

School Mackerel (2018)

Scomberomorus queenslandicus



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Western Australia, Northern Territory, Queensland	Northern Australia	GOCIFFF, MMF, SPDF	Negligible	Catch, Effort, Current and historical fishing pressure
Queensland	Central Eastern Australia	ECIFFF, RRFFF	Negligible	Catch, Effort, Current and historical fishing pressure
Queensland	North Eastern Australia	ECIFFF, ECIFFF RRFFF, RRFFF	Undefined	Catch and catch rate, Effort
Queensland, New South Wales	South Eastern Australia	ECIFFF, ECIFFF RRFFF, EGF, N/A, OTF, OTLF, RRFFF	Sustainable	Age structured surplus production model, Catch and catch rate, Effort, Fishery-dependent length frequency

EGF Estuary General Fishery (NSW), N/A Not Applicable (NSW), OTF Ocean Trawl Fishery (NSW), OTLF Ocean Trap and Line Fishery (NSW), ECIFFF East Coast Inshore Fin Fish Fishery (QLD), GOCIFFF Gulf of Carpentaria Inshore Fin Fish Fishery (QLD), RRFFF Rocky Reef Fin Fish Fishery (QLD), MMF Mackerel Managed Fishery (WA), SPDF Small Pelagic Developmental Fishery (NT), ECIFFF || RRFFF East Coast Inshore Fin Fish Fishery || Rocky Reef Fin Fish Fishery (QLD)

STOCK STRUCTURE

School Mackerel occur in continental shelf waters, often associated with coastal embayments, across the northern and eastern coasts of Australia [Collette and Russo 1984]. Concurrent spawning of fish in geographically dispersed locations may indicate reproductive isolation. In addition, hydrological conditions within embayments may reduce mixing of pelagic eggs and larvae along the coastline. These characteristics result in a complex stock structure for school mackerel [Begg et al. 1997, Begg et al. 1998a,b, Begg and Sellin 1998]. Off the east Australian coast, genetic dissimilarity, restricted movement patterns, concurrent spawning at multiple locations, regional difference in growth and otolith composition indicate the presence of at least two stocks between 16°S and 28°S [Begg et al. 1997, Begg et al. 1998a,b, Begg and Sellin 1998]. East coast stocks are considered to occupy the following latitudinal ranges: North Eastern Australia (19°30'S and 14°00'S); Central Eastern Australia (20°30'S to 19°30'S); and

South Eastern Australia (28°00'S to 20°30'S);

Here, the assessment of stock status is presented at the biological stock level—Northern Australia, North Eastern Australia, Central Eastern Australia and South Eastern Australia.

STOCK STATUS

Central Eastern Australia	<p>Stock status for the Central Eastern Australia biological stock is reported as Negligible due to historically low catches and because the stock has generally not been subject to targeted fishing. The Central Eastern Australia stock probably occupies a mixing zone between the Northern and South Eastern Australia stocks. This stock has produced historically low catches (average < 2 t per year for 10 years). This low level of fishing is unlikely to be having a negative impact on the stock.</p>
North Eastern Australia	<p>Total commercial harvest is small (< 2t in 2017). Standardised catch rates for the commercial net fishery are within historical ranges and are above the 10 year average in 2017 [QDAF 2018]. Standardised catch rates for the commercial line fishery fall within historical ranges but are below the 10 year average in 2017 [QDAF 2018]. Harvest levels and catch rates may be influenced by under-reporting in this stock. There is therefore insufficient biomass information available to confidently classify the status of this stock.</p> <p>Commercial harvest and effort (number of active licences and number of fishing days) are low [QDAF 2018] and although there may be some under-reporting of the commercial harvest, this stock is predominantly targeted by the recreational sector. Recreational fishing pressure is limited by a minimum legal size limit (MLS > size at maturity) and possession limits [QDAF 2018]. Recreational harvest estimates have remained relatively stable between 2000 and 2014 (11 277 fish in 2013–14, 10 709 fish in 2010–11 and 10 155 fish in 2000) [Webley et al. 2015, QDAF, 2018]. Indigenous harvest of this stock is considered to be Negligible. The above evidence indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.</p> <p>On the basis of the evidence provided above, the North Eastern Australia biological stock is classified as an undefined stock.</p>
Northern Australia	<p>Stock status for the Northern Australia biological stock is reported as Negligible due to historically low catches across all jurisdictions, and because the stock has generally not been subject to targeted fishing. School Mackerel is broadly distributed across northern Australia with components occurring in Western Australia, Northern Territory and Queensland [Begg et al. 1998a]. However, School Mackerel is not a major component of commercial or recreational landings. The Western Australian Mackerel Managed Fishery predominantly targets Spanish Mackerel (<i>Scomberomorus commerson</i>) with gear, and in locations, not conducive to catching School Mackerel. The Western Australian commercial and charter boat catches in 2008–17 averaged less than 0.3 tonnes (t) and 0.5 t per annum respectively. School mackerel is not a major component of Western Australia recreational landings, with an estimated retained catch of 4 t (± 1 t se) in 2015–16 [Ryan et al. 2017]. In the Northern Territory the recreational catch is < 1 t [West et al. 2012] and the commercial catch has averaged 50 kg per year over the last 10 years, with a maximum harvest of 239 kg in 2017. In Queensland Gulf of Carpentaria waters there is limited recreational catch and commercial catches have been < 0.3 t for the last three years [QDAF 2018, Webley et al. 2015]. This low level of fishing is unlikely to be having a negative impact on the stock.</p>
South	<p>This cross-jurisdictional biological stock has components in Queensland and New</p>

