

Yelloweye Mullet (2023)

Aldrichetta forsteri



Jason Earl: South Australian Research and Development Institute, **Harry Gorfine:** Victorian Fisheries Authority, **Rodney Duffy:** Department of Primary Industries and Regional Development, Western Australia, **Stephen Bradshaw:** Institute for Marine and Antarctic Studies, University of Tasmania

STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Western Australia	Western Australia	Sustainable	Catch
Victoria	Victoria	Sustainable	Catch, CPUE, pre-recruit surveys
Tasmania	Tasmania	Sustainable	Catch, CPUE
South Australia	South Australia	Sustainable	Catch, CPUE

STOCK STRUCTURE

Yelloweye Mullet is widely distributed along the southern coasts of Australia, from Murchison River in Western Australia to the Hunter River in New South Wales, and around Tasmania [Gomon et al. 2008]. Yelloweye Mullet typically occur in schools in nearshore marine waters from the intertidal zone to depths of at least 10 metres and are often abundant in estuaries and the lower reaches of rivers [Kailola et al. 1993; Connolly 1994].

Biological stock structure for Yelloweye Mullet in Australia is uncertain. It has been suggested that there are two biological stocks—Western and Eastern—based on morphological differences [Thomson 1957; Pellizzari 2001]. However, further studies are required to confidently define biological stock delineation for this species.

Here, assessment of stock status for Yelloweye Mullet is presented at the jurisdictional level—Western Australia, Victoria, Tasmania and South Australia.

STOCK STATUS

South Australia

The Lakes and Coorong Fishery (LCF) has traditionally been the most significant fishery for Yelloweye Mullet in South Australia, and in 2021–22 contributed 96% of the State's total commercial catch of this species. The remaining catch was taken by the Marine Scalefish Fishery (MSF). The most recent assessment of the LCF for Yelloweye Mullet was completed in 2023 and used a weight-of-evidence approach that considered fishery catch and effort data to the end of June 2022 [Earl 2023].

The primary measures for biomass and fishing mortality are total catch and targeted catch per unit effort (CPUE) using small-mesh gillnets (50–64 mm mesh). Commercial landings of Yelloweye Mullet in South Australia peaked at 519 t in 1989–90 and then progressively declined to 155 t in 2003–04. This long-term decline reflected a reduction in targeted effort due a combination of MSF licence buy-backs and low wholesale prices rather than a declining biomass, because catch rates were relatively high during that period. Gillnet CPUE declined from 2010–11 to 2014–15 suggesting a possible decline in fishable biomass in areas of the LCF. Since then, catches and catch rates have been considerably higher. The total catch of 213 t in 2021–22 was associated with the third highest annual estimate of gillnet CPUE on record [Earl 2023]. The State-wide recreational survey in 2021–22 estimated that 69,657 Yelloweye Mullet were captured, of which 16% were released [Beckmann et al. 2023]. The estimated total recreational harvest weight was 11 t (± 4), which was approximately 5% of the State's total catch in 2021–22.

The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired. Furthermore, the above evidence indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

On the basis of the evidence provide above, Yelloweye Mullet in South Australia is classified as a **sustainable stock**.

Tasmania

In Tasmania, Yelloweye Mullet is most abundant in estuarine habitats [Edgar 2008], where netting is prohibited or restricted, thereby providing a high degree of protection for the species throughout most of its range in Tasmania. Commercially, the species is occasionally targeted using beach and purse seine nets as well as small mesh nets, with peak catches around 5 t in 1990–2000 before declining to an annual average of 1.1 t over the past decade. Total commercial catch in 2021–22 was 1.3 t and has steadily increased in the last 5 years [Sharples et al. 2023]. Recreational fishers in Tasmania target Yelloweye Mullet using gillnets and beach seine nets, generally landing catches substantially higher than those by the commercial sector. Estimates of recreational catches revealed peaks of 30 t in 2000–01. The most recent estimate of recreational catch from 2017–18 was 4.6 t [Lyle et al. 2019].

The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired. Furthermore, the above evidence indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

On the basis of the evidence provided above, Yelloweye Mullet in Tasmania is classified as a **sustainable stock**.

