Blue Mackerel (2016)

Scomber australasicus

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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Commonwealth, New South Wales, Tasmania	Eastern	EGF, OHF, OTF, OTLF, SESSF (CTS), SF, SPF, VIT	Sustainable	Catch, effort and CPUE trends, spawning biomass, ecosystem modelling
Commonwealth, Western Australia, Tasmania	Western	SCTF,SWTMF, WL (SC & WC), SESSF (CTS), SESSF (GABTS), SF, WCPSF	Sustainable	Catch, effort

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), VIT Victorian Inshore Trawl Fishery (CTH), EGF Estuary General Fishery (NSW), OHF Ocean Hauling (NSW), OTF Ocean Trawl Fishery (NSW), OTLF Ocean Trap and Line (NSW), SF Scalefish Fishery (TAS), SCTF,SWTMF, WL (SC & WC) South Coast Trawl Fishery (Condition), South West Trawl Managed Fishery, Open access in the South Coast & West Coast (WA), WCPSF West Coast Purse-seine Fishery (Condition) (WA)

STOCK STRUCTURE

For the purpose of fisheries management, Blue Mackerel off southern Australia is currently considered to be comprised of 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[1,2]. Following a data synthesis undertaken to establish management zones in the Small Pelagic Fishery (Commonwealth)[3], Blue Mackerel and other target species are managed in western and eastern sub-areas[1,2], which reflect this stock structure.

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

STOCK STATUS

Eastern

The spawning biomass of Blue Mackerel off eastern Australia during 2014 was estimated to be around 83 300 t (95 per cent confidence interval = 35 100–165 000 t)[7], which is higher than the preliminary estimate of 23 009 t[8]obtained in 2004[4]. This estimate of spawning biomass for 2014 should be used with caution due to uncertainty in the estimates of adult parameters in the daily egg production model, especially spawning fraction[7]. The total annual catch off eastern Australia peaked at 1036 t in 2003–04 and decreased to 290 t in 2011–12[5]. There has been a general long-term decline in purse-seine effort in the Small Pelagic Fishery (Commonwealth) and a recent increase in mid-water trawl effort in 2014–15[5]. The total catch in 2014–15 was 442 t[5]. The recent decline in total catch is considered to reflect reductions in fishing effort rather than a decline in abundance[5]. Current catches are less than one per cent of the estimated spawning biomass in 2014[5], and well below the sustainable exploitation rate of 23 per cent suggested for this stock[6]. The above evidence indicates that the stock is unlikely to be recruitment overfished[5], and that the current level of fishing pressure is unlikely to cause the stock to become recruitment overfished.

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

Western

A preliminary application of the daily egg production method to Blue Mackerel off South Australia during 2005 provided an estimate spawning biomass of 56 228 tonnes (t)[4]. This estimate of spawning biomass was considered to be conservative as the survey only 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[4]. Total annual catches of Blue Mackerel from this stock were low in the late-1990s and early-2000s (less than 55 t) and increased to more than 2000 t in 2006–07 and 2008–09. Catches have been mainly taken by purse-seining. For Western Australian licenses commercial fishing for Blue Mackerel was prohibited in 1999, with a boat possession limit of only 10 fish. Most state catches from the Western biological stock have been taken by South Australian licenced vessels. Total annual catches from the Western biological stock decreased to less than 2 t in 2012–13 and have stayed low, with just 0.4 t being taken in 2014–15. Low annual catches in recent years reflect low levels of fishing effort rather than low biomass levels[5]. Recent catches are less than one per cent of the estimated spawning biomass from 2005[4], and well below the sustainable exploitation rate of 23 per cent suggested for this stock[6]. The above evidence indicates that the stock is unlikely to be recruitment overfished[5]and that the current level of fishing pressure is unlikely to cause the stock to become recruitment overfished.

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

BIOLOGY

Blue Mackerel biology[5,8,9]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Blue Mackerel	8 years; 440 mm FL	2 years; 2370–2870 mm FL

DISTRIBUTION

Distribution of reported commercial catch of Blue Mackerel

TABLES

Commercial Catch Methods	Commonwealth	New South Wales	Tasmania	Western Australia
Gillnet			✓	
Hand Line, Hand Reel or Powered Reels		✓		
Midwater Trawl	✓			
Otter Trawl	✓			
Purse Seine	✓	✓		
Unspecified			✓	
Various			✓	✓

Fishing methods				
	Commonwealth	New South Wales	Tasmania	Western Australia
Commercial				
Hand Line, Hand Reel or Powered Reels		✓		
Midwater Trawl	✓			
Otter Trawl	✓			
Purse Seine	✓	✓		
Unspecified			✓	
Various			✓	✓

Indigenous				
Hand Line, Hand Reel or Powered Reels		✓		
Recreational				
Gillnet			✓	
Hand Line, Hand Reel or Powered Reels		✓	✓	✓

Management Methods				
	Commonwealth	**New South Wales**	**Tasmania**	**Western Australia**
Commercial				
Catch limits	✓			✓
Limited entry	✓	✓	✓	✓
Mesh size regulations	✓	✓	✓	
Spatial closures	✓	✓	✓	✓
Vessel restrictions	✓	✓	✓	
Indigenous				
Bag limits		✓	✓	
Section 31 (1)(c1), Aboriginal cultural fishing authority		✓		
Spatial closures		✓		
Recreational				
Bag limits		✓	✓	✓
Spatial closures		✓		

