

Redfish (2023)

Centroberyx affinis



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Commonwealth, New South Wales, Tasmania	South Eastern Australia	Depleted	Spawning stock biomass, fishing mortality

STOCK STRUCTURE

No stock delineation studies of Redfish have been undertaken in Australia. Tagging studies suggested a single stock of Redfish off New South Wales [Rowling 1990]. However, studies of mean length at age suggest differences in growth rates of Redfish from the 'northern' and 'southern' areas of the fishery off eastern Australia [Morison and Rowling 2001]. Previous Redfish assessments have assumed that the fishery exploits two separate populations, with the boundary between these being 36°S (immediately north of Montague Island in New South Wales) [Thomson 2002]. The evidence for separate stocks was reviewed and considered to be insufficient; hence, more recent assessments [Bessell-Browne and Tuck 2020; Tuck et al. 2017] assume a single stock. Here, assessment of stock status is presented at the biological stock level—South Eastern Australia.

STOCK STATUS

South Eastern Australia

Redfish is primarily caught by the Commonwealth managed Southern and Eastern Scalefish and Shark Fishery (SESSF) with small catches from State jurisdictions. Stock status classification reported here is based on stock assessments conducted for the SESSF, which include reported State catches.

In the Commonwealth, Redfish landings peaked in the late 1970s and early 1980s, with significant discards recorded on top of landed catch. Following these significant catches, catch steadily declined in the 1990s and 2000s as total

allowable catches (TACs) were steadily reduced but the stock continued to decline and became subject to an incidental catch allowance in the 2015–16 fishing season and managed through a rebuilding strategy [AFMA 2016].

Redfish has only been sporadically fished in Tasmanian waters, with confirmed catches of *C. affinis* available only from the 2018–19 season, albeit very low and remain confidential. Annual catches for unspecified Redfish species in previous years, which include but are not restricted to *C. affinis*, were generally below 20 kg. An exception to this is a single outstandingly high but confidential catch record for unspecified Redfish in 2008–09 which is likely due to misreporting of Redbait (*Emmelichthys nitidus*). Redfish is not harvested recreationally in Tasmania, as indicated by surveys of recreational fishing in the State [Lyle et al. 2009, 2014, 2019].

The annual commercial catch from New South Wales waters has declined during the past decade from 15.3 t in 2012–13 to 4.1 t in 2021–22. These catches have represented between 12% and 23% of total commercial landings during this decade. Annual catches from the Ocean Trap and Line Fishery have been between 1.6 and 5.2 t over this decade while catches from the Ocean Trawl Fishery have declined from about 9.5 t in 2012–13 to 1.5 t in 2021–22. In contrast to 10 years ago, catches from the Ocean Trap and Line Fishery now represent about 60% of New South Wales commercial landings. The majority of commercial catches from New South Wales waters come from areas adjacent to the Commonwealth fishery, inside three nautical miles of the south coast of New South Wales and to the north of Barrenjoey Headland on the mid-north coast of New South Wales. Given this proximity to the Commonwealth fishery and the New South Wales catch representing less than 23% of the total fishing mortality (based on the last 10 years), assessment status for the component of the Redfish stock under New South Wales jurisdiction is based on the Commonwealth assessment, which includes catch data from New South Wales.

Redfish has been assessed by the Commonwealth to be depleted to below the limit reference point (LRP) of 20% of the unfished spawning stock biomass since 1992 [Tuck et al. 2017] and was also managed under the Commonwealth redfish stock rebuilding strategy 2016–21 [AFMA 2016]. The main objective of the strategy is to rebuild Redfish to, or above the LRP by or before 2042 (one mean generation time plus 10 years) [AFMA 2016]. The rebuilding strategy prescribes that the TAC will be set at the minimum incidental catch allowance required to cover the incidental catch of redfish, taken while targeting other species. This incidental catch allowance was set at 50 t for the 2021–22 fishing season.

Redfish was last assessed in 2020 [Bessell-Browne and Tuck 2020]. The Tier 1 stock assessment used catch rate data, length data and conditional age-at-length data up to 2019. The base-case model estimated the spawning stock biomass to be 3% of the unfished level in 2019 and projected that the spawning stock biomass would be 4% of the unfished level in 2021 (assuming the same catches in 2020 as in 2019). It was noted that recruitment deviations during the past decade had been below average (except for 2011 and 2012), suggesting that the stock is experiencing an extended period of below average recruitment. Given that the stock seems to be experiencing a prolonged period of low recruitment, the South East Resource Assessment Group (SERAG) reviewed several fixed-catch (0, 50 and 100 t) and recruitment scenarios (low and average). Under a fixed catch of 0 t, 50 t and 100 t, the spawning stock biomass was expected to reach the LRP by 2032, 2033 and 2035, respectively, assuming average recruitment; and by 2037, 2039 and 2042, respectively, assuming low recruitment.

