

Eastern School Whiting (2020)

Sillago flindersi



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STOCK STATUS OVERVIEW

| Jurisdiction | Stock | Stock status | Indicators |
|----------------------------------|--------------------|--------------|--|
| Commonwealth, Victoria, Tasmania | Southern Australia | Sustainable | Catches, standardised CPUE, lengths, ages, discards, biomass depletion estimates (stock synthesis) |
| New South Wales | New South Wales | Sustainable | Catches, standardised CPUE, lengths, ages, discards, biomass depletion estimates (stock synthesis) |

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, Conron et al. 2018]. However, due to divergent fishing effort and assessment results between the northern and southern parts of the stock in recent years and the ongoing uncertainty regarding the stock structure, stock status is reported according to management units in the current report.

Here, the assessment of the stock status is presented for two management units—Southern Australia (Commonwealth, Victoria and Tasmania) and New South Wales.

STOCK STATUS

**New South
 Wales**

An annual basket total allowable catch (TAC) for combined Eastern School Whiting and Stout Whiting (*Sillago robusta*) was introduced for the New South Wales Ocean Trawl Fishery (OTF) in May 2019, and was initially set at 1 189 t for the 2019–20 fishing season [Hall 2020]. A harvest strategy is currently being developed for trawl whiting in New South Wales and 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.

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 [e.g., Day 2017]. Previous assessments have included State catch data, but were otherwise based largely on Commonwealth fisheries data, particularly from the Lakes Entrance Danish-seine fleet. Nevertheless, the biological parameters selected, especially in more recent assessments that have included age data from sectioned otoliths, are considered appropriate for New South Wales and these stock assessments, together with complimentary fisheries data analyses from New South Wales, provide the most reliable source of information on stock status for TAC determination [Gray et al. 2014a,b, Hall 2018].

Historically, approximately 60 per cent of the total catch of Eastern School Whiting has come from New South Wales State waters. However, New South Wales catches decreased between 2011 and 2014 from historical levels of around 700–1 000 t per year to 492 t in 2014 [Hall 2015] and Commonwealth catches increased to take approximately 50 per cent of the total catch [Day 2017]. Since 2014, the New South Wales State catch has increased significantly and, in the three years prior to quota introduction, was 1 188 t in 2017, 1 155 t in 2018 and 1 196 t in 2019 [Hall 2020].

The increased catches in New South Wales over the last three years have been mostly taken by the fish trawl fleet from a single ocean zone (OZ5, covering one degree of latitude near Newcastle). While standardised mean catch rates for the entire fish trawl fleet have recently increased from below the long-term average in 2013 and 2014 to near the long-term average over the last three years, catch rates from the ocean zone near Newcastle decreased by over 50 per cent between 2011 and 2014 to below the long-term average and have remained low since [Hall 2020]. While there is some evidence of localised depletion and that total biomass has recently decreased to near 35% of unfished spawning biomass, the stock is not considered to be recruitment impaired.

The Commonwealth stock assessment in 2017 estimated an average recommended biological catch (RBC) of 1 615 t for the whole stock for the three years 2018 to 2020 [Day 2017]. The total combined catches over this period were 1 701 t in 2017, 1 916 t in 2018 and 1 743 t in 2019 (catch chart). When combined with the weighted average discards (estimated as 103.92 t for the 2018-19 year, ABARES 2019) the total removals has exceeded the estimated RBC over the last three years. Furthermore, a partial update of the assessment in 2019 revised the predicated RBC under an average recruitment scenario to 1 165 t for 2020 [Day 2019].

Given the uncertain stock structure, decrease in biomass estimates to 35% of unfished levels in 2020 under average recruitment and total removals in excess of the estimated RBC over three years that was concentrated in New South Wales waters, the level of fishing mortality was considered sufficient to cause recruitment impairment, and the New South Wales part of the South Eastern Australia biological stock was classified as a depleting stock in 2019. The New South Wales basket TAC was reduced from 1 189 t in 2019–20 to 898 t for the 2020–21 fishing season, of which on average approximately 668 t is likely to be Eastern School Whiting.