**Eastern
Australia**

South Wales. The status presented here for the entire biological stock has been established using evidence from both jurisdictions.

The majority of the fishery occurs in Queensland waters. Biomass estimates derived using an age-structured surplus production model (simpleSA) [Punt et al. 1995] show variable depletion has occurred through the Queensland catch time series, but have not approached the limit reference point [QDAF 2018]. Model trajectories show high variability in recent years, although most trajectories estimate that the current level of exploitable biomass is above 60 per cent of unfished biomass [QDAF 2018]. Standardised catch rates for the Queensland commercial line and net fisheries are within historical ranges, but are somewhat below the 10 year average in 2017 [QDAF 2018]. Fishery-dependent length composition data collected from the Queensland recreational sector indicates a broad range of lengths are present, with similar length composition observed for the previous five years [QDAF 2018]. This indicates stable age composition and recruitment. The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

In Queensland the commercial harvest effort (number of active licences and number of fishing days) is below historical highs for the net and line fisheries [QDAF 2018]. The number of licences and fishing days reported in the net fishery showed a marked drop in 2017 compared with the previous two years [QDAF 2018]. In contrast, the number of licences in the line fishery is approaching historical highs and indicates an increase in line fishing effort over the recent four years [QDAF 2018]. The Queensland commercial net harvest has been relatively stable between 2011 and 2016 but was below the 10 year average in 2017 at 42.5 t [QDAF 2018]. The Queensland commercial line harvest is increasing (12.3 t in 2017) after a sustained reduction observed between 2007 and 2013 [QDAF 2018]. Recreational fishing pressure in Queensland is limited by size and possession limits. The Queensland recreational harvest estimate has shown marked variation between 2000 and 2014. The 2013–14 estimate was 8 251 fish, lower than the 2011 estimate (20 197 fish), but higher than the 2000 estimate (4 025 fish) [Webley et al. 2015, QDAF, 2018]. Indigenous harvest of this stock is considered to be negligible.

New South Wales has historically reported very low catches of School Mackerel and the part of stock in this jurisdiction has not been subject to targeted fishing. The New South Wales commercial catch in 2012–17 averaged less than 0.15 t per annum, and School Mackerel is not a major component of recreational landings [West et al. 2015]. 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 Eastern Australia biological stock is classified as a **sustainable stock**.

BIOLOGY

School Mackerel biology [Begg 1996, Begg 1998, Begg and Hopper 1997, Begg and Sellin 1998, Begg et al. 1998a, Collette and Russo 1984, Munro 1943, QDAF 2018]

Species	Longevity / Maximum Size	Maturity (50 per cent)
School Mackerel	10 years, 1 180 mm TL, 11.2 kg	Females 1–2 years, 60–510 mm TL Males 1–2 years, 410–460 mm TL

DISTRIBUTION



Distribution of reported commercial catch of School Mackerel

TABLES

Commercial Catch Methods	New South Wales	Northern Territory	Queensland	Western Australia
Hook and Line	✓		✓	
N/A		✓	✓	✓
Net			✓	
Otter Trawl	✓			
Trolling	✓			
Unspecified	✓			

