

# Common Jack Mackerel (2023)

*Trachurus declivis*



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## STOCK STATUS OVERVIEW

| Jurisdiction                            | Stock   | Stock status | Indicators   |
|---|---------|--------------|--|
| Commonwealth, New South Wales, Tasmania | Eastern | Sustainable  | Catch, effort, spawning biomass, exploitation rate |
| Commonwealth, Tasmania, South Australia | Western | Sustainable  | Catch, effort, spawning biomass, exploitation rate |

## STOCK STRUCTURE

The stock structure of Common Jack Mackerel is uncertain [Bulman et al. 2015]. Richardson [1982] found evidence of population subdivision between Western Australia, including the Great Australia Bight, and eastern Australia. However, Daily Egg Production Method (DEPM) surveys suggest that Common Jack Mackerel spawns throughout Bass Strait and that separation of Eastern and Western stocks may occur around the Bonney Coast [AFMA 2017]. Richardson [1982] also found evidence of multiple populations among east coast samples, suggesting some additional structuring. Smolenski et al. [1994] also found evidence of structuring between New South Wales and south-eastern Tasmania, although the differences were not temporally consistent. These studies suggest that further investigation of stock structure in Common Jack Mackerel is warranted. Currently, Common Jack Mackerel in the Commonwealth Small Pelagic Fishery (SPF) is assessed and managed as separate stocks in the eastern and western subareas [Bulman et al. 2008].

Here, assessment of the stock status is presented at the biological stock level—Eastern and Western.

## STOCK STATUS

## Eastern

The Eastern stock of Common Jack Mackerel is caught in the Commonwealth managed SPF, and in New South Wales, Victorian and Tasmanian fisheries. Stock status classification takes account of catches in all jurisdictions.

A purse-seine fishery known as the Jack Mackerel Fishery targeted Common Jack Mackerel and took smaller quantities of other small pelagic species off Tasmania from the early 1980s to 2000 [Kailola et al. 1993]. The annual catch peaked at approximately 40,000 tonnes in 1986–87. The Jack Mackerel Fishery became the Commonwealth SPF in 2001 [AFMA 2009], which was also when mid-water trawling replaced purse-seining as the dominant fishing method [see Grammer et al. 2022]. Tasmanian Scalefish Fishery landings for 2021–22 were 2.1 t [Sharples et al. 2023].

Commonwealth catches reached 9,873 t in 1997–98 (95% of catch from eastern stock), fluctuated markedly up to 2003–04 and then declined. Commonwealth catches the eastern stock reached were negligible from 2010–11 to 2014–15 but reached 6,316 t in 2015–16, decreased to 4,942 in 2018–19 and increased again to 7,808 t in 2019–20. In 2020–21 and 2021–22, the Commonwealth catch was 5,454 t and 6,729 t respectively [Noriega et al. 2022].

State catches have been negligible in recent years. New South Wales catch for 2021–22 was 2.8 t. Tasmanian catch for 2021–22 was less than 1 t. Small catches are taken by recreational fishers off Tasmania, Victoria and New South Wales.

The Commonwealth manages Common Jack Mackerel under a harvest strategy that has been tested using management strategy evaluation (MSE) [AFMA 2017] that includes ecosystem and population modelling [Smith et al. 2015]. Exploitation rates applied to each species provide a high likelihood that stocks will be maintained, on average, at the target reference point of 50% of the unfished biomass, with a less than 10% chance over 50 years of falling below the limit reference point of 20% of the unfished biomass.

A spawning biomass of 156,292 t (95% confidence interval 49,120 – 263,496 t) was estimated for the Eastern stock using the daily egg production method (DEPM) in 2019 [Ward et al. 2020].

Based on the most recent spawning biomass for the Eastern stock and applying the exploitation rate of 12% for Common Jack Mackerel in the SPF harvest strategy, the 2021–22 recommended biological catch (RBC) was set at 18,755 t [AFMA 2021]. After factoring in state catches, the total allowable catch (TAC) for the Commonwealth fishery was set at 18,630 t.

Recent catches of the Eastern stock have been well below the RBC calculated using the harvest strategy. This level of fishing mortality is unlikely to have substantially reduced spawning biomass [Noriega et al. 2022].

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 Common Jack Mackerel is classified as a **sustainable stock**.

**Western**

The Western stock of Common Jack mackerel is caught in the Commonwealth managed SPF, and in Tasmanian, Victorian and South Australian fisheries. Stock status classification takes account of catches in all jurisdictions.

