrate or substrate supporting mega benthos<sup>5</sup>. Even so, repeated trawling over the same ground in areas supporting attached sedentary animals may cause their serial depletion. Bycatch reduction devices (BRDs) have, to some extent, reduced this impact in prawn trawl fisheries. The implementation of BRDs in the FTF is difficult without targeted research to separate stout whiting from other fish species (e.g. flat fishes). However, overseas experience suggests this may be possible<sup>6</sup>.

The implementation of BRDs in the FTF is difficult without targeted research to separate stout whiting from other fish species (e.g. flat fishes). However, while overseas experience suggests this may be possible<sup>7</sup> for some species, the relatively small size of stout whiting compared to the target species of other finfish trawl fisheries will most likely complicate the identification of an effective BRD.

### **General ecosystem health**

Data on the health of the FTF ecosystem are scarce, particularly the benthic component of the fishing grounds. Given their offshore location and remoteness from most catchment and coastal processes, and human activities that strongly influence the inshore marine ecosystem, changes in the condition of the FTF ecosystem are likely to be dominated more by a range of natural oceanic events occurring over varying timescales. These include the relative strength of the East Australian Current, localised seasonal upwelling of deep ocean water onto the outer continental shelf adjacent to the fishing grounds and periodic appearance/disappearance of seabed structures with the longshore movement of sand northward to Fraser Island. These processes may influence the productivity and dispersion of the stout whiting stock at various times.

Within the FTF area, stout whiting fishing effort is considerably lower than prawn fishing effort in the ECOTF. The FTF is therefore considered to have lower levels of impact on the ecosystem. However, ecosystem impacts in each of the two fisheries may have substantial differences.

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<sup>5</sup> Zeller *et al.* 2003. Ecological Assessment of the Queensland Finfish (Stout Whiting) Trawl Fishery: A report to the Australian Government Department of the Environment and Heritage on sustainable management of a multi-species, meso-scale fishery ecosystem. Department of Primary Industries and Fisheries, Brisbane Australia.

<sup>6</sup> Boudreau, M. 1991. The performance of a horizontal split level trawl in the Gulf of St. Lawrence segregating cod from flatfish. Fishery and Aquatic Science and Technology. Ancona, April 1991. ICES, Copenhagen, Denmark.

<sup>7</sup> Boudreau, M. 1991. The performance of a horizontal split level trawl in the Gulf of St. Lawrence segregating cod from flatfish. Fishery and Aquatic Science and Technology. Ancona, April 1991. ICES, Copenhagen, Denmark.

Research on the environmental effects of prawn trawling in the far northern section of the Great Barrier Reef Marine Park (Poiner *et al.* 1998) quantified measurable differences in the species composition of the catch taken by fish trawl and prawn trawl gears.

While little is known about the bycatch taken in the FTF, fish trawling generally tends to catch a greater proportion of larger, semi-pelagic fish than prawn trawling because it:

- fishes higher off the seabed
- moves faster than the prawn trawl
- samples a greater volume of water above the seabed due to its large net opening and therefore catches fish further off the bottom
- has long sweep wires designed to herd fish into the net.<sup>8</sup>

Notwithstanding the information above, in some aspects the gear used by the FTF does not significantly differ from prawn trawl gear. The mesh size used in the FTF is only 5–10 mm larger than that used in the ECOTF in the same area. Consequently, the suite of species captured by the FTF may not differ as significantly from the ECOTF as originally thought.

Licence holders have actively participated in the observer program during the 2005 fishing season. Data from this program will facilitate the identification of changes in the composition and quantity of bycatch in the FTF over time. This will include identifying the suite of species captured by the FTF. It is anticipated that the data from observers will be incorporated in future status reports.

In an effort to collate and improve information available to DPI&F and assess the level of protection provided to target and non-target species and habitats within the FTF ecosystem by December 2007, DPI&F intends to initiate a review and produce a preliminary report on the adequacy of protection provided to species and benthic habitats in the FTF area. This review will be part of a comprehensive assessment of the spatial management system in the ECOTF. Where an identified area that overlaps with the FTF area is considered for closure in the ECOTF, DPI&F will consider also closing that area in the FTF contingent upon appropriate consultation with industry and stakeholders.