A full update of the Commonwealth stock assessment using data up to 2019 and

including an increased amount of data from New South Wales, comprising two standardised CPUE series, historical length and age data and discard rate estimates, was completed using a new five-fleet model in late 2020, to inform TAC setting for the 2021–22 fishing season [Day et al. 2020, cited in AFMA 2021]. The results estimated that the stock level had increased from 33% of unfished spawning biomass in 2019 to 41% in 2021, assuming average recruitment into the future, and that the estimated RBC in 2020 had increased to 2 140 t [AFMA 2021]. While this includes a larger amount of total discards than previous RBCs, the overall productivity of the stock had increased and the certainty in the parameter estimates improved. Consequently, the current level of fishing mortality is considered unlikely to cause the stock to become recruitment impaired.

On the basis of the above evidence, the New South Wales part of the stock is classified as a **sustainable stock**.

Southern Australia

Stock status classification reported here for the Southern (Commonwealth, Victoria and Tasmania) management unit is based on stock assessments conducted for the Commonwealth's Southern and Eastern Scalefish and Shark Fishery (SESSF). This assessment includes reported state catches. Eastern School Whiting in the SESSF is managed as a Tier 1 stock under the SESSF Harvest Strategy Framework [AFMA, 2019]. The 2017 Tier 1 stock assessment [Day 2017] informed the management of the stock for the 2019–20 fishing season, however an update to the assessment was undertaken in 2019 [Day, 2019].

The last full assessment, which was undertaken in 2017 [Day 2017] predicted the spawning stock biomass at the start of 2018 would be 47% of the unexploited spawning stock biomass (0.47SB0), below the target reference point of 48% (0.48SB0) but above the limit reference point of 20% (0.20SB0). In 2019, this assessment was updated with catch data for the Commonwealth and New South Wales for 2017 and 2018 and CPUE data for the Commonwealth [Day 2019]. This led to a revised estimated spawning stock biomass of 36% (0.36SB0) at the start of 2018. This reduction in the estimate of spawning stock biomass, when compared with the 2017 assessment, was driven by declining Commonwealth CPUE in 2018 and revisions to the New South Wales catch data for 2017 and 2018 (actual catches were substantially higher than those used for projections in the 2017 assessment). This led to a revised RBC of 1 165 t for 2020–21, and a 3-year-average RBC of 1 318 t [AFMA 2019]. The stock is therefore unlikely to be depleted and recruitment is unlikely to be impaired.

Projections published in the 2019 update of stock response to various fixed-catch scenarios (RBC, 1 600 t, 1 800 t and 1 900 t), when assuming average recruitment, indicated that if the RBC was caught in 2020 and 2021 the stock would recover to 44% (0.44SB0) at the start of 2022. If 1 800 or 1 900 t was caught, then the spawning stock biomass would remain relatively stable at 36% and 34%, respectively, at the start of 2022.

In Tasmania, commercial catches of Eastern School Whiting recorded for the Tasmanian Scalefish Fishery (TSF) fluctuate strongly and in close agreement with the level of effort recorded for a limited number of operators. Commercial catches vary between a few kg and up to about 50 t per year. In 2018–19, the total recorded TSF catch was 41.5 t [Krueck et al. 2020]. Recreational catches in Tasmanian waters are comparatively low [Lyle et al. 2019]. The total landed catch from the Victorian ITF and GLF sectors was less than 5 t in 2018–19.

Commonwealth landed catch in the trawl and scalefish hook sectors of the SESSF was 526 t in the 2019–20 fishing season (538 t in 2018–19 fishing season). Discards and state catches have been estimated to be 191.8 t and 1 153.5 t, respectively, based on the weighted average of the previous four fishing seasons (2015–16 to 2018–19) [Burch et al. 2019]. Combined, total landings are estimated to be above the revised RBC of 1 165 t but below 1 900 t. This level

of fishing mortality is unlikely to cause Eastern School Whiting to become recruitment impaired.

