

Trumpeter Whiting (2023)

Sillago maculata



Matt Broadhurst: New South Wales Department of Primary Industries, **Marlee Jesson-Kerr:** Department of Agriculture and Fisheries, Queensland

STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Queensland	Queensland	Undefined	Catch
New South Wales	New South Wales	Sustainable	Commercial catch and CPUE, and length and age

STOCK STRUCTURE

Trumpeter whiting occur along the east coast of Australia from Lizard Island, Queensland to Narooma, New South Wales [Kailola et al. 1993]. The species is most abundant in southern Queensland, and especially Moreton Bay [Macleane 1971; Weng 1983, 1986], but the biological-stock boundaries remain unknown. Separate assessments of Trumpeter Whiting have been done in Queensland and New South Wales [Burchmore et al. 1988; Coull et al. 1995; Melville and Connolly 2003; Kendall and Gray 2009; Krück et al. 2009].

Here, assessment of stock status is presented at the jurisdictional level—Queensland and New South Wales.

STOCK STATUS

New South Wales Trumpeter Whiting occur throughout New South Wales estuaries (with juveniles favouring seagrass areas and shallow habitats, while adults are common down to approximately 30 m), although commercial fishing effort is focused mostly between the Myall Lakes and Lake Illawarra [Gray and Kennelly 2003]. Up to 80% of the total commercial catch comes from hauling and seine nets, with the remainder bycaught by prawn trawlers in the Hawkesbury River [Gray et al.

1990]. Commercial catches peaked at 78 tonnes (t) in 1990–2000, and then declined to between 10 and 20 t in the past decade. The decline in commercial catches mirrors a contraction of fishing effort, including closures in previously exploited estuaries (such as Botany Bay and Port Jackson), and fewer operators in remaining estuaries. Consequently, commercial catch rates have remained low, but fairly consistent over the past few years.

A bag limit of 20 whiting (all species combined) provides some control over recreational effort, but there is no legal size for Trumpeter Whiting which often manifests as low rates of release at approximately 20–37% of the total catch [West et al. 2015; Murphy et al. 2020; Murphy et al. 2022]. The most recent estimate of the recreational harvest of Trumpeter Whiting in New South Wales (assuming correct species identification by anglers) was approximately 22,890 fish 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 an estimated 123,580 and 31,562 Trumpeter Whiting were recreationally harvested. Using mean weights of fish from Henry and Lyle [2003], these numbers equate to approximately 7 and 27 t.

Few Australian studies have assessed population parameters for Trumpeter Whiting, and there are no current estimates of mortality, although fishing mortality in New South Wales would have decreased due to reducing commercial fishing effort. Further, prior to the major reductions in commercial effort, Kendall and Gray [2009] revealed no changes in the population structure of Trumpeter Whiting in two central New South Wales estuaries over an eight-year period (1997–2004). Historical length-frequency data show no declines in mean sizes [Kendall and Gray 2008].

Spawning occurs during spring and summer and appears to be somewhat protracted, possibly reflecting water temperatures and with concomitant differences between estuaries [Burchmore et al. 1988; Kendall and Gray 2009]. Like other whiting species, female Trumpeter Whiting have indeterminate fecundity and probably spawn multiple times over summer [Kendall and Gray 2009]. Size-at-age data derived from otoliths suggest Trumpeter Whiting grow quite quickly, with both sexes reaching mean sizes of maturity at approximately 15–19 cm FL, and at 1–3 years. Maximum sizes have been estimated at up to 25 cm FL and are slightly larger among females, which also live longer (12 vs 9 years). Kendall and Gray [2003] estimated catches in two central New South Wales estuaries at mostly 2–4 years old. The above evidence indicates that the biomass of the New South Wales stock is unlikely to be depleted, that recruitment is unlikely to be impaired, and 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, the New South Wales management unit is classified as a **sustainable stock**.

