

Blue Mackerel (2020)

Scomber australasicus



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Commonwealth, New South Wales, Victoria, Tasmania	Eastern	Sustainable	Catch, effort, CPUE, spawning biomass, exploitation rate, ecosystem modelling
Commonwealth, Western Australia, Tasmania, South Australia	Western	Sustainable	Catch, effort, CPUE, spawning biomass, exploitation rate, ecosystem modelling

STOCK STRUCTURE

Following a data synthesis undertaken to establish management zones in the Commonwealth Small Pelagic Fishery (SPF) [Bulman et al. 2008], Blue Mackerel off southern Australia is currently considered to comprise two biological stocks: the Western stock that extends from western Tasmania to southern Western Australia and the Eastern stock, which occurs to the east of Bass Strait [AFMA 2008, 2009]. Blue Mackerel and other target species in the SPF are managed in western and eastern sub-areas [AFMA 2008, 2009], which reflect this stock structure.

Assessment of the stock status of Blue Mackerel is presented at the biological stock level—Western and Eastern.

STOCK STATUS

Eastern The most recent assessment of the Eastern stock of Blue Mackerel was completed in 2019 using fishery data for 2019–20 [Ward and Grammer 2018, 2021] and the results of an application of the daily egg production method in 2019 [Ward et al. 2021]. The primary biological performance indicators are

spawning biomass and exploitation rate.

The spawning biomass of Blue Mackerel off eastern Australia in 2019 of 88 265 tonnes (t) (95 per cent confidence interval 33 320–143 209 t) was similar to the estimate of approximately 83 300 t obtained in 2014 [Ward et al 2015, 2021]. Despite the similarity of these estimate, the authors recommended cautious interpretation due to uncertainty in the estimates of adult parameters, especially spawning fraction.

Historically, total annual catches of Blue Mackerel from the eastern stock have typically been less than 1 000 t per annum [Ward and Grammer 2018, 2021].

The total annual catch reached approximately 3 477 t in 2015–16 when a freezer trawler operated in the SPF, but fell to 604 t in 2016–17 when the vessel left. Since then, a new fishing operation has been established off southern NSW and the catch increased to 3 938 t in 2017–18 and reached 6 124 t in 2019–20 (Ward and Grammer 2021) Small catches of Blue Mackerel from the Eastern stock are taken by recreational fishers off Victoria, Tasmania, New South Wales and Queensland. For example, approximately 114 000 individual Blue Mackerel were taken by recreational fishers off NSW in 2017–18 [Murphy et al. 2020].

Recent catches have been less than seven per cent of the estimate of spawning biomass in 2019 of 88 265 t, and less than one third of the sustainable exploitation rate of 23 per cent suggested for this stock [Smith et al 2015].

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 Eastern biological stock of Blue Mackerel is classified as a **sustainable stock**.

Western

The most recent assessment of the Western stock of Blue Mackerel was completed in 2020 using fishery data for 2019–20 [Ward and Grammer 2018, 2021] and the results of an application of the daily egg production method in 2005 [Ward et al. 2009]. The primary biological performance indicators are spawning biomass and exploitation rate.

A preliminary application of the daily egg production method to Blue Mackerel off South Australia during 2005 provided an estimated spawning biomass of approximately 56 000 t [Ward et al. 2009]. This estimate of spawning biomass was considered to be conservative as the survey covered a limited part of the area in which this stock occurs, and there was evidence of spawning activity outside the survey area in the western Great Australian Bight [Ward et al. 2009].

Total annual catches of Blue Mackerel from the Western stock were low in the late 1990s and early 2000s (less than 55 t) but increased to between 1 000 t and 2 000 t in 2008 and 2009. These larger catches were taken mainly by purse-seine vessels operating in the SPF off South Australia. Total annual catches of 1 041 t and 766 t were taken in the SPF in 2015–16 and 2016–17, when a freezer trawler operated in the fishery. No Commonwealth catch was reported in 2017–18, 2018–19, or 2019–20 (Ward and Grammer 2021). Commercial fishing for Blue Mackerel by Western Australian licenced vessels was prohibited in 1999. Tasmanian catches of Blue Mackerel over the last decade have been low (< 5 t per annum). Small catches of Blue Mackerel from the western stock are taken by recreational fishers off Western Australia, South Australia (e.g. 103 764 fish in 2013–14. Giri and Hall 2015), Victoria and Tasmania.

