Brownlip Abalone (2018)

Haliotis rubra conicopora

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STOCK STATUS OVERVIEW

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

SAWZF South Australia Western Zone Fishery (SA), AMF Abalone Managed Fishery (WA)

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

This species is rare in South Australia. In the catch returns of commercial fishers, Brownlip Abalone is not differentiated from Blacklip Abalone, which is classified as depleting. There is no reported catch of Brownlip Abalone by commercial or recreational fishers in South Australia. There is no published assessment of this species for the South Australia Western Zone Fishery

(SAWZF), 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 TACC for all but three years since 2000. The annual SCPUE for Brownlip Abalone was relatively stable above the target reference level between 1999 and 2012. However, over the next three years (2012–14) this declined markedly before levelling off below the threshold but above the limit reference level in the last two years. 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 has reduced fishing mortality and appears to have arrested the decline observed in the annual SCPUE, but there is uncertainty as to whether the reduction is sufficient to rebuild the stock as no increase in SCPUE has been observed. Brownlip Abalone mean meat weight (individual animal) has been relatively constant at 230 to 250 g (meat weight) since 2011. This is lower than the 270 to 280 g for abalone caught through the early to mid-2000's and a declining trend in meat weight has been observed in four out of the five WAA2F sub-areas since 2004. This trend has levelled off in the last few years with meat weights remaining stable, although at the lower level [Hart et al. 2017]. The effect of above-average water temperatures on the abalone stocks since 2011 needs to be assessed further.

An integrated length-based stock assessment model was 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]. This model estimated the ratio of spawning biomass to unfished levels in 2016 to be above the target reference level. The fishery has a legal minimum length of 140 mm, which allows 2–3 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, while the current level of fishing mortality is likely 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 **depleting 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 90 per cent of the TACC, however over the last three years they have been slightly lower at 87 per cent of the TACC. In the WAA3F the annual SCPUE for Brownlip Abalone fluctuated significantly above the threshold over 1999 to 2011.

Since then a relatively stable, increasing trend has been observed in annual SCPUE with the PI at the target reference level in 2017. During this time the TACC was reduced by 37.5 per cent (between 2012–15) 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 the target reference level. The Brownlip Abalone mean meat weight (individual animal) in WAA3F has increased from 230 g in 2013 to 243 g in 2017. This is still lower than the 270 to 280 g animals caught through the 2000's before there was a sharp decline in weight between 2009 and 2013 [Hart et al. 2017]. The effect of above-average water temperatures on the abalone stocks since 2011 needs to be assessed further.

An integrated length-based stock assessment model was 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]. This model estimated the ratio of spawning biomass to unfished levels in 2016 to be above the target reference level. The fishery has a legal minimum length of 140 mm, which allows 2–3 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; Wells and Mulvay 1992]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Brownlip Abalone	20 years, 220 mm SL	4–6 years, 110–130 mm SL

DISTRIBUTION

Distribution of reported commercial catch of Brownlip Abalone

TABLES

Commercial Catch Methods	South Australia	Western Australia
Diving	✓	✓

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

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

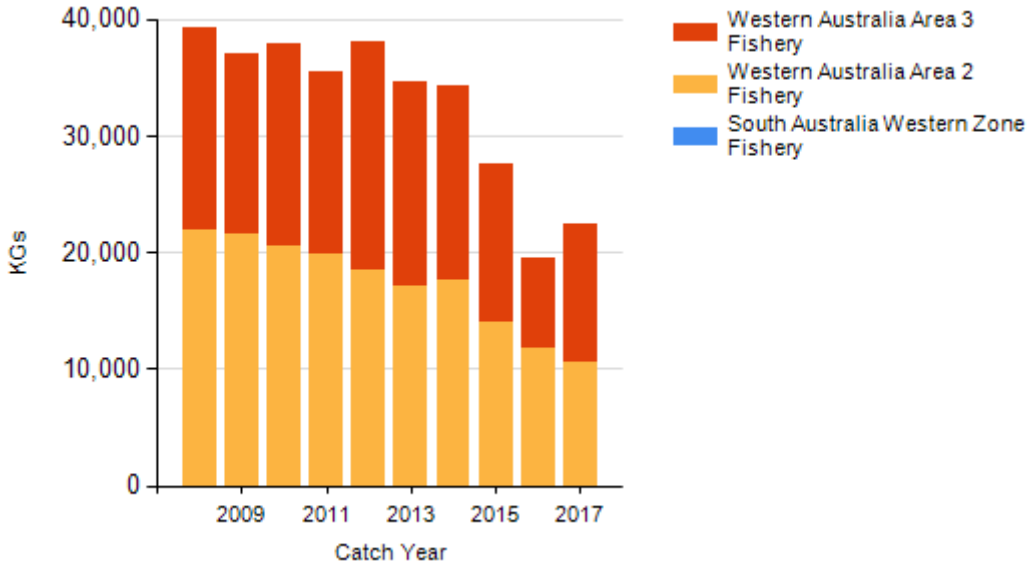
Active Vessels	
	Western Australia
	19 in AMF,

AMF Abalone Managed Fishery(WA)

Catch		
	South Australia	Western Australia
Commercial		22.4198t in AMF,
Indigenous	Unknown	Unknown
Recreational	Unknown	Unknown

SAWZF South Australia Western Zone Fishery (SA), AMF Abalone Managed Fishery (WA),

CATCH CHART



Commercial catch of Brownlip Abalone - note confidential catch not shown.

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

ENVIRONMENTAL EFFECTS on Brownlip Abalone

References	
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