

# Greenlip Abalone (2023)

*Haliotis laevis*



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## STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Western Australia	Western Australia Area 2 Fishery	Recovering	Catch, CPUE, length-frequency data
Western Australia	Western Australia Area 3 Fishery	Depleted	Catch, CPUE, length-frequency data, fishery-independent surveys
Victoria	Victoria Central Zone Fishery	Undefined	
Victoria	Victoria Western Zone Fishery	Undefined	
Tasmania	Tasmania Greenlip Abalone Fishery	Sustainable	CPUE
South Australia	South Australia Central Zone Fishery	Sustainable	CPUE, fishery-independent surveys

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South Australia	South Australia Southern Zone Fishery	Undefined	
South Australia	South Australia Western Zone Fishery	Sustainable	CPUE, fishery-independent surveys

**STOCK STRUCTURE**

Greenlip Abalone is distributed across southern mainland Australia and northern Tasmania. The biological stock structure of Greenlip Abalone has recently been examined [Mayfield et al. 2014, Miller et al. 2014]. Genetic evidence has confirmed that Greenlip Abalone comprise numerous independent biological stocks, but at a spatially broader scale than the biological stock structure evident for Blacklip Abalone [Miller et al. 2009, Mayfield et al. 2014, Miller et al. 2014]. There are many biological stocks across Western Australia, Tasmania, Victoria and South Australia. Given the large number of biological stocks, it is not practical to assess each separately, and they are neither fished nor managed at that separate biological stock level.

Here, assessment of stock status is presented at the management unit level—South Australia Central Zone Fishery, South Australia Southern Zone Fishery and South Australia Western Zone Fishery (South Australia); Tasmania Greenlip Abalone Fishery (Tasmania); Victoria Central Zone Fishery, Victoria Western Zone Fishery (Victoria), Western Australia Area 2 Fishery, Western Australia Area 3 Fishery (Western Australia).

**STOCK STATUS**

**South Australia Central Zone Fishery**

The most recent assessment report for the South Australia Central Zone Fishery (SACZF) was completed in 2023 and reported to the end of the 2022 fishing season (calendar year) [Burnell 2023]. The primary measures for biomass and fishing mortality are catch-per-unit-effort (CPUE) and fishery-independent survey (FIS) of legal-sized density [PIRSA 2021]. There were several key limitations to this assessment, including (1) the use of CPUE as a key index of legal-sized abalone abundance and (2) the absence of FIS for most spatial assessment units (SAUs). A key assumption for CPUE is that it represents relative abundance of the fishable stock and that it can detect changes in relative abundance of the stock (Tarbath et al. 2005). However, CPUE can be influenced by numerous factors unrelated to abalone abundance (Stobart et al. 2017), is often hyperstable and commonly viewed as a (upwardly) biased index of relative abundance (Stobart et al. 2017). Except for Tiparra Reef, the FIS are available for a relatively short time period and cover spatially discreet areas. Collectively, these increase the uncertainty of the assessment.

The South Australian HS assesses the fishery performance against target reference points for two equally weighted performance measures (PM), CPUE and legal density (where available) of abalone from fishery independent surveys. A scoring function is applied to these PM's based on agreed reference periods described in the management plan, with scoring based on limit (score 0) and target (score 5) reference points within a score range of 0 - 10 (PIRSA 2021). Performance is scored at a spatial assessment unit (SAU) scale designed to represent "approximate biological populations", the SAU scores are catch

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weighted and aggregated to provide a zone score that forms the basis for setting total allowable catch for the following year. The zone score also enables determination of stock status that is based on trigger reference points for biomass (zone score used as a proxy) and fishing mortality (zone score trend used as a proxy).

The total commercial catch for Greenlip Abalone in the SACZF declined from 46 to 23 tonnes (t) (meat weight) between 2019 and 2022, a reduction of more than 50% from the average catch of 47 t over the preceding three decades. This recent decline was a result of voluntary under catch by industry associated with concern for Greenlip Abalone stocks and subsequent total allowable commercial catch (TACC) reductions [Burnell and Mayfield 2023, Burnell 2023].