Victoria

Yelloweye Mullet is ubiquitous along Victoria's ocean beaches and within its bays and inlets. A total of 12.05 t of Yelloweye Mullet was caught in 2022 by commercial fishers operating in Port Phillip Bay and Corner Inlet [Bell et al. 2023]. This follows a long-term declining catch trend since peaking at 245 t in 1988, driven largely by the progressive closures of bay and estuarine commercial fisheries along the Victorian coastline since the early 2000s, with the exceptions of commercial netting and longlining in Corner Inlet and longlining in PPB. Annual catches of 12–13 t during 2021 and 2022 contrast sharply with the preceding five years (2016–20) when catches were consistently around 30 t. Historically, Yelloweye Mullet was once regularly targeted by commercial net fishers, but not in recent decades due to weak market demand and low prices, with other higher value species being preferred. Consequently, the recent low landings should not be interpreted as a reduction in biomass [Bell et al. 2023]. Yelloweye Mullet is caught incidentally by recreational anglers, and although recent catch quantities are unknown, they are seldom targeted as the species is rarely encountered during creel surveys.

Over recent decades, effort using mesh nets and haul seine, the predominant commercial gear deployed to target Yelloweye Mullet, has declined throughout all Victorian commercial fisheries [Bell et al. 2023], having now ceased in Gippsland Lakes and Port Phillip Bay in 2022 following buy-outs of all commercial netting licences, implemented to improve recreational fishing access by hook and line methods.

In Port Phillip Bay, the majority of Yelloweye Mullet previously caught commercially were taken using haul seine nets with the remainder taken using mesh nets [Hamer et al. 2016]. Haul seine and mesh net CPUE peaked during the 1980s and then declined until the early 2000s [VFA 2017], after which haul seine CPUE became stable to increasing [Bell et al. 2023]. In 2019 CPUE was slightly above the average for 1986–2015 [Bell et al. 2023]. Mesh net CPUE from Port Phillip Bay was not assessed beyond 2016 [VFA 2017] due to the paucity in suitable data available for analysis arising from the progressive phasing out of the commercial net fishery.

Corner Inlet is now the mainstay of the commercial fishery with the majority of Yelloweye Mullet caught using haul seine nets with the remainder taken using mesh nets [Bell et al. 2023]. Mesh net CPUE is considered less reliable as a proxy for biomass than haul seine CPUE as the former gear type isn't typically used to target Yelloweye Mullet. Overall, the CPUE time series are highly variable and have been influenced to an unknown degree by variation in the level of harvest retention and reporting. It is thought that in recent decades, due to their low value, Yelloweye Mullet have often been discarded and therefore the reported CPUE may have been under-estimating abundance, possibly also underestimating fishing mortality to the extent that there is some degree of post-release mortality. Notwithstanding these data uncertainty considerations, haul seine CPUE for Yelloweye Mullet in Corner Inlet has shown a shallow increasing trend over the past decade, rising close to the average for 1986–2015 [Bell et al. 2023].

Anecdotally, Yelloweye Mullet is abundant in Victorian waters despite not being targeted, and there is neither evidence indicating that the spawning stock biomass is depleted, nor that recruitment is impaired. Indeed, during annual surveys of juvenile King George Whiting at eight locations in Port Phillip Bay, juvenile Yelloweye Mullet are commonly encountered in samples, but not enumerated. They are also caught and counted during pre-recruit surveys for Black Bream in Gippsland Lakes where in 2022, the number sampled was almost

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double the average since 2008. Although the available data cast uncertainty about the status of Yelloweye Mullet in Corner Inlet, there are no signs of ongoing recruitment impairment.

The above evidence indicates that the biomass of this stock is unlikely to be depleted and recruitment is unlikely to be impaired. Furthermore, the above evidence also indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

On the basis of the evidence provided above, Yelloweye Mullet in Victoria is classified as a **sustainable stock**.

**Western
Australia**

Commercial catch of Yelloweye Mullet within the State increased from between approximately 100 to 200 t in the 1940s to over 500t in the late 1970s and early 1980s. After this time, catches declined and over the last 5 years, have remained at very low levels (less than 20 t per annum). Throughout the time series of commercial catch recorded for this species, the majority of the take has occurred in a single estuary, Peel-Harvey. Recreational catches from boat-based fishers and shore-based fishers are negligible [Ryan et al. 2022; Tate et al. 2022].

The most recent stock assessment for the Western Australian Yelloweye Mullet stock, completed in 2023, follows the Western Australian Department of Primary Industries and Regional Development (DPIRD) risk-based Weight of Evidence assessment approach (WOE). This WOE assessment utilised a catch-MSY (maximum sustainable yield) analysis and available fishery independent data from Peel-Harvey estuary to support stock status.