The DPI&F would encourage relevant research to obtain data supporting this review as part of a regional marine planning process involving the FTF area.

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<sup>8</sup> Poiner, I., Glaister, J., Pitcher, R., Burridge, C., Wassenberg, T., Gribble, N., Hill, B., Blaber, S., Milton, D., Brewer, D. and Ellis, N. 1998. The Environmental Effects of Prawn Trawling in the Far Northern Section of the Great Barrier Reef Marine Park: 1991–1996. CSIRO Division of Marine Research, Cleveland and references therein.

## Spatial issues/trends

The number of 6 nm grids fished per year increased from 63 grids in 1999 to 82 grids in 2000. Since 2000, the number grids fished has decreased to a low of 24 grids in 2004. In 2003, only 11 grids were fished, however, due to the state of Asian markets, only two boats fished that year.

The decrease in number of grids fished is consistent with a decrease in fishing effort (days fished) over the same period. Also, where effort had previously been spread over more of the fishery area, more recently, effort appears to be more concentrated in the area adjacent to Fraser Island.

## Socio-economic characteristics and trends

Stout whiting is sold principally for on-processing either in Thailand, China, Vietnam, Japan or Taiwan for the Japanese Kisu-Hiraki style (butterfly) fillet market for use in Tempura style cooking. Some product is re-exported to local Australian markets<sup>9</sup>. In 2004, gross value for stout whiting was \$3.5 million assuming a value of \$3.50/kg<sup>10</sup>.

## Research and monitoring

### Recent research and implications

Since 2000, there has been a ban on retaining stout whiting caught by T1 gear and all stout whiting caught must be discarded as bycatch. Quantities of stout whiting taken by the T1 sector up until 2000 were substantial (Figure 3). In recent years however, regulations have been introduced progressively that require all otter trawl vessels to have a TED and an additional BRD installed in every trawl net.

A recent study has provided some insight into the effect of TEDs and BRDs on bycatch (including stout whiting) catch rates in Queensland's shallow water eastern king prawn fishery<sup>11</sup>, which partially overlaps the eastern stout whiting distribution and the FTF area. The results of this study suggest that bycatch rates are likely to have been reduced in the fishery as a result of the introduction of TEDs and BRDs. During sampling, the largest reduction was achieved for stout whiting, where catch rates fell 57%, from approximately 1.3 kg/ha in a standard net to a predicted rate of 0.5 kg/ha in a net with both a BRD and TED.

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<sup>9</sup> O'Neill, M., Yeomans, K., Breddin, I., Jebreen, E. and Butcher, A. 2002. The Queensland Stout Whiting Fishery 1991 to 2002. Department of Primary Industries and Fisheries, Brisbane, Australia.

<sup>10</sup> O'Sullivan *et al.* 2005.

<sup>11</sup> Courtney, A.J., Tonks, M., Campbell, M., Roy, D, Gaddes, S. and O'Neill, M.F. (in prep) Bycatch composition, catch rates and the effects of bycatch reduction devices in Queensland's shallow water eastern king prawn (*Penaeus plebejus*) trawl fishery.

## **Annual stock assessment**

Stock assessments for stout whiting are based on commercial catch and effort logbook data and research surveys of age, length and gender of fish sampled through the Long Term Monitoring Program (LTMP) (see below). Data derived from the stout whiting component of the LTMP are incorporated into stock assessment models. A variety of computer models (both dynamic and static) are used to estimate the size (biomass) of the stout whiting population and the sustainable exploitation levels on an annual basis to determine the voluntary TAC.

No formal stock assessment was completed when setting the TAC for the 2004 fishing season because of data issues that were identified regarding the ageing of historical otolith samples. These samples have since been independently re-aged for use in future assessments. The TAC set for 2004 (1000 tonnes; an increase of 20% from 2003 and the same level as the 2002 TAC) was set based upon the fact that very little fishing occurred during 2003 (due to markets) and high catch rates were observed during the fishing that was undertaken.

