

# Southern Rock Lobster (2023)

*Jasus edwardsii*



**Adrian Linnane:** South Australian Research and Development Institute, **Richard McGarvey:** South Australian Research and Development Institute, **Caleb Gardner:** Institute for Marine and Antarctic Studies, University of Tasmania, **Klaas Hartmann:** Institute for Marine and Antarctic Studies, University of Tasmania, **Victorian Fisheries Authority:** Victorian Fisheries Authority, **Simon De Lestang:** Department of Primary Industries and Regional Development, Western Australia

## STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Western Australia, Victoria, Tasmania, South Australia	Southern Australia	Sustainable	Percentage of egg production relative to unfished level

## STOCK STRUCTURE

Southern Rock Lobster is considered to be a single biological stock across southern Australia because the species occurs in a continuous distribution across this range and has extensive and protracted pelagic larval dispersal phase. The pelagic phyllosoma larval phase lasts around 12–18 months [Bruce et al. 2007]. Larval release occurs across the southern continental shelf, which is a high-current area, facilitating dispersal. Oceanographic modelling has also indicated that Southern Rock Lobster dispersal occurs over large spatial scales, indicating that there is a single biological stock [Bruce et al. 2007]. Genetic analyses also indicate that it is a single stock [Ovenden et al. 1992].

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

## STOCK STATUS

**Southern Australia** The most recent stock assessment reports [IMAS 2023; Linnane et al. 2023a, b; VFA 2023] are used to inform the assessment of stock status and use data up to the end of the 2021–22 fishing season. The same stock assessment model is used to analyse catch, effort, and size structure data for separate areas across South Australia, Victoria, and Tasmania [Punt and Kennedy 1997]. These spatial divisions are incorporated so that the assessment can take account of regional

STATUS OF AUSTRALIAN FISH STOCKS REPORT  
Southern Rock Lobster (2023)

differences in growth, catchability, recruitment, and other parameters. This modelling provides estimates of biomass and the closely related measure of egg production, which is used as the primary indicator of stock status. Egg production is the main indicator because it provides a direct measure of whether there is sufficient reproductive output to avoid risk of recruitment impairment. A limit reference point for egg production is applied which is 20% of the unfished level for the combined stock.

The combined outputs of the most recent assessments for each jurisdiction estimate that egg production in 2021–22 was 25% of the unfished level. The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

While the Southern Rock Lobster stock currently has egg production above the limit reference point of 20% of unfished levels, there are aspects of the stock that are of concern and conservative management action to rebuild stocks is required as indicated by: (i) the estimated level of egg production being close to the limit reference point (ii) larval dispersal modelling indicating that some areas are of greater importance for larval supply (source-sink dynamics) [Bruce et al. 2007], however, the identity of these areas remains poorly understood and therefore precautionary management should maintain high levels of egg production across the stock; (iii) levels of egg production in some areas of the stock are low, specifically the Northern and Southern Zones of South Australia (< 15%) [Linnane et al. 2023a, b] and north western Tasmania (< 21%) [IMAS 2023] and (iv) reduced catch and catch rates in Western Australia and the eastern zone of Victoria. These factors reflect a productivity regime shift that has been identified across Southern Rock Lobster fisheries in the late 1990s and early to mid-2000s period (Linnane et al. 2019). Consequently, fishing mortality is reviewed annually in each jurisdiction, with adjustments made to catch levels in response to stock trends. The Western Australian fishery for Southern Rock Lobster changed its management from input to output controls (TAC) in 2022. The fishery occurs at the extreme of the range and the catch is minor at between 20 and 80 tonnes (t). Catch is mainly from South Australia, Victoria and Tasmania with fishing mortality regulated in each of these jurisdictions by total allowable catches (TAC). The commercial component of the TAC is managed by individual transferable quota systems with all catch recorded at the point of unloading. Recreational catch is substantially lower than commercial catch in each jurisdiction but is considered and incorporated in the process for regulating total catch in each state. The quantum of recreational catch is estimated using surveys (Beckmann et al. 2023) and tagging data in Victoria (VFA 2020). Recreational catch and therefore fishing mortality, is mainly regulated using daily bag limit and season closures.

Total allowable commercial catches were implemented in 2022 at low levels in Western Australia and have been reduced across south-eastern Australia over the past decade to reduce fishing mortality so that biomass and catch rates in most areas are now increasing, having reached multi-decadal highs in many areas. The Victorian Eastern Zone fishery remains the main exception with catch rates and biomass having shown no sign of recovery despite significant catch reductions. However, this is a small component of the overall fishery located at the end of the commercial Southern Rock Lobster range. The fishery has experienced overseas market issues over the last two to three fishing seasons, but reduced catch levels have been accounted for in fishery stock assessments.