Active Vessels				
	Commonwealth	**New South Wales**	**Tasmania**	**Western Australia**
	8 Vessel in SESSF (CTS), 2 Vessel in SESSF (GABTS), 2 Vessel in SPF,	8 Vessel in EGF, 14 Vessel in OHF, 29 Vessel in OTF, 57 Vessel in OTLF,	11 Vessel in SF,	69 Vessel in SCTF,SWTMF, WL (SC & WC), 7 Vessel in WCPSF,

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)

EGF Estuary General Fishery(NSW)

OHF Ocean Hauling(NSW)

OTF Ocean Trawl Fishery(NSW)

OTLF Ocean Trap and Line(NSW)

SF Scalefish Fishery(TAS)

SCTF,SWTMF, WL (SC & WC) South Coast Trawl Fishery (Condition), South West Trawl Managed Fishery, Open access in the South Coast & West Coast(WA)

WCPSF West Coast Purse-seine Fishery (Condition)(WA)

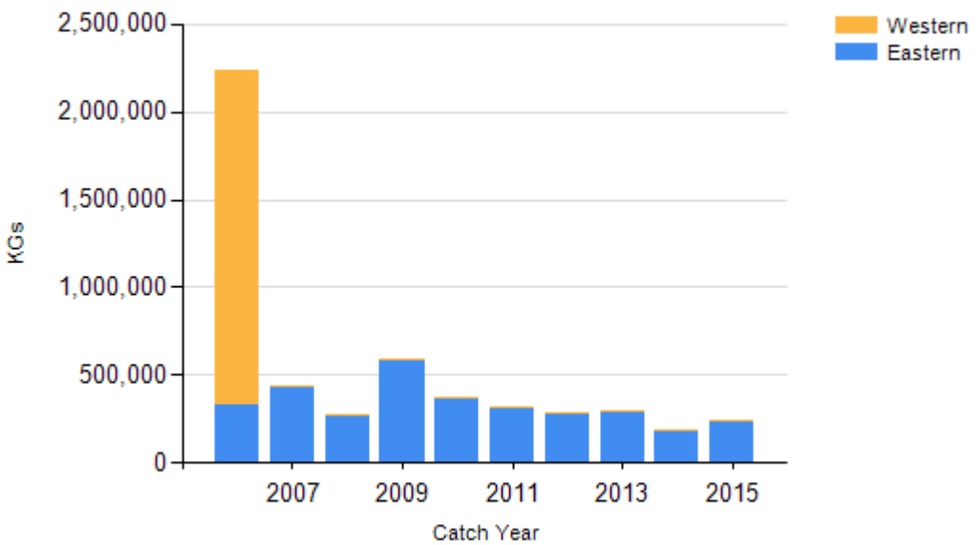
Catch				
	Commonwealth	New South Wales	Tasmania	Western Australia
Commercial	2.002t in SESSF (CTS),	1.0118t in EGF, 232.422t in OHF, 2.7028t in OTF, 10.1337t in OTLF,	0.2485t in SF,	0.173t in WCPSF,
Indigenous		Unknown	Unknown	
Recreational		125 000 fish in 2013/14	5.2 t (2012–13)	Negligible

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), VIT Victorian Inshore Trawl Fishery (CTH), EGF Estuary General Fishery (NSW), OHF Ocean Hauling (NSW), OTF Ocean Trawl Fishery (NSW), OTLF Ocean Trap and Line (NSW), SF Scalefish Fishery (TAS), SCTF,SWTMF, WL (SC & WC) South Coast Trawl Fishery (Condition), South West Trawl Managed Fishery, Open access in the South Coast & West Coast (WA), WCPSF West Coast Purse-seine Fishery (Condition) (WA),

a 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.
b 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.
c 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 2000 t, from entering this fishery for a two year period.
d 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.
e New South Wales – Indigenous (management methods) 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 themselves.
f New South Wales – Indigenous (management methods) Aboriginal cultural fishing authority - the authority that Indigenous persons can apply to take catches outside the recreational limits under the Fisheries Management Act 1994 (NSW), Section 37 (1)(c1), Aboriginal cultural fishing authority.
g 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 Unique Identifying Code (UIC) to a person for Aboriginal Fishing activity explains the steps to take in making an application for a UIC.

CATCH CHART



Commercial catch of Blue Mackerel - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

- Purse-seine and mid-water trawl fisheries interact with marine mammals, including seals and dolphins. In Australian waters, some purse-seine fisheries commonly interact with the Short-beaked Common Dolphin[11]. A Code of Practice has been successful in mitigating but not eliminating interactions with dolphins in one Australia purse-seine fishery[11]. Mortalities of both seals and dolphins have been recorded during mid-water trawls in the Small Pelagic Fishery (Commonwealth) (SPF)[12]. Dolphin rarely interact with mid-water trawls, however, seals commonly enter and forage in these nets, with some mortalities[12]. Seal excluder devices in the trawl nets have reduced, but not eliminated, seal mortalities[12].
- Blue Mackerel are prey for a range of predatory species, including tunas, sharks, marine mammals and seabirds. However, in Australia most predators forage on a wide range of prey are not dependent heavily dependent on one or two species[6,13,14]. Recent research also indicates that fishing for Blue Mackerel and other small pelagic species has only minor impacts on other parts of the ecosystem, as alternative food sources exist for large predator species[6,14]. Catch limits in the SPF at set at conservative levels which consider the ecological roles of Blue Mackerel[1,2,6].

ENVIRONMENTAL EFFECTS on Blue Mackerel

- Blue Mackerel are associated with relatively warm water and their distributions off the east coast and in the Great Australian Bight are likely to be associated with the strength of intrusion of the warm East Australia Current and Leeuwin Current, respectively[8].

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