

Snook (2023)

Sphyræna novaehollandiae



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Western Australia	Western Australia	Sustainable	Catch, indicator species, risk assessment, stock reduction analyses
New South Wales	New South Wales	Negligible	
Victoria	Victoria	Sustainable	Catch, effort, CPUE trends
Tasmania	Tasmania	Sustainable	Catch, effort, CPUE trends, catch curve analysis
South Australia	South Australia	Sustainable	Catch, effort, CPUE trends

STOCK STRUCTURE

Snook, also known as Shortfin Pike, is distributed around southern Australia from Jurien Bay in Western Australia to southern Queensland, including Tasmania. Snook are found over seagrass beds and kelp reefs near the surface both in inshore and offshore waters of up to 20 m depth [Bertoni 1995; Edgar 2008; Gormon et al. 2008]. There is no information available on the stock structure of Snook in Australian waters. Here, assessment of stock status is presented at the jurisdictional level—Western Australia, New South Wales, Victoria, Tasmania and South Australia.

STOCK STATUS

- New South Wales** Stock status for the New South Wales stock is reported as Negligible due to historically low catches in this jurisdiction and the stock has generally not been subject to targeted fishing. The New South Wales commercial catch during 2017–18 to 2021–22 averaged less than 0.03 t per annum, and Snook is not a major component of recreational landings. Fishing is unlikely to be having a negative impact on the stock.
- South Australia** The most recent assessment of Snook was completed in 2023 [Smart et al. 2023]. The primary indicators of biomass and fishery status are targeted catch rates using troll lines and hauling nets. During the assessment period, catch rates were highly variable, generally fluctuating over the past 20 years between 50 and 100 kg per fisher-day when targeted using hauling nets, and without being indicative of any long-term trend. Annual catches of Snook in South Australia's commercial multi-species, multi-gear and multi-sectoral Marine Scalefish Fishery (MSF) ranged between 24 and 113 t from 1999–00 to 2021–22, with 24 t landed in 2021–22. Whilst catches of Snook have continued to decline over more than 20 years, this is largely attributed to reductions in active licences and targeted effort because of various buybacks in the MSF during this period, and not because of a reducing biomass as indicated by a lack of trend in catch rates. Annual nominal catches of Snook in the South Australian Charter Boat Fishery have ranged between 1,472 and 5,376 fish and indicate a declining trend between 2007–08 and 2020–21 [Durante et al. 2022]; however, this is indicative of many species taken by the Charter Boat Fishery and, like the MSF, is considered to be evident of reduced licences and effort through time. An estimated 23 t of Snook was landed by the recreational sector in 2021–22 [Beckmann et al. 2023], which represents a comparable level of fishing mortality to the commercial sector. 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, Snook in South Australia is classified as a **sustainable stock**.
- Tasmania** The fishery for Snook in Tasmania is small and generally concentrated in northern areas of the state. Snook is commonly landed as a byproduct species, but also known to be targeted by some fishers. Snook is caught by using troll or small mesh net fishing gear (targeted operations) and by beach seine and gillnetting operations (by-product) [Sharples et al. 2023]. Prior to 2000, commercial landings of Snook averaged about 15 t per year, before declining to 5–10 t. Catches in the last four years have been below 5 t [Sharples et al. 2023].
- While Snook are not an important target species for recreational fishers, the most recent estimate of landed individuals for the 2017–18 season was 9000 individuals, which translates to approximately 9 t. This latest recreational catch estimate is twice as high as the previous estimate for the 2012–13 season, but almost identical to an earlier estimate for the 2000–01 season [Lyle et al. 2019]. Given simultaneous recent declines in commercial catches, the latest recreational catch estimate is 2–3 times higher than the recent commercial catch. However, the latest recreational catch estimate was associated with notably high uncertainty (a large standard error) [Lyle et al. 2019].
- Commercial trolling and mesh net effort for Snook have been variable. Catch

rates have also been variable for both methods, but do not indicate any long-term decline. A catch-curve analysis based on fishery-dependent sampling in northern state waters suggests that fishing mortality (F) is low, with F estimated to be about one quarter of natural mortality (M) ($F=0.06 \text{ yr}^{-1}$, $M=0.24 \text{ yr}^{-1}$) [Webb 2017]. More recent CMSY analyses estimate B/BMSY to be at 41%, however this estimate has a high level of uncertainty (lower 95% CI of 24.5%) [Sharples et al. 2023].