The CPUE for Greenlip Abalone in the SACZF remained relatively stable between 1985 and 1999 (averaging 21 kg per hour) and then increased rapidly, reaching a peak of 31 kg per hour in 2001, associated with a large increase in abundance at one of the key fishing grounds, Tiparra Reef. From 2005, CPUE decreased steadily reaching a low of 19 kg per hour in 2021. In 2022, CPUE increased to 20 kg per hour, but remains among the lowest values observed since the late 1990s. Despite this current low in CPUE, 5 of the 6 SAUs in 2022 had a CPUE score between 3.9 and 5 in the HS, indicating estimates are within, or slightly below, target ranges [PIRSA 2021]. Similarly, the most recent estimates of legal-sized density from the fishery-independent surveys in the two key SAUs (Tiparra Reef and West Yorke Peninsula) had scores of 5.0 and 4.6 in the HS, respectively, indicating Greenlip Abalone density was within, or slightly below, target ranges. The sub-legal-sized density of Greenlip Abalone in 2021 at a key fishing ground - Tiparra Reef - remained below all estimates recorded in the 1990s and 2000s, but had increased by 60% from the lowest value recorded in 2015.

Application of the harvest strategy [PIRSA 2021] resulted in a zone score of 4.5 that, in combination with the zone trend score of 5.0 (reflecting a stable trend), define the stock status for Greenlip Abalone in the CZ in 2022 as 'sustainable'. The status is sustainable because the zone score (i.e. biomass proxy) is above the limit reference point of a score of 1, and the zone trend score (i.e. fishing mortality proxy) is above the limit reference point of <5, indicating fishing mortality is adequately controlled. This is a change in the stock status classification of depleting from 2019 to 2021. Notably, (1) catch has also been reduced by 50% over the past three years, largely as an industry response to concerns over stock levels; and (2) the CZAF assessment, that includes a review of stock status, will be updated in late 2024 using data to 31/12/23.

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

On the basis of the evidence provided above, the South Australia Central Zone Fishery management unit is classified as a **sustainable** stock.

**South  
Australia  
Southern  
Zone  
Fishery**

The most recent assessment report for the South Australia Southern Zone Fishery (SASZF) was completed in 2023 and reported on year-to-date data (October to April) for the 2022–23 season [Burnell and Hogg 2023]. The season in this fishery currently extends from 1 October to 30 September of the following year. Greenlip Abalone is typically harvested as a bycatch, although there is a separate total allowable commercial catch (TACC). The maximum catch of

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Greenlip Abalone in the SASZF was 19 t (whole weight) in 1968–69, but recent Greenlip Abalone catches have generally been small, being less than 5 t per season from 2013–14, with the current TACC set at 1.8 t. This reflects the low density and patchy distribution of Greenlip Abalone in the SASZF. There are inadequate data available to estimate biomass or exploitation rates. In addition, there is no knowledge of recruitment, and there are no defined target or limit reference levels in the harvest strategy [PIRSA 2021]. This prevents assessment of current stock size or fishing pressure. Consequently, there is insufficient information available to confidently classify the status of this stock.

On the basis of the evidence provided above, the South Australia Southern Zone Fishery management unit is classified as an **undefined stock**.

**South  
Australia  
Western  
Zone  
Fishery**

The most recent assessment report for the South Australia Western Zone Fishery (SAWZF) was completed in 2023 and reported to the end of June 2023 [Stobart 2023]. The primary measures for biomass and fishing mortality are CPUE and fishery-independent surveys of legal-sized density by financial year [PIRSA 2021], with all reported metrics transitioning to financial year from 2021 onwards to align with the harvest strategy [Stobart et al. 2021].

The South Australian harvest strategy assesses the fishery performance against target reference points for two equally weighted performance measures (PM), CPUE and legal density (where available) of abalone from fishery independent surveys. A scoring function is applied to these PM's based on agreed reference periods described in the management plan, with scoring based on limit (score 0) and target (score 5) reference points within a score range of 0 - 10 (PIRSA 2021). Performance is scored at a spatial assessment unit (SAU) scale designed to represent "approximate biological populations", the SAU scores are catch weighted and aggregated to provide a zone score that forms the basis for setting total allowable catch for the following year. The zone score also enables determination of stock status that is based on trigger reference points for biomass (zone score used as a proxy) and fishing mortality (zone score trend used as a proxy).

