Brownlip Abalone (2020)

Haliotis rubra conicopora

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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Western Australia	Western Australia Area 2 Fishery	Sustainable	Catch, CPUE, meat weight, length composition
Western Australia	Western Australia Area 3 Fishery	Sustainable	Catch, CPUE, meat weight, length composition
South Australia	South Australia Western Zone Fishery	Undefined	

STOCK STRUCTURE

Brownlip Abalone is distributed from the south-west of Western Australia to the west of South Australia. Brownlip Abalone are endemic to the south-west of Australia, but there is evidence to suggest that they are genetically similar to, and potentially conspecific with, Blacklip Abalone (*Haliotis rubra rubra*) [Brown and Murray 1992], which are distributed east from Western Australia across southern mainland Australia to northern New South Wales and Tasmania. The biological stock structure of Brownlip Abalone has not been examined. As there is no genetic evidence to confirm biological stock structure of Brownlip Abalone, assessment of stock status is presented here at the management unit level—Western Australia Area 2 Fishery, Western Australia Area 3 Fishery and South Australia Western Zone Fishery.

STOCK STATUS

South Australia Western Zone Fishery

Brownlip Abalone is considered to be rare in South Australia, but likely found in the western fishing areas of the South Australia Western Zone Fishery (SAWZF) that have high relative catch contributions. Brownlip Abalone is not differentiated from Blacklip Abalone in commercial catch returns. Consequently, there is no reported catch of Brownlip Abalone by commercial or recreational

fishers in South Australia. There is no published assessment of this species, and there are no data available to estimate biomass or exploitation rates. In addition, there is no knowledge on recruitment or harvestable biomass, and there are no defined target or limit reference levels. This prevents assessment of current stock size or fishing pressure. Consequently, there is insufficient information available to confidently classify the status of this stock.

Based on the evidence provided above, the South Australia Western Zone Fishery management unit is classified as an **undefined stock**.

Western Australia Area 2 Fishery

Catches in the Western Australia Area 2 and Area 3 Abalone Fisheries are controlled by a Total Allowable Commercial Catch (TACC), set annually in accordance with the harvest control rule defined in the Abalone Resource of Western Australia Harvest Strategy 2016–21 [DoF 2017]. The harvest control rule uses a three year moving average of standardised catch per unit effort (SCPUE) as the key Performance Indicator (PI) against specified limit, threshold and target reference levels. The threshold is a level at which additional management action should be considered to prevent decline towards the limit. The fishery is defined as depleted if the PI is below the limit reference level, which is set at two-thirds of the lowest annual SCPUE observed (threshold level) in each management area during the specified reference period of recruitment stability in the commercial fishery (2000–14).

In the Western Australia Area 2 Fishery (WAA2F) catches of Brownlip Abalone have been within 95 per cent of the annual TACC for all but five years since 2000. The annual SCPUE for Brownlip Abalone was relatively stable above the target reference level between 1999 and 2011. However, over the next four years (2012–15) this declined markedly before levelling off below the threshold but above the limit reference level (2015–2016). During the last three years the annual SCPUE has fluctuated around the threshold reference level and in 2019 the PI has approached this level. The TACC was reduced to 71 per cent of the long-term sustainable harvest level in 2015 as triggered by the PI breaching the threshold reference level. This reduced the fishing mortality and appears to have arrested the decline in the annual SCPUE and then resulted in an increase in the PI to the threshold reference level. Brownlip Abalone mean meat weight (individual animal) has been relatively constant at 230 to 250 g since 2010, however this is lower than the 270 to 280 g for abalone caught through the early to mid-2000s. A declining trend in meat weight was observed in four out of the five WAA2F sub-areas since 2004, but this trend has arrested in three of those sub-areas (2014–2015) with meat weight increasing over the last 4 years in 2 sub-areas [Hart et al. 2017].

