

Yellowtail Scad (2018)

Trachurus novaezelandiae



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Commonwealth, Queensland, New South Wales	Eastern Australia	ECIFFF, FTF, N/A, OHF, OTF, OTLF, SESSF (CTS), SPF	Sustainable	Historical catch and effort data, natural mortality, fishing mortality, fishing gear selectivity
Western Australia	Western Australia	CSFNMF, CSFNMF SBBSMNMF SCEMF SCPSMF WCPSMF WL (SC), SBBSMNMF, SCEMF, SCPSMF, WCPSMF, WL (SC)	Undefined	

SESSF (CTS) Southern and Eastern Scalefish and Shark Fishery (Commonwealth Trawl Sector) (CTH), SPF Small Pelagic Fishery (CTH), N/A Not Applicable (NSW), OHF Ocean Hauling Fishery (NSW), OTF Ocean Trawl Fishery (NSW), OTLF Ocean Trap and Line Fishery (NSW), ECIFFF East Coast Inshore Fin Fish Fishery (QLD), FTF Finfish Trawl Fishery (QLD), CSFNMF Cockburn Sound (Fish Net) Managed Fishery (WA), SBBSMNMF Shark Bay Beach Seine and Mesh Net Managed Fishery (WA), SCEMF South Coast Estuarine Managed Fishery (WA), SCPSMF South Coast Purse-Seine Managed Fishery (WA), WCPSMF West Coast Purse-Seine Managed Fishery (Condition) (WA), WL (SC) Open Access in the South Coast (WA), CSFNMF || SBBSMNMF || SCEMF || SCPSMF || WCPSMF || WL (SC) Various Fisheries combined due to 3 boat rule (WA)

STOCK STRUCTURE

Yellowtail Scad have an Australian distribution from southern Queensland to northern Western Australia [Stewart and Ferrell 2001], and also occur off New Zealand [Horn 1993]. The biological stock structure of Yellowtail Scad remains unknown; but in New South Wales there is evidence of spatial differences in growth rates which might be indicative of subpopulations [Stewart and Ferrell 2001]. Similar population variability has been observed for Yellowtail Scad in New Zealand [Horn 1993].

Here, assessment of stock status is presented at the biological stock level—Eastern Australia;

and jurisdictional—Western Australia

STOCK STATUS

Eastern Australia

This cross-jurisdictional biological stock has components in southern Queensland and New South Wales. Each jurisdiction assesses the part of the stock that occurs in its waters. The status presented here for the entire biological stock has been established using evidence from all jurisdictions.

In Queensland, Yellowtail Scad are caught by net and line in the East Coast Inshore Fin Fish Fishery and the Stout Whiting Trawl Fishery. No assessment of Yellowtail Scad has been completed in Queensland with specific reporting of catch unreliable because the species is often recorded as part of a species complex "Scad-Unspecified". A peak catch of 87 tonnes (t) and effort of 376 days were reported in 2002; of which 60 t was specifically reported as Yellowtail Scad [QDAF 2018]. Annual commercial catches have reduced to an average of 21 t since 2010. Effort has displayed the same trend, reducing from a peak of 608 days in 2006 to 279 days in 2017 [QDAF 2018]. The overall catch of Yellowtail Scad in Queensland contributes only a minor portion of the total Eastern Australia catch. Estimates of the recreational harvest of Yellowtail Scad in Queensland are unavailable, with only a few households reporting catch in a recent recreational fishing survey [Webley et al. 2015]. No recreational size limit exists for Yellowtail Scad, although a bag limit of 20 applies to all members of its family (Carangidae).

Most of the national landed catches of Yellowtail Scad are restricted to New South Wales, and typically have been between 300 and 600 t per year—up to 70 per cent of which is harvested by small boats (5–15 m long) deploying purse seines with variable mesh sizes (stretched mesh openings) between 10 and 150 mm and headline lengths from 275 to 1 000 m long [Stewart and Ferrell 2001]. There is a substantial Commonwealth component to the fishery, but these catches mostly are captured within New South Wales reporting. The species is also caught in small quantities as by-product by ocean prawn and fish trawlers [Kennelly et al. 1998]. The New South Wales recreational harvest of Yellowtail Scad (often used as live bait; Lowry et al. 2006) is substantially less at ~15 to 60 t per year [Henry and Lyle 2003, West et al. 2015]. There is no legal size for the species, although like for Queensland, recreational fishers in New South Wales are restricted to a generic daily personal bag limit of 20 fish.

Few Australian studies have assessed population parameters for Yellowtail Scad, and all work is limited to south eastern stocks [Broadhurst et al. 2018, Neira 2009, Neira et al. 2015, Stewart et al. 1999, Stewart and Ferrell 2001]. Spawning is assumed to occur along continental shelf waters during early spring, and potentially in response to discrete water masses with specific temperatures [Neira et al. 2015]. Size-at-age data derived from otoliths suggest that the species grows more slowly off southern than northern New South Wales, with mean sizes of 189 and 204 mm FL at two years and 231 and 272 mm at eight years, respectively [Stewart and Ferrell 2001]. The estimated asymptotic lengths are 238 and 308 mm, respectively [Stewart and Ferrell 2001].