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 current level of fishing mortality is unlikely to cause the stock to become recruitment impaired. On this basis, Snook in Tasmania is classified as a **sustainable stock**.

Victoria

In Victoria, commercial landings of Snook (Shortfin Pike) and Longfin Pike (*Dinolestes lewinii*) have been frequently combined, or misreported, particularly in early years. Longfin Pike are typically discarded so the combined landings of both species are likely to be a relatively reliable representation of Snook landings.

Snook landings have mostly varied between around 20 and 50 t from 1978–79 to 2015–16 when they reduced dramatically as a result of the reduction, and ultimate closure, of net fishing methods in Port Phillip Bay, where the majority of the catch had historically come from. Landings in recent years have been 10–20 t and predominantly from Corner Inlet-Nooramunga [Bell et al. 2023]. Snook are rarely targeted by recreational anglers but are occasionally caught and landed. While current landings are unknown, they are likely to be small and thus not a major source of mortality.

The catch rate of Snook in Corner Inlet-Nooramunga has remained relatively consistent from 1978–79 to 2019–20, albeit with some interannual variability, before increasing to historic highs in the last two years [Bell et al. 2023]. This interannual variability may be a result of natural variation in the population or because Snook represent a relatively minor by-product of this fishery (i.e. not targeted and hence caught in relatively low quantities).

With stable, and more recently increasing, catch rates there is no evidence that Snook abundance has declined in Corner Inlet-Nooramunga over the last 45 years and reduced landings from Port Phillip Bay further reduce mortality on the state-wide Snook management unit. Thus, the available information indicates that the biomass is not depleted and recruitment is unlikely to be impaired. The current level of fishing mortality is unlikely to lead to recruitment impairment.

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

Western Australia

In Western Australia, Snook and Pike (Family: Sphyraenidae) are very minor components of commercial and recreational catches. Commercially, the highest catches of Snook were reported from the Wet Line sector on the South Coast (WA), with catches being less than 3 tonnes (t) prior to 2014 and less than 5 t in subsequent years. The annual WA charter catch for this species has been $< 1.0 \text{ t}$ since 2001. The estimated statewide boat-based recreational catch of 3,470 fish (+/- se 1,773) in 2020–21 [Ryan et al. 2022] is higher than the previous 2017–18 estimate but similar to the 2011–12 estimate. Snook are not targeted by any sector and there is no evidence that catches have fluctuated greatly through

time.

All assessments in Western Australia are undertaken using a weight of evidence approach. For Snook, the lines of evidence considered included: catches, catch distribution, effort, vulnerability assessment (Productivity Susceptibility Analysis) and stock reduction analyses (Catch-MSY) [Haddon et al. 2018]. Catch-MSY forward projections (based on recent catch levels) infers that the biomass remains well above the point of recruitment impairment (BMSY limit reference point) under current management arrangements. In addition, in Western Australia, all finfish species are allocated to a species suite [Newman et al. 2018]. Snook is part of the nearshore suite in temperate waters of Western Australia. Indicator species are identified, based on biological vulnerability and frequency of capture and include King George Whiting, Australian Salmon and Sea Mullet. As these indicator species have been assessed as sustainable under current management arrangements and given the very low Snook catches and the weight of evidence assessment, the current risk level for the Western Australia Snook stock is estimated to be "Low". Therefore, current status of the Snook stock in Western Australia is "Acceptable-Sustainable" and no new management is required.

The available information indicates that the biomass is not depleted and the current level of fishing mortality is unlikely to lead to recruitment impairment.

