

Silver Warehou (2018)

Seriolella punctata



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Commonwealth, New South Wales, South Australia	Southern and Eastern Australia	MSF, OTF, SESSF (CTS), SESSF (GABTS), SESSF (GHTS)	Sustainable	Biomass and depletion, fishing mortality, catch, effort, length composition, age composition, discard estimates

SESSF (CTS) Southern and Eastern Scalefish and Shark Fishery (Commonwealth Trawl Sector) (CTH), SESSF (GABTS) Southern and Eastern Scalefish and Shark Fishery (Great Australian Bight Trawl Sector) (CTH), SESSF (GHTS) Southern and Eastern Scalefish and Shark Fishery (Gillnet Hook and Trap Sector) (CTH), OTF Ocean Trawl Fishery (NSW), MSF Marine Scalefish Fishery (SA)

STOCK STRUCTURE

Silver Warehou is assessed and managed as a single biological stock around south eastern Australia [Morison et al. 2007]. Genetic studies and otolith microchemistry have shown no differences between the stocks east and west of Bass Strait [Robinson et al. 2008], although some differences have been found in standardized CPUE and biological characteristics of the eastern and western components of the stock [Day et al. 2015].

Here, assessment of stock status is presented at the biological stock level—Southern and Eastern Australia.

STOCK STATUS

Southern and Eastern Australia Silver Warehou are caught in Commonwealth, New South Wales, Tasmanian and South Australian fisheries, and information is presented here for each jurisdiction. Because most of the catch is taken in Commonwealth fisheries, and stock assessments have been conducted for the Commonwealth Southeast Scalefish and Shark fishery (SESSF), stock status is primarily evaluated using evidence from the SESSF fishery.

Most of the reported commercial catch of Silver Warehou has been taken in the Commonwealth SESSF trawl fisheries. Silver Warehou catches have increased progressively from around 1980 and peaked in 2002 (4 450 tonnes [t]) and

2004 (4 435 t). Catches then declined to 370 t in 2014–15 (2 329 t TAC), 276 t in 2015–16 (2417 t TAC) and 311 t in 2016–17 (1 209 t TAC). The commonwealth landed catch in 2017–18 fishing season was 432.5 t (605 t TAC).

Data on the New South Wales commercial fishery, including catch of Silver Warehou, are available from 1997–98. Prior to 1999–00, between 10 and 20 t of Silver Warehou was reported in New South Wales commercial fisheries. From 1999 to 2000 the total reported commercial catch of Silver Warehou has been < 5 t p.a., with < 1 t being reported since 2010–11. Recreational and Indigenous catches of Warehou spp. in New South Wales are unknown. Surveys of Recreational and Indigenous catches have either not specified catches of Warehou species [West et al. 2015] or reported them in a broader 'finfish - other' category [Henry and Lyle 2003].

Silver Warehou has only been sporadically fished in Tasmanian waters, with a zero catch reported for 2017. The average annual commercial catch for the period 2010–11 to 2017 was 0.063 t, and the total commercial catch over this period was 0.376 t. Historical catches in Tasmanian waters have been similarly low - the average annual commercial catch for the 10 year period 1995–96 to 2004–05 was 3.56 t. The species is not harvested recreationally in Tasmania, and was not reported in the 2007–08 or 2012–13 surveys of recreational fishing in the State [Lyle et al. 2009, 2014].

Warehou species are not differentiated in South Australian State managed commercial Marine Scalefish Fishery (MSF) logbooks. No catches of Warehou species were reported in the MSF during the most recent assessment year, and total annual catches were zero in all years since 2011. The most recent recreational fishing survey in South Australia in 2013–14 indicated that the annual catch of Warehou species was zero.

