

Bight Redfish (2023)

Centroberyx gerrardi



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Commonwealth, Western Australia, Tasmania, South Australia	Southern Australia	Sustainable	Fishery-independent biomass surveys, spawning stock biomass, fishing mortality rate, spawning potential ratio, length and age composition, catch

STOCK STRUCTURE

Bight Redfish is endemic to southern Australia and occurs from Bass Strait to Lancelin in Western Australia [Gomon et al. 2008]. Little is known of the biological stock structure of Bight Redfish. Limited analysis indicates genetic homogeneity between Western Australia and the Great Australian Bight (GAB) but there is some separation, based on otolith chemistry, between southwest WA and the GAB [Norriss et al. 2016].

Here, assessment of stock status is presented at the biological stock level—Southern Australia.

STOCK STATUS

Southern Australia Bight Redfish is primarily caught by the Great Australian Bight Trawl Sector of 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.

Commonwealth-landed catches of Bight Redfish in the GABTS of the SESSF were low in the 1990s and early 2000s and peaked in 2007–08 at more than 1,407

tonnes (t). Catch has subsequently declined to between 170–300 t since 2012–13.

In Western Australia, Bight Redfish are taken mainly by commercial line fishing off the lower west and south coasts. Catch-at-age sampling of 5,672 south coast Bight Redfish from the commercial line, demersal gillnet, recreational and charter sectors during 2013 and 2014 showed variable age compositions between those sectors and spatially [Norriss et al. 2016]. The commercial line sample from the western sub-region of the south coast, considered to be the most representative sector, included numbers of fish aged in their 40s, 50s and 60s, the maximum observed age being 84 years, suggesting low mortality rates. Two alternative methods were used to generate median estimates of female spawning potential ratio at (SPR \pm 95% CI): 0.45 (0.28–0.66) and 0.40 (0.22–0.63), respectively, being on or above the target reference point (SPR=0.40). There was a 7% and 25% chance, respectively, of breaching the threshold reference point (SPR=0.30) and a less than 1% chance of breaching the limit. Estimates of natural mortality M and fishing mortality F year⁻¹ were 0.067 (0.050–0.084) and 0.045 (0.025–0.065), respectively, giving a point estimate of F/M of 0.67, equal to the target reference level. There was a 20% chance of F breaching the threshold level of $F=M$ and close to zero probability of breaching the limit of $F=1.5M$.

The above evidence indicated that the WA biomass was unlikely to be unacceptably depleted at the time of the assessment, but with no capacity for increased catches beyond recent historical levels before risk becomes unacceptable. Subsequent annual commercial south coast catches averaged 37 t compared to the 2001 to 2014 average of 35 t. The total commercial catch in 2022 was 39 t and the recreational catch in 2020–21 was around 11 t [Ryan et al. 2022]. While there are no formal catch limits in place, recent catches are commensurate with the previous historic range and unlikely to cause the stock to become recruitment impaired.

In Tasmania, catch records of Bight Redfish (*C. gerrardi*) at the species level are sporadic, limited in number, and lack verification. This species is at the southernmost extent of its range in Tasmania, is not a targeted catch, and is primarily encountered as a byproduct. Furthermore, distinguishing Bight Redfish from Redfish (*C. affinis*) in reporting is considered unreliable. Annual catches for unspecified Redfish species in previous years, which include but are not restricted to *C. gerrardi*, 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*). Notably, Bight Redfish is not a recreational fishing target in Tasmania, as confirmed by surveys conducted by [Lyle et al. 2019].

Bight Redfish is taken using demersal gear types in South Australia's commercial multispecies, multi-gear and multi-sectoral Marine Scalefish Fishery. In 2021–22 the total commercial catch in South Australia was 23 t [Smart et al. 2023]. Bight Redfish is an important recreational fishery species in South Australia and is targeted with rod and line. The estimated catch in 2021–22 by the Charter Boat Fishery was 14,043 individuals [Durante et al. 2022]. The State-wide recreational survey estimated that 28.2 t of *Centroberyx* species (three species) were harvested in 2021–22, most of which were thought to be Bight Redfish [Beckmann et al. 2023]. There is no published information on the cultural importance of Bight Redfish to Indigenous people in South Australia.

