

# Blue Mackerel (2023)

*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

The stock structure of Blue Mackerel is uncertain. Genetic analysis of samples from southern Queensland, Western Australia and New Zealand indicates population subdivisions. Genetic differences were detected between Western Australia and Queensland, and between Western Australia and New Zealand, but not between Queensland and New Zealand [Schmarr et al. 2007, 2012]. There is likely to be genetic flow either through Bass Strait and/or around the southern tip of Tasmania but the extent of the flow would be dependent on climatic and oceanographic conditions [Bulman et al. 2008]. No finer-scale analyses of Blue Mackerel have been undertaken to further define stock structure. Blue Mackerel within the Small Pelagic Fishery (SPF) is assessed and managed as separate stocks in the eastern and western subareas [Bulman et al. 2008].

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

## STOCK STATUS

### Eastern

The Eastern stock of Blue Mackerel is caught in the Commonwealth-managed Small Pelagic Fishery (SPF), and in New South Wales, Victorian and Tasmanian state-managed fisheries. Stock status classification takes account of catches in all jurisdictions.

Most of the historical catch of the Eastern stock was taken in state fisheries. However, Commonwealth catches have increased significantly since 2015–16 and between 2016–17 and 2021–22 have exceeded state catches.

Historically, total annual catches of Blue Mackerel from the Eastern stock of the SPF were typically less than 1,000 tonnes (t) per year [Ward and Grammer 2018; Ward et al. 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 catch increased to 3,938 t in 2017–18 and reached 6,124 t in 2019–20 [Ward et al. 2021]. In 2020–21 and 2021–22 the Commonwealth catch was 6,215 t and 10,051 t, respectively [Noriega et al. 2022].

The majority of state catches are taken in NSW with 447 t reported in 2020–21 and 134 t in 2021–22 [Noriega et al. 2022]. Catches from other states have been negligible in recent years including 8 t from Victoria and less than 1 t from Tasmania in 2021–22 [Noriega et al. 2022].

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 and 143,000 individual Blue Mackerel were taken by recreational fishers off NSW in 2017–18 and 2019–20 respectively [Murphy et al. 2020, 2022], weighing around 41 t and 51 t each year using an average weight of 370 g per fish [Stewart 2023].

The Commonwealth manages Blue Mackerel under a harvest strategy [AFMA 2017a] that has been tested by a management strategy evaluation (MSE) that included ecosystem and population modelling [Smith et al. 2015]. The MSE identified exploitation rates that maintain the stock, on average at the target reference point (TRP) of 50% of the unfished biomass and with a less than 10% chance of falling below the limit reference point (LRP) of 20% of the unfished biomass.

The most recent assessment of the Eastern stock of Blue Mackerel was completed in 2022 using fishery data for 2021–22 [Ward et al. 2021, 2022] and results of an application of the daily egg production method in 2019 (DEPM) [Ward et al. 2021]. The primary biological performance indicators are spawning biomass and exploitation rate.

The estimated spawning biomass of Blue Mackerel off eastern Australia in 2019 was 88,265 t (95% 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 estimates, the authors recommended cautious interpretation due to uncertainty in the estimates of adult parameters, especially spawning fraction.

Based on the most recent spawning biomass for the Eastern stock and applying the exploitation rate of 15% for Blue Mackerel in the SPF harvest strategy, the

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recommended biological catch (RBC) in 2021–22 was set at 12,000 t [AFMA 2021]. After factoring in state catches, the total allowable catch (TAC) for the Commonwealth fishery was set at 11,440 t.

Recent catches of the Eastern stock have been below the RBC calculated using the harvest strategy and are approximately 13% of the most recent estimate of biomass.

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 Western stock of Blue Mackerel is caught in the Commonwealth-managed SPF and in Western Australian, Tasmanian and South Australian state-managed fisheries. Stock status classification takes account of catches in all jurisdictions.

Catches from the Western stock were minimal before 2004–05. Total Commonwealth-landed catch was variable up to 2008–09 when it peaked at 2,164 t, decreasing steadily thereafter. Catch was negligible between 2011–12 and 2014–15 in both the Commonwealth and state fisheries. No Commonwealth catch was reported in 2017–18 or 2018–19. Commonwealth catch was 9 t in 2019–20, but no Commonwealth catch was reported in 2020–21 or 2021–22 [Noriega et al. 2022].

