

Eastern School Whiting (2023)

Sillago flindersi



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Commonwealth, New South Wales, Victoria, Tasmania	South Eastern Australia	Sustainable	Catches, standardised CPUE, lengths, ages, discards, spawning biomass depletion estimates

STOCK STRUCTURE

Eastern School Whiting is endemic to south-eastern Australia and occurs from southern Queensland to western Victoria. Some historical genetic and growth data suggests there may be separate northern and southern stocks of Eastern School Whiting, with a division around Forster [Dixon et al. 1987]. However, the power of the methods used to detect a difference was limited and the results were difficult to interpret, with no clear geographic pattern in the genetic variation detected [Dixon et al. 1987]. Overall, the hypothesis of a single, genetically diverse panmictic stock could not be rejected, and the species has been assessed as a single biological stock [Day 2010; Day 2017]. A cross-jurisdictional research project funded by the Fisheries Research and Development Corporation is underway to clarify the stock structure of the species using modern genetic and otolith chemistry methods. Preliminary results to date suggest a single biological stock exists, with some isolation by distance for South Australian and Tasmanian populations.

Here, the assessment of the stock status is presented for the whole biological stock—South Eastern Australia.

STOCK STATUS

**South
Eastern
Australia**

The Eastern School Whiting is primarily taken by commercial Danish seine and otter trawl vessels in the Commonwealth Southern and Eastern Scalefish and Shark Fishery (SESSF) and New South Wales Ocean Trawl Fishery (NSW OTF). Much smaller commercial catches are taken by Victorian, Tasmanian and South Australian state fisheries, with combined catches on average accounting for less than 2% of the total catch [Burch et al. 2019]. Eastern School Whiting has been managed under the SESSF Harvest Strategy Framework [AFMA 2021] for over 10 years and is subject to a total allowable catch (TAC) that was set at 914 t for the 2023–24 fishing season (1 May to 30 April) [AFMA 2023]. An annual basket TAC for combined Eastern School Whiting and Stout Whiting (*Sillago robusta*) was introduced for the NSW OTF in May 2019 and was set at 1,066 t for the last three fishing seasons [Hall 2023]. A NSW Trawl Whiting Harvest Strategy was also implemented in 2022 [NSW DPI 2022].

To support quota determination, a quantitative stock assessment of the entire biological Eastern School Whiting stock has been undertaken by Commonwealth agencies every 3–5 years using a Stock Synthesis integrated age-structured population dynamics model to estimate spawning biomass depletion [Methot and Wetzel 2013]. The most recent update of the stock assessment was completed in 2020, with data up to 2019, and developed a new five-fleet model that integrated an increased amount of data from New South Wales, including two standardised CPUE series, historical length and age data and discard rate estimates in addition to the comprehensive Commonwealth datasets [Day et al. 2020]. The inclusion of the additional fleets reduced overall uncertainty in parameter estimates and improved model fits [Emery et al. 2022]. The final base-case model estimated that the stock level would increase from 33% of unfished spawning biomass in 2019 to 41% in 2021, assuming average recruitment into the future. The results of 25 sensitivity analyses suggested that model fits and stock status estimates were particularly sensitive to adjustments in the recruitment steepness parameter, h , natural mortality estimates, M , and the size at 50% maturity, with estimates of spawning stock biomass ranging between 31% and 57% [Day et al. 2020]. This range is well above the limit reference point of 20% of the unfished biomass.

During the two years since the 2020 Commonwealth stock assessment, standardised catch rates in the NSW OTF have diverged between sectors, with the ocean prawn trawl catch rates decreasing but remaining near the long-term average and the fish trawl catch rates increasing by 90% [Hall 2023]. Tasmanian catch, effort, and CPUE patterns for Eastern School Whiting have been determined to a large extent by the level of targeting. The primary fisher is known to switch between Tiger Flathead and Eastern School Whiting, presumably depending on market demand and the season – Eastern School Whiting tends to be a winter fishery, while Tiger Flathead is targeted in summer. Consequently, Tasmanian CPUE fluctuates substantially through time but has shown no long-term signs of decline [Sharples et al. 2023]. Collectively, the above evidence across all jurisdictions indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

Commonwealth-landed catch in 2021–22 was 502.3 t, based on catch disposal records [Emery et al. 2022]. The model-based average discard estimate for the 3-year period from 2021 to 2023 was 378 t [Day et al. 2020]. Althaus et al. [2021] estimated the weighted average state catches of the previous four calendar years (2017 to 2021) to be 1,013.2 t. For the 2021–22 fishing season, total catch and discards were estimated to be 1,893 t which is below both the single-year recommended biological catch (RBC) for the 2021–22 fishing season of 2,140 t and the 3-year average RBC of 2,237 t calculated in the 2020

assessment [Day et al. 2020].

