

Yellowfin Bream (2020)

Acanthopagrus australis



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Queensland, New South Wales, Victoria	Eastern Australia	Sustainable	Stock assessment, commercial catch and CPUE, length and age, mortality rate

STOCK STRUCTURE

The stock structure of Yellowfin Bream has been examined through tagging studies and genetic investigations. Two tagging studies, one in New South Wales [Thomson 1959] and one in Queensland [Pollock 1982], suggested the possibility of separate populations, based on a lack of significant movements between estuaries. However, a genetic investigation showed this species forms a single east coast population, with a general northward dispersal of adults and a southward dispersal of larvae [Roberts and Ayre 2010].

Towards the southern end of their distribution (southern New South Wales to East Gippsland), Yellowfin Bream are known to hybridise with Black Bream (*Acanthopagrus butcheri*). This is especially the case in areas where the two species are sympatric [Rowland 1984, Roberts et al 2009, Roberts et al 2010].

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

STOCK STATUS

Eastern Australia

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

The most recent stock assessment of the Queensland part of the Eastern Australian stock (based on 2017 data) estimated the spawning biomass of Yellowfin Bream to be 34 per cent of unfished biomass, lower than the 50 per cent required for maximum sustainable yield. Length structures from fishery-

dependent monitoring of Yellowfin Bream from 2007 onwards showed very few changes, other than those caused by changes to the minimum legal size (MLS) in 2010. The commercial catch of Yellowfin Bream from the net fishery was the lowest since the 2010 MLS changes and increases in areas protected from fishing in the Moreton Bay Marine Park in 2009 [QFISH 2020]. The fishery-dependent age structures indicate a stable population with variable and continued recruitment [McGilvray et al. 2018]. The above evidence indicates that the biomass of this part of the stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

The equilibrium maximum sustainable yield (MSY) for Yellowfin Bream in Queensland was estimated as 420 t per year (commercial and recreational sectors combined, and Moreton and Fraser regions combined) [Leigh et al. 2019]. The model indicated that maintenance of a harvest size of 150 t per year will allow the biomass to recover to the target of 60 per cent of unfished in about 12 years. The total commercial and recreational harvest in calendar year 2019 (163 t) was slightly above this level [QFISH 2020, Teixeira et al. 2021]. This harvest would allow the stock to grow to reach the target biomass, albeit at a slower rate. Nominal effort in the commercial net fishery in 2019 (2 350 boat days) set a new historic low since compulsory logbook reporting commenced in 1988. There has been a progressive reduction in effort in the net fishery over the last ten years, largely a result of Queensland Government buybacks and structural adjustment packages [McGilvray et al. 2018]. The number of recreational anglers in the south of the State, where Yellowfin Bream are most common, decreased between 2001 (377 500) and 2011 (258 600), and then again between 2011 and 2014 (166 700) [Webley et al. 2015]. Together with the increased MLS and introduction of an in-possession limit in 2009, it is unlikely fishing mortality by recreational anglers has increased over the short-term. The current MLS (250 mm total length [TL]) for Yellowfin Bream in Queensland applies to both commercial and recreational fishers and allows a proportion of mature fish to spawn for one, or even several years before becoming available to the fishery [McGilvray et al. 2018]. There is no estimate of indigenous harvest. Total mortality estimates for Yellowfin Bream in Queensland indicate that fishing mortality has been lower than natural mortality [Then et al. 2014] for the years 2007–17. Yellowfin Bream have a high survival (lower for gut-hooked fish) when released by recreational anglers, thus reducing impacts on this part of the stock [Broadhurst et al. 2005, Butcher et al. 2008, Butcher et al. 2010, McGrath et al. 2011]. Commercial fishers using tunnel nets operate under industry-developed code of best practice guidelines which limit post release mortality [Moreton Bay Seafood Industry Organisation 2012]. In Queensland, coastal river and estuary set gillnets have been shown to have minimal impact on the environment and are quite selective in their harvest. Bycatch is generally low when compared to the harvest of the target species [Halliday et al. 2001]. The above evidence indicates that the current level of fishing pressure is unlikely to cause this part of the stock to become recruitment impaired.

