

# Mirror Dory (2020)

*Zenopsis nebulosus*



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## STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Commonwealth, New South Wales	South Eastern Australia	Sustainable	Catch, CPUE

## STOCK STRUCTURE

Mirror Dory is found throughout the southern Pacific Ocean at depths of 30–800 m. A single stock of Mirror Dory in the Southern and Eastern Scalefish and Shark Fishery (SESSF) area and adjacent waters off the north coast of New South Wales is assumed for management purposes [Morison et al. 2013], however the stock is split into eastern and western units for analysis purposes.

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

## STOCK STATUS

### South Eastern Australia

This cross jurisdictional stock has components in the Commonwealth and New South Wales. The status presented here is for the entire biological stock and has been established using evidence from both jurisdictions.

The annual commercial catch from New South Wales waters has been between 0.05 t and 34.7 t during the last decade, representing between 0.04 percent and 6.1 percent of fishing mortality on the stock. Annual catches during the last 8 years have all been less than 6 t. Similarly, fishing effort and the number of fishers taking Mirror Dory in New South Wales waters have been low. Consequently, assessment status for the component of the Mirror Dory stock under New South Wales jurisdiction is based on the Commonwealth assessment.

Mirror Dory in Commonwealth fisheries is managed as a Tier 4 stock under the SESSF Harvest Strategy Framework [AFMA 2019]. In 2019 [Sporcic 2019], the stock was divided into an eastern unit (New South Wales and eastern Tasmania) and a western unit (western Tasmania and part of Victoria and South Australia) for analyses. The two recommended biological catches (RBCs) produced by the

separate tier 4 analyses were combined into one total allowable catch (TAC).

In the Commonwealth jurisdiction, most of the Mirror Dory catch is byproduct and is mainly caught east of Bass Strait. The standardised CPUE for the eastern unit (including discards) declined over the period 2009 to 2015 before fluctuating over the last three years (2016-2018) above the limit reference point [Sporcic 2019]. The standardised CPUE for the western unit (not including discards) follows a cyclical pattern and like the eastern unit has fluctuated above the limit reference point over the last three years (2016-2018) [Sporcic, 2019]. The above evidence indicates that the biomass of the stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

From the 2019 analyses, the RBC for the eastern unit was 92.7 t and the RBC for the western unit was 76.7 t [Sporcic 2019]. The total RBC for the east and west was 169.4 t, however note that these RBCs apply to the management of the 2020–21 fishing season. For the 2019–20 season the total RBC for both the eastern and western units combined was 235 t [Sporcic 2018].

Landed catch in the Commonwealth Trawl and scalefish hook sectors of the SESSF was 116.6 t in the 2019–20 fishing season (117.5 t in 2018-19 fishing season). Discards have been estimated to be 2.5 t based on the weighted average of the previous four calendar years (2015 to 2018) [Burch et al. 2019], which when combined with NSW state catches is below the 2019–20 RBC of 235 t [Sporcic 2018]. 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 East Australia biological stock is classified as a **sustainable stock**.

## BIOLOGY

**Mirror Dory biology** [May and Maxwell 1986, Parin et al. 1988 Tilzey 1995]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Mirror Dory	13 years, 700 mm TL	4–7 years

## DISTRIBUTION



Distribution of reported commercial catch of Mirror Dory

TABLES

<b>Fishing methods</b>		
	<b>Commonwealth</b>	<b>New South Wales</b>
<b>Charter</b>		
Hook and Line		✓
Rod and reel		✓
<b>Commercial</b>		
Danish Seine	✓	
Demersal Gillnet	✓	
Demersal Longline	✓	
Midwater Trawl	✓	
Otter Trawl	✓	
Trawl	✓	
Various		✓
<b>Recreational</b>		
Hook and Line		✓
Rod and reel		✓

<b>Management Methods</b>		
	<b>Commonwealth</b>	<b>New South Wales</b>
<b>Charter</b>		
Bag and possession limits		✓
Gear restrictions		✓
Licence		✓
Marine park closures		✓
<b>Commercial</b>		
Catch limits		✓
Gear restrictions	✓	✓
Limited entry	✓	✓
Marine park closures	✓	✓
Mesh size regulations		✓

Quota	✓	
Size limit		✓
Spatial closures	✓	✓
Total allowable catch	✓	
Trip limits	✓	
Vessel restrictions		✓
<b>Recreational</b>		
Bag and possession limits		✓
Gear restrictions		✓
Licence		✓
Marine park closures		✓

Catch		
	Commonwealth	New South Wales
<b>Commercial</b>	111.361 t	0.0492 t
<b>Indigenous</b>		Negligible (2017-18)
<b>Recreational</b>		Negligible (2017-18)

**Commonwealth – Commercial (Management Methods/Catch)** Data provided for the Commonwealth align with the Commonwealth Southern and Eastern Scalefish and Shark Fishery for the 2018-19 financial year.