Low annual catches of Blue Mackerel from the Western stock reflect low levels of fishing effort rather than low biomass levels [Ward and Grammer 2018]. Recent catches (< 1 000 t) are less than 2 per cent of the estimated spawning biomass in 2005 of ~ 56 000 t [Ward et al. 2009], and less than 10 per cent of the

sustainable exploitation rate of 23 per cent suggested for this stock [Smith et al. 2015].

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.

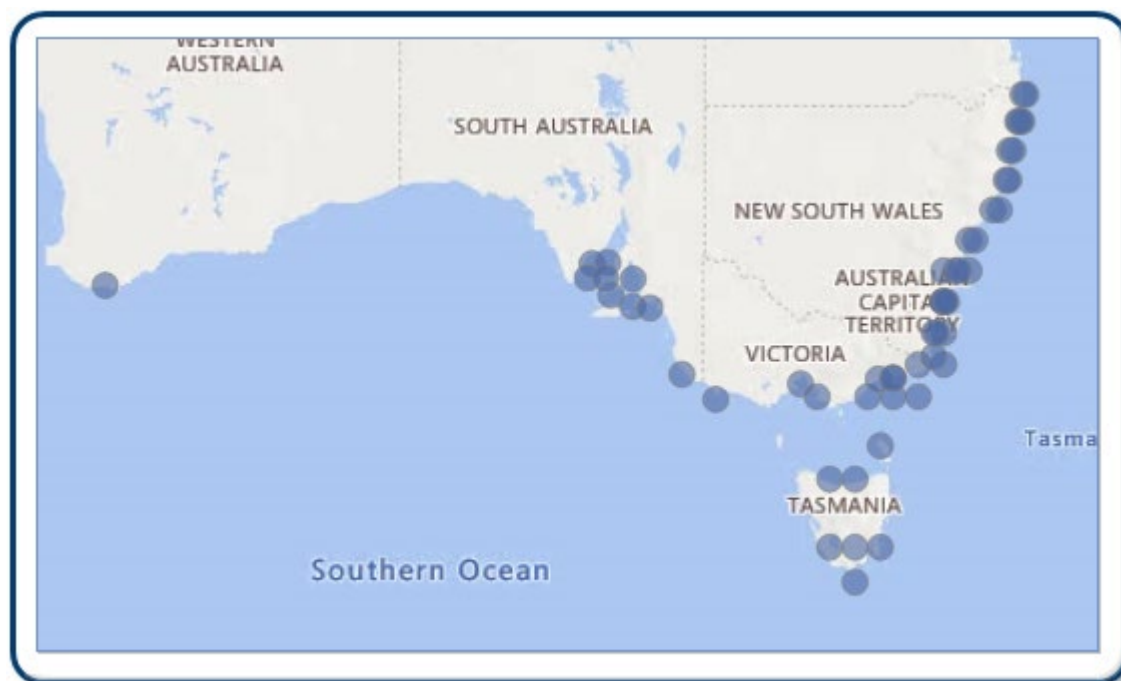
On the basis of the evidence provided above, the Western biological stock of Blue Mackerel is classified as a **sustainable stock**.

BIOLOGY

Blue Mackerel biology [Stevens et al. 1984, Ward and Grammer 2018, Ward and Rogers 2007]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Blue Mackerel	8 years, 440 mm FL	2 years, 237–287 mm FL

DISTRIBUTION



Distribution of reported commercial catch of Blue Mackerel

TABLES

Fishing methods	Commonwealth	New South Wales	South Australia	Tasmania	Victoria	Western Australia
Charter						
Handline		✓				
Commercial						
Danish Seine	✓					
Haul Seine						✓
Hook and Line					✓	

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Blue Mackerel (2020)

Midwater Trawl	✓					
Net					✓	
Otter Trawl	✓					
Purse Seine	✓	✓				
Unspecified			✓	✓		
Various		✓				
Recreational						
Gillnet				✓		
Handline		✓		✓	✓	
Hook and Line			✓		✓	✓