The total commercial catch for Greenlip Abalone in the SAWZF has declined by 48% from the stable catch over the decade ending 2009 (which averaged 81 t) to the 2023 catch (42.5 t) meat weight. This decline in catch was the combined effect of reductions, the removal of one licence during the elimination of displaced catch/effort as part of the implementation of state marine parks and voluntary reductions in catch by the commercial sector in 2015, 2016 and 2019 [Stobart et al. 2019, 2023].

The CPUE for Greenlip Abalone in the SAWZF remained relatively stable between 1980 and 1990 and then increased rapidly, reaching a peak of 30 kg per hour in 2005. From 2005, CPUE decreased substantially to 20 kg per hour in 2014. The CPUE then increased to 22 kg per hour in 2016, attributed to a combination of changing spatial and temporal fishing patterns and an increase in stock abundance [Stobart and Mayfield 2016]. However, this increase was not sustained, with CPUE again decreasing between 2015 and 2019 to 19.6 kg per hour, the fifth lowest value on record [Stobart et al. 2023]. The decline observed for the SAWFZ was widespread across fishing grounds and resulted in values that were amongst the lowest on record at the three most important Spatial Assessment Units (SAUs)—Anxious Bay, The Gap and Avoid Bay—from which 23 % of the Greenlip Abalone catch was obtained in 2019. Of the remaining Spatial

Assessment Units (SAUs), most had relatively low values in 2019. Those declines occurred despite the change from fishing primarily in summer, when fish of a given shell length weigh least, to autumn when they weigh more [Stobart et al. 2013]. Subsequently, CPUE has increased steadily from 2019 to 24 kg per hour in 2023, including the largest inter-annual increase in CPUE in the history of the SAWZF fishery occurring between 2022 and 2023. However, in contrast to these recent increases in CPUE, in 2022, legal density from fishery-independent surveys was relatively low at The Gap and the lowest value on record at Anxious Bay and Avoid Bay, as also was sub-legal-sized density.

Application of the harvest strategy [PIRSA 2021] resulted in a zone score of 4.9 that, in combination with the zone trend score of 7.3 (reflecting an increasing trend), define the stock status for Greenlip Abalone in the WZ in the 2022–23 financial year as 'sustainable'. The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired. Furthermore, the above evidence indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

On the basis of the evidence provided above, the South Australia Western Zone Fishery management unit is classified as a **sustainable stock**.

### Tasmania Greenlip Abalone Fishery

The Tasmanian abalone fishery has been quota-managed with an annual total allowable commercial catch (TACC) since 1985. Commencing in 2000, separate TACCs for Greenlip Abalone and Blacklip Abalone were implemented, with separate catch limits applied to 4 regions within the Greenlip Abalone zone. Size limits vary with a legal minimum length (LML) of 132 mm, 145 mm or 150 mm depending on growth rates, size at maturity and maximum size of populations in different regions. An annual fishery assessment is conducted using fishery-dependent catch per unit effort (CPUE) data, and until 2014 the TACC was determined by a weight-of-evidence approach using trends in CPUE and industry perceptions on the state of the resource. In the 2012 and 2014 Status of Australian Fish Stocks editions, this fishery was classified as undefined due to the complexities of reporting and apportioning of effort to Greenlip Abalone, and hence understanding CPUE in this mixed species fishery. The fishery-dependent data time series has since been reviewed and revised and a formal process for assigning effort in mixed-species fishing events established [Mundy and McAllister 2020], enabling the development of separate CPUE indices for Greenlip and Blacklip Abalone.