Silver Warehou is assessed by the Commonwealth using an integrated statistical catch-at-age assessment, incorporating catch, effort, length composition, age-composition and discard data for the Commonwealth Trawl Sector of the SESSF. Earlier assessments estimated stock depletion at 0.49 B₀ in 2007 [Tuck and Punt 2007], 0.53 B₀ in 2008 [Tuck 2008] and 0.48 B₀ in 2010 [Tuck and Fay 2009], fluctuating at or above the maximum economic yield (MEY) target of 0.48 B₀ [Helidoniotis et al. 2017]. However, these assessments estimated that historical recruitment had been fluctuating around average with a number of years of high recruitment, and used average recruitment from a stock-recruitment relationship in projections. Subsequent assessments have estimated that recruitment has been mostly below average since 2003, repeatedly revising recent recruitment estimates downwards.

Estimates of stock biomass from the 2015 assessment (using data up to 2014) estimated biomass to be about 0.4 B₀ in 2016, with a corresponding RBC of 1 958t, assuming that recruitment will return to average [Burch et al. 2019]. Noting that there had been a nine year run of below average recruitment, sensitivity analyses were conducted under 'poor' and 'very poor' recruitment scenarios. These predicted that catches less than 381 t would be required to prevent stock declines [Day et al. 2015, Burch et al. 2019].

Updated assessments have continued to revise estimates of recent recruitment downwards, although have confirmed that recruitment seems to have improved to near average in 2013 and 2014. The most recent assessment undertaken in 2019 [Burch et al. 2019], using data to 2017, confirmed that biomass has been below the target since 2009, and estimated that it declined to near the 0.20 B₀ limit from 2013 to 2016. The last 11 years of recruitment are estimated to have been below average and it is possible that the stock is now displaying reduced productivity. The assessment estimated that biomass would be 31 per cent of the unfished level in 2019. The stock is not considered to be recruitment impaired.

The 2019 stock assessment [Burch et al. 2019] undertook projections under low

and very low recruitment scenarios. These projections suggest that landed catch should be maintained at around 350t per annum to maintain the stock above the limit reference point.

Total landed catch in 2017–18 was 432t and the weighted average discards over the period 2013–16 were approximately 41 t. The landed catch and discards combined were 473 t and below the TAC for the 2017–18 season (605t). This level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

On the basis of the evidence provided, the Southern and Eastern Australia biological stock is classified as a **sustainable stock**.

BIOLOGY

Silver Warehou biology [Horn and Sutton 1996]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Silver Warehou	23 years, 660 mm TL	3–4 years, mean length at female maturity is about 440 mm LCF

DISTRIBUTION



Distribution of reported commercial catch of Silver Warehou

TABLES

Commercial Catch Methods	Commonwealth	New South Wales	South Australia	Tasmania
Danish Seine	✓			
Demersal Gillnet	✓			
Demersal Longline	✓			
Midwater Trawl	✓			
Otter Trawl	✓	✓		

Unspecified		✓	✓	✓
Fishing methods				
	Commonwealth	New South Wales	South Australia	
Charter				
Hook and Line			✓	
Commercial				
Danish Seine	✓			
Demersal Longline	✓			
Otter Trawl	✓	✓		
Unspecified			✓	
Indigenous				
Hook and Line		✓		
Recreational				
Hook and Line		✓		
Management Methods				
	Commonwealth	New South Wales	Tasmania	
Commercial				
Gear restrictions		✓		
Limited entry		✓	✓	
Size limit			✓	
Spatial closures		✓		
Total allowable catch	✓			
Indigenous				
Bag and possession limits			✓	
Bag limits			✓	
Native Title		✓		
Section 37 (1d)(3)(9), Aboriginal cultural fishing authority		✓		
Size limit			✓	
Recreational				
Bag and possession limits			✓	
Bag limits			✓	

Licence		✓	✓
Size limit			✓
Active Vessels			
	Commonwealth	South Australia	
	33 Vessels in SESSF (CTS), 2 Vessels in SESSF (GABTS), 1 Vessels in SESSF (GHTS),	0 Licences in MSF,	

SESSF (CTS) Southern and Eastern Scalefish and Shark Fishery (Commonwealth Trawl Sector)(CTH)

SESSF (GABTS) Southern and Eastern Scalefish and Shark Fishery (Great Australian Bight Trawl Sector)(CTH)