Management Methods						
	Commonwealth	New South Wales	South Australia	Tasmania	Victoria	Western Australia
Charter						
Licence		✓				✓
Limited entry						✓
Spatial closures						✓
Commercial						
Catch limits	✓					✓
Effort limits					✓	
Gear restrictions					✓	
Licence			✓		✓	
Limited entry	✓		✓	✓	✓	✓
Marine park closures		✓				
Mesh size regulations	✓	✓		✓		
Possession restrictions						✓
Quota		✓				
Size limit					✓	
Spatial closures	✓	✓		✓	✓	✓
Total allowable catch		✓				
Vessel restrictions	✓	✓		✓		
Recreational						
Bag limits		✓	✓	✓	✓	✓
Gear restrictions					✓	

Licence					✓	
Licence (Recreational Fishing from Boat License)						✓
Marine park closures		✓				
Possession limit		✓				✓
Size limit					✓	
Spatial closures		✓			✓	✓

Catch	Commonwealth	New South Wales	South Australia	Tasmania	Victoria	Western Australia
Commercial	4661.69 t	456.279 t	4.6594 t	0 t	0 t	0 t
Indigenous	Unknown	Unknown		Unknown	Unknown (No catch under permit)	Unknown
Recreational	Unknown	114 000 fish in 2017–18	103 764 fish in 2013–14 (Giri and Hall 2015)	5.2 t (2012–13)	Unknown	Insufficient data

Commonwealth – Recreational The Australian Government 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 data is presented for 2017.

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

Western Australia – Recreational (Management Methods) a Recreational Fishing from Boat License is required for use of a powered boat to fish or to transport catch or fishing gear to or from a land-based fishing location.

Tasmania – Recreational In Tasmania, a recreational licence is required for fishers using dropline or longline gear, along with nets, such as gillnet or beach seine.

New South Wales – Recreational (Catch) Murphy et al. [2020].

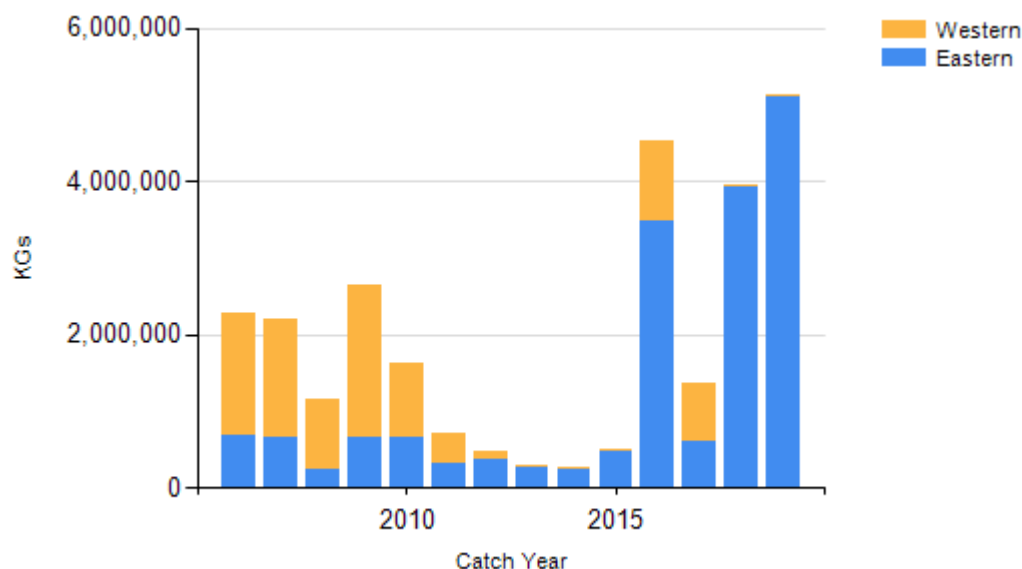
New South Wales – Indigenous (management methods)
(<https://www.dpi.nsw.gov.au/fishing/aboriginal-fishing>)

Tasmania – Indigenous (Management Methods) In Tasmania, aborigines engaged in aboriginal fishing activities in marine waters are exempt from holding recreational fishing licences, but must comply with all other fisheries rules as if they were licensed. Additionally, recreational bag and possession limits also apply. If using pots, rings, set lines or gillnets, aborigines must obtain a unique identifying code (UIC). The policy document Recognition of Aboriginal Fishing Activities for issuing a UIC to a person for Aboriginal Fishing activity explains

the steps to take in making an application for a UIC.