Historically, approximately 60% of the total catch of Eastern School Whiting has come from New South Wales State waters. However, New South Wales catches decreased from 2011 to 2014 from historical levels of around 700–1 000 t per year to 492 t in 2014 [Hall 2018] and Commonwealth catches increased to take approximately 50% of the total catch [Day 2017]. Prior to quota introduction, the New South Wales catches increased considerably (1,188–1,196 t in 2017–2019) but have since decreased again to 522 t in 2021–22 [Hall 2023].

The most recent estimate of the recreational harvest of combined trawl whiting (Eastern School Whiting and Stout Whiting) in NSW was approximately 9,882 fish or around 1.4 t during 2019–20 [Murphy et al. 2022]. This estimate was based on a survey of Recreational Fishing Licence (RFL) Households, comprised of at least one fisher possessing a long-term (1 or 3 years duration) fishing licence and any other fishers resident within their household, excluding other long-term licence holders. However, because these catches are so small the estimates are highly uncertain, with a relative standard error of greater than 30% and include survey data from fewer than 20 households [Murphy et al. 2022]. Nevertheless, relative to the commercial catch, recreational catches are clearly negligible, and comprise approximately 0.1% of the total harvest from NSW waters.

In other state jurisdictions, the total landed catch from the Victorian ITF sector was 15.4 t in 2021–22. Landings in Tasmania have fluctuated widely since 1998–99, with a catch of 41.9 t recorded in 2021–22 [Sharples et al. 2023]. Catches by the recreational sector remain low and are inconsequential given the assumed size and distribution of the Eastern School Whiting stock, estimates of recreational Tasmanian catch have fluctuated between approximately 10–50% of commercial catch [Lyle et al. 2019]. Eastern School Whiting is uncommon in South Australia and reported catches are less than 1 t per year [Burch et al. 2019].

Overall, the current level of fishing mortality, including all landings and discard estimates from all jurisdictions and sectors, is below the predicted RBC from the most recent population biomass modelling and therefore unlikely to cause the stock to become recruitment impaired.

On the basis of the above evidence, the South Eastern Australian stock of Eastern School Whiting is classified as a **sustainable stock**.

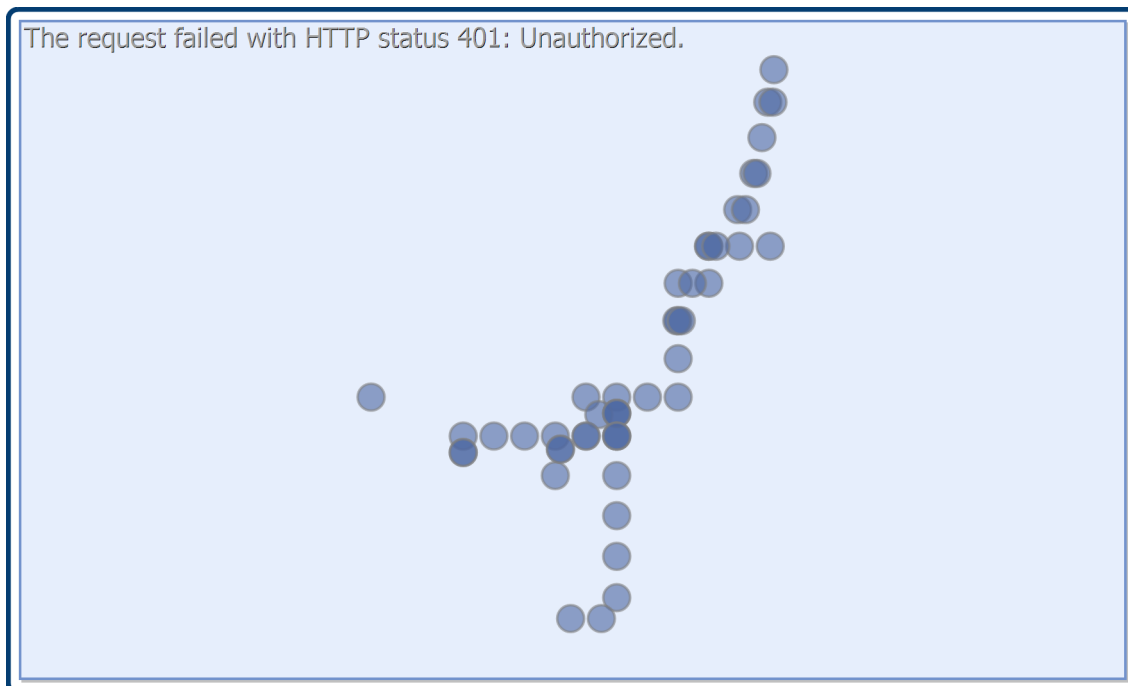
BIOLOGY

Eastern School Whiting biology [Day 2017; Dixon et al. 1987; Gray et al. 2014a,b]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Eastern School Whiting	9 years, 320 mm FL	2 years, 140–180 mm FL