The above evidence indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

STATUS OF AUSTRALIAN FISH STOCKS REPORT  
Southern Rock Lobster (2023)

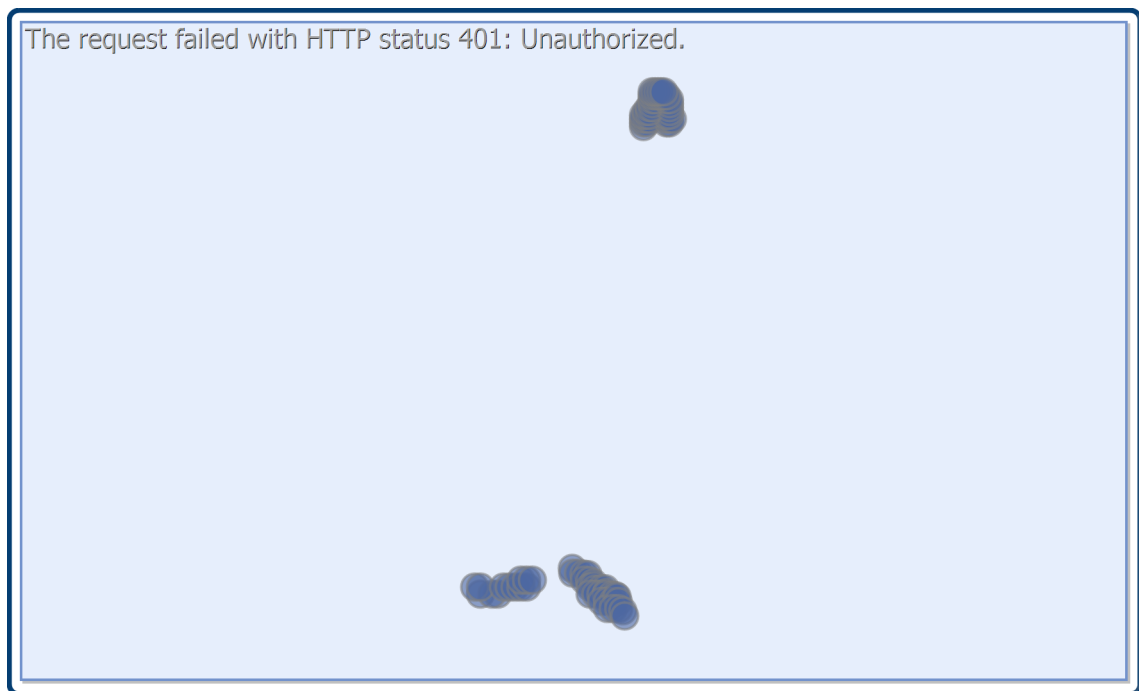
On the basis of the evidence provided above, the Southern Australia Southern Rock Lobster biological stock is classified as a **sustainable stock**.

**BIOLOGY**

**Southern Rock Lobster biology** [Hobday and Ryan 1997; Gardner et al. 2006; Linnane et al. 2008]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Southern Rock Lobster	20+ years, > 200 mm CL	59–122 mm C L, depending on region

**DISTRIBUTION**



Distribution of reported commercial catch of Southern Rock Lobster.

**TABLES**

Fishing methods	South Australia	Tasmania	Victoria	Western Australia
<b>Charter</b>				
Traps and Pots				✓
<b>Commercial</b>				
Octopus Traps And Pots				✓

STATUS OF AUSTRALIAN FISH STOCKS REPORT  
Southern Rock Lobster (2023)

Pots and Traps		✓		
Rock Lobster And Crayfish Traps And Pots	✓			
Traps and Pots			✓	✓
<b>Recreational</b>				
Coastal, Estuary and River Set Nets	✓	✓		
Diving	✓	✓	✓	✓
Hoop Net	✓		✓	
Rock Lobster And Crayfish Traps And Pots	✓	✓		✓
Traps and Pots			✓	
Unspecified				✓

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

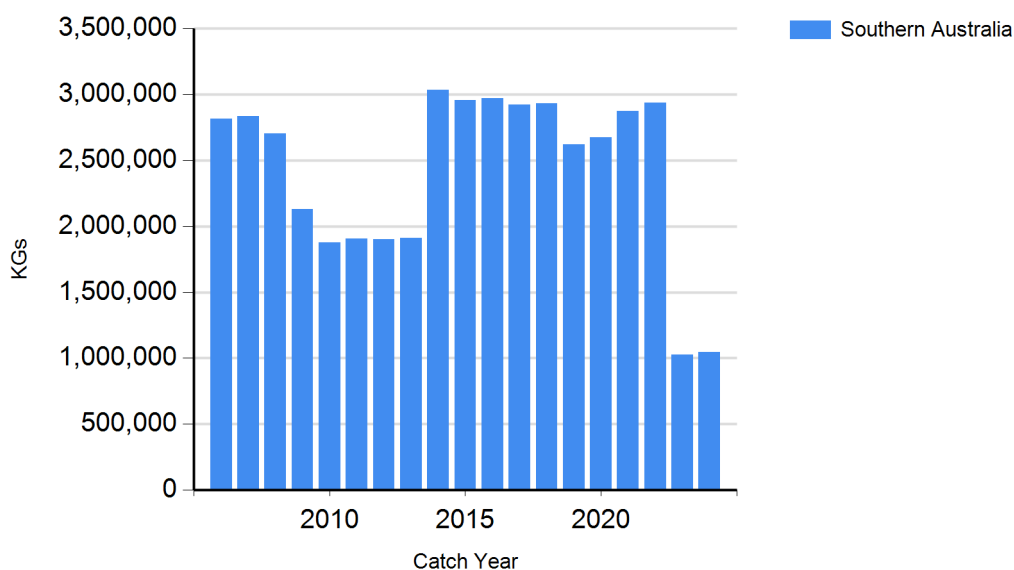
STATUS OF AUSTRALIAN FISH STOCKS REPORT  
Southern Rock Lobster (2023)