Commonwealth catches of 643 and 700 t were taken from the western stock in 2015–16 and 2016–17 respectively. The only Commonwealth catch from the Western stock between 2017–18 and 2021–22 was 12 t in 2019–20 [Noriega et al. 2022].

Catches (Tasmania, South Australia, and Victoria) are not available for 2021–22 and have usually been small and confidential for the preceding five years.

Small recreational catches of the Western stock are taken in waters off Tasmania, Victoria and South Australia.

The Commonwealth manages Common Jack Mackerel under a harvest strategy that has been tested using MSE [AFMA 2017] that includes ecosystem and population modelling [Smith et al. 2015]. Exploitation rates applied to each SPF species provide a high likelihood that stocks will be maintained, on average, at the target reference point of 50% of the unfished biomass, with a less than 10% chance over 50 years of falling below the limit reference point of 20% of the unfished biomass.

A spawning biomass of at least 34,978 t was estimated for the Western stock using the DEPM in 2016–17 [AFMA 2017, Ward et al. 2018]. Based on the most recent estimate of spawning biomass for the western stock and applying the exploitation rate of 12% for Common Jack Mackerel in the SPF harvest strategy, the 2021–22 RBC was set at 4,197 t [AFMA 2021]. After factoring in state catches, the TAC for the SPF was set at 4,180 t.

Recent catches of the Western stock have been low and are well below the RBC calculated using the harvest strategy. This level of fishing mortality 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 Common Jack Mackerel is classified as a **sustainable stock**.

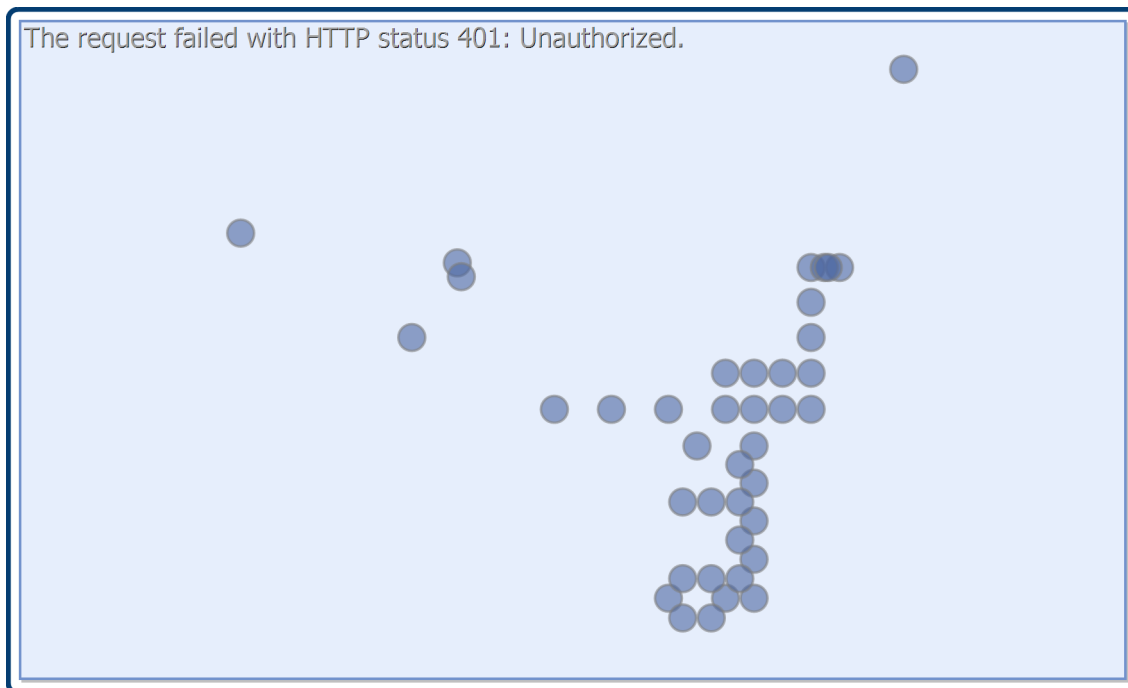
**BIOLOGY**

**Common Jack Mackerel biology** [Lyle et al. 2000; Marshall et al. 1993; Webb 1976; Ward and Grammer 2018]

| Species              | Longevity / Maximum Size | Maturity (50 per cent) |
|----------------------|--------------------------|------------------------|
| Common Jack Mackerel | 17 years, 470 mm FL      | 5–6 years, 315 mm FL   |

**DISTRIBUTION**

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Distribution of reported commercial catch of Common Jack Mackerel