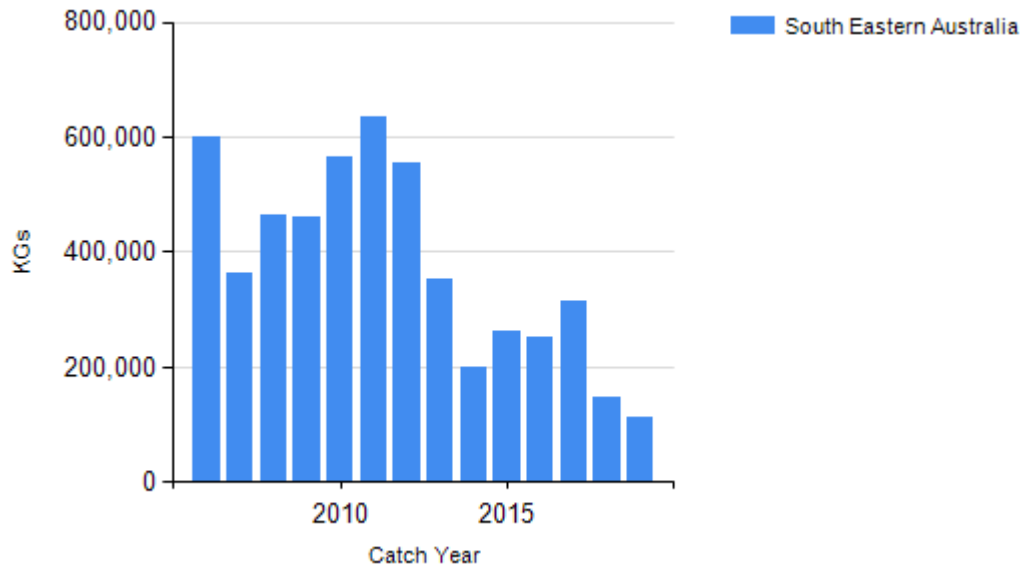
**Commonwealth – Recreational** The Commonwealth does not manage recreational fishing in Commonwealth waters. Recreational fishing in Commonwealth waters is managed by the state or territory immediately adjacent to those waters, under its management regulations.

**Commonwealth – Indigenous** The Australian government does not manage non-commercial Indigenous fishing in Commonwealth waters, with the exception of Torres Strait. In general, non-commercial Indigenous fishing in Commonwealth waters is managed by the state or territory immediately adjacent to those waters.

**New South Wales** Indigenous and Recreational catch estimates of “Negligible” are based on zero catches of Mirror Dory recorded during the 2017-18 survey of the catch of 1-3 year recreational licence holders in NSW [Murphy et al. 2020]

**New South Wales - Indigenous** Customary Fishing Management Arrangements. See <https://www.dpi.nsw.gov.au/fishing/aboriginal-fishing>

**CATCH CHART**



Commercial catch of Mirror Dory - note confidential catch not shown

<b>References</b>	
May and Maxwell 1986	May, JL and Maxwell JGH 1986, A field guide to trawl fish from the temperate waters of Australia. CSIRO Division of Fisheries Research (2nd Edition, revised).
Morison et al. 2013	Morison, AK, Knuckey, IA, Simpfendorfer, CA and Buckworth, RC 2013, South East Scalefish and Shark Fishery: draft 2012 stock assessment summaries for species assessed by GABRAG, ShelfRAG and Slope/DeepRAG, report for AFMA, Canberra.
Parin et al. 1988	Parin NV, Pavlov YP, Andrianov DP 1988. Ecology of the Mirror Dory <i>Zenopsis nebulosis</i> , of the Submarine Nasca Ridge. <i>Journal of Ichthyology</i> , 28: 707–16.
Tilzey 1995	Tilzey, RDJ 1995, The South East Fishery: a scientific review with particular reference to quota management. Bureau of Resource Science Bulletin.
Murphy et al. 2020	Murphy, JJ, Ochwada-Doyle, FA, West, LD, Stark, KE and Hughes JM, 2020, The NSW Recreational Fisheries Monitoring Program - Survey of recreational fishing, 2017/18. NSW DPI - Fisheries Final Report Series No. 158.
AFMA 2019	AFMA 2019, Harvest strategy framework for the Southern and Eastern Scalefish and Shark Fishery 2009 (amended 2019), Australian Fisheries Management Authority, Canberra.
Burch et al. 2019	Burch, P, Althaus, F and Thomson, R 2019, Southern and Eastern Scalefish and Shark Fishery (SESSF) catches and discards for TAC purposes using data until 2018, Prepared for the SERAG Meeting, 3-4 December 2019, Hobart, CSIRO Oceans and Atmosphere, Hobart, Tasmania.
Sporcic 2018	Sporcic, M 2018, Tier 4 assessments for selected SESSF species (data to 2017), CSIRO Oceans and Atmosphere, Hobart.
Sporcic 2019	Sporcic, M 2019, Draft Tier 4 Assessments for selected SESSF species (data to 2018), CSIRO Oceans and Atmosphere, Hobart.