

20 South Tasman Rise Trawl Fishery

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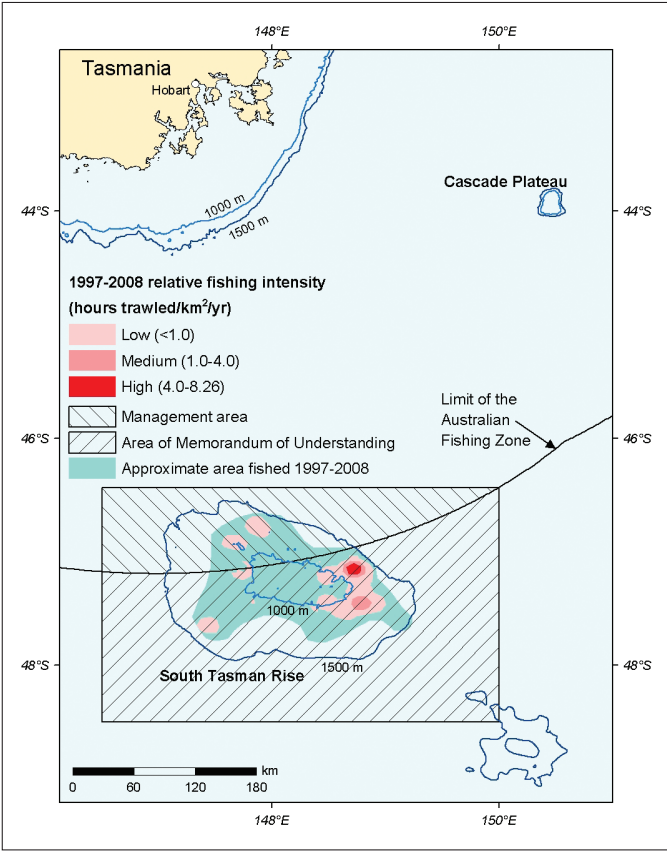


FIGURE 20.1 Relative fishing intensity in the South Tasman Rise Trawl Fishery (STRTF), 1997–2008

TABLE 20.1 Status of the fishery

Fishery status	2007		2008		Comments
Biological status	Overfishing	Overfished	Overfishing	Overfished	
Orange roughy (<i>Hoplostethus atlanticus</i>)	<div></div>	<div></div>	<div></div>	<div></div>	Last assessment conducted on 1998 to 2002 data; fishery closed since 2007.
Economic status Fishery level	Net economic return (NER) not available (fishery closed to commercial fishing)				Latent effort in the form of unfilled quota suggests NER were likely low before the fishery's closure.

NOT OVERFISHED / NOT SUBJECT TO OVERFISHING

OVERFISHED / OVERFISHING

UNCERTAIN

NOT ASSESSED

TABLE 20.2 Main features and statistics of the STRTF

Feature	Description
Target species	Orange roughy (<i>Hoplostethus atlanticus</i>)
Byproduct species	Smooth oreodory (<i>Pseudocyttus maculatus</i>) Spikey oreodory (<i>Neocyttus rhomboidalis</i>)
Fishing methods	Demersal trawl
Primary landing ports	Hobart
Management methods	Fishery currently closed. Previously, limited-entry 'international' fishery managed with New Zealand under a memorandum of understanding with a competitive TAC.
Management plan	No formal plan of management
Harvest strategy	None—harvest strategy expired; no formal reference points
Consultative forums	None
Main markets	International: previously United States—frozen
EPBC Act assessments: listed species (Part 13) international movement of wildlife specimens (Part 13A)	Not applicable (high-seas fishery). Current accreditation (Exempt) dated 4 May 2009; expires 19 September 2010. Note: South Tasman Rise included with other high-seas fisheries.
Ecological risk assessment	None
Bycatch workplans	None
Fishery statistics	2007 2008
Fishing season	Fishery closed Fishery closed
TAC	Zero Zero
Catch	Zero Zero
Effort	Zero Zero
Fishing permits	Zero Zero
Active vessels	Zero Zero
Observer coverage	Zero Zero
Real gross value of production (2007–08 dollars)	\$0 \$0
Allocated management costs	2006–07: \$0.04 million 2007–08: \$0.05 million

EPBC Act = *Environment Protection and Biodiversity Conservation Act 1999*; TAC = total allowable catch

20.1 BACKGROUND

The South Tasman Rise (STR) is an undersea ridge that extends south of Tasmania and into the Southern Ocean, stretching beyond the Australian Fishing Zone (AFZ) and into the high seas (Fig. 20.1). Orange roughy stocks undergo little movement between the AFZ and the high seas, but are thought to aggregate at seamounts for spawning. Little is known about the early life-history traits of orange roughy, although larvae and juveniles are thought to be confined to the deep ocean.