Queensland Trumpeter Whiting are found throughout Queensland, mostly in deeper bays, estuaries and mangrove creeks [Maclean 1971; Weng 1983, 1986; Williams 2002]. The species is a minor commercial by-product species and popular with recreational fishers. Commercial harvests have been intermittent since logbook reporting commenced in 1988–89. Trumpeter Whiting were mainly harvested by prawn trawlers [Williams 2002], with catches peaking at > 500 t in the early 1990s. However, management changes to the East Coast Trawl Fishery in 2000 prohibited retaining any whiting species, restricting commercial harvests to

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Trumpeter Whiting (2023)

incidental net and line catches, and reducing average annual catches to < 3 t since 2002. Seasonal and spatial closures are also in place to limit the bycatches of Trumpeter Whiting in Moreton Bay. Estimates of recreational harvests since 2000 show decreasing catches with approximately 50% less Trumpeter Whiting reported during 2019–20 (28 t) than during 2010–11 (56 t) [Teixeira et al. 2021]. Recreational harvests are restricted by a possession limit of 50 fish, although there is no minimum legal size.

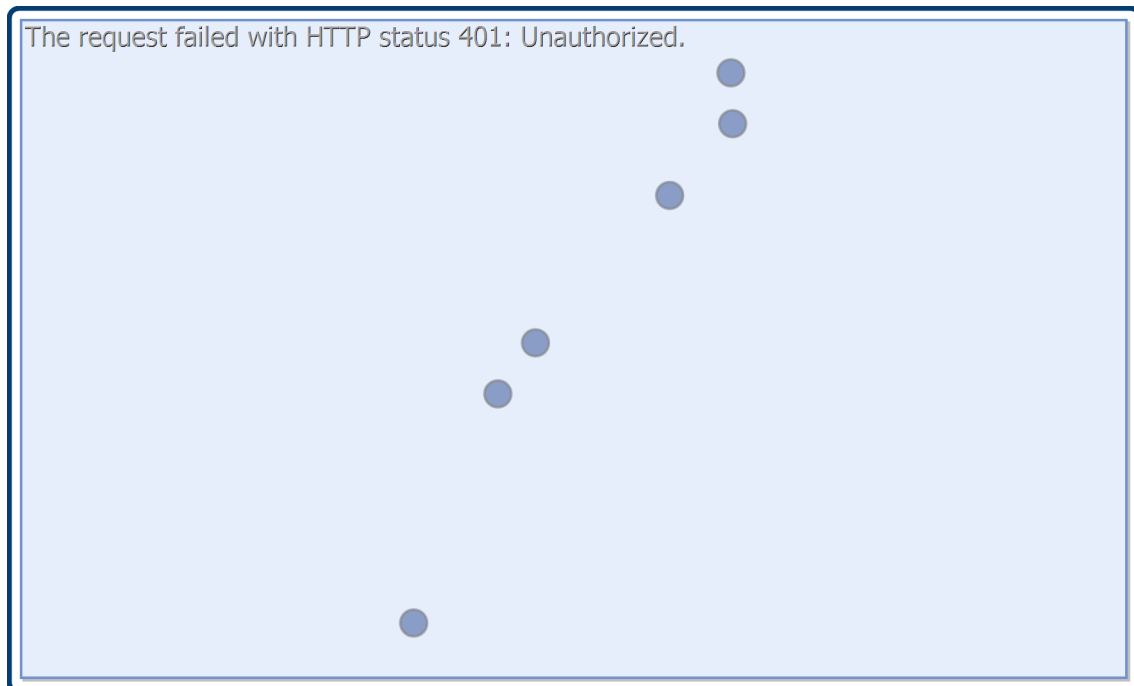
There are no sustainability concerns for Trumpeter Whiting, but there is insufficient evidence to confidently classify the status of this stock. On the basis of the evidence provided above, the management unit in Queensland is classified as an **undefined stock**.