Based on the evidence provided above, the Southern management unit is classified as a **sustainable stock**.

BIOLOGY

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

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

DISTRIBUTION



Distribution of reported commercial catch of Eastern School Whiting

TABLES

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

| Management Methods | | | | |
|---------------------------|--------------|-----------------|----------|----------|
| | Commonwealth | New South Wales | Tasmania | Victoria |
| Commercial | | | | |
| Effort limits | | ✓ | | ✓ |
| Gear restrictions | ✓ | ✓ | ✓ | ✓ |
| 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 | 538.188 t | 1201.56 t | 0 t | 3.912 t |
| Indigenous | | Unknown | Unknown | Unknown (No catch under permit) |
| Recreational | | 10 933 fish or 1.54 t (in 2017/18) | 2.1 t (2012/13) | Unknown |

Commonwealth – Commercial (Management Methods/Catch) Data provided for the Commonwealth align with the Commonwealth Southern and Eastern Scalefish and Shark Fishery for the 2018-19 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 State data are for the 2018/19 fiscal year. Reported landings from northern New South Wales waters have been adjusted to account for estimated species misreporting with Stout Whiting, *Sillago robusta* [Hall 2020].

New South Wales – Recreational (catch totals) Estimate from Murphy et al. [2020], based on a survey of Recreational Fishing Licence households.

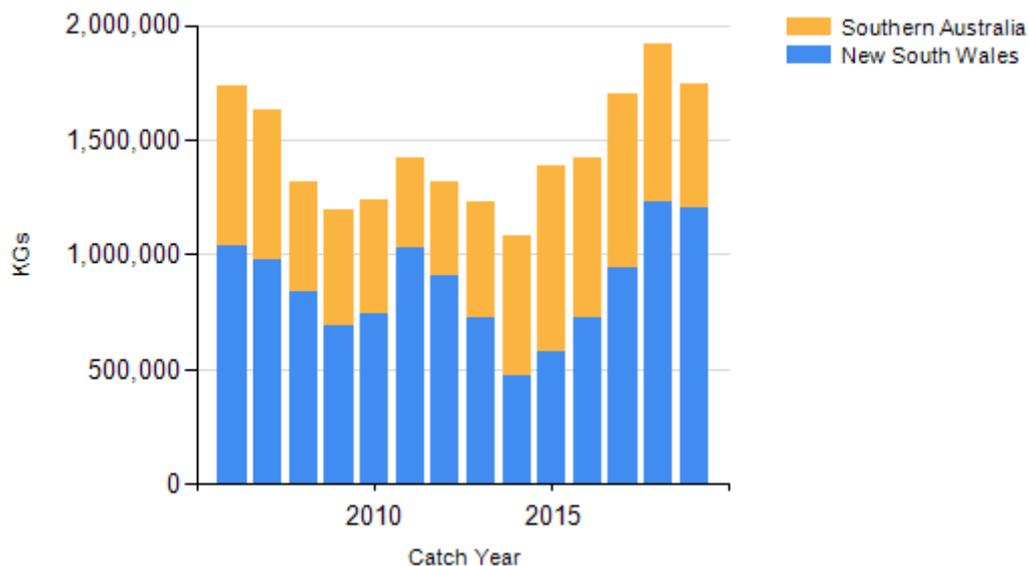
New South Wales – Indigenous (Management Methods) <https://www.dpi.nsw.gov.au/fishing/aboriginal-fishing/>.

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://dpipwe.tas.gov.au/Documents/Policy%20for%20Aboriginal%20tags%20and%20allotting%20an%20UIC.pdf>).

CATCH CHART



Commercial catch of Eastern School Whiting - note confidential catch not shown

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Eastern School Whiting (2020)

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