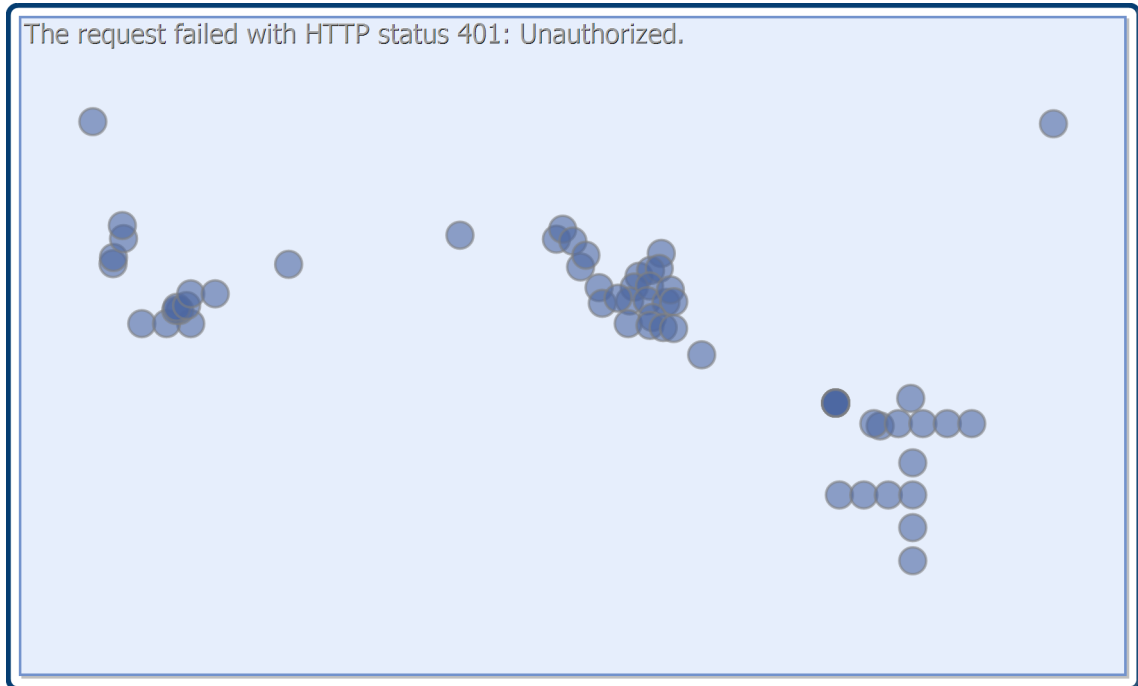
On the basis of the evidence provided above, Snook in Western Australia is classified as a **sustainable stock**.

BIOLOGY

Snook biology [Bertoni 1995; Edgar 2008; Gormon et al. 2008]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Snook	20 years, 1,100 mm TL	420 mm TL

DISTRIBUTION



Distribution of reported commercial catch of Snook

TABLES

Fishing methods	New South Wales	South Australia	Tasmania	Victoria	Western Australia
Charter					
Hook and Line	✓				✓
Rod and reel					✓
Commercial					
Beach Seine					✓
Gillnet					✓
Hand Line, Hand Reel or Powered Reels					✓
Haul Seine					✓
Hook and Line	✓			✓	
Mesh Net			✓		
Net				✓	✓
Seine Nets		✓			
Trolling		✓			
Unspecified		✓	✓		

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Recreational					
Diving				✓	
Gillnet			✓		
Hook and Line	✓	✓	✓	✓	✓
Trolling		✓	✓		✓

Management Methods					
	New South Wales	South Australia	Tasmania	Victoria	Western Australia
Charter					
Bag limits	✓				✓
Gear restrictions	✓				
Licence	✓				✓
Limited entry					✓
Size limit					✓
Spatial closures					✓
Commercial					
Effort limits				✓	
Gear restrictions	✓	✓	✓	✓	✓
Licence				✓	
Limited entry	✓	✓	✓	✓	✓
Marine park closures	✓				
Size limit				✓	
Spatial closures		✓		✓	✓
Vessel restrictions	✓				
Recreational					
Bag and possession limits		✓	✓	✓	✓
Bag limits	✓	✓	✓	✓	✓
Gear restrictions	✓				
Licence	✓		✓	✓	✓
Size limit		✓		✓	✓