Temporal closures	✓	✓	✓	✓
-------------------	---	---	---	---

Catch	South Australia	Tasmania	Victoria	Western Australia
Commercial	1619.04 t	1038.21 t	274.465 t	6.36429 t
Indigenous	Unknown	Unknown	Unknown (No catch under permit)	Unknown
Recreational	75 t	72.3 t	12.5 t	< 5 tonnes

**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*.

**CATCH CHART**



Commercial catch of Southern Rock Lobster - note confidential catch not shown

STATUS OF AUSTRALIAN FISH STOCKS REPORT  
Southern Rock Lobster (2023)

<b>References</b>	
Bruce et al. 2007	Bruce, B, Griffin, D and Bradford, R 2007, Larval transport and recruitment processes of Southern Rock Lobster, Fisheries Research and Development Corporation Project 2002/007, Commonwealth Scientific and Industry Research Organisation Marine and Atmospheric Research, Hobart.
Gardner et al. 2006	Gardner, C, Frusher, S, Barrett, N, Haddon, M and Buxton, C 2006, Spatial variation in size at onset of maturity of female Southern Rock Lobster <i>Jasus edwardsii</i> around Tasmania, Australia, <i>Scientia Marina</i> , 70: 423–430.
Hobday and Ryan, 1997	Hobday, DK and Ryan, TJ 1997, Contrasting sizes at sexual maturity of Southern Rock Lobsters ( <i>Jasus edwardsii</i> ) in the two Victorian fishing zones: implications for total egg production and management, <i>Marine and Freshwater Research</i> , 48: 1009–1014.
Linnane et al. 2023a	Linnane, A, McGarvey, R, Feenstra, J and Hawthorne, P 2023a, Southern Zone Rock Lobster ( <i>Jasus edwardsii</i> ) Fishery 2021/22. Fishery Assessment Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2007/000276. SARDI Research Report Series No. 1175 68pp.
Linnane et al. 2023b	Linnane, A, McGarvey, R, Feenstra, J and Graske, D 2023b, Northern Zone Rock Lobster ( <i>Jasus edwardsii</i> ) Fishery 2021/2. Fishery Assessment Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2007/000320-17. SARDI Research Report Series No. 1174. 66pp.
Linnane et al. 2008	Linnane, A, Penny, S and Ward, T 2008, Contrasting fecundity, size at maturity and reproductive potential of southern rock lobster <i>Jasus edwardsii</i> in two South Australian fishing regions, <i>Journal of the Marine Biological Association of the United Kingdom</i> , 88: 583–589.
Ovenden et al. 1992	Ovenden, JR, Brasher, DJ and White, R 1992, Mitochondrial DNA analyses of the Red Rock Lobster <i>Jasus edwardsii</i> supports an apparent absence of population subdivision throughout Australasia, <i>Marine Biology</i> , 112: 319–326.
Punt and Kennedy, 1997	Punt, AE and Kennedy, RB 1997, Population modelling of Tasmanian rock lobster, <i>Jasus edwardsii</i> , resources. <i>Marine and Freshwater Research</i> , 48: 967–80.
VFA 2020	VFA 2020, Victorian Recreational Rock Lobster Tagging Program Summary Report. Victorian Fisheries Authority Report Series No.12 Victorian Fisheries Authority.
IMAS 2023	IMAS 2023, Wild Fisheries Assessments. <a href="https://tasfisheriesresearch.org/">https://tasfisheriesresearch.org/</a>
Beckmann et al. 2023	Beckmann, CL, Durante, LM, Graba-Landry, A, Stark, KE. and Tracey, SR 2023. Survey of recreational fishing in South Australia in 2021–22. Report to PIRSA Fisheries and Aquaculture. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2022/000385-1. SARDI Research Report Series No. 1161. 195 pp.
Linnane et al. 2019	Linnane, A, Smith, ADM, McGarvey, R, Feenstra, JE, Matthews, JM, Hartmann, K, and Gardner, C. 2019. Trends in productivity of Southern Rock Lobster <i>Jasus edwardsii</i> , across south-eastern Australia: Evidence of a regime shift? <i>Fisheries Research</i> <a href="https://doi.org/10.1016/j.fishres.2019.105308">https://doi.org/10.1016/j.fishres.2019.105308</a> .
VFA 2023	VFA 2023, 2021/22 Victorian Rock Lobster Stock Assessment. Victorian Fisheries Authority Report Series No. 36