Most of the purse-seine catch is based on fish aged two or three years [Stewart and Ferrell 2001, Broadhurst et al. 2018]. There has been a broad temporal reduction in effort from a peak of approximately 2 289 boat days in 1999–2000 to 642 boat days in 2015–16, but an increase in nominal catch per unit effort from around 200 kg per boat day to more than 400 kg per boat day in the most recent years. As part of fisheries reforms, in future the stock will be subject to total allowable catch. The above evidence indicates that the biomass of the stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

Based on historical catches, along with size-at-age data, Broadhurst et al. [2018] modelled fishing mortality as low, while fleet selectivity was estimated to

increase from nil at age zero to 100 per cent at age seven, and with a 50 per cent selection at age five. Natural mortality was estimated at 0.22 per year, comprising most of the total mortality [i.e. low fishing mortality; Broadhurst et al. 2018]. The above evidence indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

The available data are few and limited to preliminary modelling that has precluded estimating biomass and recruitment. But, assuming accurate reporting of catches and effort, the Eastern Australian population of Yellowtail Scad appears to be stable. On the basis of the evidence provided above, the Eastern Australia biological stock is classified as a **sustainable stock**.

Western Australia

The biology and demography of Yellowtail Scad in Western Australia have not been studied. The most recent WA commercial catch was 14.5 t, while the recreational catch is considered negligible. The low catches from both west and south coast jurisdictional stocks, taken mainly by the commercial purse-seine sector that target other species, were primarily due to factors unrelated to stock abundance, such as economic return. For example, the largest annual south coast catch on record, 104 t in 1999, was due to a mass mortality of the primary target species, Australian Sardine. Catch and catch rates do not adequately indicate stock status. There is insufficient information available to classify the status of the Western Australia biological stock, and so it is considered an **undefined stock**.

BIOLOGY

Yellowtail Scad biology [Broadhurst et al. 2018, Stewart and Ferrell 2001]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Yellowtail Scad	24 years, 330 mm FL	2–4 years, 200–220 mm FL

DISTRIBUTION



Distribution of reported commercial catch of Yellowtail Scad

TABLES

Commercial Catch Methods	Commonwealth	New South Wales	Queensland	Western Australia
Beach Seine				✓
Danish Seine	✓		✓	
Gillnet				✓
Hand Line, Hand Reel or Powered Reels				✓
Haul Seine				✓
Hook and Line		✓	✓	
Net			✓	
Otter Trawl	✓	✓		✓
Purse Seine	✓	✓		✓
Trawl			✓	
Unspecified		✓		✓

Fishing methods	Commonwealth	New South Wales	Queensland	Western Australia
Charter				
Hook and Line		✓		
Various		✓		
Commercial				
Beach Seine				✓
Danish Seine			✓	
Gillnet				✓
Hand Line, Hand Reel or Powered Reels				✓
Haul Seine				✓
Hook and Line		✓	✓	
Net			✓	
Otter Trawl	✓	✓		
Purse Seine	✓	✓		✓
Trawl			✓	
Unspecified		✓		✓
Indigenous				
Hook and Line		✓		
Recreational				
Hook and Line		✓	✓	
Various		✓		

Management Methods			
	New South	Queensland	Western

	Wales		Australia
Charter			
Bag limits			✓
Fishing gear and method restrictions	✓		
Gear restrictions		✓	
Licence			✓
Limited entry	✓		✓
Possession limit		✓	
Spatial closures	✓		✓
Commercial			
Fishing gear and method restrictions	✓		✓
Gear restrictions		✓	
Limited entry	✓	✓	✓
Spatial closures	✓	✓	
Spatial zoning			✓
Temporal closures		✓	
Total allowable catch		✓	✓
Vessel restrictions		✓	✓
Indigenous			
Bag limits	✓		
Native Title	✓		
Section 37 (1d)(3)(9), Aboriginal cultural fishing authority	✓		
Recreational			
Bag limits	✓		✓
Fishing gear and method restrictions	✓		
Gear restrictions		✓	
Licence (boat-based sector)			✓
Possession		✓	✓

limit			
Spatial closures	✓		✓

Active Vessels	Commonwealth	New South Wales	Queensland	Western Australia
	1 Vessels in SESSF (CTS), 2 Vessels in SPF,	13 Fishing Business in EGF, 9 Fishing Business in EPTF, 18 Fishing Business in OHF, 46 Fishing Business in OTF, 34 Fishing Business in OTLF,	33 in ECIFFF, 1 in FTF,	<3 in CSFNMF, 3 in SBBSMNMF, 3 in SCEMF, 4 in SCPSMF, 3 in WCPSMF, 3 in WL (SC), <3 in Charter,

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

SPF Small Pelagic Fishery(CTH)

EGF Estuary General Fishery(NSW)

EPTF Estuary Prawn Trawl Fishery(NSW)