BIOLOGY

Trumpeter Whiting biology [Burchmore et al. 1988; Kendall and Gray 2009]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Trumpeter Whiting	12 years, 25 cm FL	1-3 years; 14.6 to 19.2 cm FL

DISTRIBUTION



Distribution of reported commercial catch of Trumpeter Whiting

TABLES

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Trumpeter Whiting (2023)

Fishing methods		
	New South Wales	Queensland
Charter		
Handline	✓	
Commercial		
Haul Seine	✓	
Haul Seine/Beach Seine	✓	
Line		✓
Net		✓
Otter Trawl	✓	
Various	✓	
Recreational		
Handline	✓	
Hook and Line		✓

Management Methods		
	New South Wales	Queensland
Charter		
Bag limits	✓	
Fishing gear and method restrictions	✓	
Licence	✓	
Limited entry	✓	
Possession limit	✓	
Spatial closures	✓	
Commercial		
Fishing gear and method restrictions	✓	
Gear restrictions	✓	✓
Harvest Strategy		✓

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Trumpeter Whiting (2023)

Individual transferable quota		✓
Limited entry	✓	✓
Seasonal or spatial closures		✓
Spatial closures	✓	
Vessel restrictions		✓
Recreational		
Bag limits	✓	
Bag/possession limits		✓
Fishing gear and method restrictions	✓	
Gear restrictions		✓
Licence	✓	
Seasonal or spatial closures		✓
Spatial closures	✓	

Catch	New South Wales	Queensland
Commercial	5.5547 t	0 t
Indigenous	Unknown	Unknown
Recreational	7 to 27 t	28 t (2019–20)

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

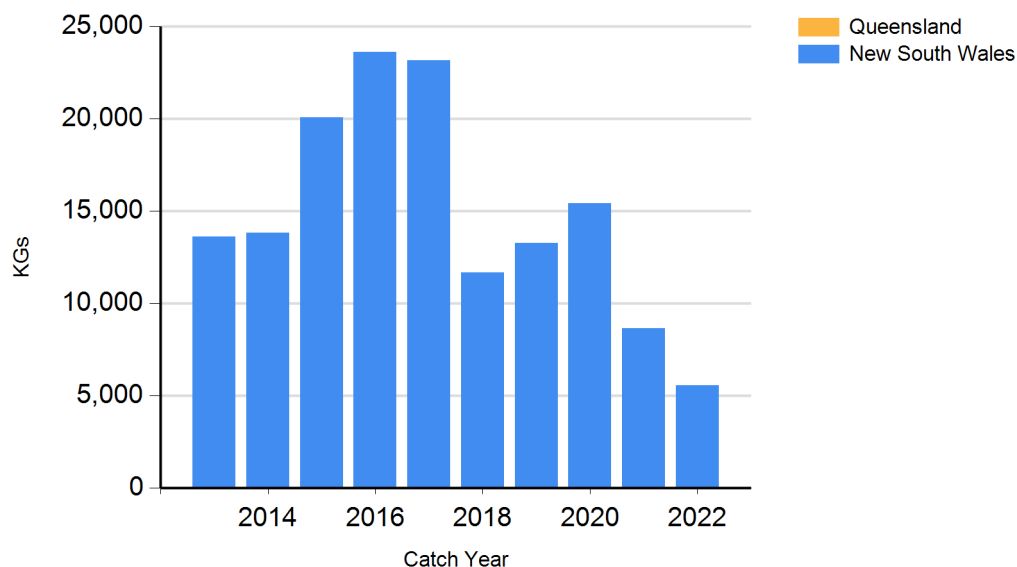
Queensland – Commercial (Catch). Queensland commercial and charter data have been sourced from the commercial fisheries logbook program. Further information available through the Queensland fisheries summary report: <https://www.daf.qld.gov.au/business-priorities/fisheries/monitoring-research/data/queensland-fisheries-summary-report>

Queensland – Recreational fishing (Catch). Data are based at the whole of Queensland level and derived from statewide recreational fishing surveys. Where possible, numbers have been converted to weights (t) 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 abundances.

New South Wales – Recreational (Catch). Henry and Lyle [2003]; West et al. [2015]; Murphy et al. [2020]; Murphy et al. [2022].

