Queensland Finfish (Stout Whiting) Trawl Fishery

Statement of Management Arrangements

October 2013

This publication has been compiled by the Department of Agriculture, Fisheries and Forestry.

Introduction

The Finfish (Stout Whiting) Trawl Fishery (FTF) targets stout whiting (*Sillago robusta*) and red spot whiting (*Sillago flindersii*) in a defined area off South East Queensland. The fishery is managed primarily via a range of control mechanisms. These include:

- input controls:
  - limited entry
  - net length
  - sweep length
  - mesh size
- output controls:
  - total allowable catch on target species
  - trip limits on by-product species
  - access controls:
  - seasonal closures
  - spatial delineation.

Annual harvest varies significantly and fishing has been influenced by market access and international exchange rates.

Scope

This Statement of Management Arrangements (SMA) is intended to provide information and transparency to all interested parties regarding the management and operation of the FTF.

The FTF is a prime example of cooperative management between commercial fishers and the Queensland Government. While this is desirable from a fisheries management perspective, care must be taken to ensure that all management arrangements, and the processes used to develop them, are publicised. The information provided below discusses each component of the FTF's management.

This document provides a summary of the management arrangements that are currently in place for the FTF.

Fishery area

Operators are restricted to fishing only in the FTF area, which is known as the T4 fishery area. The FTF area is defined in legislation as the area between the 20 and 50 fathom (36 and 90 m) depth contours from Sandy Cape (24˚40'S, 153˚15'E) to the Qld/NSW border.[1] The fishery area was expanded in 2010 to include the southern area down to the Qld/NSW border.

The stock is afforded protection as juvenile stout whiting are known to inhabit shallower waters outside of the permitted fishery area, therefore actively reducing the level of fishing mortality on juvenile stout whiting.

In addition to the protection that the inshore boundary of the fishing area provides, stout whiting are known to be prolific both north and south of the area. Stout whiting are known to occur as far north as Bustard Head (near Gladstone) and into northern New South Wales. Genetic analysis has shown that stout whiting within this area are likely to be a single stock[2].

The FTF area allows for precautionary stock management through:

- protection of juvenile fish in waters shallower than 20 fathoms
- protection of broodstock north and south of the fishery area.

[1] Chapter 11, Part 3, s 611 of the Fisheries Regulation 2008.
[2] Ovenden and Butcher (1999).