In 2014–15, an empirical harvest strategy was developed [Mundy and McAllister 2020] and tested by Management Strategy Evaluation (MSE) [Haddon et al. 2014, Buxton et al. 2015, Haddon and Mundy 2016]. This harvest strategy was applied in the 2017 annual fishery assessment [Mundy and McAllister 2018]. The harvest strategy assesses fishery performance against target reference points for 3 performance measures (PM) derived from standardised CPUE (SCPUE) data: 1) current CPUE relative to an agreed target (55<sup>th</sup> percentile of the annual standardised mean CPUE within the reference period); 2) the 4-year gradient of CPUE (target gradient is zero); and 3) the % change in SCPUE in the past year (target change is zero). The reference period for the 2017 assessment spans fishery data between 1992 and 2017. A scoring function is applied to the 3 PMs, resulting in a score between zero and 10, where 5 is the target score and zero and 10 are the zone-wide lowest and highest values for that PM within the reference period. Weightings are applied to the three PMs 0.65:0.25:0.1 to provide a combined final score used in the Control Rule. The HS is applied individually to each statistical reporting block, and a zone score is obtained from the mean block score weighted by block catch.

The zone target CPUE PM score is used as a proxy for biomass and the zone gradient CPUE PM score is used as a proxy for fishing mortality,  $F$ . A target CPUE score of one is the limit reference point (LRP) defining the boundary between recruitment overfished and depleting for all Tasmanian management units. This LRP is typically 5% above the lowest SCPUE observed within the zone during the reference period. A negative zone gradient score gives evidence that fishing mortality is increasing and the magnitude of the gradient provides some information on the magnitude of  $F$ . The gradient 4PM score ranges from negative 5 to positive 5, where the target reference point is zero and defines the boundary between sustainable and depleting classifications, but also between the classifications of recovering and depleted. The combination of a negative CPUE gradient and near record low CPUE score represents a cautious proxy for the true depleted reference point. No reporting blocks have become depleted under this harvest strategy within the reference period (1992–2018), providing confidence that maintaining stocks above the LRP will prevent stock depletion, as predicted by MSE testing of the HS [Haddon and Mundy 2016].

The TACC for the Tasmania Greenlip Abalone Fishery has been stable at around 140 t since 2000, with only minor variation in the proportion of the TACC harvested annually from each of the four regions (King Island, North West, North East and Furneaux). The Greenlip TACC was reduced in 2018, 2019 and 2020, but increased in 2022 with a total catch set at 91.0 t in 2022. Catch-weighted mean standardised CPUE (SCPUE<sub>ew</sub>) declined slowly from 2010 to 2018, and then increased from 2019 to 2022 [McAllister and Mundy 2023]. The zone-wide catch-weighted block mean SCPUE<sub>ew</sub> increased from 50.6 kg per hour in 2019 to 61.5 kg per hour in 2022. The zone-wide proxy for abundance has increased from 3.6 in 2017, to 6.4 in 2022 and remains above the LRP. The zone-wide proxy for  $F$  in 2022 was 2.9, and above the TRP. The above evidence indicates that biomass is unlikely to be depleted and that recruitment is unlikely to be impaired. The above evidence indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

On the basis of the evidence provided above, the Tasmania Greenlip Abalone Fishery management unit is classified as a **sustainable** stock.

### Victoria Central Zone Fishery

Greenlip Abalone comprises a small (1%) component of the total commercial abalone catch in the Victoria Central Zone Fishery (VCZF) management unit. The total allowable commercial catch (TACC) has remained at 3.4 t since 2009 with catches typically slightly below the TACC, averaging 3 t since 2008 [Dixon et al. 2023]. While recent catches are lower than historical catch estimates (up to 100 t per year in the 1960s–70s), it is likely that some fishers choose not to take or trade their catch allocation, in part because fishing for Greenlip Abalone in the Victoria Central Zone Fishery management unit is less profitable than fishing for Blacklip Abalone, which accounts for most of the total catch. The low current catch and very high legal minimum lengths of 145 mm and 150 mm west and east of Point Nepean, respectively, limit the impact of fishing on the stock and ensure that a large proportion of Greenlip Abalone are protected from fishing for a number of years after they have attained maturity.

The low catches and resulting limited data on Greenlip Abalone in the mixed species VCZF management unit makes catch per unit effort (CPUE) unreliable for this species, and prevents direct (or by proxy) assessment of current stock size or fishing pressure. In addition, there is little information about recruitment, no fishery-independent information during the past decade and the Victorian Wild Harvest Abalone Fishery Management Plan [Department of Economic

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Development, Jobs, Transport and Resources 2014] does not identify a performance indicator or a reference point below which the fishery would be defined as being depleting or depleted. Consequently, there is insufficient information available to confidently classify the status of this stock.

