Common Jack Mackerel (2018)

Trachurus declivis

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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Commonwealth, New South Wales, Tasmania	Eastern	OHF, OTF, SESSF (CTS), SF, SPF	Sustainable	Catch, effort, spawning biomass, exploitation rate
Commonwealth, Tasmania	Western	SESSF (CTS), SESSF (GABTS), SF	Sustainable	Catch, effort, spawning biomass, exploitation rate

SESSF (CTS) Southern and Eastern Scalefish and Shark Fishery (Commonwealth Trawl Sector) (CTH), SESSF (GABTS) Southern and Eastern Scalefish and Shark Fishery (Great Australian Bight Trawl Sector) (CTH), SPF Small Pelagic Fishery (CTH), OHF Ocean Hauling Fishery (NSW), OTF Ocean Trawl Fishery (NSW), SF Scalefish Fishery (TAS)

STOCK STRUCTURE

A study conducted to provide a basis for establishing management zones in the Commonwealth Small Pelagic Fishery (SPF) concluded that there is evidence for at least two biological stocks of Common Jack Mackerel in Australian waters: one off eastern Australia and the other extending from western Tasmania to southern Western Australia [Bulman et al. 2008]. Evidence supporting these conclusions include morphological, meristic and genetic differences between fish from these two areas [Lindholm and Maxwell 1988, Richardson 1982] and a lack of genetic difference between fish from eastern Tasmania and New South Wales [Smolenski et al. 1994]. There is some evidence that more than one stock may occur off eastern Australia, however further studies are required to address this issue [Richardson 1982, Smolenski et al. 1994]. Recent studies also demonstrate that spawning occurs off both the east and west coasts of Tasmania and in Bass Strait during summer, suggesting that Bass Strait may not effectively separate the eastern and western stocks [Ward et al 2016, 2018]. Currently in the SPF, Common Jack Mackerel and other target species are managed as separate Eastern and Western biological stocks [AFMA 2008, 2009].

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

STOCK STATUS

Eastern

The most recent assessment of the Eastern stock of Common Jack Mackerel was completed in 2018 using fishery data for 2016 [Ward and Grammer 2018] and an application of the DEPM undertaken in 2014 [Ward et al. 2016]. Population modelling has also been undertaken to assess the status of the stock [Punt et al. 2016]. The primary stock status indicators are spawning biomass and exploitation rate.

The spawning biomass of Eastern Common Jack Mackerel during 2014 was estimated to be 157 805 t (95 per cent confidence interval 59 570–358 731 t) using the DEPM [Ward et al. 2016]. This estimate is considered robust because it was based on reliable estimates of critical DEPM parameters such as egg production, spawning area and spawning fraction, and is within the range of preliminary estimates of spawning biomass off eastern Australia in 2002–04 of 114 900–169 000 t [Neira 2011, Ward et al. 2016].

Total annual catches of Common Jack Mackerel off eastern Australia declined from 9 873 t in 1997–98 to 381 t in 2000–01 and did not exceeded 3 000 t between 2003–04 and 2015 [Ward and Grammer 2018]. Catches were mainly taken by purse-seining from 1997–98 to 2000–01 and by mid-water trawling from 2001–02 onwards [Ward and Grammer 2018]. Minimal fishing was conducted between 2010–11 and 2013–14. In 2016, 9 300 t was taken by a factory trawler operating in the eastern SPF. In 2017, 742 t was taken by mid-water trawling [Ward and Grammer 2018].

Recent low catches of Eastern Common Jack Mackerel reflect low fishing effort, rather than low abundance [Ward and Grammer 2018]. The highest catch taken in 2016 of 9 300 t was less than 6 per cent of the estimated spawning biomass [Ward et al. 2016], and well below the sustainable exploitation rate of 12 per cent proposed as a target for this species [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 Common Jack Mackerel is classified as a **sustainable stock**.

Western

The most recent assessment of the Western stock of Common Jack Mackerel was completed in 2018 using fishery data for 2016 [Ward and Grammer 2018] and an application of the Daily Egg Production Method (DEPM) undertaken in 2016–17 [Ward et al. 2018]. The primary biological performance indicators are spawning biomass and exploitation rate.

The spawning biomass of Common Jack Mackerel West during 2016–17 was estimated to be at least 30 000 tonnes (t) using the DEPM [Ward et al. 2018]. Historically, total annual catches of Common Jack Mackerel West have been very low [< 100 t per annum]. Catches of between 600 t and 700 t per annum were taken in the western SPF in 2015 and 2016, when a factory trawler operated in the fishery. No catch was taken in the western SPF in 2017 following the departure of the factory trawler, with only small catches taken by other Commonwealth fisheries.

Low catches of Common Jack Mackerel from the Western stock reflect low fishing effort, rather than low abundance. Recent catches have been less than 3 per cent of the estimated minimum spawning biomass, and well below the exploitation rate considered safe for this species of 12 per cent [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 Common Jack Mackerel is classified as a **sustainable stock**.

