

20 South Tasman Rise Trawl Fishery

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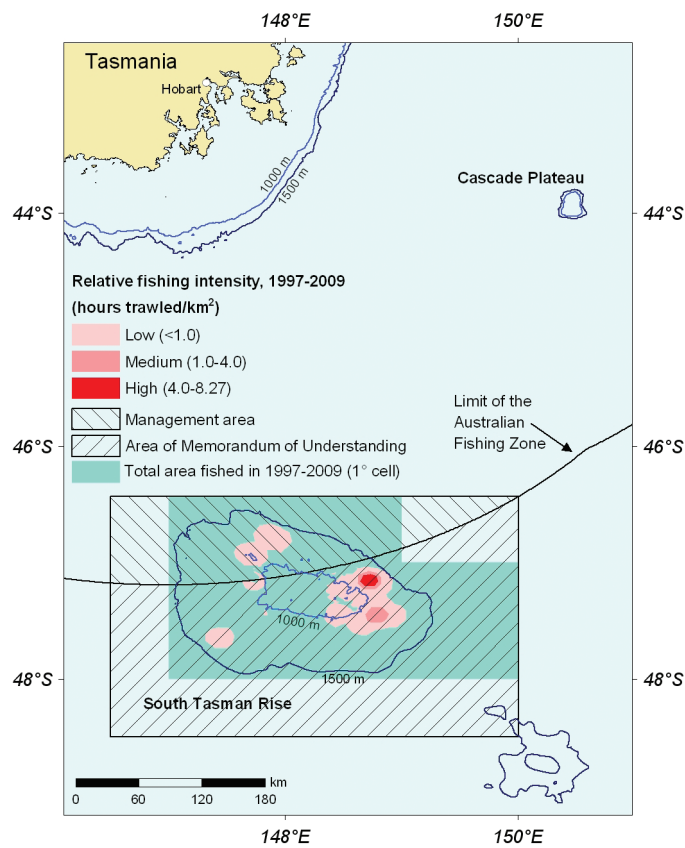


FIGURE 20.1 Relative fishing intensity in the South Tasman Rise Trawl Fishery, 1997–2009

TABLE 20.1 Status of the South Tasman Rise Trawl Fishery

Fishery status	2008		2009		Comments
Biological status	Overfishing	Overfished	Overfishing	Overfished	
Orange roughy (<i>Hoplostethus atlanticus</i>)					Fishery closed since 2007 due to stock depletion
Economic status	No net economic returns were generated as fishery was				
Fishery level	closed to commercial fishing				

NOT OVERFISHED / NOT SUBJECT TO OVERFISHING OVERFISHED / OVERFISHING UNCERTAIN NOT ASSESSED

TABLE 20.2 Main features and statistics of the South Tasman Rise Trawl Fishery

Feature	Description	
Key target and byproduct species	Orange roughy (<i>Hoplostethus atlanticus</i>)	
Other 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 (since 2007). 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 of America—frozen	
EPBC Act assessments: —listed species (Part 13) —international movement of wildlife specimens (Part 13A)	Not applicable (high-seas fishery) Current accreditation (Exempt) expires 19 September 2010 Note: South Tasman Rise included with other high-seas fisheries	
Ecological risk assessment	None	
Bycatch workplans	None	
Fishery statistics^b	2008 fishing season 2009 fishing season	
Fishing season	None—Fishery closed	None—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	2007–08: \$0.05 million	2008–09: \$0.03 million

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

a The STRTF straddles the boundary of the Australian Fishing Zone (AFZ); the portion inside the AFZ technically falls into the southern remote zone of the Southern and Eastern Scalefish and Shark Fishery (SESSF), but the STRTF is managed separately from the SESSF

b Fishery statistics are provided by fishing season unless otherwise indicated.

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 and into the high seas (Fig. 20.1). 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 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 (Table 20.3). In the later years of the South Tasman Rise Trawl Fishery (STRTF), very little orange roughy was caught, with catch mostly comprising byproduct of smooth and spikey oreodory (Table 20.2).



Orange roughy PHOTO: AFMA

TABLE 20.3 History of the South Tasman Rise Trawl Fishery

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.
2007–09	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 2009 FISHERY

Key target and byproduct species

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. Thus,

no permits were issued for this fishery in 2008–09. Resumption of fishing will require agreement between Australia and New Zealand on issues such as an appropriate TAC and a new HS. Historical gross value of production (GVP) is shown in Fig. 20.2.