An integrated length-based stock assessment model has been fitted to commercial catch and catch rate data, length composition data and growth of Brownlip Abalone from WAA2F and WAA3F combined [Strain et al. 2017]. The integrated model estimated the spawning biomass (relative to that for an unfished stock) was above the target reference level in 2018. The fishery has a legal minimum length of 145 mm, which allows 2–4 years of spawning to occur before recruitment to the fishery. The above evidence indicates that the biomass has declined but the stock is unlikely to be depleted, that recruitment is unlikely to be impaired, and that that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

Based on the evidence provided above, the Western Australia Area 2 Fishery management unit is classified as a **sustainable stock**.

Western Australia Area 3 Fishery

Catches in the Western Australia Area 3 Fishery (WAA3F) are managed by the same Harvest Strategy and TACC setting process as described above in the WAA2F and defined in the Abalone Resource of Western Australia Harvest Strategy 2016–21 [DoF 2017]. Brownlip Abalone catches in the WAA3F average 92 per cent of the TACC, which was the level of catch in 2019 compared with

the TACC. In the WAA3F the annual SCPUE for Brownlip Abalone fluctuated significantly above the threshold during the period 1999 to 2011. A relatively stable, increasing trend in annual SCPUE from the threshold to the target has been observed from 2012 to 2017, with substantial increases occurring in 2018 and 2019 to record high levels (above the target). Between 2012 and 2015 the TACC was reduced by 37.5 per cent and brought into line with the harvest control rule (TACC at 83 per cent of long-term commercial sustainable harvest level). These reductions in catch quota have reduced fishing mortality, with the SCPUE exhibiting a positive response and increasing to above the target reference level. Brownlip Abalone mean meat weight (individual animal) in WAA3F increased from 230 g in 2013 to 271 g in 2019, and has now reached the 270 to 280 g meat weights that prevailed through the 2000's before there was a sharp decline in weight between 2009 and 2013 [Hart et al. 2017].

An integrated length-based stock assessment model has been fitted to commercial catch and catch rate data, length composition data and growth of Brownlip Abalone from WAA2F and WAA3F combined [Strain et al. 2017]. The integrated model estimated the spawning biomass (relative to that for an unfished stock) was above the target reference level in 2018. The fishery has a legal minimum length of 150 mm, which allows 2–4 years of spawning to occur before recruitment to the fishery. The above evidence indicates that the biomass of this stock is unlikely to be depleted, that recruitment is unlikely to be impaired, and that that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

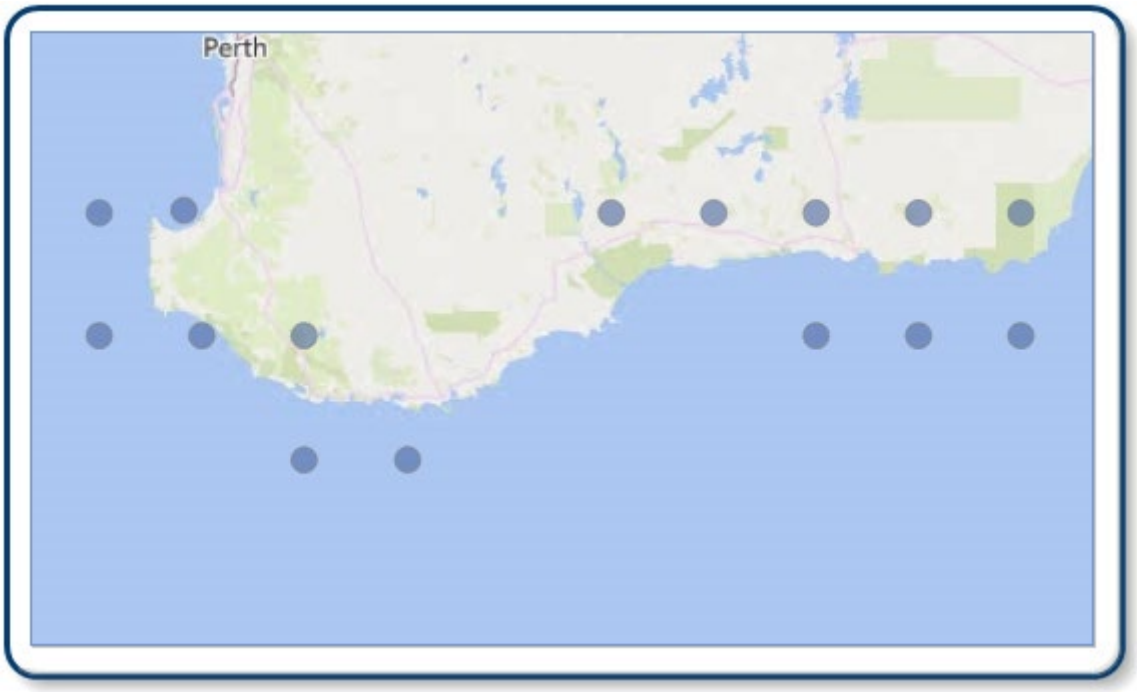
Based on the evidence provided above, the Western Australia Area 3 Fishery management unit is classified as a **sustainable stock**.

