

Yellowtail Kingfish (2016)

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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Commonwealth, Queensland, New South Wales	Eastern Australia	HSF, OTLF, RRFFF, SESSF (CTS), SESSF (GHTS)	Undefined	Commercial catch rates, fishing mortality, yield per recruit analysis
Western Australia	Western Australia	JASDGLMF, SCEMF, WCDSIMF, WL (SC)	Sustainable	Catch

HSF High Seas Fishery (CTH), SESSF (CTS) Southern and Eastern Scalefish and Shark Fishery (Commonwealth Trawl Sector) (CTH), SESSF (GHTS) Southern and Eastern Scalefish and Shark Fishery (Gillnet Hook and Trap Sector) (CTH), OTLF Ocean Trap and Line (NSW), RRFFF Rocky Reef Fin Fish Fishery (QLD), JASDGLMF Joint Authority Southern Demersal Gillnet and Demersal Longline Managed Fishery (Zone 1 & Zone 2) (WA), SCEMF South Coast Estuarine Managed Fishery (WA), WCDSIMF West Coast Demersal Scalefish (Interim) Managed Fishery (WA), WL (SC) Open Access in the South Coast (WA)

STOCK STRUCTURE

Yellowtail Kingfish are known to be a highly mobile and wide-ranging species with a distribution extending throughout temperate waters of the Pacific and Indian Oceans[1]. In Australian waters, they are distributed from southern Queensland to the central coast of Western Australia, the east coast of Tasmania, and around Lord Howe and Norfolk Islands. There is a higher abundance of Yellowtail Kingfish off the east Australian coast during summer and autumn in response to shelf incursions of the East Australian Current[2]. Results from the New South Wales gamefish tagging program indicate that Yellowtail Kingfish undertake extensive movements along the north-east coast of Australia and between Australia and New Zealand[3]. Recent genetic research[4] indicated separate east and west coast populations in Australia, but no genetic difference was found between New Zealand fish and eastern (New South Wales) or central (South Australia, Victoria) Australian fish, confirming earlier work that found no evidence of genetic differentiation between New Zealand and New South Wales Yellowtail Kingfish[5].

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

and Western Australia.

STOCK STATUS

Eastern Australia	<p>Yellowtail Kingfish are caught in Commonwealth, Queensland and New South Wales waters, as well as in the high seas. The stock status presented here considers evidence from the three jurisdictions.</p> <p>Catch in Commonwealth fisheries over the past 10 years has averaged around 9 tonnes (t) per year, the majority of which was taken in the Commonwealth Trawl sector of the Southern and Eastern Scalefish and Shark Fishery. Vessels operating on the high seas have also taken the species, with average catches over the past 10 years in the order of 24 t per year. There have been no stock assessments for Yellowtail Kingfish in these fisheries.</p> <p>Reported catch from the Queensland fishery is relatively minor, ranging from 3–14 t per year over the period from 2004–15. Recreational catch (including charter) was estimated to be around 10 t.</p> <p>Information regarding the Eastern Australian stock is primarily based on evidence from New South Wales. The New South Wales component of the stock is assessed annually in terms of commercial landings catch rates and size composition. Yellowtail Kingfish are currently classified by New South Wales as uncertain. Yellowtail Kingfish in New South Wales are considered to be growth overfished (that is, fish are harvested at an average size that is smaller than the size that would produce the maximum yield per recruit) and updated mortality and spawning potential ratio estimates indicate that the stock may be depleted. New South Wales commercial landings in 2016 (around 108 t) are now substantially lower than the average (more than 500 t per year) during the late-1980s. Commercial catch rates since 2009 (kg per day line fishing) have decreased from 22 kg per day to around 10 kg per day in 2014–15 however, median catch rates for the previous decade have been more consistent at, or around, 10 kg per day. Although the fishery continues to be based largely on juveniles, the size composition in commercial landings has remained relatively stable since the 1990s, except for the effect of increasing the minimum legal length in 2007.</p> <p>There have however, been no age composition estimates since 2001[6]. This analysis, which used 1998–2000 age data, estimated that fishing mortality was likely to be greater than natural mortality and the spawning potential ratio (SPR) was likely to be below a 20 per cent SPR limit reference point, at that time[6,7]. These estimates are based on data that is around 15 years old[6], but length composition data suggests that there have been no major changes to the fishery during that time. The most recent information derived from the 2013–14 survey of recreational fishing in New South Wales[8] indicated that recreational fishers, with an estimated harvest of 120 t, landed slightly more than half (52.5 per cent) of the total catch. Comparison with the previous estimate (2000–01)[9] indicates a decrease in recreational catch, which was associated with a reduction in overall numbers of anglers participating and an increase in catch rates. As a result of the conflicting evidence above, and the substantial uncertainty around total mortality levels, there is insufficient information available to confidently classify the status of this stock.</p> <p>On the basis of the evidence provided above, the Eastern Australian biological stock is classified as an undefined stock.</p>
Western Australia	<p>In Western Australia, Yellowtail Kingfish makes up a very minor component of commercial and recreational catches. Commercially, catches of Yellowtail</p>

Kingfish have been less than 1 t for any of the fishery sectors and total commercial catches for all fisheries have been less than 3 t per year since 1999. Recreational catches of Yellowtail Kingfish have not exceeded 10 t. Yellowtail Kingfish are not targeted by any sector and there is no evidence that catches have fluctuated greatly through time as a result of fishing.