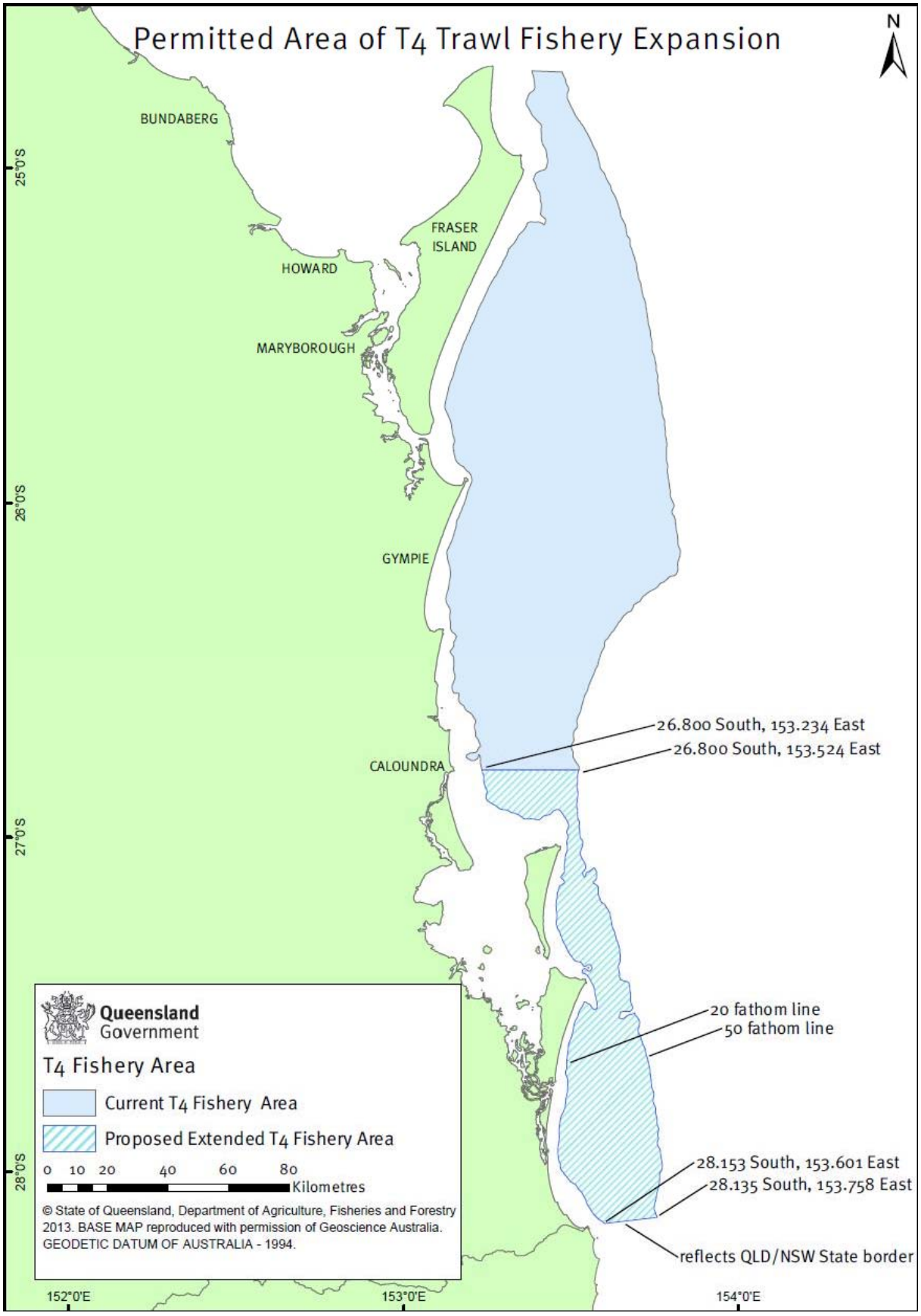

Figure 1: Map of the T4 Fishery Area

Current management arrangements

Unlike most other Queensland fisheries, management of the FTF is managed under the *Fisheries Act 1994*, the Fisheries Regulation 2008, permit conditions and through a Memorandum of Understanding between the Department of Agriculture, Fisheries and Forestry (DAFF) and the FTF operators.

Limited entry

Queensland has adopted a limited entry policy for all commercial fisheries. This prevents any expansion of the FTF through the addition of further licenses. Participation in the FTF is only possible via a T4 fishery symbol attached to a primary commercial fishing boat licence.

The FTF originated as a developmental fishery, and after being formalised in 1995 has not had any change in licence numbers.

There are five licences that can participate in the FTF. The number of licences in the FTF will not be increased.

Total allowable catch

The harvest of the target species is managed via an annual assessment of standardised catch rates from logbook records and mortality estimates from fish catch-at-age frequencies to set a total allowable catch (TAC). On top of this, DAFF will undertake a comprehensive stock assessment on a five-yearly basis.

Setting the TAC

A new framework was developed in December 2006 for TAC in Queensland's FTF. The Total Allowable Catch Table (TACT) is a system that can automatically adjust the TAC annually in response to changes in standardised catch rates and fish catch-at-age frequencies (catch-curves). The TACT system was endorsed by the Fisheries Business Group and FTF stakeholders in January 2007. The new system forms part of an overall Performance Measurement System (PMS) required to maintain the export approval granted under the *Environment Protection and Biodiversity Conservation Act 1999*.

TACT is defined by the two most reliable data sources in the stock assessment:

1. Standardised catch-rates
2. Stout whiting catch-at-age frequencies, their trigger levels and quota actions (Table 1).

Table 1: Decision rules specifying annual change in the FTF quota (tonnes).

Age structure Z (slope)[3]	Standardised catch-rate (percentiles)		
	>75 percentile	25–75 percentile	<25 percentile
Low[4] (0.825)	100	50	0
Between	50	0	-50
High[5] (1.05)	0	-50	-100

The standardised catch-rate thresholds are based on percentiles of the historical standardised catch-rates; percentiles are a standard statistical method for defining high, median and low categories in data. For example, TACT would calculate the 2007 quota with reference to the 2006 standardised catch-rate and the 1991–2006 percentiles. TACT also uses the most recent estimate of total mortality to calculate the TAC. Based on historical TAC the TACT system constrains the FTF TAC within minimum and maximum limits (750 t and 1500 t).

Whilst the data-based system will be used to set the quota each year, a full stock assessment will be run every five years to review performance and any significant changes in the fishery. The next full stock assessment is scheduled for March 2011.

Catch curves

Catch curves provide a simplistic measure of the total instantaneous mortality rate (Z), assuming that recruitment and natural mortality (M) are constant. Total mortality (Z) measures the combined effect of natural and fishing (F) mortalities on the logarithm scale (Z=M+F). The application of catch curves involves fitting a linear regression to the observed natural-logarithm of numbers of fish or weight of fish that are fully recruited to the fishery (herein the proportion of stout whiting caught at ages 1+ to 5+).[6]

The FTF is managed in conjunction with a robust stock assessment. The TAC is set on an annual basis in cooperation with licence holders.

[3] The low and high thresholds for Z are based on the relationship: 1.5 x M (where M=natural mortality).
[4] M=0.55
[5] M=0.7
[6] Hillborn and Walters (1992); Haddon (2001); and Sparee and Venema (1998).

Seasonal closures

The FTF fishing season is restricted to nine months between April and December by law.[7] This seasonal closure was implemented in the early stages of the fishery's development, when it was thought that January to April represented the major spawning season for stout whiting. Since that time, fisheries biologists have identified that the Gonado Somatic Index (GSI) for both male and female stout whiting taken from the FTF peaks between September and November[8] indicating greater spawning activity during those months.

