

Yellowfin Bream (2023)

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, 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.

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In Queensland, the recreational sector accounts for approximately two thirds of the total annual harvest of Yellowfin Bream, and the commercial sector for the remaining one third [Teixeira et al. 2021]. The recreational harvest is taken predominantly by line, while the majority of the commercial harvest is caught with nets (predominantly tunnel and gillnets) within the East Coast Inshore Fishery (ECIF).

The most recent stock assessment on the Queensland component of the Eastern Australian stock (based on 2017 data) estimated the spawning biomass of Yellowfin Bream to be at 34% of unfished biomass [Leigh et al. 2019]. This assessment focused on Yellowfin Bream caught in coastal waters, estuaries and ocean beaches between Baffle Creek and the Queensland – New South Wales border. The model indicated that maintaining a harvest of approximately 150 tonnes (t) per year would allow the biomass to increase to the target of 60% unfished in around 12 years [Leigh et al. 2019]. The most recent estimate of combined commercial and recreational harvest (2019–20: 179 t) was slightly above this maintenance level, though remains considerably lower than the harvest at MSY (420 t per year) [Leigh et al. 2019]. Current harvest levels would thus allow the Queensland stock to reach the target biomass, albeit at a slower rate than predicted by the last stock assessment.

Since 2004, data from mandatory commercial logbook records show a progressive reduction in nominal effort in the commercial sector for Yellowfin Bream in Queensland. Key changes that affected the fishery during this period included the conversion of previously productive areas within key fishing grounds to no-take zones. In March 2009, the Moreton Bay Marine Park Zoning Plan (2008) closed 16% of areas within the bay to all fishing and a further 8 per cent to net fishing (van de Geer et al. 2013). A series of subsequent licence buybacks along with structural adjustment packages by the Government led to a substantial reduction in the number of net license holders targeting Yellowfin Bream (a decrease of 125 licences between 2008 and 2022). Nominal effort in the net fishery in 2022 (1,551 boat days) was lower than the long-term historical average (1988–2021: 4,044 boat days). The commercial harvest of Yellowfin Bream peaked in 2007 (253 t) and declined intermittently over the next 15 years until reaching a historic low of 57 t in 2021–22; considerably lower than the long-term historical average (1988–89 to 2020–21 = 158 t). This decline can be partly attributed to the concurrent reduction in effort. In addition, an increase in the Minimum Legal Size (MLS) in 2010 from 230 mm to 250 mm (total length [TL]) would have reduced the retained component of commercial catch.

The recreational harvest of Yellowfin Bream in Queensland has been in continual decline over the last 20 years [Henry and Lyle 2003; Taylor et al. 2012; Webley et al. 2015; Teixeira et al. 2021]. The implementation of an in-possession limit of 30 fish in 2009 reduced the number fish that could be retained by recreational fishers. The current MLS (250 mm TL) applies to both commercial and recreational fishers and allows a proportion of mature fish to spawn at least once before becoming available to the fishery (Pollock 1985). Approximately 70% of all Yellowfin Bream caught by recreational fishers are released, creating the possibility for latent impacts on stock biomass through post-release mortality [Teixeira et al. 2021]. However, various studies report that released Yellowfin Bream demonstrate a high degree of short-term survival [Broadhurst et al. 2005; Butcher et al. 2008, 2010; McGrath et al. 2011].

Overall, the above evidence indicates that the current level of fishing pressure is unlikely to cause this part of the stock to become recruitment impaired.

Fishery-dependent biological monitoring of Yellowfin Bream in Queensland

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began in 2007. The size frequency distribution of recreational and commercial catches remained relatively stable between years, aside from slight increases in the modal length classes caused by increases to the MLS in 2010. Consistency in age frequencies among years indicates a stable population with variable and continued recruitment [unpublished, QDAF 2023]. 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 commercial catch from New South Wales accounts for approximately 75% of the total commercial 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; Gray 2022; van der Meulen et al. 2023]. 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, reflecting consistency in the main fisheries: estuarine mesh netting (i.e. gillnetting, responsible for > 60% of catches); and trapping (> 10% of catches) [Gray 2022; Department of Primary Industries 2023]. 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 2023], which led to a reduced total commercial catch of 280 t, or around 16% lower than the average annual catch for the preceding decade. Commercial catches have since ranged between 220 and 320 t. 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%) of juveniles after discarding — not only from recreational hook-and-line as stated above (mostly > 90%) [Broadhurst et al. 2005; Butcher et al. 2007], but also most commercial fishing gears [typically > 60%, Broadhurst et al. 2008a, b]. The most recent age-based assessment for 2010 indicated that natural and fishing mortalities were approximately equal [Gray et al. 2015]. Recent experiments suggest that Yellowfin Bream will be resistant to predicted climate change [Coleman et al. 2019].