The commercial catch from New South Wales accounts for approximately 75 per cent of the total catch of the Eastern Australian Yellowfin Bream stock. Reported commercial landings of Yellowfin Bream in southern New South Wales also include some Black Bream and, more commonly, hybrids formed by the two species [Roberts et al. 2010]. Notwithstanding some species confusion, the average nominal commercial catch rates of Yellowfin Bream in New South Wales have been quite stable over the past decade and especially the past five years, reflecting consistency in the main fisheries: estuarine mesh netting (responsible for >60 per cent of catches); and trapping (>10 per cent of catches) [Department of Primary Industries 2020]. The length compositions of the landings have also been relatively stable since the 1950s [Stewart et al. 2015]. The above evidence indicates that the biomass of this part of the stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

There were substantial reductions in effort among estuarine mesh netters and

trappers, and also ocean trap-and-line fishers during 2017 in New South Wales [Department of Primary Industries 2020], which led to a reduced total catch of 276 t, or around 16 per cent lower than the average annual catch for the preceding decade. Recent size compositions in commercial landings suggest no large changes in the stock, and there is evidence of variable year-class strength. The minimum legal commercial and recreational size in New South Wales (250 mm TL; approximately 225 mm FL) provides opportunity for Yellowfin Bream to spawn before recruiting to the fishery, and numerous studies report high short-term survival (typically >70 per cent) of juveniles after discarding — not only from recreational hook-and-line as stated above [mostly >90 per cent; Broadhurst et al. 2005, Butcher et al. 2007], but also most commercial fishing gears [mostly >60 per cent, Broadhurst et al. 2008a, 2008b]. The most recent age-based assessment for 2010 indicated that natural and fishing mortalities were approximately equal [Gray et al. 2015]. Recent experiments suggest Yellowfin Bream will be resistant to predicted climate change [Coleman et al. 2018].

The most recent estimate of the recreational harvest of Yellowfin Bream in NSW was ~ 220 000 fish or 123 t during 2017–18 [Murphy et al. 2020]. This estimate was based on a survey of recreational fishing licence (RFL) households, which comprised at least one person with a long-term (one or three year) fishing licence, but also included other fishers within the household. A similar survey of RFL households was done in 2013–14 during which a comparable 280 000 Yellowfin Bream were recreationally harvested. There have been no major changes to the sizes of Yellowfin Bream retained by recreational fishers in New South Wales [Stewart et al. 2015]. The above evidence indicates that the current level of fishing pressure is unlikely to cause this part of the stock to become recruitment impaired.

The catch from the Victorian component of this stock is reported as negligible due to historically low catches by this jurisdiction. During 2017, no commercial catches of Yellowfin Bream were reported; however, commercial fishers may be catching Yellowfin Bream and misidentifying them as Black Bream. When compared to New South Wales and Queensland, the commercial catch of Yellowfin Bream from the Victorian part of the Eastern Australian stock is likely to be very low (less than one per cent of total catch). There is no commercial fishing in Mallacoota Inlet and catches from the Gippsland Lakes have historically been very small (less than 1.5 t in total since 2010). The proportion of the Eastern Australian Yellowfin Bream stock that inhabits Victorian waters is very small and unlikely to significantly influence the stock dynamics of the Eastern Australian stock [Kemp et al. 2013]. At the end of March 2020 the Gippsland Lakes fishery was closed following a buy-out of all commercial netting licences, implemented to improve recreational fishing access by hook and line methods [VFA 2020]. Removing commercial licences is a key part of the Gippsland Lakes Recovery Plan, which also includes strategies for fish re-stocking and cross-agency habitat improvement (VFA 2020). The above evidence indicates that the biomass of this part of the stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

The total annual catch of Yellowfin Bream by recreational fishers in Victoria has not been estimated. Recreational fishing effort is managed under regulations for bream (all species) using a MLS (280 mm total length) and a bag/possession limit (maximum of 10 fish). Fish must be landed whole or in carcass. This species was not targeted by commercial fishers and the total number of days fished by commercial fishers in the Gippsland Lakes had been steady since 2006 at between 1200–1500 days [Victorian Fisheries Authority unpublished data]. The above evidence indicates that the current level of fishing pressure is unlikely to cause this part of the stock to become recruitment impaired.