In Western Australia, all species of fish are allocated to a suite for monitoring and assessment purposes. Yellowtail Kingfish are part of the large pelagic resource in Western Australia, which uses Spanish Mackerel, Grey Mackerel and Samsonfish as indicator species[10]. As the status of each of these indicator stocks is sustainable, then this implies that the Yellowtail Kingfish stock is also sustainable.

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

BIOLOGY

Yellowtail Kingfish biology[6,7]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Yellowtail Kingfish	20+ years; 1900 mm <u>FL</u>	5–10 years; 800–1250 mm <u>FL</u>

DISTRIBUTION



Distribution of reported commercial catch of Yellowtail Kingfish

TABLES

Commercial Catch Methods	Commonwealth	New South Wales	Queensland	Western Australia
Danish Seine	✓			
Demersal Gillnet	✓			

Demersal Longline	✓			
Demersal Pair Trawl	✓			
Dropline	✓			
Hand Line, Hand Reel or Powered Reels	✓	✓		
Line		✓	✓	
Otter Trawl	✓			
Trolling		✓		
Various		✓		✓

Fishing methods				
	Commonwealth	New South Wales	Queensland	Western Australia
Commercial				
Demersal Gillnet	✓			
Demersal Longline	✓			
Dropline	✓			
Hand Line, Hand Reel or Powered Reels		✓		
Line		✓	✓	
Otter Trawl	✓			
Trolling		✓		
Various		✓		✓
Indigenous				
Hand Line, Hand Reel or Powered Reels		✓	✓	✓
Spearfishing		✓	✓	
Recreational				
Hand Line, Hand Reel or Powered Reels		✓	✓	✓
Spearfishing		✓	✓	
Management Methods				
	Commonwealth	New South Wales	Queensland	Western Australia
Commercial				
Limited entry	✓	✓	✓	✓

Size limit		✓	✓	✓
Spatial closures		✓	✓	✓
Vessel restrictions		✓	✓	✓
Indigenous				
Bag limits			✓	
Gear restrictions		✓	✓	
Section 31 (1)(c1), Aboriginal cultural fishing authority			✓	
Size limit			✓	
Spatial closures		✓	✓	
Recreational				
Bag limits		✓	✓	✓
Gear restrictions		✓	✓	
Licence		✓	✓	✓
Possession limit		✓	✓	✓
Size limit		✓	✓	✓
Spatial closures		✓	✓	✓
Active Vessels				
	Commonwealth	New South Wales	Queensland	Western Australia
	2 License in HSF, 9 License in SESSF (CTS), 16 License in SESSF (GHTS),	126 License in OTLF,	73 License in RRFFF,	69 License in WL (SC), 2 Vessel in JASDGDMF, 12 Vessel in WL (SC), 1 Vessel in SCEMF, 5 Vessel in WCDSCMF,

HSF High Seas Fishery(CTH)

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

SESSF (GHTS) Southern and Eastern Scalefish and Shark Fishery (Gillnet Hook and Trap Sector)(CTH)

OTLF Ocean Trap and Line(NSW)

RRFFF Rocky Reef Fin Fish Fishery(QLD)

JASDGDMF Joint Authority Southern Demersal Gillnet and Demersal Longline Managed Fishery (Zone 1 & Zone 2)(WA)

SCEMF South Coast Estuarine Managed Fishery(WA)

WCDSIMF West Coast Deep Sea Crustacean Managed Fishery(WA)

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

Catch	Commonwealth	New South Wales	Queensland	Western Australia
Commercial	36.2381t in HSF, 6.6814t in SESSF (CTS), 0.84379t in SESSF (GHTS),	108.996t in OTLF,	4.13145t in RRFFF,	0.3616t in WCDSIMF, 0.687t in WL (SC),
Indigenous	Unknown	Unknown	Unknown	Unknown
Recreational	Unknown	120 t in 2013–14	1t	<0.5t

HSF High Seas Fishery (CTH), SESSF (CTS) Southern and Eastern Scalefish and Shark Fishery (Commonwealth Trawl Sector) (CTH), SESSF (GHTS) Southern and Eastern Scalefish and Shark Fishery (Gillnet Hook and Trap Sector) (CTH), OTLF Ocean Trap and Line (NSW), RRFFF Rocky Reef Fin Fish Fishery (QLD), JASDGLMF Joint Authority Southern Demersal Gillnet and Demersal Longline Managed Fishery (Zone 1 & Zone 2) (WA), SCEMF South Coast Estuarine Managed Fishery (WA), WCDSIMF West Coast Demersal Scalefish (Interim) Managed Fishery (WA), WL (SC) Open Access in the South Coast (WA),

a Commonwealth – Recreational The Commonwealth Government does not manage recreational fishing. Recreational fishing in Commonwealth waters is managed by the states or territory immediately adjacent to those waters, under their management regulations.