The above evidence indicates that the stock is considered to be recruitment impaired.

Commonwealth landed catch was 21.5 t in the 2021–22 fishing season [Emery et al. 2022]. The model-based discard estimate for 2019 was 7.0 t and estimated State catch was 7.1 t [Bessell-Browne and Tuck 2020]. The discard estimate is highly uncertain [Emery et al. 2022].

Total Commonwealth and State catches and discards in the 2021–22 fishing season were estimated to be 35.6 t, which is below the incidental catch allowance of 50 t. While projections from the 2020 assessment indicate that, even under a low-recruitment scenario, a total fishing mortality of up to 100 t should allow recovery of the stock to the LRP, there has been no evidence of rebuilding to date [Emery et al. 2022].

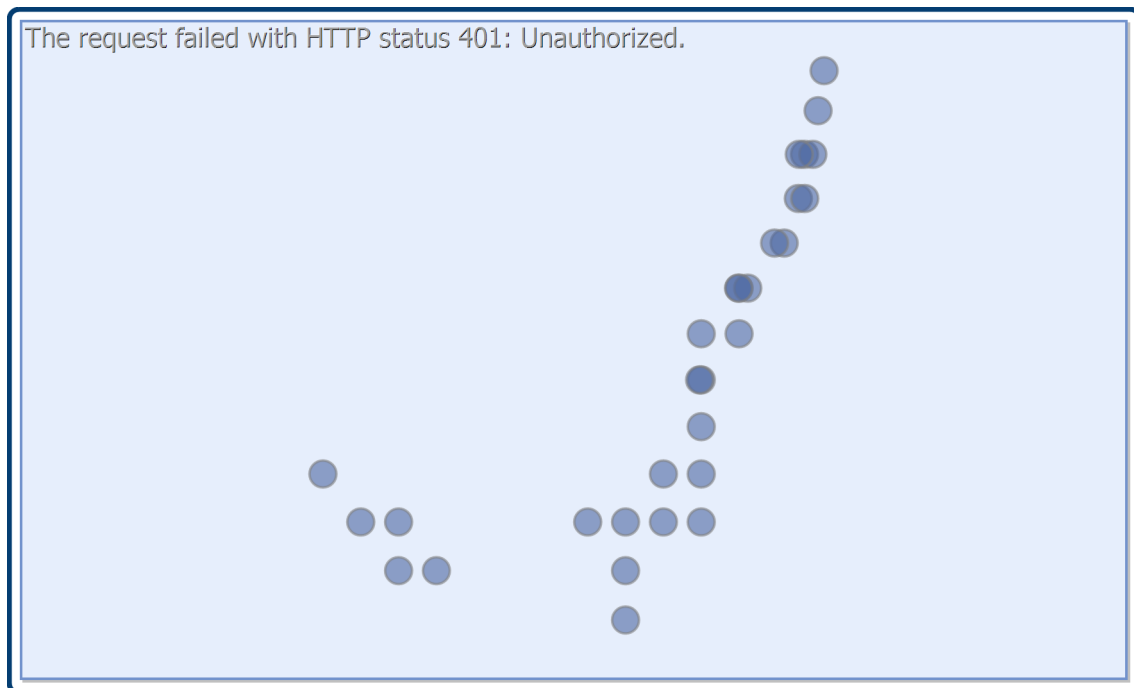
On the basis of the evidence provided above, the South Eastern Australia biological stock is classified as a **depleted stock**.

BIOLOGY

Redfish biology [Kailola et al. 1993]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Redfish	Males 11 years, 330 mm FL Females 16 years, 380 mm FL	4 years, 200–250 mm

DISTRIBUTION



Distribution of reported commercial catch of Redfish

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Redfish (2023)

TABLES

Fishing methods			
	Commonweal th	New South Wales	Tasmania
Charter			
Hook and Line		✓	
Rod and reel		✓	
Commercial			
Danish Seine	✓		
Demersal Gillnet	✓		
Demersal Longline	✓		
Dropline	✓	✓	
Fish Trap		✓	
Hook and Line		✓	
Midwater Trawl	✓		
Otter Trawl	✓	✓	
Various		✓	✓
Recreational			
Hook and Line		✓	
Rod and reel		✓	