A fishery-independent trawl survey in 2015 estimated that the relative biomass of Bight Redfish (2,573 t; coefficient of variation CV 0.28) had decreased 80%

from the previous 2011 estimate (13,189 t; CV 0.13) [Knuckey et al. 2011, 2015]. In a 2018 fishery-independent survey, the relative abundance increased to 4,053 t; CV 0.25 [Knuckey et al. 2018]. The most recent survey in 2021 provided a similar relative abundance measure (3,447 t; CV 0.21) [Knuckey et al. 2021], suggesting some population stability since 2015, though these remain well below the 2011 estimate. Length-frequency data from the most recent survey has suggested a modal length of 28 cm, down from 30 cm in 2005 [Knuckey et al. 2021]. A reduction in modal size is often associated with overfishing [King 2007].

The target reference point for Bight Redfish of 41% of the unfished spawning stock biomass [Kompas et al. 2012] was derived from a bio-economic model of the fishery [AFMA 2011]. The 2019 tier 1 stock assessment [Sporcic et al. 2019] estimated the spawning stock biomass in 2018 to be 61% of the unfished level, significantly above the limit reference point of 20% of unfished level. Using the 20:35:41 harvest control rule, Sporcic et al. [2019] produced a long-term average recommended biological catch (RBC) of 912 t. The 2021–22 Bight Redfish total allowable catch (TAC) was set at 893 t, which is the second year of a 5-year TAC.

Commonwealth landed catch of Bight Redfish in the GABTS of the SESSF was 214 t in the 2021–22 fishing season, up from 202 t in 2020–21 [Moore et al. 2022]. The weighted average of the previous 4 calendar years (2017 to 2020) was calculated and used to estimate state catch of 22.5 t, with no discards recorded [Althaus et al. 2021].

The above evidence indicates that the biomass of this stock is unlikely to be depleted and recruitment is unlikely to be impaired. Furthermore, the evidence indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

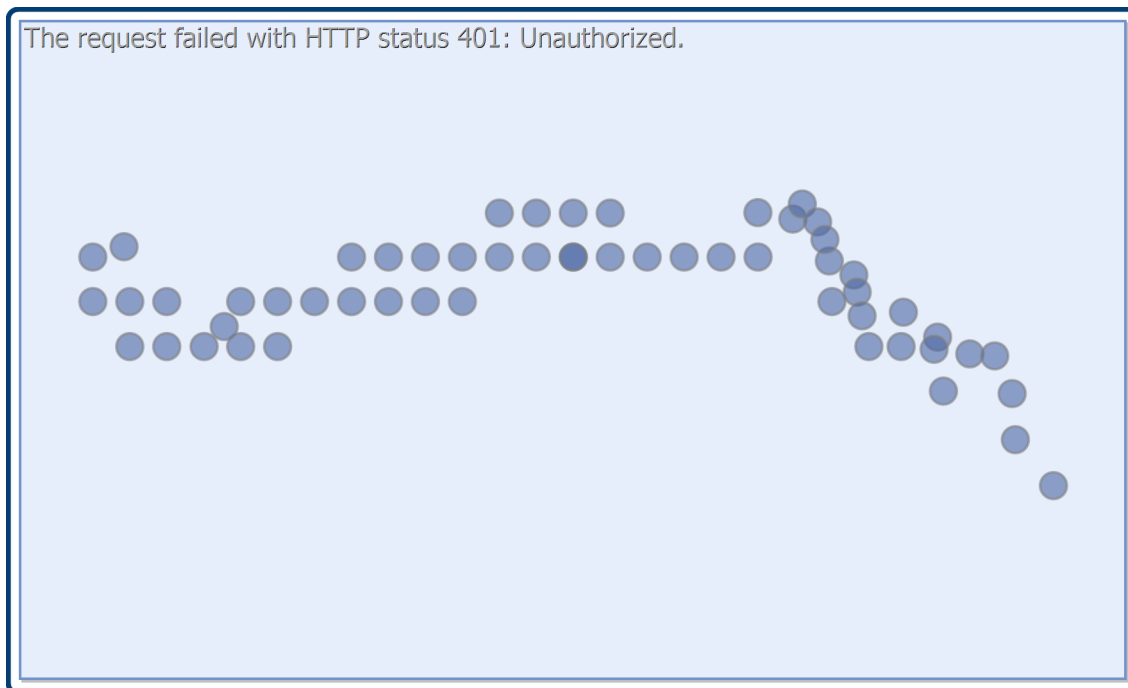
On the basis of available evidence above, the Southern Australia biological stock is classified as a **sustainable stock**.