Based on the evidence provided above, the Victoria Central Zone Fishery management unit is classified as an

**undefined** stock.

**Victoria  
Western  
Zone  
Fishery**

Greenlip Abalone comprises a small (generally less than 2%) component of the total commercial abalone catch in the Victoria Western Zone Fishery (VWZF) management unit, with 1.6 t landed in 2021/22 [WADA, 2023]. The total allowable commercial catch (TACC) is currently 1.8 t. This TACC is low relative to previous years when Greenlip Abalone TACCs were increased to compensate for reduced Blacklip Abalone catches due to the occurrence of abalone viral ganglioneuritis (AVG) and in response to a population survey of Greenlip Abalone on Minerva and Hospital reefs [Prince 2008]. Increased catches under the increased TACC were not sustained, and the TACC was set at zero from 2014 [Victorian Government 2013] before increasing to around, or below, 2 t. Since then, catches have been 0.5–2 t and have predominantly come from further offshore on Julia Bank, away from the areas that supported the higher catch in the past. This shift offshore has seen catch per unit effort (CPUE) and sizes increase [WADA 2023], likely because this facilitated access to historically unfished, or lightly fished, stocks.

Greenlip Abalone catch rates have varied considerably from around 30 to greater than 60 kg/hr annually [WADA, 2023]. However, recent low catches and resulting limited data on Greenlip Abalone in the Victoria Western Zone Fishery management unit makes CPUE difficult to interpret, particularly because there have been large shifts in areas fished and LML [WADA, 2023]. In addition, there is little information about recruitment, no fishery-independent information during the past decade and the Victorian Wild Harvest Abalone Fishery Management Plan [Department of Economic Development, Jobs, Transport and Resources 2014] does not identify a performance indicator or a reference point below which the fishery would be defined as depleting or depleted. Consequently, there is insufficient information available to confidently classify the status of this stock.

Based on the evidence provided above, the Victoria Western Zone Fishery management unit is classified as an

**undefined** stock.

**Western  
Australia  
Area 2  
Fishery**

Greenlip Abalone catches in the Western Australia Area 2 and Area 3 Fisheries are controlled by a total allowable commercial catch (TACC), set annually in accordance with a harvest control rule defined in the Abalone Resource of Western Australia Harvest Strategy 2021–26 [DPIRD 2023]. The harvest control rule uses the annual standardised catch per unit effort (SCPUE) as the key performance indicator (PI) against specified limit, threshold and target reference levels. The reference levels for the Western Australia Area 2 and Area 3 Fisheries have recently been updated based on estimates of biomass relative to the levels associated with Maximum Sustainable Yield (MSY), i.e., BMSY. The target, threshold and limit reference levels in each management area are now equivalent to the SCPUE corresponding to the estimated biomass at 1.2BMSY,

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BMSY and 0.5BMSY, respectively [DPIRD 2023]. The Western Australia Area 2 Fishery (WAA2F) is defined as depleted if the PI is below the limit reference level.

In the WAA2F, the catch of Greenlip Abalone for the 2022 season was 16 t (99% of TACC). Between 2014 and 2020 the annual catches declined by 60 t due to reductions in TACC, however the TACC and catch has remained constant for the last 2 seasons. The annual SCPUE for Greenlip Abalone oscillated between the threshold and limit reference levels from 1992 to 2014, with a declining trend from 2010 to below the limit reference level in 2015. This decline in SCPUE arrested between 2015 and 2020 (below limit reference level), and the SCPUE has increased over the last two seasons to above the limit reference level in 2021 and 2022. The arrested decline and subsequent increase in SCPUE indicates the stock has responded to the reductions in catch between 2014 and 2020. Sub-area analysis of raw catch rate, average meat weight per individual and length-frequency distributions from commercial catch sampling are consistent with the decline in the SCPUE trend from 2010 to 2015 [Hart et al. 2013, Hart et al. 2017]. Recent (post-2015) SCPUE stabilisation and increase is consistent with trends in nominal catch rates for WAA2F and all five sub-areas. There has also been evidence of an increase in meat weight of individual animals over the last seven seasons, but to varying degrees across the sub-areas.