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 Blue Mackerel - note confidential catch not shown

References	
Bulman et al. 2008	Bulman, C, Condie, S, Findlay, J, Ward, B and Young, J 2008, Management zones from small pelagic fish species stock structure in southern Australian waters, Final report to the Fisheries Research and Development Corporation and Australian Fisheries Management Authority, FRDC Project No 2006/076, Commonwealth Scientific and Industrial Research Organisation, Hobart.
AFMA 2008	Australian Fisheries Management Authority 2008, Small Pelagic Fishery harvest strategy (last revised April 2015). AFMA, Canberra.
AFMA 2009	Australian Fisheries Management Authority 2009, Small Pelagic Fishery management plan 2009, Federal Register of Legislative Instruments F2010L00081, AFMA, Canberra.
Ward and Grammer 2018	Ward, TM and Grammer, GL 2018, Commonwealth Small Pelagic Fishery: Fishery Assessment Report 2017. Report to the Australian Fisheries Management Authority (PDF 5.7 MB). South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2010/000270-9. SARDI Research Report Series No. 982. 114pp.
Ward et al. 2009	Ward, TM, Rogers, PJ, McLeay, LJ and McGarvey, R 2009, Evaluating the use of the daily egg production method for stock assessment of blue mackerel, <i>Scomber australasicus</i> , Marine and Freshwater Research, 62:112–128.
Smith et al. 2015	Smith, ADM, Ward, TM, Hurtado, F, Klaer, N, Fulton, E and Punt, AE 2015, Review and update of harvest strategy settings for the Commonwealth Small Pelagic Fishery: Single species and ecosystem considerations. Final Report of FRDC Project No. 2013/028. Commonwealth Scientific and Industrial Research Organisation Oceans and Atmosphere Flagship, Hobart.

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Blue Mackerel (2020)

Ward et al. 2015	Ward, TM, Grammer, GL, Ivey, AR, Carroll, JR, Keane, JP, Stewart, J and Litherland, L 2015, Egg distribution, reproductive parameters and spawning biomass of Blue Mackerel, Australian Sardine and Tailor off the East Coast during late winter and early spring, FRDC Project No. 2014/033, South Australian Research and Development Institute (Aquatic Sciences), Adelaide.
Stevens et al. 1984	Stevens, JD, Hausfeld, HF and Davenport, SR 1984, Observations on the biology, distribution and abundance of <i>Trachurus declivis</i> , <i>Sardinops neopilchardus</i> and <i>Scomber australasicus</i> in the Great Australian Bight. Commonwealth Scientific and Industrial Research Organisation Marine Laboratories, Cronulla.
Ward and Rogers 2007	Ward, TM and Rogers, PJ 2007, Development and evaluation of egg-based stock assessment methods for blue mackerel <i>Scomber australasicus</i> in southern Australia. Final report to the Fisheries Research and Development Corporation Project No 2002/061. South Australian Research and Development Institute (Aquatic Sciences), Adelaide.
Giri and Hall 2015	Giri, K and Hall, K 2015, South Australian Recreational Fishing Survey 2013/2014. Fisheries Victoria Internal Report Series No. 62
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 2016	Australian Fisheries Management Authority 2016, 'Small Pelagic Fishery Scientific Panel meeting 1, minutes, 14 December 2015', AFMA, Canberra.
AFMA 2019	Small Pelagic Fishery, Resource Assessment Group, Meeting number 01 Meeting Minutes, 5 December 2019 Parkroyal, Melbourne Airport
Ward and Grammer 2021	Ward, T. M. and Grammer, G. L. (2021). Commonwealth Small Pelagic Fishery: Status Summary Report 2020. Report to the Australian Fisheries Management Authority. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2010/000270-10. SARDI Research Report Series No. 1021. 7 pp.
Ward et al. 2021	Ward, T. M., Grammer, G. L. and Ivey, A. R. (2021). Spawning biomass of Blue Mackerel (<i>Scomber australasicus</i>) and Australian Sardine (<i>Sardinops sagax</i>) in the East sub-area of the Small Pelagic Fishery. Report to the Australian Fisheries Management Authority. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2021/000047-1. SARDI Research Report Series No. 1084. 56pp