Fishing methods	New South Wales	Queensland
Charter		
Handline	✓	✓
Commercial		
Hook and Line	✓	✓
Net		✓
Otter Trawl	✓	
Trolling	✓	
Unspecified	✓	
Indigenous		
Handline	✓	✓
Recreational		
Handline	✓	✓
Management Methods		

	New South Wales	Queensland
Charter		
Bag and possession limits	✓	
Bag limits	✓	
Gear restrictions	✓	✓
Licence	✓	
Marine park closures	✓	
Possession limit		✓
Size limit	✓	✓
Spatial closures	✓	✓
Temporal closures		✓
Commercial		
Gear restrictions	✓	✓
Limited entry	✓	✓
Marine park closures	✓	
Size limit	✓	✓
Spatial closures	✓	✓
Temporal closures		✓
Vessel restrictions	✓	✓
Indigenous		
Bag and possession limits	✓	
Native Title	✓	
Section 37 (1d)(3)(9), Aboriginal cultural fishing authority	✓	
Recreational		
Bag and possession limits	✓	
Bag limits	✓	
Gear restrictions	✓	✓

Licence	✓	
Marine park closures	✓	
Possession limit		✓
Size limit	✓	✓
Spatial closures	✓	✓
Temporal closures		✓

Active Vessels	Northern Territory	Queensland	Western Australia
	2 LICENCES in SPDF,	144 in ECIFFF,	<3 in MMF, 12 in Charter,

ECIFFF East Coast Inshore Fin Fish Fishery(QLD)

MMF Mackerel Managed Fishery(WA)

SPDF Small Pelagic Developmental Fishery(NT)

Charter Tour Operator(WA)

Catch	New South Wales	Northern Territory	Queensland	Western Australia
Commercial	0.059t in N/A,		78.6564t in ECIFFF RRRFF,	
Indigenous	Unknown		Unknown	
Recreational	Unknown		43t (2013–14)	

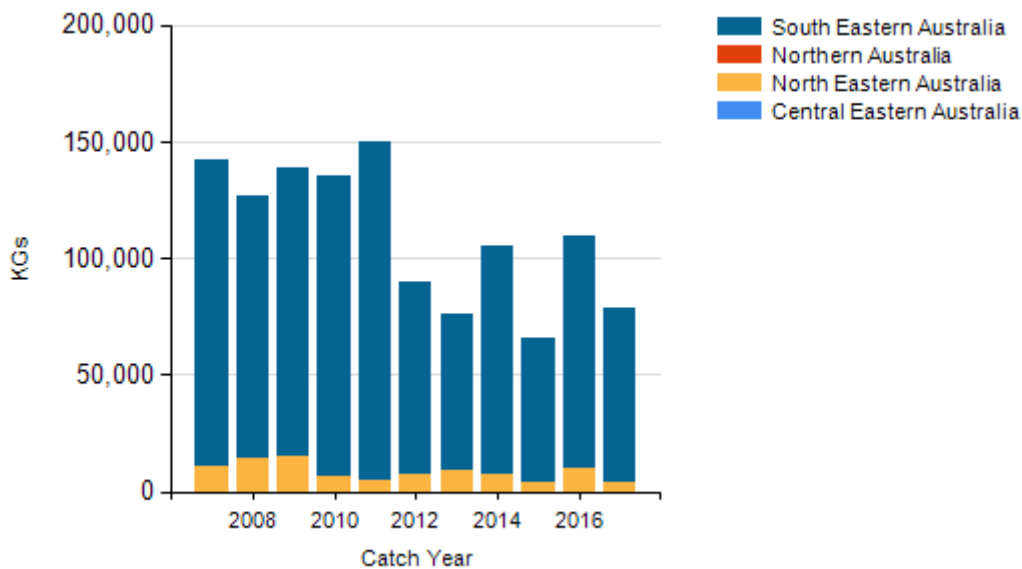
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Queensland – recreational (catch) Estimated from Webley et al. 2015 (22 000 fish retained by QLD residents) and an average weight of 2 kg.

Queensland - Indigenous (Management Methods) In Queensland, under the *Fisheries Act 1994*, Indigenous fishers are able to use prescribed traditional and non-commercial fishing apparatus in waters open to fishing. Size and bag limits and seasonal closures do not apply to Indigenous fishers. Further exemptions to fishery regulations can be obtained through permits

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 School Mackerel - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

ENVIRONMENTAL EFFECTS on School Mackerel

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