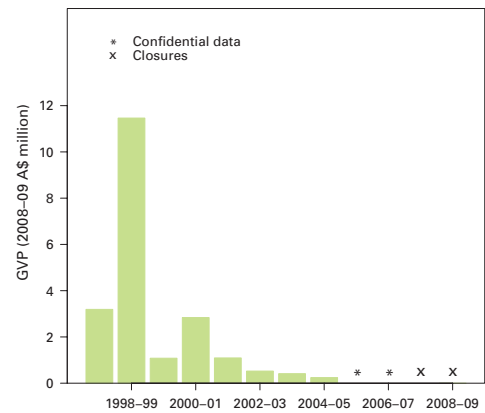


FIGURE 20.2 Real GVP of the STRTF by financial year, 1997–98 to 2008–09

Minor byproduct species

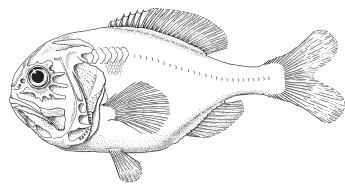
Smooth and spikey oreodories

Although smooth and spikey oreodories were previously considered important byproduct species, no formal stock assessment of these species in the STRTF was conducted in 2009. They were assessed in 2007 as not subject to overfishing and uncertain for overfished, before being dropped from the stock status determination process. If fishing does resume, it should be at a low level, and data on byproduct species will need to be collected so that robust assessments of their status can be undertaken. Catches of oreodories have historically been 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.

20.4 BIOLOGICAL STATUS

ORANGE ROUGHY

(*Hoplostethus atlanticus*)



LINE DRAWING: ROSALIND POOLE

TABLE 20.4 Biology of orange roughy

Parameter	Description
General	Undergo little movement between the Australian Fishing Zone 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.
Range	Species: 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. Stock: Orange roughy on the South Tasman Rise are considered a discrete stock.
Depth	Range 180–1800 m; usually found at 400–1000 m
Longevity	90–150 years
Maturity (50%)	Age: 20–30 years Size: ~25–30 cm SL
Spawning season	July–August
Size	Maximum: 50–60 cm SL; weight: ~3–4 kg Recruitment into the fishery: 24–42 years; size: ~30 cm SL

SOURCE: Gomon et al. (2008).

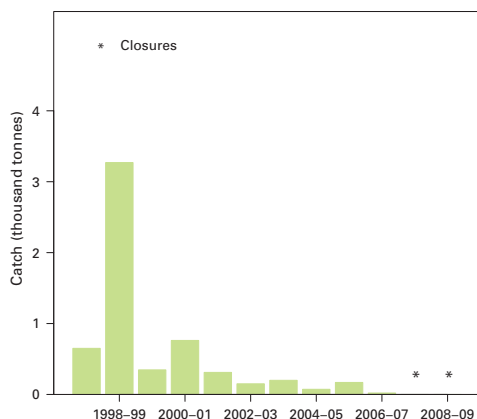


FIGURE 20.3 Orange roughy catch history by financial year, 1997–98 to 2008–09

Stock status determination

No model-based stock assessment of orange roughy was conducted in 2009, and no new data were available as fishing has not occurred since 2006. Given that the stock has been assessed as overfished since 2002–03, the fact that less than 10% of the TAC was landed from 2001 to 2006 (when fishing was occurring; Fig. 20.3), and the lack of any information to indicate a recovery or rebuilding of the stock, orange roughy remains assessed as **overfished**. Since the fishery is closed, the stock is **not subject to overfishing** (Table 20.1).

Reliability of the assessment/s

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 considered accurate.

Previous assessment/s

The previous and only assessment of orange roughy stocks within the STRTF was carried out in 2003 using 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).

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 recommence until there is a sufficiently reliable assessment that can provide an indication of current biomass and sustainable catch levels.

20.5 ECONOMIC STATUS

Economic performance

There have not been any economic surveys of the fishery. The only readily available indicator of economic performance 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 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 those years.

Overall economic status

Following its rapid development in the late 1990s, the STRTF suffered a sharp decline in catch rates and diminishing stocks. This was 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 low at that 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 STATUS

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

In the first year of the fishery, there was a significant bycatch of corals, comprised of a large number of species. However, coral bycatch dropped considerably in later years (from 1750 t per year in 1997–98 to 100 t in 2000–01; Anderson & Clark 2003).

Threatened, endangered and protected species

Sharks, marine turtles and seabirds

Due to the limited effort in the fishery, interactions with sharks and seabirds are not considered a problem. However, if fishing recommences in the fishery, bycatch issues will need to be reconsidered.

Habitats

Although trawling is generally done over soft, sandy bottoms, seamounts typically have rough and hard bottoms, requiring heavy-duty trawl gear. As noted above, observer data indicate that early trawls contained substantial bycatch of corals.

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

- Anderson, OF & Clark, MR 2003, 'Analysis of bycatch in the fishery for orange roughy, *Hoplostethus atlanticus*, on the South Tasman Rise', *Marine and Freshwater Research*, vol. 54, pp. 643–52.
- Gomon, M, Bray, D & Kuitert, R 2008, *Fishes of Australia's south coast*, New Holland Publishers, Sydney.
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