Catch-MSY analyses yielded a prediction for Maximum Sustainable Yield (MSY) of 344 t (247–479 CI) for Western Australia. The large peaks in catch between the 1970s and 1990 exceeded the MSY range, and fishery independent studies indicated a simultaneous decline in Yelloweye Mullet abundance in the Peel-Harvey estuary between the early 1980s to 1996–97 [Potter et al. 2016; Tweedley et al. 2022]. Statewide commercial catches over the last two decades are well below the predicted range for MSY, with the Catch-MSY analysis predicting an increasing biomass trajectory over this period. Fishery independent data, collected by 102 m seines, do not indicate a change in density to 2008–10, however, those collected by 21.5 m seines showed an increase in density of Yelloweye Mullet [Potter et al. 2016], suggesting the potential for stable or increasing abundance. Whilst density data are not available for recent years, sampling undertaken with a 21 m seine in 2021–22 showed the species remained in the top 10 most frequently caught (6th most common species) [Tweedley et al. 2022], as it was in all prior sampling periods.

Stable or increasing abundance of Yelloweye Mullet within Peel-Harvey estuary, combined with reduced targeting of the species due to a historic decline in demand for the species as bait, provide evidence of a stable stock biomass.

The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired. Furthermore, the above evidence also indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

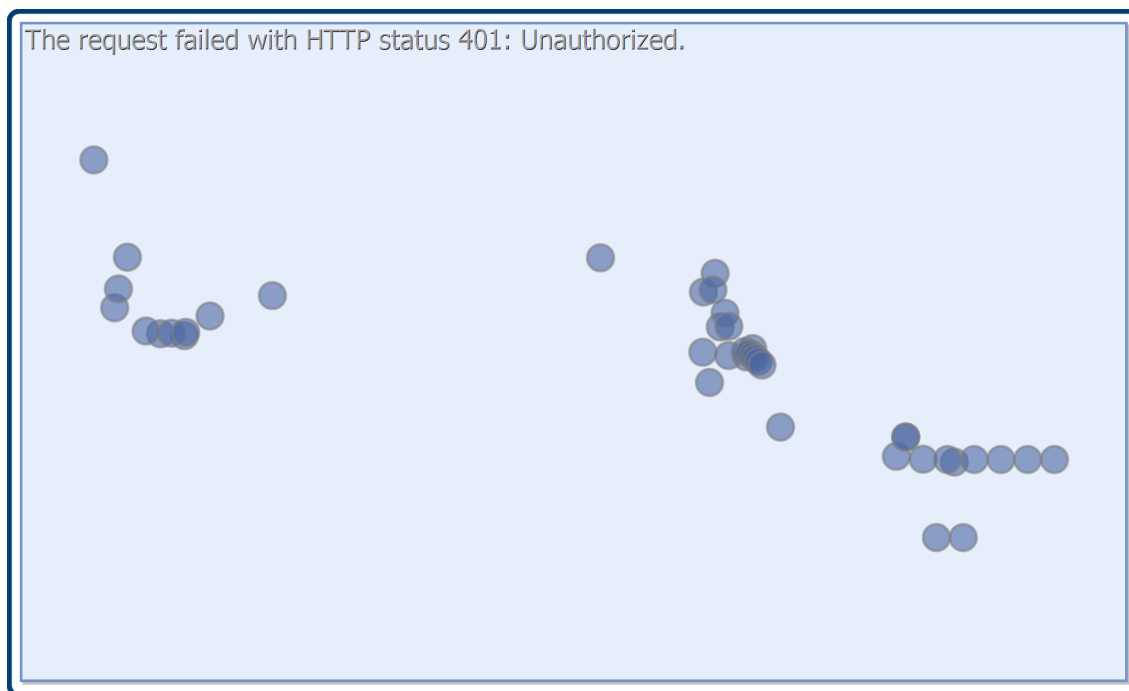
On the basis of the evidence provided above, Yelloweye Mullet in Western Australia is classified as a **sustainable stock**.