The 2004 stock assessment included data on all commercial stout whiting catches from the east coast stock including the FTF, estimates of bycatch from the ECOTF and landings from New South Wales<sup>12</sup>. The TAC for the 2005 fishing season was set at 1150 tonnes. The increase in TAC from 1000 tonnes in 2004 is a reflection of the increase in stout whiting biomass in recent years.

The 2005 TAC was set at a level which not only allowed for increased yield from the FTF but also recognised the need to allow the biomass to continue to build above the level which supports maximum sustainable yield. In this regard, while formal performance measures for the FTF are yet to be finalised, a strategy for building the stock size is currently in place.

## **Monitoring programs and results**

### **Compulsory logbook program**

Fishery dependent catch and effort information for the FTF continue to be monitored through the compulsory logbook program. A new version of the FTF logsheet (SW03) introduced in 2000 is improving DPI&F's capacity to monitor catch and effort in the fishery. The major trends in catch and effort over the past 14 years have been described above.

### **Long Term Monitoring Program**

DPI&F monitors long-term changes in the length, sex and age distribution of stout whiting in the FTF for incorporation into stock assessment models. Two 5 kg boxes are donated from each trip from each vessel in the FTF. Once in the laboratory, lengths, weights, gonad weights and gender are recorded and otoliths are used to age the fish.

An overview of the DPI&F LTMP for stout whiting is available at:

<http://www.dpi.qld.gov.au/fisheriesmonitoringprogram/11867.html>.

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<sup>12</sup> Zeller *et al.* 2003

In 2005, a report entitled *Fisheries Long Term Monitoring Program Stout Whiting Report: 1991–2004*<sup>13</sup> was made publicly available. The report included the results of 14 years of data, providing information on the size structure, age structure and reproductive patterns that are representative of fish caught in the FTF. The report also presented the findings of a pilot observer study that investigated the effect of the T1 trawl sector on stout whiting stocks. Major findings outlined in the report include the following:

- Stout whiting ranged from 70 mm to 230 mm in fork length and from 7.5 g to 129.4 g in weight across all years.
- Ages ranged from 0 to 8 years across all years. The majority were aged between 0 and 4 years. Those aged five years or older represented less than 1% of the annual catches.
- The amount of stout whiting caught and discarded by T1 fishers observed over 17 nights ranged from 4 kg to 450 kg per night.

A full copy of this report is available at:

<http://www.dpi.qld.gov.au/fisheriesmonitoringprogram/11867.html>

### **Observer program**

An observer program was trialled in 2005 to validate catch and effort logbook data and the accuracy of the SOCI logbook data recorded by fishers. The observer program will also facilitate the identification of changes in the composition and quantity of bycatch in the FTF over time. Results of the observer program for the FTF will be reported in future annual status reports.

### **Industry participation**

Monitoring and assessment of the FTF is significantly enhanced by the contributions made by licence holders. The provision of biological samples, personal logbook information and participation in observer programs greatly assists with the management of the fishery.

### **Collaborative research**

In July 2005, DPI&F commenced a three-year FRDC research project conducted in collaboration with CSIRO to assess and recommend options to reduce, where practical, trawl impacts on sea snakes<sup>14</sup>.

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<sup>13</sup> O'Sullivan *et al.* 2005

<sup>14</sup> Sea snakes are listed marine species protected under the *Environmental Protection and Biodiversity Conservation Act 1999*.

# **Fishery management**

## **Compliance report**

Data from the Queensland Boating and Fisheries Patrol (QBFP) indicates that a total of 14 inspections were conducted on fish trawl operations during the 2004–2005 financial year with one vessel breached and one cautioned.

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

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).

As part of this project two new code categories have also been developed to allow consistent reporting:

1. fishery codes
2. offence codes.

All offences and field activities will also be recoded to 30 minute CFISH grids. This will allow enforcement activities and offences to be represented spatially. Progress to date has been the development of the new system to record breach reports, unattended breach reports and FINS.