The fishery has a legal minimum length of 145 mm, which allows 2–5 years of spawning to occur before recruitment to the fishery. Above-average water temperatures since 2011 (extreme marine heatwave in the 2010–11 summer) are likely to have had negative effects on abalone growth or recruitment, but evidence for this type of impact needs to be assessed further.

The above evidence indicates that the biomass of this stock is recovering from a period of being depleted where recruitment was likely to be impaired. For the period 2010–2015 the biomass declined, and between 2015 and 2020 the stock was considered to be recruitment impaired. Under the Harvest Strategy, management action was implemented in the WAA2F to bring the TACC in line with the harvest control rule. This resulted in the TACC being reduced over the 2015 to 2020 period to 20 per cent of long-term, commercial sustainable harvest level (16 t whole weight) [DPIRD 2023]. The reductions in TACC have reduced the fishing mortality and based on the increases in SCPUE and meat weight in recent seasons it suggests that the WAA2F is recovering. The above evidence indicates that the biomass of this stock was likely to be depleted and that recruitment was likely to be impaired. However, for the period 2019 to 2023 these indicators suggest a recovering stock and the current level of fishing mortality should allow the stock to continue to recover from previous recruitment impaired state.

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

**Western  
Australia  
Area 3  
Fishery**

Greenlip Abalone catches in the Western Australia Area 3 Fishery (WAA3F) are managed by the same total allowable commercial catch (TACC) setting process as described above for the Western Australia Area 2 Abalone Fishery, and defined in the Abalone Resource of Western Australia Harvest Strategy 2021–26 [DPIRD 2023].

In the WAA3F, the catch of Greenlip Abalone for the 2022 season was 10.7 t (100% of TACC). Between 2013 and 2019 the annual catches declined by 82 t due to reductions in TACC, however the TACC and catch has remained constant



for the last 2 seasons. The annual standardised catch per unit effort (SCPUE) for Greenlip Abalone exhibited a declining trend from above the threshold reference level in 2000, towards the limit in 2005. A steady increase in annual SCPUE then occurred until 2010, whereafter it declined until 2018 and went below the limit reference level from 2015. The reference levels were updated in 2021 as part of the Harvest Strategy review and based on estimates of biomass relative to the levels associated with Maximum Sustainable Yield (MSY), i.e., BMSY. [DPIRD 2023]. In 2019, the major component of WAA3F (the Augusta sub-area provides 54% of annual commercial catch in WAA3F) was closed to commercial fishing and the TACC (remaining open areas) reduced to 11.8% of the long-term, commercial sustainable harvest level (10.7 t whole weight). The SCPUE increased over the next two seasons to the limit reference level but declined slightly in 2021. However, this only represents the open regions of WAA3F.

Analysis of raw catch rate, average meat weight per individual and length-frequency distributions from commercial catch sampling support evidence of the declining trend in SCPUE between 2010 and 2018 [Hart et al. 2013, Hart et al. 2017]. However, steady raw catch rates and increases in meat weight per individual have occurred over the last four to five seasons. Fishery-independent surveys in the Augusta sub-area indicate the total density of Greenlip Abalone has been at low levels for the last eight years. Densities of juvenile animals (4–8 cm shell length) increased in 2018 after four years of record low values (2014 to 2017) but have declined slightly since 2018 [Hart et al. 2017]. The fishery has a legal minimum length of 150 mm which allows 3–6 years of spawning to occur before recruitment to the fishery. Above-average water temperatures since 2011 (extreme marine heatwave in the 2010–11 summer) are likely to have had negative effects on abalone growth or recruitment, but evidence for this type of impact needs to be assessed further.