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Spatial closures				✓	✓
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Catch					
	New South Wales	South Australia	Tasmania	Victoria	Western Australia
Charter	850 fish (2021–22)	1,824 individuals			Negligible
Commercial	0 t	23.6651 t	4.7795 t	20.7164 t	3.34329 t
Indigenous	Unknown	Unknown	Unknown	Unknown (No catch under permit)	Unknown
Recreational	Unknown	22.8 t (2021–22)	Approximately 9,000 individuals (2017–18)	Unknown	2.5 t (SE ± 1.3 t) (2020–21).

Western Australia – Recreational (catch). Western Australia boat-based recreational catch from 1 September 2020–30 August 2021 [Ryan et al 2022]. Shore based catches are largely unknown.

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

Victoria – Commercial (Catch). Snook is not differentiated from Longfin Pike caught in Victorian commercial fisheries.

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 – Recreational (Management Methods). In Tasmania, a recreational licence is required for fishers using dropline or longline gear, along with nets, such as gillnet or beach seine.

Tasmania – Commercial (Catch). 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.

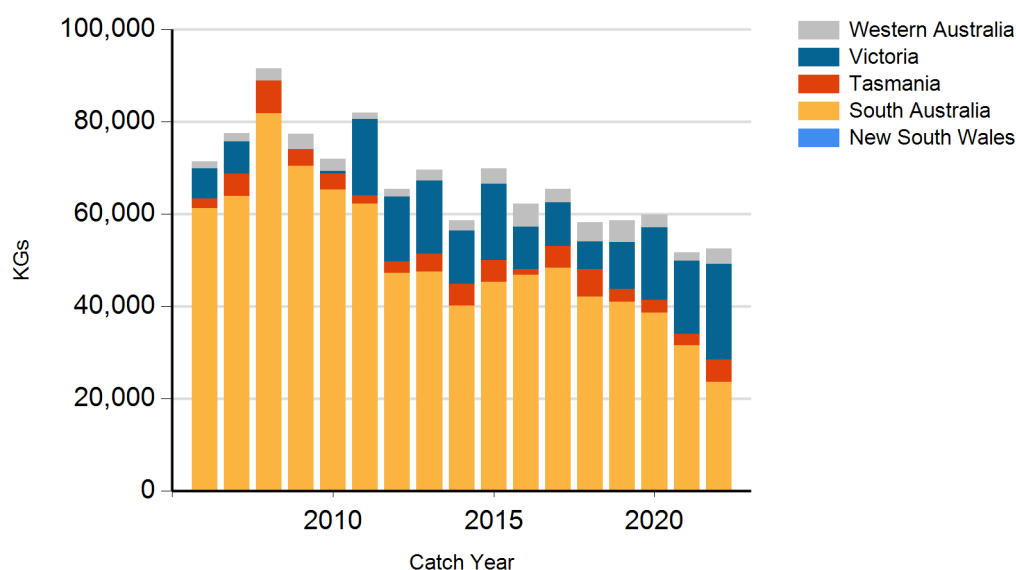
Tasmania – Indigenous (Management Methods). In Tasmania, Indigenous persons engaged in traditional fishing activities in marine waters are exempt from holding recreational fishing licences but must comply with all other fisheries rules as if they were licensed. For details, see the policy document 'Recognition of Aboriginal Fishing Activities' (<https://fishing.tas.gov.au/Documents/Policy%20for%20Aboriginal%20tags%20and%20alloting%20an%20UIC.pdf>).

New South Wales – Recreational (Catch). Murphy et al. [2022].

New South Wales – Indigenous (Management Methods). <https://www.dpi.nsw.gov.au/fishing/aboriginal-fishing>

CATCH CHART

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Commercial catch of Snook - note confidential catch not shown

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