**TABLES**

| <b>Fishing methods</b> | <b>Commonwealth</b> | <b>New South Wales</b> | <b>South Australia</b> | <b>Tasmania</b> |
|------------------------|---------------------|------------------------|------------------------|-----------------|
| <b>Commercial</b>      |                     |                        |                        |                 |
| Danish Seine           | ✓                   |                        |                        |                 |
| Hook and Line          |                     | ✓                      |                        |                 |
| Midwater Trawl         | ✓                   |                        |                        |                 |
| Otter Trawl            | ✓                   | ✓                      |                        |                 |
| Purse Seine            |                     | ✓                      |                        |                 |
| Unspecified            |                     |                        | ✓                      | ✓               |
| <b>Recreational</b>    |                     |                        |                        |                 |
| Gillnet                |                     |                        |                        | ✓               |
| Handline               |                     | ✓                      |                        | ✓               |

| <b>Management Methods</b> | <b>Commonwealth</b> | <b>New South Wales</b> | <b>Tasmania</b> |
|---------------------------|---------------------|------------------------|-----------------|
| <b>Commercial</b>         |                     |                        |                 |
| Bag limits                |                     |                        | ✓               |

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|                       |   |   |   |
|-----------------------|---|---|---|
| Catch limits          | ✓ |   | ✓ |
| Limited entry         | ✓ | ✓ | ✓ |
| Mesh size regulations |   | ✓ | ✓ |
| Spatial closures      |   | ✓ | ✓ |
| Vessel restrictions   | ✓ | ✓ | ✓ |
| <b>Recreational</b>   |   |   |   |
| Bag limits            |   | ✓ | ✓ |
| Spatial closures      |   | ✓ | ✓ |

| Catch               |              |                 |                 |                 |
|---------------------|--------------|-----------------|-----------------|-----------------|
|                     | Commonwealth | New South Wales | South Australia | Tasmania        |
| <b>Commercial</b>   | 7198.86 t    | 2.8111 t        | 0 t             | 1.997 t         |
| <b>Indigenous</b>   |              | Unknown         |                 | Unknown         |
| <b>Recreational</b> |              | Unknown         |                 | 5.2 t (2012–13) |

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

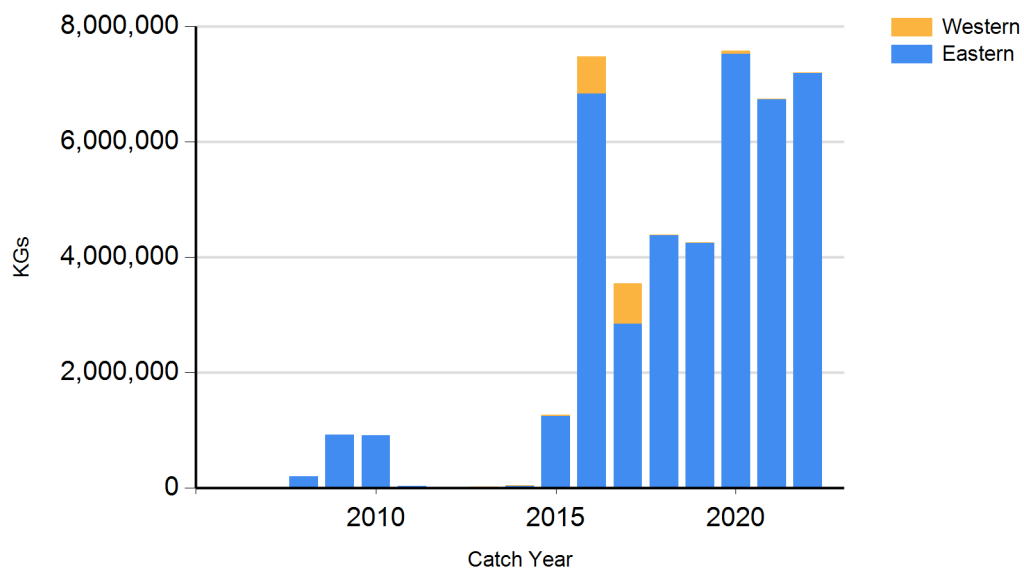
**Commonwealth – Recreational.** The Australian Government does not manage recreational fishing in Commonwealth waters. Recreational fishing in Commonwealth waters is managed by the state or territory immediately adjacent to those waters, under its management regulations.

**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.

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

## CATCH CHART

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Commercial catch of Common Jack Mackerel - note confidential catch not shown

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