## **Changes to management arrangements in the reporting year**

As mentioned previously, no formal stock assessment was completed in 2003 for the 2004 fishing season and the TAC (1000 tonnes; an increase of 20% from 2003 and the same level as the 2002 TAC) was set based upon the fact that very little fishing occurred during 2003 (due to markets) and high catch rates were observed during the fishing that was undertaken.

In 2004, a formal stock assessment was undertaken, resulting in a TAC of 1150 tonnes for the 2005 fishing season. The increase in TAC from 1000 tonnes in 2004 is a reflection of the increase in stout whiting biomass in recent years. During 2004, trip limits for permitted byproduct species were also maintained at 2003 levels (Table 2).

## **Consultation, communication and education**

Promotion of regulations applying to both commercial and recreational fishers is an ongoing role of DPI&F. Approximately 500 stakeholders were sent copies of the fisheries newsletter 'Fish' four times during 2004. The newsletter highlights recent achievements, the latest research and proposed changes to management arrangements. DPI&F also introduced 'FishFlash' in February 2004, an email based newsletter with links to the latest fisheries news. Approximately 300 stakeholders subscribe to 'FishFlash', which is now up to its 19th issue.

Results from the LTMP sampling program and the computer models used in the annual stock assessment are presented to the trawling industry and DPI&F at annual TrawlMAC meetings. The information is used as the basis for setting a voluntary TAC for the next fishing season.

## **Complementary management**

In 2004, DPI&F initiated collaboration with New South Wales' scientists to enable a more complete assessment of east coast stout whiting fishery stocks. This resulted in the incorporation of stout whiting catches from the New South Wales OPTF into the 2004 stock assessment. DPI&F are considering the results of the assessment and appropriate complementary management of the stock that may be required through consultation with New South Wales fisheries managers.

In December 2003, protective measures for grey nurse sharks in key aggregation sites (see 'Interactions with protected species' section, page 7) were implemented by the Queensland Government to fulfil its responsibilities under the National Recovery Plan for the Grey Nurse Shark.

## **Fishery performance**

### **Appraisal of fishery in regard to sustainability**

The T4 fishery is subject to a suite of management arrangements including input, output and access controls (see 'Main management methods used' section, page 1). Through this suite of management arrangements the DPI&F, with ongoing cooperation from FTF licence holders, is ensuring the FTF is managed in a way that applies and balances the principles of ecologically sustainable development.

### **Progress in implementing DEH recommendations**

The recommendations made by the Department of the Environment and Heritage (DEH) in regard to addressing any uncertainties or risks that were identified can be found at:

<http://www.deh.gov.au/coasts/fisheries/qld/stout-whiting/decision.html#recommendations>.

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

- DPI&F have reported publicly on the status of the fishery through this report and will continue to do so on an annual basis.
- DPI&F are continuing to cooperate with New South Wales by sharing fisheries data relating to stout whiting caught and discarded by the Queensland FTF, Queensland ECOTF and the New South Wales OPTF.
- An observer program was trialled in 2005 to validate catch and effort logbook data and the accuracy of the SOCI logbook data recorded by fishers. The observer program also facilitates the identification of changes in the composition and quantity of bycatch in the FTF over time.
- Implementation of DPI&F's protected species education program for commercial and recreational fishers is well advanced. The program includes reviewing and updating the Endangered and Threatened Species Awareness Course for commercial fishers and a best practice identification, care and handling manual to minimise fishing impacts on protected species.
- DPI&F has made publicly available all of the management arrangements for the Queensland FTF. This Statement of Management Arrangements has been approved by TrawlMAC and posted on the DPI&F website at: <http://www.dpi.qld.gov.au/fishweb/18235.html>

### **Management performance**

No performance measures have yet been developed for the FTF. DPI&F intends to develop these measures in consultation with the Scientific Advisory Group of TrawlMAC by December 2006.

### **Resource concerns**

The stock assessment completed at the end of the 2004 season indicated that the harvest rate in the FTF was unsustainable between 1994 and 1999. Since that time the stock has steadily rebuilt to a level above that which supports maximum sustainable yield.

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**Front cover image** Stout whiting (*Sillago robusta*)