Australia was granted coastal state rights to manage the STR orange roughy resource as a straddling stock under the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea relating to the *Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks* (UN 1995). Under this agreement, other countries are still entitled to access the high-seas portion of the stock, provided that a cooperative management regime with consistent measures for both portions of the stock is established (see

Chapter 21 for more information on straddling stocks). Australia and New Zealand established a memorandum of understanding (MOU) for cooperative management of the stock in 1998; however, New Zealand vessels have not fished the STR since the end of the 2000–01 fishing season. In the later years of the fishery, very little orange roughy was caught, with catch mostly comprising byproduct of smooth and spikey oreodory.

Resumption of fishing will require agreement between Australia and New Zealand on issues such as an appropriate TAC setting and a new HS. As there was no fishing undertaken in 2007–08, no management changes were made. Historical gross value of production (GVP) is shown in Fig. 20.2.

TABLE 20.3 History of the STRTF

Year	Description
1997	Orange roughy stock discovered, fishing effort increased.
1998	MOU between Australia and New Zealand established to control catches.
1998–99	Catches peaked at 3270 t (real GVP \$11.7 million); declined sharply thereafter.
1999	Removals by illegal foreign fishing trawlers exacerbated stock depletion.
2000–01	MOU with New Zealand formalised.
2002	Formal limited-entry policy adopted.
2003	Harvest strategy established by Australia and New Zealand for a 4-year period (2003 to 2007).
2003–04	Fishing effort reduced to <100 shots.
2004–05	Catches fell to 73 t; real GVP fell to \$247 000.
2007	Harvest strategy expired, not renewed.
2007–08	Fishery closed pending further agreement with New Zealand (no permits).

GVP = gross value of production; MOU = memorandum of understanding

20.2 HARVEST STRATEGY

The harvest strategy (HS) that was implemented in 2003 expired in 2007. This strategy had no formal target or limit reference points. Instead, the HS consisted of catch triggers that were used to set the total allowable catch (TAC) for the following year.

20.3 THE 2008 FISHERY

Australia and New Zealand agreed that there would be no fishing in 2007–08 and indefinitely thereafter, a decision that was upheld for the 2008–09 fishing season. No permits were issued for this fishery in 2007–08 and fishing effort was zero.

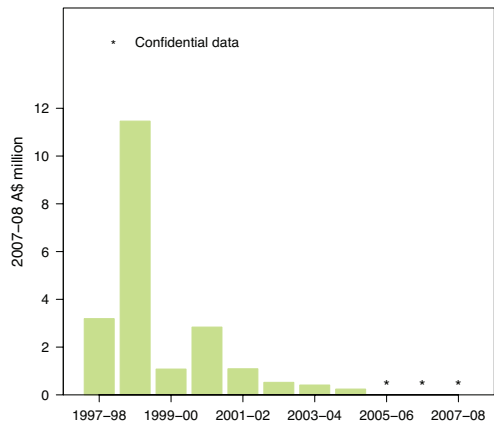


FIGURE 20.2 Real GVP of the STRTF by financial year, 1997–98 to 2007–08

*confidential data

20.4 BIOLOGICAL STATUS

ORANGE ROUGHY

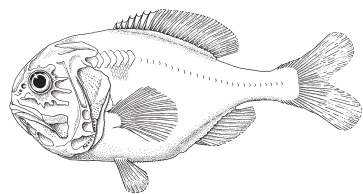


TABLE 20.4 Biology of orange roughy

Parameter	Description
Range	Occurs in all temperate oceans except the north Pacific. In Australia, distributed along the southern coast from Sydney to Perth and on continental slope and seamount areas (Gomon et al. 2008)
Depth	Ranges between 180 m and 1800 m, but usually found at 400–1000 m
Longevity	90–150 years
Age at maturity	20–30 years
Spawning season	July–August
Size	Maximum: 50–60 cm SL Recruitment into fishery: 24–42 years (size not available)