SESSF (GHTS) Southern and Eastern Scalefish and Shark Fishery (Gillnet Hook and Trap Sector)(CTH)

MSF Marine Scalefish Fishery(SA)

Catch					
	Commonwealth	New South Wales	South Australia	Tasmania	Victoria
Commercial	347.948t in SESSF (CTS), 4.41t in SESSF (GABTS), 0.07977t in SESSF (GHTS),		0t in MSF,		
Indigenous	No catch	Unknown	Unknown	Unknown	Unknown
Recreational	No catch	Unknown	Unknown	Unknown	Unknown

SESSF (CTS) Southern and Eastern Scalefish and Shark Fishery (Commonwealth Trawl Sector) (CTH), SESSF (GABTS) Southern and Eastern Scalefish and Shark Fishery (Great Australian Bight Trawl Sector) (CTH), SESSF (GHTS) Southern and Eastern Scalefish and Shark Fishery (Gillnet Hook and Trap Sector) (CTH), OTF Ocean Trawl Fishery (NSW), MSF Marine Scalefish Fishery (SA),

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 – Indigenous (Management Methods) The Aboriginal cultural fishing authority is the authority that Indigenous persons can apply to take catches outside the recreational limits under the Fisheries Management Act 1994 (NSW), Section 37 (1d)(3)(9), Aboriginal cultural fishing authority. In cases where the Native Title Act 1993 (Cth) applies fishing activity can be undertaken by the person holding native title in line with S.211 of that Act, which provides for fishing activities for the purpose of satisfying their personal, domestic or non-commercial communal needs. In managing the resource where native title has been formally recognised, the native title holders are engaged with to ensure their native title rights are respected and inform management of the State's fisheries resources.

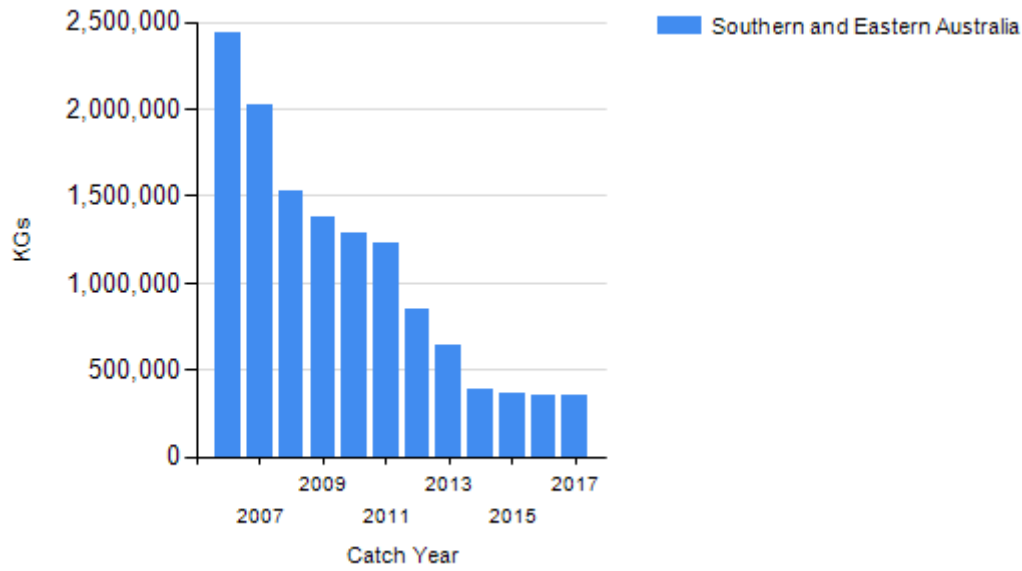
Tasmania – Commercial (catch) Catches reported for the Tasmanian Scalefish Fishery are for the period 1 July to 30 June the following year. The most recent assessment available is for 2016/17.

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. The species is subject to a minimum size limit of 250

mm total length. A bag limit of 10 fish and a possession limit of 20 fish is in place for recreational fishers.