The most recent estimate of the recreational harvest of breams (Yellowfin, Black and hybrids) in NSW was approximately 234,000 fish or 127 t during 2019–20 [Murphy et al. 2022]. 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. Similar surveys of RFL households were done in 2013–14 and 2017–18, during which comparable estimates of fish were recreationally harvested (280,000 and 220,000 individuals); albeit with greater perceived fishing effort [West et al. 2015; Murphy et al. 2020]. Consistently, > 75% of all angled fish have been released [Murphy et al. 2022]. There have been no major changes to the sizes of Yellowfin Bream retained by recreational fishers in New South Wales [Stewart et al. 2015].

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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 probably hybrids, but 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 1% of total catch). There is no commercial fishing in Mallacoota Inlet, or any other eastern Victorian estuaries that Yellowfin Bream frequent, 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 TL) 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 1,200–1,500 days [Victorian Fisheries Authority unpublished data], until the cessation of commercial fishing. 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**.

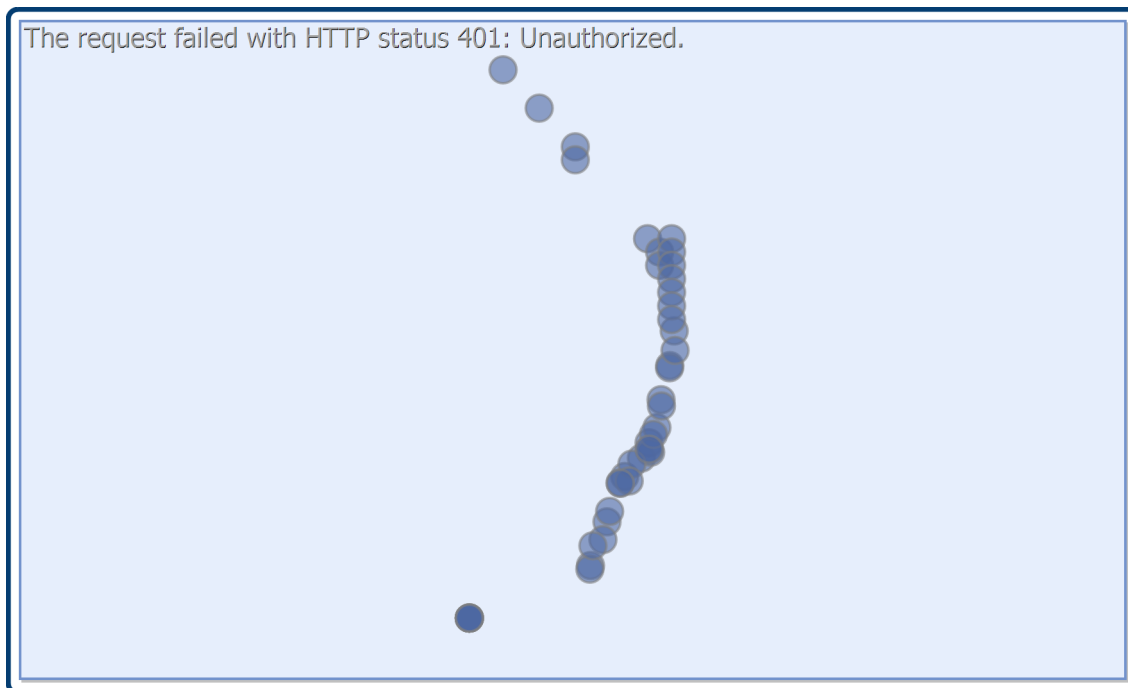
BIOLOGY

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

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

DISTRIBUTION

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Distribution of reported commercial catch of Yellowfin Bream

TABLES

Fishing methods	New South Wales	Queensland	Victoria
Charter			
Handline	✓	✓	
Hook and Line		✓	
Commercial			
Fish Trap	✓		
Haul Seine	✓		
Line		✓	
Mesh Net	✓		
Net		✓	
Various	✓		
Recreational			
Handline	✓	✓	✓
Hook and Line		✓	✓
Spearfishing	✓	✓	✓