In 1999, a closure was introduced in the East Coast Otter Trawl Fishery (ECOTF) for all waters south of Mackay between 20 September and 1 November each year[9]. This closure does not apply to the FTF, which is managed separately to the ECOTF.

The cessation of FTF fishing from January through to April does, however, continue to have benefits even though prawn trawling still occurs over the same grounds. The net benefit is mainly due to the difference in bycatch composition between the FTF and the shallow water Eastern King Prawn (EKP) Fishery that operates in the same area. For example, yellowtail scad (*Trachurus novaezelandiae*) are a significant component of bycatch in the FTF, but less so in the prawn fishery. The January to April closure would therefore provide a level of protection to such species that would not be available if the FTF operated throughout the year.

The FTF has a seasonal closure that provides precautionary protection to target species and the ecosystem in general.

Fishery Closure Dates: 1 January to 31 March (compulsory)

Spatial closures

There is only one spatial closure in the FTF. This closure was introduced in late 2003 for the protection of a key aggregation site for grey nurse sharks (*Carcharias taurus*).[10]

The area around Wolf Rock is permanently closed to the FTF fishery to provide protection for grey nurse sharks.

While the TAC (an output control) is the major form of management, there are also a number of input controls relevant to the FTF in the form of gear restrictions.

Red spot or stout whiting may only be taken by using an otter trawl net or Danish seine net. The net must not be longer than 88m and must have a mesh size of at least 38mm but no more than 60mm.

For an otter trawl net:

(a) each of its sweeps must not be longer than 128m

(b) the net must not be used from a boat longer than 20m.

[7] Chapter 11, Part 3, s 614 of the Fisheries Regulation 2008.
[8] O'Sullivan and Jebreen (2007).
[9] Section 11 of the Fisheries (East Coast Trawl) Management Plan 1999.
[10] Chapter 2, Part 4, Division 2 and Division 3, subdivision 1 of the Fisheries Regulation 2008.

For a Danish seine net:

(a) each of the two haul ropes attached to the net must not be longer than 2500m

(b) the end of the haul rope that is first deployed when the net is deployed must be marked with a floating buoy that is clearly visible on the surface of the water

(c) the net must not be used from a boat longer than 25m.

The FTF is subject to similar net length and mesh size restrictions as the larger prawn fishery.

The FTF is permitted to use long sweeps in recognition of the behaviour of the target species.

Turtle excluder devices (TEDs)

Turtle Excluder Devices (TEDs) have been introduced incrementally throughout Queensland's trawl fisheries since 1999. Initially, there were concerns that there would be logistical difficulties in installing and using TEDs when targeting stout whiting. However, TED trials have been undertaken during recent years, allowing these initial issues with gear modification to be resolved.

Commercial otter trawl fishers operating in the FTF are now required as part of their licence condition to have a TED fitted to their nets when operating in the fishery.

It is a mandatory condition of a licence that otter trawl nets must be fitted with TEDs when operating in the FTF.

Permitted species

Under law, FTF fishers are only permitted to retain stout whiting and red spot whiting (*S. flindersii*). The vast majority of catch is made up of stout whiting and this forms the basis of the fishery assessment.

Since 2002, FTF licence holders have been granted General Fisheries Permits to retain other commercial species that are taken incidentally while trawling.

These permits are similar to the permitted species provisions in the ECOTF in that they are mainly based upon trip limits derived from approximate historical catch. Management of 'by-product' species using trip limits is a generally accepted principle of fisheries management as it effectively removes potential for fishers to target the species or otherwise tailor fishing activity to increase the impact on the species.

The operators in the ECOTF have access to all species that may be retained under the permit in the same area. Species and management limits for FTF fishery operators are listed in Table 2, below.

Table 2: FTF permitted species and trip limits.

Common name	Species name	Quantity
Pinkies	Family Nemipteridae	10 boxes (20kg boxes*)
Octopus	*Octopus sp.*	20 Boxes (5kg boxes*)
Cuttlefish	*Metasepia sp. & Sepia spp*.	52 boxes (5kg boxes*)
Squid	*Loliolus sp., Notodarus spp., Photololigo spp. & Sepioteuthis spp*.	52 boxes (5kg boxes*)
Balmain Bugs	*Ibacus spp*.	No Limit
Yellowtail Scad	*Trachurus novaezelandiae*	40 boxes (20kg boxes*)
Goatfish	Family Mullidae	40 boxes (20kg boxes*)
Moreton Bay Bugs	*Thenus spp*.	No limit

* Refers to the standard ’5 kg’ and ’20kg’ boxes, which may hold greater than 5kg and 20kg respectively.

FTF licence holders must report to the Queensland Boating and Fisheries Patrol when landing any by-product taken under these permits.

References

Fisheries (East Coast Trawl) Management Plan 1999 (www.legislation.qld.gov.au)

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