Under the previous Harvest Strategy [Department of Fisheries 2017], management action was implemented in the WAA3F to bring the TACC in line with the harvest control rule in 2017. However, since 2017, the TACC has been reduced further, until in 2019 a reduction of quota by 50% was achieved through the closure of the Augusta sub-area to commercial fishing for Greenlip Abalone. The 2019 TACC reduction to 11.8% of the long-term sustainable harvest level (10.7 t whole weight) was predicated on; (1) the SCPUE being below the limit reference level; (2) the Harvest Control Rule outcome; (3) additional stock indicators exhibiting a declining trend; (4) Augusta sub-area SCPUE continued decline; and (5) fishery-independent surveys in the Augusta sub-area indicating that total, juvenile and legal-sized density are all at, or near, historical low levels. The TACC has remained at this level for the last four seasons (Augusta sub-area closed) and while the SCPUE has increased it was not above the limit reference level in 2022.

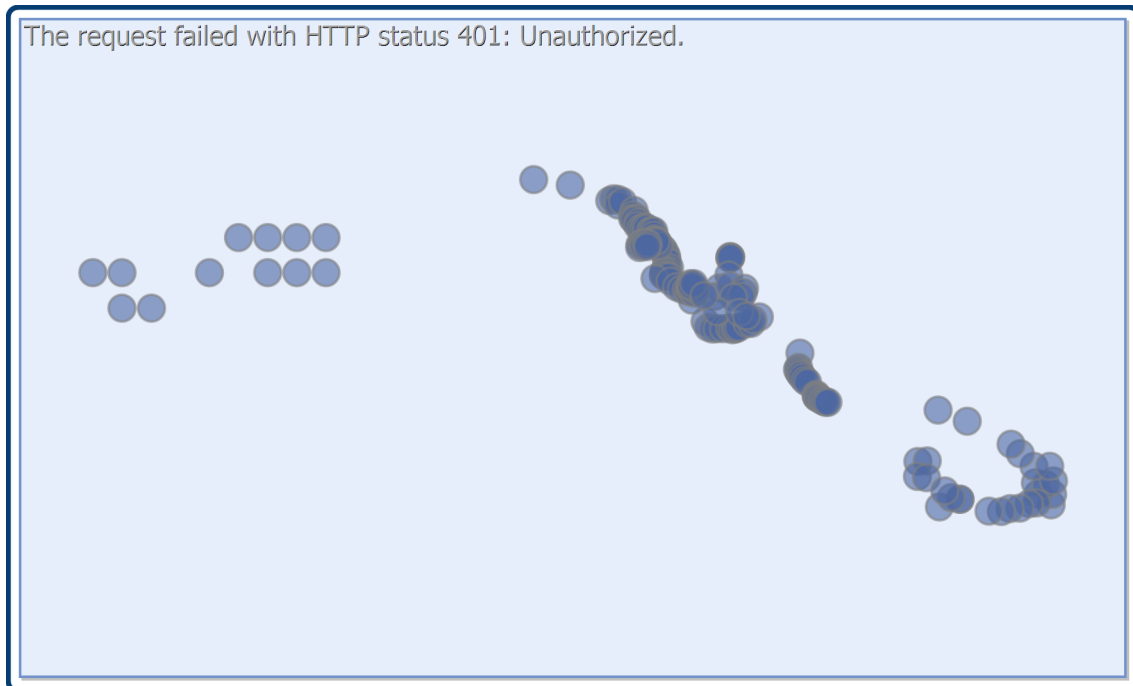
The above evidence indicates that the biomass of this stock is likely to be depleted and that recruitment is likely impaired. Current fishing mortality is constrained by management to a level that should allow the stock to recover from its recruitment impaired state; however measurable improvements are yet to be detected.