Commercial fishing for Blue Mackerel by Western Australian licenced vessels was prohibited in 1999 (Prohibition Order 1999), and Victorian and South Australian catches over the last decade have been less than 6 t per annum. Small catches (less than 1 t) of the Western stock are taken by recreational fishers off Western Australia [Ryan et al. 2022] and South Australia [e.g., 103,764 fish in 2013–14; Giri and Hall 2015].

The Commonwealth manages Blue Mackerel under a harvest strategy [AFMA 2017a] that has been tested by a management strategy evaluation (MSE) that included ecosystem and population modelling [Smith et al. 2015]. The MSE identified exploitation rates that maintain the stock, on average at the target reference point (TRP) of 50% of the unfished biomass and with a less than 10% chance of falling below the limit reference point (LRP) of 20% cent of the unfished biomass.

A daily egg production method (DEPM) survey for the Western stock was completed in 2005, and a spawning biomass of 56,228 t (95% confidence interval 10,993–293,456 t) was estimated using the DEPM [Ward and Rogers 2007]. However, this was considered to be unrealistically low (because of the presence of eggs and larvae west of the survey area) and the estimate was adjusted to 86,500 t [AFMA 2017b].

Based on the most recent spawning biomass for the Western stock and applying the exploitation rate of 3.75% for Blue Mackerel in the SPF harvest strategy, the 2021–22 recommended biological catch (RBC) was set at 3,243 t [AFMA 2021]. After factoring in state catches, the total allowable catch (TAC) for the Commonwealth fishery was set at 3,210 t.

Recent catches of the Western stock have been below the 3.75% of the

spawning biomass identified in the harvest strategy and are less than 1% of the most recent estimate of biomass. Although the 2005 biomass estimate is dated, the level of fishing mortality in any year since is unlikely to have substantially reduced spawning biomass.

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.

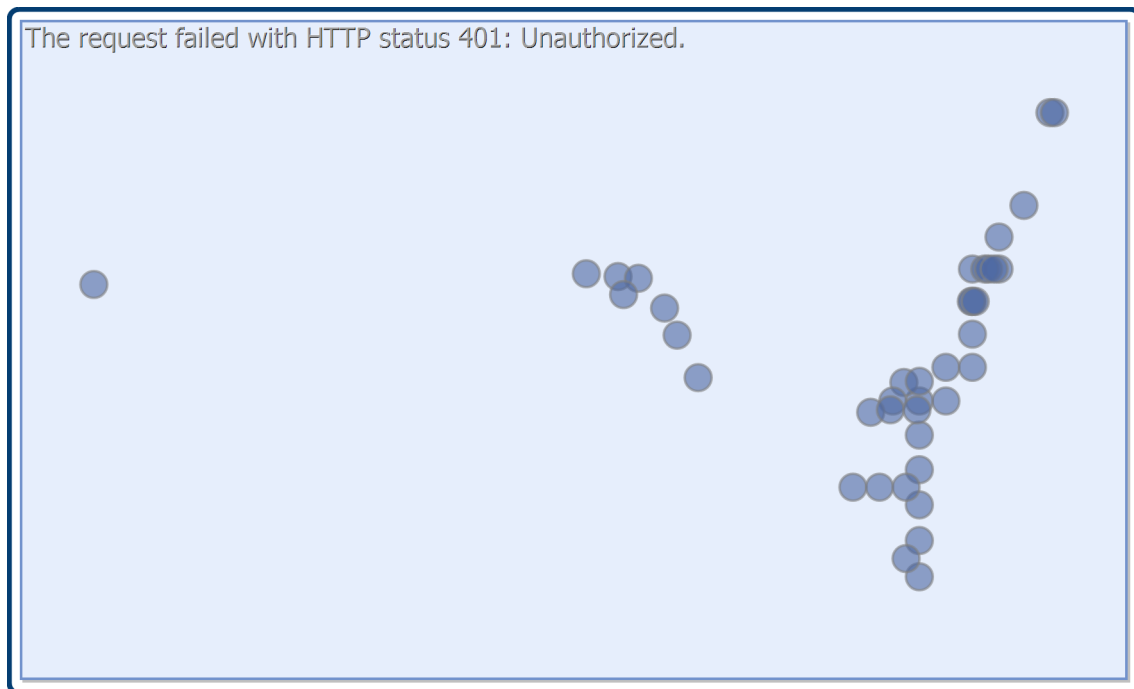
On the basis of the evidence provided above, the Western biological stock of Blue Mackerel is classified as a **sustainable stock**.