Tasmania – Indigenous (management methods) In Tasmania, Indigenous persons engaged in aboriginal 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. Additionally, recreational bag and possession limits also apply. If using pots, rings, set lines or gillnets, Indigenous persons must obtain a Unique Identifying Code (UIC). The policy document Recognition of Aboriginal Fishing Activities for issuing a UIC to a person for Aboriginal Fishing activity explains the steps to take in making an application for a UIC.

CATCH CHART



Commercial catch of Silver Warehou - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

ENVIRONMENTAL EFFECTS on Silver Warehou

References	
953	Burch, Paul, Day, Jemery, Castillo-Jordán, Claudio and Curin Osorio, Sandra 2019, Silver warehou (<i>Seriolella punctata</i>) stock assessment based on data up to 2017. Revised after the SERAG meeting 14–16 November 2018.
954	Day, JR, Thomson, RB and Tuck, GN 2015, Silver Warehou (<i>Seriolella punctata</i>) stock assessment based on data up to 2014. For discussion at Slope RAG, October 2015.
955	Helidoniotis, F, Koduah, A, Moore, A, Mazloumi N and Nicol, S 2017, Commonwealth Trawl and Scalefish Hook sector, In: Patterson, H, Georgeson, L, Noriega, R, Koduah, A, Helidoniotis, F, Larcombe, J, Nicol, S and Williams, A (ed.) Fishery status reports, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra, pp 154–157.
956	Henry, GW and Lyle, JM 2003, The national recreational and Indigenous fishing survey. Fisheries Research and Development Corporation, Canberra.
957	Horn, PL and Sutton, CP 1996, "Validated ages, growth, and productivity parameters for silver warehou (<i>Seriolella punctata</i>) off the south and east coasts of South Island, New Zealand." <i>New Zealand Journal of Marine and Freshwater Research</i> 30(3): 301–312.
958	Lyle, JM, Tracey, SR, Stark, KE and Wotherspoon, S 2009, 2007–08 survey of recreational fishing in Tasmania. Tasmanian Aquaculture and Fisheries Institute, Hobart.
959	Lyle, JM, Stark, KE and Tracey, SR 2014, 2012–13 survey of recreational fishing in Tasmania. Institute for Marine and Antarctic Studies, Hobart, Tasmania.
960	Morison, A, Tilzey, R and McLoughlin, K 2007, Commonwealth trawl and scalefish-hook sector. Pp 111–160. In: Larcombe, J and McLoughlin, K (eds.). <i>Fishery status reports 2006: status of fish stocks managed by the Australian Government</i> . Bureau of Rural Sciences, Canberra.

961	Robinson N, Skinner, A, Sethuraman, L, McPartlan, H, Murray , N, Knuckey, I, Smith, D, Hindell, J and Talman, S 2008, "Genetic stock structure of blue-eye trevalla (<i>Hyperoglyphe antarctica</i>) and warehou (<i>Seriolella brama</i> and <i>Seriolella punctata</i>) in south-eastern Australian waters." <i>Marine and Freshwater Research</i> 59(6): 502–514.
962	Tuck, GN and Punt, AE 2007, Silver warehou (<i>Seriolella punctata</i>) stock assessment based upon data up to 2006. Technical report to Slope RAG. August, 2007. 18pp.
963	Tuck, GN 2008, Silver warehou (<i>Seriolella punctata</i>) stock assessment update for 2008. Technical report presented to the Slope RAG. 17–18 November, 2008.
964	Tuck, GN and Fay, G 2009, Silver warehou (<i>Seriolella punctata</i>) stock assessment based on data up to 2008. Technical report to Slope RAG. 28 pp.
965	West, LD, Stark, KE, Murphy, JJ, Lyle, JM and Ochwada-Doyle, FA 2015. Survey of recreational fishing in New South Wales and the ACT, 2013/14. Fisheries Final Report Series No. 149. NSW Department of Primary Industries, Wollongong.