OHF Ocean Hauling Fishery(NSW)

OTF Ocean Trawl Fishery(NSW)

OTLF Ocean Trap and Line Fishery(NSW)

ECIFFF East Coast Inshore Fin Fish Fishery(QLD)

FTF Finfish Trawl Fishery(QLD)

CSFNMF Cockburn Sound (Fish Net) Managed Fishery(WA)

SBBSMNMF Shark Bay Beach Seine and Mesh Net Managed Fishery(WA)

SCEMF South Coast Estuarine Managed Fishery(WA)

SCPSMF South Coast Purse-Seine Managed Fishery(WA)

WCPSMF West Coast Purse-Seine Managed Fishery (Condition)(WA)

WL (SC) Open Access in the South Coast(WA)

Charter Tour Operator(WA)

Catch	Commonwealth	New South Wales	Queensland	Western Australia
Charter		Unknown		Unknown
Commercial	0.07t in SESSF (CTS), 0.09t in SPF,	6.051t in N/A, 262.168t in OHF, 25.065t in OTF, 16.831t in OTLF,	9.7296t in ECIFFF, 6.635t in FTF,	14.474t in CSFNMF SBBSMNMF SCEMF SCPSMF WCPSMF WL (SC),
Indigenous	Unknown	Unknown	Unknown	Unknown
Recreational		15–60t	Unknown	Unknown

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

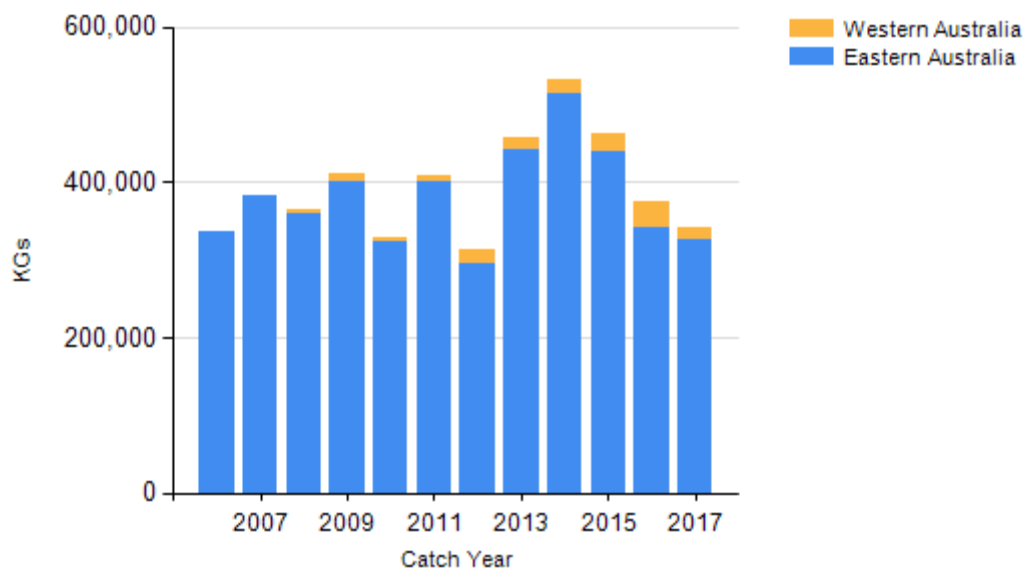
Pelagic Fishery (CTH), N/A Not Applicable (NSW), OHF Ocean Hauling Fishery (NSW), OTF Ocean Trawl Fishery (NSW), OTLF Ocean Trap and Line Fishery (NSW), ECIFFF East Coast Inshore Fin Fish Fishery (QLD), FTF Finfish Trawl Fishery (QLD), CSFNMF Cockburn Sound (Fish Net) Managed Fishery (WA), SBBSMNMF Shark Bay Beach Seine and Mesh Net Managed Fishery (WA), SCEMF South Coast Estuarine Managed Fishery (WA), SCPSMF South Coast Purse-Seine Managed Fishery (WA), WCPSMF West Coast Purse-Seine Managed Fishery (Condition) (WA), WL (SC) Open Access in the South Coast (WA), CSFNMF || SBBSMNMF || SCEMF || SCPSMF || WCPSMF || WL (SC) Various Fisheries combined due to 3 boat rule (WA),

Western Australia – Recreational (Management Methods) A ‘recreational-fishing-from-boat license’ is required when using a powered boat to fish, or transport catch or fishing gear to or from a land-based fishing location. Shore based catches are largely unknown

Queensland – Indigenous (Management Methods) Under the *Fisheries Act 1994* (Qld), Indigenous fishers in Queensland are entitled to use prescribed traditional and Non-commercial fishing apparatus in waters open to fishing. Size and possession limits, and seasonal closures do not apply to Indigenous fishers. Further exemptions to fishery regulations may be applied for through permits.

New South Wales – Indigenous (Management Methods) (a) The 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; (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 Yellowtail Scad - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

ENVIRONMENTAL EFFECTS on Yellowtail Scad

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