## BIOLOGY

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

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

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Fishing methods					
	Commonweal th	New South Wales	South Australia	Tasmania	Victoria
<b>Charter</b>					
Handline		✓			
Unspecified					
<b>Commercial</b>					
Gillnet					
Hook and Line		✓			✓
Midwater Trawl	✓				
Net					✓
Otter Trawl	✓				
Purse Seine	✓	✓			
Unspecified			✓	✓	
Various		✓			
<b>Recreational</b>					
Gillnet				✓	
Handline		✓		✓	✓
Hook and Line			✓		✓
Various					

Management Methods					
	Commonweal th	New South Wales	South Australia	Tasmania	Victoria
<b>Charter</b>					
Licence		✓			
Limited entry					
Spatial closures					
<b>Commercial</b>					
Catch limits	✓				
Effort limits					✓
Gear restrictions					✓
Licence			✓		✓
Limited entry	✓		✓	✓	✓
Marine park closures		✓			



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Mesh size regulations	✓	✓		✓	
Possession restrictions					
Quota		✓			
Size limit					✓
Spatial closures	✓	✓		✓	✓
Total allowable catch		✓			
Vessel restrictions	✓	✓		✓	
<b>Recreational</b>					
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
<b>Charter</b>					
<b>Commercial</b>	8756.88 t	162.761 t	2.7787 t	0.86188 t	7.767 t
<b>Indigenous</b>		Unknown		Unknown	Unknown (No catch under permit)
<b>Recreational</b>		143,000 fish in 2019–20	103,764 fish in 2013–14 (Giri and Hall 2015)	5.2 t (2012–13)	Unknown

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✓
✓
✓
✓
✓
✓

<b>Western Australia</b>
Unknown
0 t
Unknown
< 0.1 t



**Commonwealth – Commercial (Catch).** Commonwealth data is presented for 2021–22 financial year.

**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 – 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. [2022].

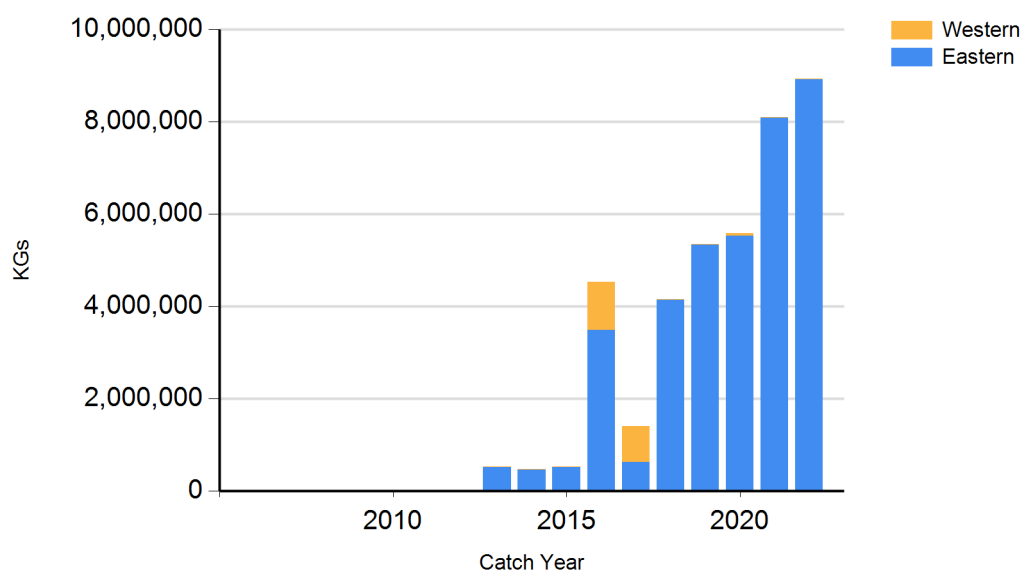
**New South Wales – Indigenous (Management methods).**  
(<https://www.dpi.nsw.gov.au/fishing/aboriginal-fishing>)

**Tasmania - Indigenous (Management Methods).** In Tasmania, Indigenous persons engaged in traditional 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. For details, see the policy document 'Recognition of Aboriginal Fishing Activities"  
(<https://fishing.tas.gov.au/Documents/Policy%20for%20Aboriginal%20tags%20and%20alloting%20an%20UIC.pdf>).

**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

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Commercial catch of Blue Mackerel—note confidential catch not shown

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