Management Methods			
	Commonweal th	New South Wales	Tasmania
Charter			
Bag and possession limits		✓	
Gear restrictions		✓	
Licence		✓	
Marine park closures		✓	
Commercial			
Bag and possession limits			✓

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Catch limits		✓	✓
Gear restrictions	✓	✓	
Limited entry	✓	✓	✓
Marine park closures	✓	✓	
Mesh size regulations		✓	
Quota	✓		
Spatial closures	✓	✓	
Total allowable catch (incidental)	✓		
Vessel restrictions		✓	
Recreational			
Bag and possession limits		✓	
Gear restrictions		✓	
Licence		✓	
Marine park closures		✓	

Catch	Commonwealth	New South Wales	Tasmania
Commercial	19.5734 t	4.1268 t	0 t
Indigenous		Unknown	Unknown
Recreational		4 t (2019-20)	Unknown

Commonwealth – Commercial (Management Methods/Catch). Data provided for the Commonwealth align with the Commonwealth Southern and Eastern Scalefish and Shark Fishery for the 2021–22 financial year.

Commonwealth – Recreational. The Commonwealth does not manage recreational fishing in Commonwealth waters. Recreational fishing in Commonwealth waters is managed by the state or territory immediately adjacent to those waters, under its management regulations.

Commonwealth – Indigenous. The Australian government does not manage non-commercial Indigenous fishing in Commonwealth waters, with the exception of Torres Strait. In general, non-commercial Indigenous fishing in Commonwealth waters is managed by the state or territory immediately adjacent to those waters.

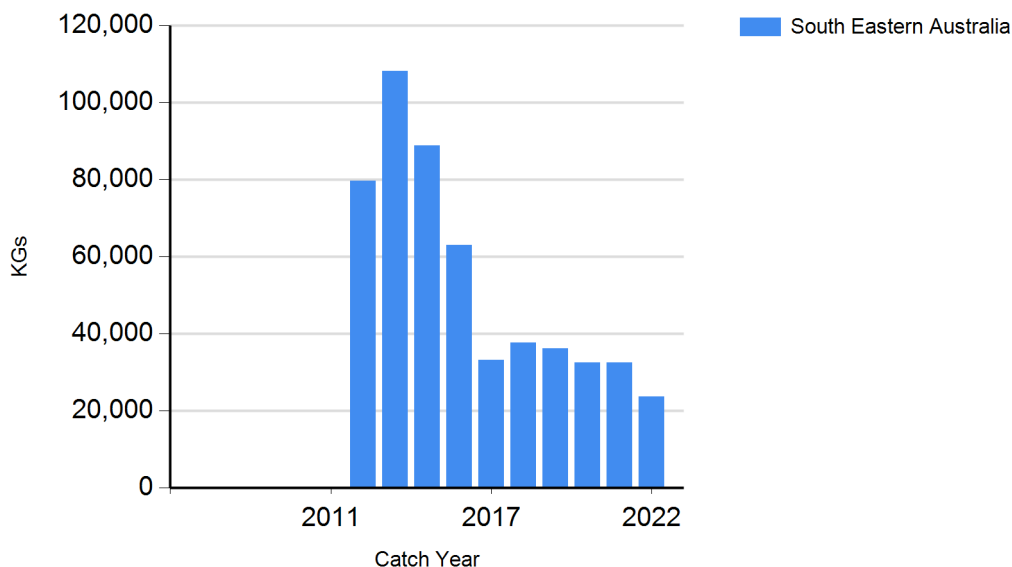
New South Wales – Recreational (Catch). Recreational catch estimate of 4.1 t is based on (i) an estimated recreational catch of 9 646 redfish by 1–3 yr NSW recreational licence holders in 2019–20 [Murphy et al. 2022]; (ii) an assumed mean weight of kept redfish of 0.345 kg/fish; and (iii) a scaling factor of 1.235 to scale the estimated catch by 1–3 yr licence holders to the catch of all recreational fishers [Stark and West 2023].

New South Wales - Indigenous (Management Methods). Cultural Fishing Management Arrangements. See <https://www.dpi.nsw.gov.au/fishing/aboriginal-fishing>.

Tasmania – Commercial (Catch). Catches reported for the Tasmanian Scalefish Fishery are for the period 1 July to 30 June the following year. The most recent assessment available is for 2016–17.

Tasmania – Commercial (Management Methods). The holder of a fishing licence (personal) who is not operating in accordance with a Commonwealth authority must not take, or be in possession of, more than 50 kg of Redfish.

CATCH CHART



Commercial catch of Redfish - note confidential catch not shown. Discards are not included

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