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

CATCH CHART



Commercial catch of Trumpeter Whiting - note confidential catch not shown

References	
Burchmore et al. 1988	Burchmore, J.J., Pollard, D.A., Middleton, M.J., Bell, J.D., Pease, B.C. (1988). Biology of four species of whiting (Pisces: Sillaginidae) in Botany Bay, New South Wales. Australian Journal of Marine and Freshwater Research 39, 709–727.
Coull et al. 1995	Coull, B.C., Greenwood, J.G., Fielder, D.R. and Coull, B.A. (1995) Subtropical Australian juvenile fish eat meiofauna: experiments with winter whiting <i>Sillago maculata</i> and observations on other species. Marine Ecology Progress Series 125, 13–19.
Gray et al. 1990	Gray, C.A, McDonnall, V.C. and Reid, D.D. (1990). Bycatch from prawn trawling in the Hawkesbury River, New South Wales: Species composition, distribution and abundance. Australian Journal of Marine and Freshwater Research 41, 13–26.

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Trumpeter Whiting (2023)

Gray and Kennelly 2003	Gray, C.A. and Kennelly, S. (2003). Catch characteristics of the commercial beach-seine fisheries in two Australian barrier estuaries. <i>Fisheries Research</i> 63, 405–422.
Kailola et al. 1993	Kailola, P. J., Williams, M.J. Stewart, P.C., Reichelt, R. E., McNee, A. and Graive, C. (1993). Australian Fisheries Recourses. Canberra, Australia. Vol. Australian Fisheries Resources pp.18-320 (Bureau of Resource Sciences, Fisheries Research and Development Corporation; Brisbane).
Kendall and Gray 2009	Kendall, B.W. and Gray, C.A. (2009). Reproduction, age and growth of <i>Sillago maculata</i> in south-eastern Australia. <i>Journal of Applied Ichthyology</i> 25, 529–536.
Krück et al. 2009	Krück, N.C., Chargulaf, C.A., Saint-Paul, U. and Tibbetts, I. (2009). Early post-settlement habitat and diet shifts and the nursery function of tidepools during <i>Sillago</i> spp. recruitment in Moreton Bay, Australia. <i>Marine Ecology Progress Series</i> 384, 207–219.
Henry and Lyle 2003	Henry, GW and Lyle, JM 2003, The national recreational and indigenous fishing survey. Australian Government Department of Agriculture, Fisheries and Forestry, Canberra, Australia. ISSN 1440–3544.
Melville and Connolly 2003	Melville, A.J. and Connolly, R.M. (2003). Spatial analysis of stable isotope data to determine primary sources of nutrition for fish. <i>Oecologia</i> 135, 499–507.
West et al. 2015	West, LD, Stark, KE, Murphy, JJ, Lyle, JM and Doyle FA 2015, Survey of recreational fishing in New South Wales and the ACT, 2013/14, Fisheries Final Report Series.
Williams 2002	Williams, LE 2002, Queensland's fisheries Resources - Current condition and recent trends 1988 - 2000, Department of Primary Industries Queensland., Brisbane.
Murphy et al. 2020	Murphy, JJ, Ochwada-Doyle, FA, West, LD, Stark, KE and Hughes, JM 2020, The NSW Recreational Fisheries Monitoring Program - survey of recreational fishing, 2017/18. NSW DPI - Fisheries Final Report Series No. 158.
Teixeira et al. 2021	Teixeira, D, Janes, R, and Webley, J 2021, 2019–20 Statewide Recreational Fishing Survey Key Results. Project Report. State of Queensland, Brisbane.
Maclean 1971	Maclean, JL, 1971, The food and feeding of winter whiting (<i>Sillago maculata</i> Quoy and Gaimard) in Moreton Bay. <i>Proceedings of the Linnean Society of New South Wales</i> , 96, 87–92.
Weng 1983	Weng, HT, 1983, Identification, habitats and seasonal occurrence of juvenile whiting (<i>Sillaginidae</i>) in Moreton Bay, Queensland. <i>Journal of Fish Biology</i> , 23(2), 195–200.
Weng 1986	Weng, HT, 1986, Spatial and temporal distribution of whiting (<i>Sillaginidae</i>) in Moreton Bay, Queensland. <i>Journal of Fish Biology</i> , 29(6), 755–764.
Murphy et al. 2022	Murphy, JJ, Ochwada-Doyle, FA, West, LD, Stark, KE, Hughes, JM and Taylor, MD. 2022. Survey of recreational fishing in NSW, 2019/20–Key results. NSW DPI - Fisheries Final Report Series No. 161.