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

BIOLOGY

Yellowfin Bream biology [Pollock 1984, Gray et al 2015]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Yellowfin Bream	~20 years, ~400 mm FL	Males: 190 mm FL Females, 200–210 mm FL

DISTRIBUTION



Distribution of reported commercial catch of Yellowfin Bream

TABLES

Fishing methods	New South Wales	Queensland	Victoria
Charter			
Handline	✓		
Hook and Line		✓	
Commercial			
Line		✓	
Net		✓	✓
Various	✓		
Recreational			
Handline	✓		
Hook and Line		✓	✓
Spearfishing	✓	✓	✓
Management Methods			

	New South Wales	Queensland	Victoria
Charter			
Daily catch limits	✓		
Gear restrictions	✓	✓	
License	✓		
Possession limit		✓	
Size limit	✓	✓	
Spatial closures	✓	✓	
Commercial			
Gear restrictions	✓	✓	✓
Limited entry	✓	✓	✓
Size limit	✓	✓	✓
Spatial closures	✓	✓	✓
Temporal closures	✓	✓	✓
Vessel restrictions	✓		
Recreational			
Area closures			✓
Bag and possession limits	✓		✓
Bag limits	✓		✓
Fishing gear and method restrictions	✓		
Gear restrictions		✓	✓
Possession limit		✓	
Size limit	✓	✓	✓
Spatial closures	✓	✓	✓

Catch	New South Wales	Queensland	Victoria
Commercial	287.372 t	58.1609 t	0 t
Indigenous	Unknown	Unknown	Unknown (No catch under permit)

Recreational	124 t (2017–18)	109 t (2019–20)	Unknown
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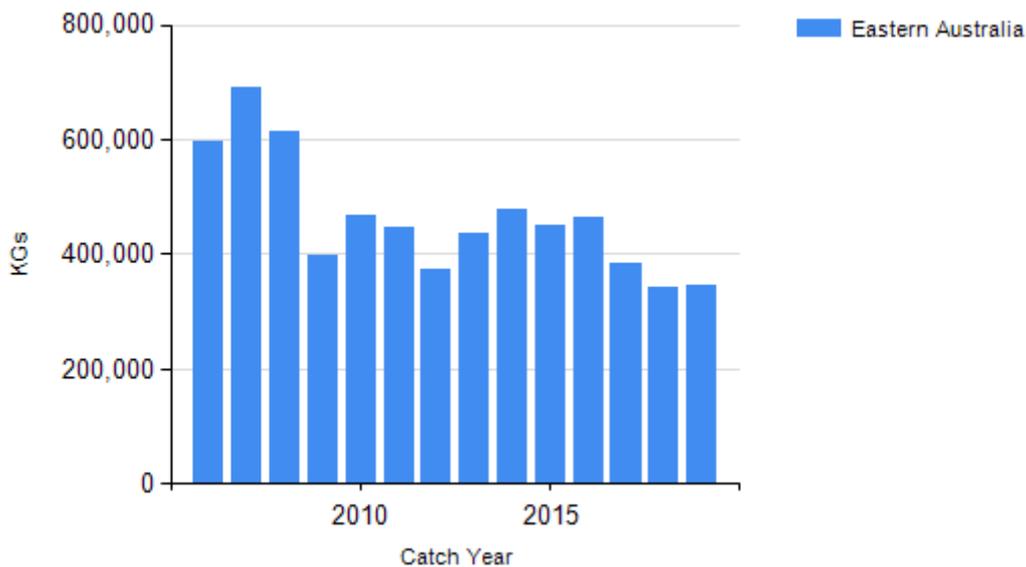
Queensland – Indigenous (management methods) for more information see <https://www.daf.qld.gov.au/business-priorities/fisheries/traditional-fishing>

New South Wales – Recreational (catch) Murphy et al. [2020].

New South Wales – <https://www.dpi.nsw.gov.au/fishing/aboriginal-fishing>.

Victoria – Indigenous (Management Methods) A person who identifies as Aboriginal or Torres Strait Islander is exempt from the need to obtain a Victorian recreational fishing licence, provided they comply with all other rules that apply to recreational fishers, including rules on equipment, catch limits, size limits and restricted areas. Traditional (non-commercial) fishing activities that are carried out by members of a traditional owner group entity under an agreement pursuant to Victoria’s *Traditional Owner Settlement Act 2010* are also exempt from the need to hold a recreational fishing licence, subject to any conditions outlined in the agreement. Native title holders are also exempt from the need to obtain a recreational fishing licence under the provisions of the Commonwealth’s *Native Title Act 1993*.

CATCH CHART



Commercial catch of Yellowfin Bream - note confidential catch not shown

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