BIOLOGY

Brownlip Abalone biology [Strain et al. 2017; Strain et al. 2020]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Brownlip Abalone	20 years, 220 mm SL	3–5 years, 100–110 mm SL

DISTRIBUTION



Distribution of reported commercial catch of Brownlip Abalone

TABLES

Fishing methods		
	South Australia	Western Australia
Commercial		
Diving		✓
Unspecified	✓	
Recreational		
Diving	✓	✓

Management Methods		
	South Australia	Western Australia
Commercial		
Limited entry	✓	✓
Size limit	✓	✓
Total allowable catch	✓	✓
Recreational		
Bag limits	✓	✓
Licence		✓
Size limit	✓	✓
Temporal closures		✓

Catch		
	South Australia	Western Australia
Commercial	0 t	21.5158 t
Indigenous	Unknown	Unknown
Recreational	Unknown	8 t (combined Brownlip and Greenlip Abalone in WAA2F and WAA3F)

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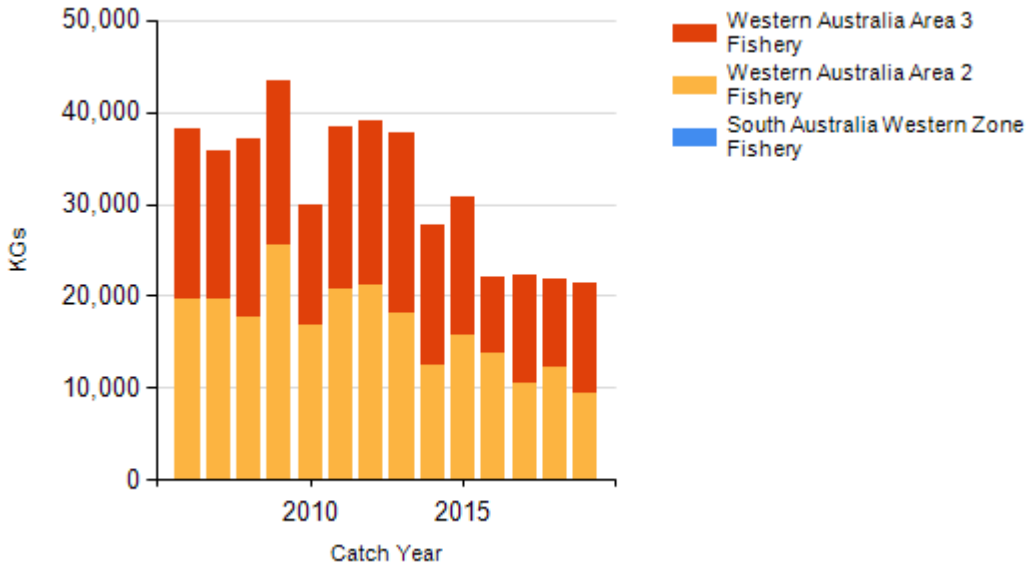
CATCH CHART



Commercial catch of Brownlip Abalone

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Hart et al. 2017	Hart, A, Strain, L, Hesp, A, Fisher, E, Webster, F, Brand-Gardner, S and Walter, S 2017, Marine Stewardship Council full assessment report Western Australian Abalone Managed Fishery. Department of Fisheries, Western Australia, Perth. 288pp.
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