BIOLOGY

Yelloweye Mullet biology [Gaughan et al. 2006; Edgar 2008; Earl and Ferguson 2013]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Yelloweye Mullet	10 years, 440 mm TL	2–3 years, 200–260 mm TL

DISTRIBUTION



Distribution of reported commercial catch of Yelloweye Mullet

TABLES

Fishing methods	South Australia	Tasmania	Victoria	Western Australia
Charter				
Various				✓
Commercial				
Beach Seine				✓
Gillnet	✓			✓
Haul Seine				✓
Net			✓	
Seine Nets	✓			
Unspecified	✓	✓		

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Recreational				
Beach Seine		✓		
Diving			✓	
Gillnet	✓	✓		✓
Hook and Line	✓	✓	✓	✓
Net			✓	

Management Methods				
	South Australia	Tasmania	Victoria	Western Australia
Commercial				
Effort limits	✓		✓	
Gear restrictions	✓	✓	✓	✓
Licence			✓	
Limited entry	✓	✓	✓	✓
Size limit	✓	✓	✓	
Spatial closures	✓	✓	✓	✓
Temporal closures	✓		✓	✓
Vessel restrictions		✓		✓
Recreational				
Bag and possession limits		✓		
Bag limits	✓	✓	✓	✓
Gear restrictions	✓	✓	✓	✓
Licence		✓		
Licence (boat-based sector)				✓
Size limit	✓	✓	✓	
Spatial closures	✓		✓	✓
Temporal closures	✓			

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Catch	South Australia	Tasmania	Victoria	Western Australia
Commercial	212.925 t	0 t	12.0489 t	9.42476 t
Indigenous	Unknown	Unknown	Unknown (No catch under permit)	Unknown
Recreational	11 t (in 2021–22)	4.6 t (2017–18)	Unknown	Negligible

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*.

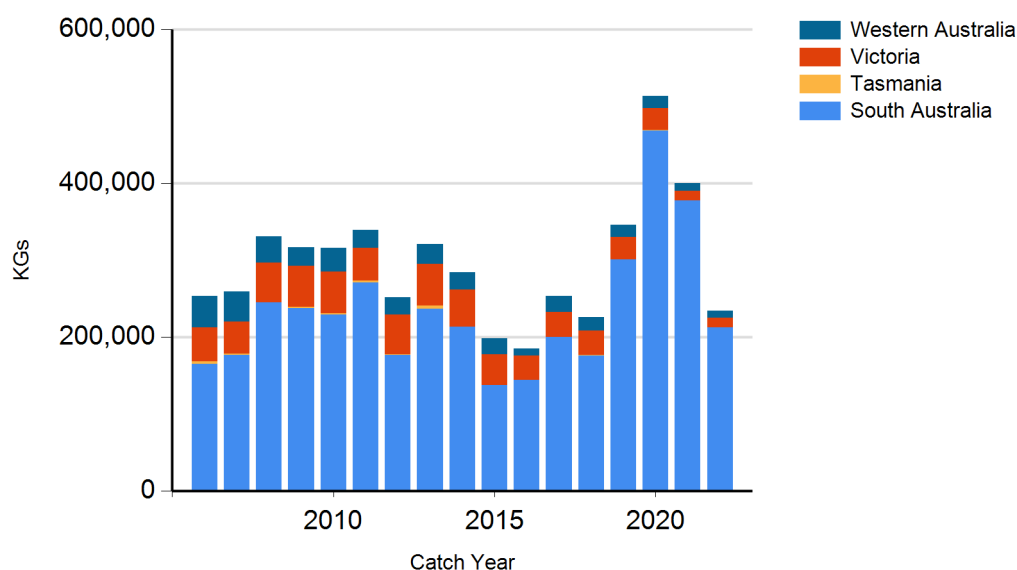
Tasmania – Commercial (Catch totals). Catches reported for the Tasmanian Scalefish Fishery are for the period 1 July to 30 June the following year. The most recent assessment available is for 2018–19.

Tasmania - Indigenous (Management Methods). In Tasmania, Indigenous persons engaged in traditional 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. For details, see the policy document 'Recognition of Aboriginal Fishing Activities' (<https://fishing.tas.gov.au/Documents/Policy%20for%20Aboriginal%20tags%20and%20alloting%20an%20UIC.pdf>).

Tasmania – Recreational (Fishing Methods). In Tasmania, a recreational licence is required for fishers using dropline or longline gear, along with nets, such as gillnet or beach seine. The species is subject to a minimum size limit of 250 mm. Mullet (all species combined) are subject to a bag limit of 15 individuals and a possession limit of 30 individuals.

CATCH CHART

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Commercial catch of Yelloweye Mullet - note confidential catch not shown

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