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

**Greenlip Abalone biology** [Burnell et al. 2016, Haddon and Mundy 2016, Hart et al. 2017]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Greenlip Abalone	20 years, 200 mm SL	3–5 years, 70–120 mm SL

## DISTRIBUTION



Distribution of reported commercial catch of Greenlip Abalone

## TABLES

Fishing methods	South Australia	Tasmania	Victoria	Western Australia
<b>Commercial</b>				
Diving	✓	✓	✓	✓
<b>Recreational</b>				
Diving	✓	✓	✓	✓

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Management Methods				
	South Australia	Tasmania	Victoria	Western Australia
<b>Charter</b>				
Bag limits			✓	
Gear restrictions			✓	
Licence			✓	
Size limit			✓	
Spatial closures			✓	
Temporal closures			✓	
<b>Commercial</b>				
Gear restrictions	✓		✓	
Licence	✓			
Limited entry	✓	✓	✓	✓
Seasonal closures	✓			
Size limit		✓	✓	✓
Size limits	✓			
Spatial closures			✓	✓
Total allowable catch	✓	✓	✓	✓
<b>Recreational</b>				
Bag limits	✓	✓	✓	✓
Gear restrictions			✓	
Licence			✓	✓
Size limit	✓	✓	✓	✓
Spatial closures			✓	
Temporal closures			✓	✓

Catch				
	South Australia	Tasmania	Victoria	Western Australia
<b>Commercial</b>	212.099 t	91 t	4.6 t	27.4054 t

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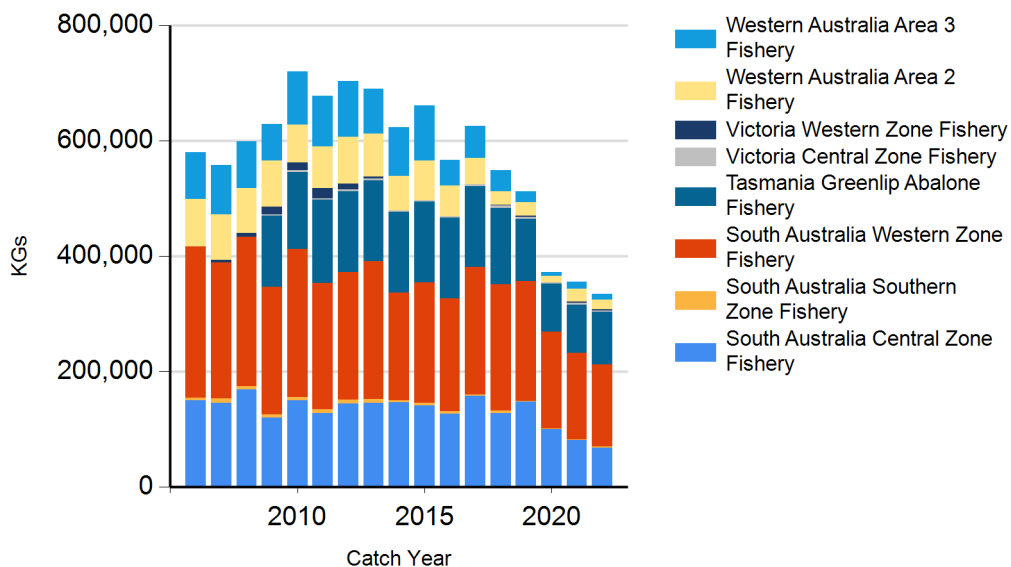
<b>Indigenous</b>	Unknown	Unknown	Unknown	Unknown
<b>Recreational</b>	Unknown	2.2 t	Unknown	10.7 t

**Victoria – Indigenous (Management Methods)** A person who identifies as Aboriginal or Torres Strait Islander is exempt from the need to obtain a Victorian recreational fishing licence, provided they comply with all other rules that apply to recreational fishers, including rules on equipment, catch limits, size limits and restricted areas. Traditional (non-commercial) fishing activities that are carried out by members of a traditional owner group entity under an agreement pursuant to Victoria’s *Traditional Owner Settlement Act 2010* are also exempt from the need to hold a recreational fishing licence, subject to any conditions outlined in the agreement. Native title holders are also exempt from the need to obtain a recreational fishing licence under the provisions of the Commonwealth’s *Native Title Act 1993*.

**Commonwealth – Indigenous (Management Methods)** Subject to the defence that applies under Section 211 of the *Native Title Act 1993* (Cth), and the exemption from a requirement to hold a recreational fishing licence, the non-commercial take by Indigenous fishers is covered by the same arrangements as that for recreational fishing.

**Western Australia - Recreational (Catch Volume)** [Smallwood et al. 2023]

**CATCH CHART**



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

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