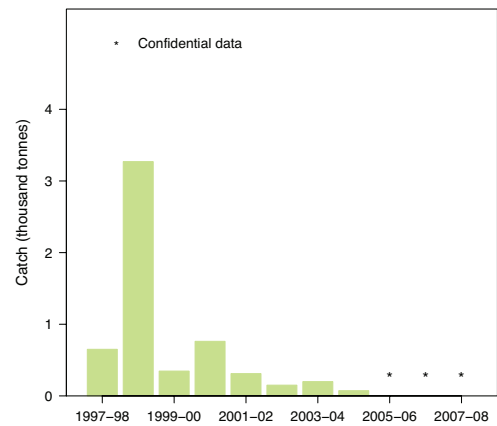


FIGURE 20.3 Orange roughy catch history by financial year, 1997–98 to 2007–08

Previous assessment

The previous and only assessment of orange roughy stocks within the South Tasman Rise Trawl Fishery (STRTF) used catches, catch rate and acoustic survey data collected during the winter spawning seasons of 1998 to 2002. The assessment indicated that the initial orange roughy biomass was not large and had been dramatically reduced. Catch and effort have declined dramatically in recent years (Fig. 20.3). Indeed, from 2001 to 2006, when fishing was occurring, less than 10% of the TAC was landed, despite reductions in TACs.

2008 update

No assessment of orange roughy biomass was conducted in 2008, and no new data were available as no fishing has occurred since 2006. Given the previous assessment that the stock has been dramatically reduced, the fact that during the last six years of fishing less than 10% of the TAC was landed and the lack of any information to indicate a recovery or rebuilding of the stock, orange roughy remain classified as overfished. Since the fishery is closed, the stock is not subject to overfishing.

Reliability of the assessment

The previous assessment is not a model-based quantitative assessment, but instead is similar to a Tier 4 assessment under the Southern and Eastern Scalefish and Shark Fishery (SESSF) HS. Therefore, reliability is low. However, given the biology of the species and its low resilience to fishing pressure, as well as the state of other orange roughy stocks in the SESSF, the conclusion of the assessment that the stock has substantially declined (and thus is overfished) is likely to be accurate.

Future assessment needs

Because of the lack of data with which to assess the STR orange roughy stock, any future proposed fishing activity should be conducted at a low level and include a commitment to data collection with appropriate observer coverage. Fishing should

not expand until there is a sufficiently reliable assessment that can provide an indication of sustainable catch levels.

BYPRODUCT

Smooth and spikey oreodories

No assessment of smooth or spikey oreodories in the STRTF has been conducted. If fishing does resume, it should be at a low level and collect data on byproduct species so that robust assessments can be undertaken. Catches of oreodories can be substantial (>1000 t in 1997–98, although catches declined dramatically thereafter), and catch limits on oreodories may need to be incorporated into a new HS or management arrangements.

20.5 ECONOMIC STATUS

Economic performance

No economic surveys of the fishery have been conducted. The only readily available economic performance indicator is the level of latent effort.

Over the four-year period in which the HS was in effect, the level of catch required for the TAC to remain unchanged in the following season was not met. This indicator suggests that fishers were free to expand their effort but chose not to. New Zealand vessels also chose not to compete for the fishery's TAC over this period. Hence, it is unlikely that profits in the fishery were significantly positive in recent years.

Overall economic status

Following its rapid development in the late 1990s, the STRTF suffered a sharp decline in catch rates and diminishing stock levels. This is most likely the result of overfishing caused by excessive effort from Australian and New Zealand vessels during the fishery's development phase, as well as unregulated fishing activity by foreign vessels in 1999. High latent effort in the years preceding the fishery's closure strongly suggests that

economic returns were likely to be very low at this time, possibly even negative given that the TAC was competitive.

Future considerations

Unlike other Commonwealth-managed fisheries, the STRTF faces additional problems due to the straddling nature of the orange roughy stock. A coordinated management approach by Australia and New Zealand will continue to be important in rebuilding the stock to sustainable levels.

20.6 ENVIRONMENTAL ISSUES

Orange roughy are listed as conservation dependent under the *Environment Protection and Biodiversity Conservation Act 1999*. The Australian Fisheries Management Authority (AFMA) is currently undertaking an Orange Roughy Conservation Programme (see Chapter 9 for more information).

20.7 HARVEST STRATEGY PERFORMANCE

No HS is currently in place for the fishery. A new HS will need to be developed if commercial fishing recommences in the fishery.

20.8 LITERATURE CITED

- Gomon, M, Bray, D & Kuitert, R 2008, *Fishes of Australia's south coast*, New Holland Publishers, Sydney.
- UN (United Nations) 1995, *Agreement for the implementation of the provisions of the United Nations convention on the Law of the Sea of 10 December 1982 relating to the conservation and management of straddling fish stocks and highly migratory fish stocks*, United Nations conference on straddling fish stocks and highly migratory fish stocks sixth session New York, 24 July–4 August 1995, pp. 40.