b Commonwealth – Indigenous The Commonwealth Government does not manage non-commercial Indigenous fishing (with the exception of the Torres Strait). In general, non-commercial Indigenous fishing in Commonwealth waters is managed by the states or territory immediately adjacent to those waters. In the Torres Strait both commercial and non-commercial Indigenous fishing is managed by the Torres Strait Protected Zone Joint Authority (PZJA) through the Australian Fisheries Management Authority (Commonwealth), Department of Agriculture Fisheries and Forestry (Queensland) and the Torres Strait Regional Authority. The PZJA also manages non-Indigenous commercial fishing in the Torres Strait.

c Queensland – Indigenous (management methods) In Queensland, under the Fisheries Act 1994 (Qld), 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.

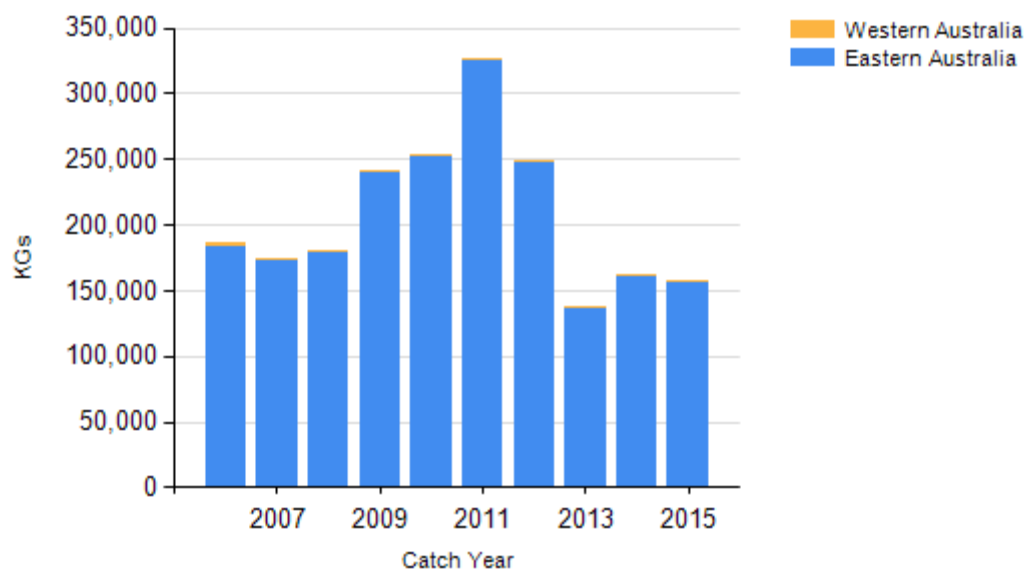
d New South Wales – Indigenous (management method) Aboriginal fishing interim compliance policy (increased bag limits) - allows an Aboriginal fisher in New South Wales to take in excess of a recreational bag limit in certain circumstances, for example, if they are doing so to provide fish to other community members who cannot harvest themselves.

e New South Wales – Indigenous (management method) Aboriginal cultural fishing authority - the authority that indigenous persons can apply for to take catches outside the recreational limits under the Fisheries Management Act 1994 (NSW), Section 37 (1)(c1), Aboriginal cultural fishing authority.

f Western Australia – Recreational In Western Australia, a recreational fishing from boat licence is required to take finfish from a powered vessel.

g Western Australia – Recreational Boat-based recreational catch from 1 May 2013–30 April 2014.

CATCH CHART



Commercial catch of Yellowtail Kingfish - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

- Beyond the removal of fish, there is little evidence to suggest that the fisheries targeting Yellowtail Kingfish impact significantly on benthic or pelagic ecological communities in the area as a whole.

ENVIRONMENTAL EFFECTS on Yellowtail Kingfish

- Climate change and variability have the potential to impact fish stocks in a range of ways, including geographic distribution (for example, latitudinal shifts in distribution). Recent work utilising species distribution models[2] have identified sea surface temperature as a significant environmental predictor for Yellowtail Kingfish distributions. Yellowtail Kingfish also show strong seasonal changes in their distribution in response to changes in regional oceanography, namely shelf incursions of the East Australian Current. While it is unclear how climate change may affect risks to sustainability of Yellowtail Kingfish the recent development of species distribution models for Yellowtail Kingfish provide a framework for the quantitative testing of likely scenarios and potentially help to inform strategies to mitigate potential impacts.

References	
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