BIOLOGY

Common Jack Mackerel biology [Lyle et al. 2000, Marshall et al. 1993, Webb 1976]

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

DISTRIBUTION

Distribution of reported commercial catch of Common Jack Mackerel

TABLES

Commercial Catch Methods	Commonwealth	New South Wales	Tasmania
Danish Seine	✓		
Haul Seine		✓	✓
Midwater Trawl	✓		
N/A		✓	
Otter Trawl	✓	✓	
Purse Seine	✓	✓	
Squid jigs (mechanised)	✓		
Unspecified			✓

Fishing methods			
	Commonwealth	New South Wales	Tasmania
Commercial			
Danish Seine	✓		
Haul Seine		✓	
Midwater Trawl	✓		
Otter Trawl	✓	✓	
Purse Seine		✓	
Unspecified			✓
Indigenous			
Handline		✓	
Recreational			
Gillnet			✓
Handline		✓	✓

Management Methods			
	Commonwealth	New South Wales	Tasmania
Commercial			
Bag limits			✓
Catch limits	✓		✓
Limited entry	✓	✓	✓
Mesh size regulations		✓	✓
Spatial closures		✓	✓
Vessel restrictions	✓	✓	✓
Indigenous			
Bag limits		✓	✓
Native Title		✓	
Section 37 (1d)(3)(9), Aboriginal cultural fishing authority		✓	
Recreational			
Bag limits		✓	✓
Spatial closures		✓	✓

Active Vessels			
	Commonwealth	South Australia	Tasmania

	18 Vessels in SESSF (CTS), 1 Vessels in SESSF (GABTS),	2 Licences in MSF,	5 Vessels in SF,

SESSF (CTS) Southern and Eastern Scalefish and Shark Fishery (Commonwealth Trawl Sector)(CTH)

SESSF (GABTS) Southern and Eastern Scalefish and Shark Fishery (Great Australian Bight Trawl Sector)(CTH)

MSF Marine Scalefish Fishery(SA)

SF Scalefish Fishery(TAS)

Catch			
	Commonwealth	**New South Wales**	**Tasmania**
Commercial	13.873t in SESSF (CTS), 0.025t in SESSF (GABTS), 741.534t in SPF,		0.0661t in SF,
Indigenous	Unknown	Unknown	Unknown
Recreational	Unknown	Negligible	5.2 t (2012–13)

SESSF (CTS) Southern and Eastern Scalefish and Shark Fishery (Commonwealth Trawl Sector) (CTH), SESSF (GABTS) Southern and Eastern Scalefish and Shark Fishery (Great Australian Bight Trawl Sector) (CTH), SPF Small Pelagic Fishery (CTH), OHF Ocean Hauling Fishery (NSW), OTF Ocean Trawl Fishery (NSW), SF Scalefish Fishery (TAS),

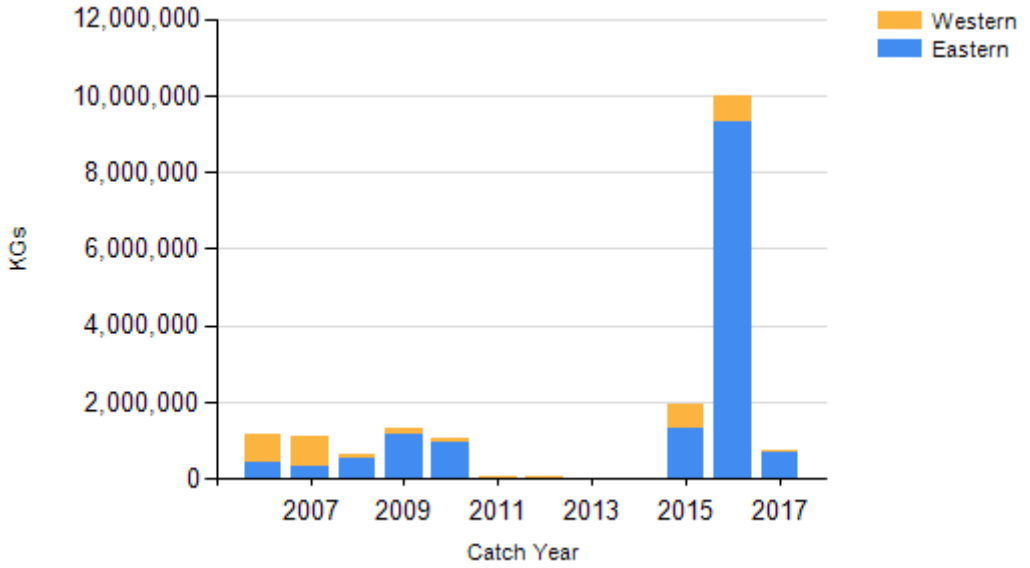
Commonwealth – Commercial (management methods) Historically, no restrictions on vessel hold capacity have been in place in the Small Pelagic Fishery (Commonwealth). However, in 2012, an interim declaration was made to prevent factory trawlers greater than 130 m in length with on-board fish processing facilities, and storage capacity for fish or fish products in excess of 2 000 t, from entering this fishery for a two year period.

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.

New South Wales – Indigenous (Management Methods) (a) Aboriginal Cultural Fishing Interim Access Arrangement—allows an Indigenous fisher in New South Wales to take in excess of a recreational bag limit in certain circumstances; for example, if they are doing so to provide fish to other community members who cannot harvest for themselves; (b) The Aboriginal cultural fishing authority is the authority that Indigenous persons can apply to take catches outside the recreational limits under the *Fisheries Management Act 1994* (NSW), Section 37 (1d)(3)(9), Aboriginal cultural fishing authority; and (c) In cases where the *Native Title Act 1993* (Cth) applies fishing activity can be undertaken by the person holding native title in line with S.211 of that Act, which provides for fishing activities for the purpose of satisfying their personal, domestic or non-commercial communal needs. In managing the resource where native title has been formally recognised, the native title holders are engaged with to ensure their native title rights are respected and inform management of the State's fisheries resources.

CATCH CHART



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

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

ENVIRONMENTAL EFFECTS on Common Jack Mackerel

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