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Management Methods			
	New South Wales	Queensland	Victoria
Charter			
Bag/possession limits		✓	
Daily catch limits	✓		
Gear restrictions	✓	✓	
License	✓		
Seasonal or spatial closures		✓	
Size limit	✓		
Size limits		✓	
Spatial closures	✓		
Commercial			
Gear restrictions	✓	✓	✓
Harvest Strategy		✓	
Limited entry	✓	✓	✓
Processing restrictions		✓	
Seasonal or spatial closures		✓	
Size limit	✓		✓
Size limits		✓	
Spatial closures	✓		✓
Temporal closures	✓		✓
Total allowable catch		✓	
Vessel restrictions	✓	✓	
Recreational			
Area closures			✓

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Bag and possession limits	✓		✓
Bag limits	✓		✓
Bag/possession limits		✓	
Fishing gear and method restrictions	✓		
Gear restrictions		✓	✓
Seasonal or spatial closures		✓	
Size limit	✓		✓
Size limits		✓	
Spatial closures	✓		✓

Catch	New South Wales	Queensland	Victoria
Commercial	179.578 t	45.1747 t	0 t
Indigenous	Unknown	Unknown	Unknown (No catch under permit)
Recreational	330 t (2013–14)	125 t (2013–14)	Unknown

Queensland – Indigenous (Management Methods). For more information see: <https://www.daf.qld.gov.au/business-priorities/fisheries/traditional-fishing>

Queensland – Commercial (Catch). Queensland commercial and charter data have been sourced from the commercial fisheries logbook program. Further information available through the Queensland Fisheries Summary Report <https://www.daf.qld.gov.au/business-priorities/fisheries/monitoring-research/data/queensland-fisheries-summary-report>

Queensland – Recreational Fishing (Catch). Data are based at the whole of Queensland level and derived from statewide recreational fishing surveys. Where possible, estimates have been converted to weight (tonnes) using best known conversion multipliers. Conversion factors may display regional or temporal variability. In the absence of an adequate conversion factor, data are presented as number of fish.

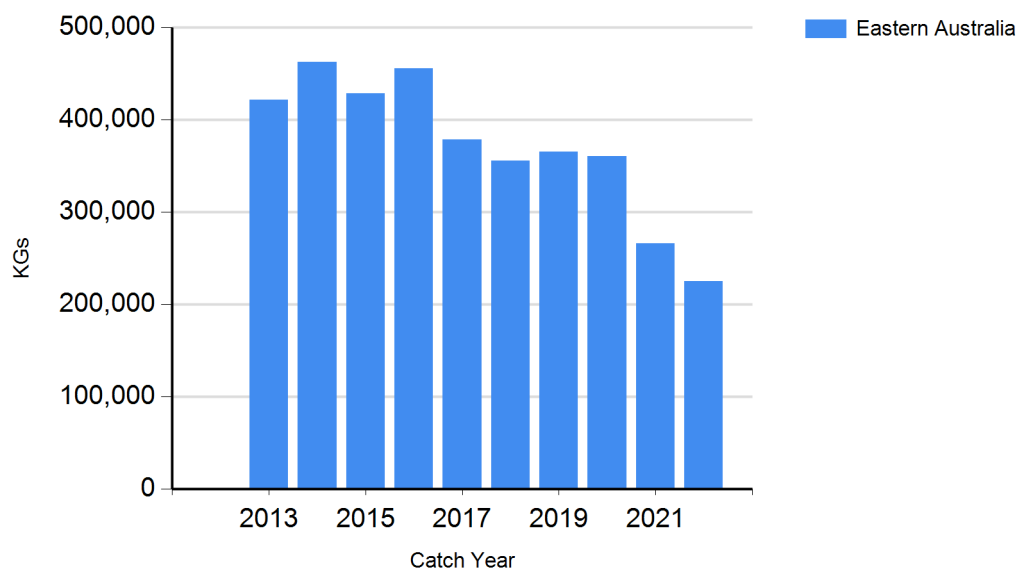
Queensland – Commercial (Management Methods). Harvest strategies are available at: <https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable/harvest-strategy>

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

New South Wales – Indigenous (Management Methods). <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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