BIOLOGY

Bight Redfish biology [Brown and Sivakumaran 2003; Stokie and Krusic-Golub 2005; Norriss et al. 2016]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Bight Redfish	84 years, 590 mm CL	5–14 years, 430 mm TL

DISTRIBUTION



Distribution of reported commercial catch of Bight Redfish

TABLES

Fishing methods	Commonweal th	South Australia	Victoria	Western Australia
Charter				
Hook and Line		✓	✓	✓
Rod and reel				✓
Unspecified				✓
Commercial				
Beach Seine				✓
Danish Seine	✓			
Dropline		✓		✓
Fish Trap				✓
Gillnet				✓
Hand Line, Hand Reel or Powered Reels				✓
Handline		✓		
Line				✓

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Bight Redfish (2023)

Longline (Unspecified)		✓		✓
Otter Trawl	✓			
Unspecified		✓		
Recreational				
Hook and Line		✓		✓

Management Methods				
	Commonwealth	South Australia	Tasmania	Western Australia
Charter				
Bag limits		✓		✓
Licence				✓
Limited entry				✓
Seasonal closures				✓
Size limit		✓		✓
Spatial closures				✓
Commercial				
Effort limits		✓		✓
Effort limits (individual transferable effort)				✓
Gear restrictions	✓	✓	✓	✓
Individual transferable quota	✓			
Licence				✓
Limited entry	✓		✓	✓
Marine park closures				✓
Size limit		✓		✓
Spatial closures	✓	✓		✓
Spatial zoning				✓

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Bight Redfish (2023)

Total allowable catch	✓			
Total allowable effort				✓
Trigger limits	✓			
Recreational				
Bag limits		✓		✓
Licence (Recreational Fishing from Boat License)				✓
Possession limit				✓
Size limit		✓		✓
Spatial closures				✓
Temporal closures				✓

Catch				
	Commonwealth	South Australia	Tasmania	Western Australia
Charter		14,043 individuals in 2021–22		4.0255t in Tour Operator
Commercial	228.188 t	23.0157 t	0 t	64.1562 t
Indigenous		Unknown	Unknown, likely negligible	Unknown
Recreational		28.2 t in 2021–22	Unknown, likely negligible	11.4 t ± 3.7 (se) (2020–21, boat based)

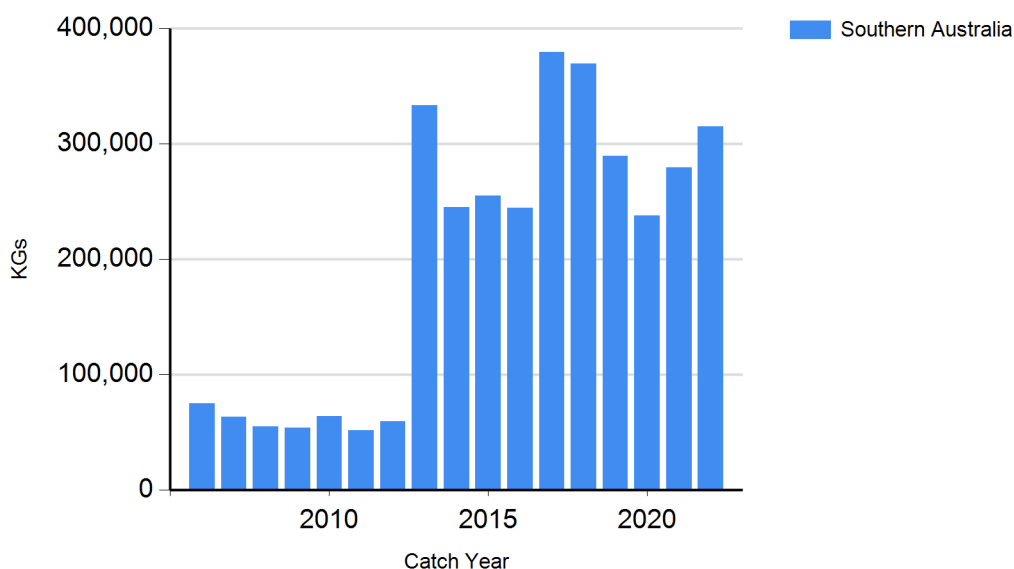
Commonwealth – Commercial (Management Methods/Catch) Data provided for the Commonwealth align with the Commonwealth Southern and Eastern Scalefish and Shark Fishery for the 2021–22 financial year.

Commonwealth – Recreational The Australian Government 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 Indigenous fishing in Commonwealth waters, with the exception of the Torres Strait. In general, non-commercial Indigenous fishing in Commonwealth waters is managed by the state or territory immediately adjacent to those waters.

Western Australia – Recreational (management methods) A Recreational Fishing from Boat Licence is required for use of a powered boat to fish or to transport catch or fishing gear to or from a land-based fishing location.

CATCH CHART



Commercial catch of Bight Redfish - note confidential catch not shown

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Bight Redfish (2023)

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