DISTRIBUTION

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Eastern School Whiting (2023)



Distribution of reported commercial catch of Eastern School Whiting

TABLES

Fishing methods	Commonwealth	New South Wales	Tasmania	Victoria
Commercial				
Danish Seine	✓	✓		
Net				✓
Otter Trawl	✓	✓		
Unspecified			✓	
Various		✓		
Recreational				
Gillnet			✓	
Hook and Line		✓	✓	✓

Management Methods	Commonwealth	New South Wales	Tasmania	Victoria
Commercial				
Effort limits		✓		✓
Gear restrictions	✓	✓	✓	✓

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Harvest Strategy		✓		
Licence				✓
Limited entry	✓	✓	✓	✓
Spatial closures	✓	✓	✓	✓
Total allowable catch	✓	✓		
Vessel restrictions		✓		
Recreational				
Bag and possession limits			✓	
Bag limits		✓	✓	✓
Gear restrictions		✓		✓
Licence		✓		✓
Spatial closures		✓		✓

Catch	Commonwealth	New South Wales	Tasmania	Victoria
Commercial	464.867 t	521.861 t	0 t	15.4659 t
Indigenous		Unknown	Unknown	Unknown (No catch under permit)
Recreational		10,933 fish, combined trawl whiting (2017-18)	8.6 t (including King George Whiting, 2017/18)	Unknown

Commonwealth – Commercial (Management Methods/Catch). Data provided for the Commonwealth align with the Commonwealth Southern and Eastern Scalefish and Shark Fishery for the 2021–22 financial year.

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

Commonwealth – Indigenous. The Australian government does not manage non-commercial Indigenous fishing in Commonwealth waters, with the exception of Torres Strait. In general, non-commercial Indigenous fishing in Commonwealth waters is managed by the state or territory immediately adjacent to those waters.

New South Wales, Victoria and Tasmania – Commercial (Catch). State data are provided in financial years. Reported landings from northern New South Wales waters have been adjusted to account for estimated species misreporting with Stout Whiting, *Sillago robusta* [Hall 2021].

New South Wales – Recreational (Catch). Estimates from Murphy et al. [2020, 2022], based on a survey of Recreational Fishing Licence households. Note, estimates for trawl whiting are highly uncertain, with a relative standard error of greater than 30% and based on survey data from fewer than 20 households.

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*.

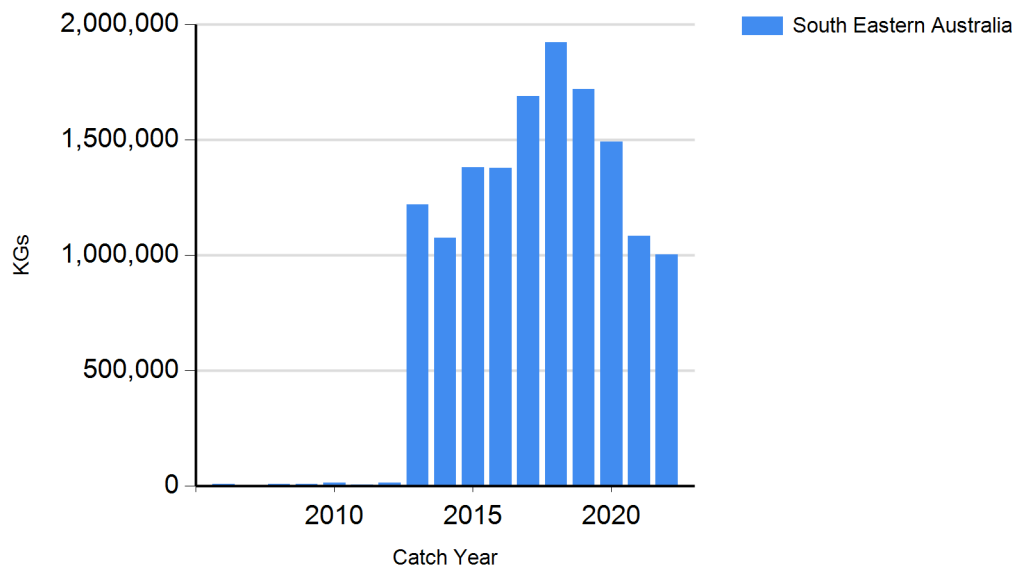
Tasmania – Recreational (Management Methods). In Tasmania, a recreational licence is required for fishers using dropline or longline gear, along with nets, such as gillnet or beach seine. A bag limit of 15 individuals and possession limit of 30 individuals (combined total for all whiting species except King George Whiting) is in place for recreational fishers.

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>).

CATCH CHART

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Commercial catch of Eastern School Whiting.

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