

Blue Warehou (2020)

Seriolella brama



Klaas Hartmann: Institute for Marine and Antarctic Studies, University of Tasmania, **Rowan C. Chick:** Department of Primary Industries, New South Wales, **Timothy Emery:** Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), **Victorian Fisheries Authority:** Victorian Fisheries Authority, **Paul Rogers :** SARDI Aquatic Sciences, South Australia

STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Commonwealth, New South Wales, Victoria, Tasmania	Eastern	Depleted	Biomass, fishing mortality, catch
Commonwealth, Victoria, Tasmania, South Australia	Western	Depleted	Biomass, fishing mortality, catch

STOCK STRUCTURE

Blue Warehou is highly mobile with a patchy distribution and a wide range of spawning areas [Knuckey and Sivakumaran 2001]. Genetic studies have indicated that there are two separate stocks east and west of Bass Strait [Punt 2006, Talman et al. 2004]. The Eastern stock extends offshore from southern New South Wales to southern Tasmania and the Western stock extends offshore from western Tasmania northward to western Victoria. Eastern and Western stocks are assessed separately.

Here, stock status is presented at the biological stock level—Eastern and Western.

STOCK STATUS

Eastern The Australian Bureau of Agricultural and Resources Economics and Sciences (ABARES) has classified Blue Warehou in Commonwealth waters as overfished since 1999 and the species is currently subject to a stock rebuilding strategy [AFMA 2014], briefly described below. In February 2015, the species was listed as conservation dependent under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act, Department of the Environment 2015).

Blue Warehou in Commonwealth fisheries was managed as a Tier 4 stock under the Southern and Eastern Scalefish and Shark Fishery (SESSF) Harvest Strategy Framework [AFMA 2019] but is currently managed under a rebuilding strategy

[AFMA 2014] with an incidental catch allowance of 118 tonnes (t) applied across both eastern and western stocks [Emery et al. 2020].

Blue Warehou landings in the SESSF peaked in 1991 at nearly 2500 tonnes (t). Catches then declined rapidly to below 500 t through the early 2000s. The last Tier 4 analysis conducted in 2013 [Haddon 2013] determined that the standardised catch per unit effort (CPUE) for both the eastern and western stocks had been below the limit reference point since 1998, with the exception of 1998 and 2005 for the western stock [Haddon 2013]. There has been no recent Tier 4 analysis because CPUE is no longer considered to be a reliable indicator of abundance for this species due to active avoidance by fishers.

The stock rebuilding strategy introduced in 2008 was updated in 2014 [AFMA 2014]. This aims to prevent targeted fishing of Blue Warehou by ensuring AFMA sets total allowable catches (TACs) that permit only incidental bycatch. Landings have been well below the incidental catch allowance in recent years. Commonwealth landed catch of Blue Warehou from both the Eastern and Western stocks in the trawl and scalefish hook sectors of the SESSF was 10.1 t in the 2019–20 fishing season (54.2 t in 2018–19 fishing season). Discards have been estimated to be 83.2 t based on the weighted average of the previous four fishing seasons (2015–16 to 2018–19) [Burch et al. 2019], which when combined is below the incidental catch allowance of 118 t. As there are no reliable indicators to determine if this level of fishing mortality will allow the stock to rebuild, the development of an alternative index of abundance with which to assess stock recovery is considered a priority for Blue Warehou [AFMA 2018].

In New South Wales, commercial fishery data, including catch of Blue Warehou is available from 1997–98, although in many years the data are classified as confidential. In 1998–99 and 1999–2000, Blue Warehou catches of 21.7 t and 10.2 t were reported across all New South Wales commercial fisheries, respectively. From 2000–01 to 2018–19, the total reported commercial catch of Blue Warehou was < 2.5 t per year, with < 1 t being reported in 15 of those 17 years. Recreational and Indigenous catches of warehou species in New South Wales are unknown. Surveys of recreational and Indigenous catches have either not specified catches of warehou species [West et al. 2015, Murphy et al. 2020] or reported them into a broader 'finfish - other' category [Henry and Lyle 2003].

As the majority of catch is taken in the SESSF, catch from Victoria is unlikely to influence the biomass of the biological stock. Blue Warehou are not targeted in Victorian waters but incidental catch from commercial seines, mesh nets and longlines within the Inshore Trawl, Ocean and Corner Inlet Fisheries and from recreational fishers occurs. The commercial catch taken during the 2019 calendar year is confidential as fewer than five licence holders reported landing Blue Warehou. However, catch has remained relatively stable from 2013–14 to 2016–17 at 1–2 t (VFA 2017).

Blue Warehou landings in the Tasmanian Scalefish Fishery peaked in 1991–92 at 318 t and have since decreased to 1.8 t in 2018–19 [Krueck et al. 2020], with around two thirds of this catch assumed to be from the eastern stock. Recreational catches in Tasmania are estimated periodically with estimates of 32.5 t in 2010, 15.4 t in 2012–13 and 0.8t in 2017–18 [Lyle et al. 2019], with the majority of catches assumed to be from the Eastern stock.

The above evidence indicates that the biomass of this stock is likely to be depleted and that recruitment is likely to be impaired.

Fishing mortality has been constrained by the Commonwealth TAC and catches are low in other jurisdictions. The catch restrictions are intended to allow the stocks to recover from their recruitment-impaired state; however, measurable improvements are yet to be detected.

On the basis of the evidence provided above the Blue Warehou Eastern

biological stock is classified as a **depleted stock**.

Western

The comments above, in relation to the Eastern stock (for Victoria and Tasmania), apply equally here. The western stock also includes fishing in Commonwealth waters west of the Bass Strait and in South Australian waters.

Most of the Blue Warehou catch in Commonwealth waters after 1999 has come from the western stock. Standardised CPUE for the western stock has been below the limit reference point since 1995, with the exception of 1998 and 2005 [Haddon 2013]. Under the rebuilding strategy, AFMA has set an incidental catch allowance of 118 t. The incidental catch allowance includes triggers of 27 t in the east and 91 t in the west. These triggers are intended to alert AFMA if the ratio of catches in the east and the west change substantially, resulting in increased reporting requirements for commercial fishers [AFMA 2014]. As for the eastern stock, the development of an alternative index of abundance with which to assess stock recovery is considered a priority for Blue Warehou [AFMA 2018].

Warehou species are not differentiated in South Australia’s commercial multi-species, multi-gear and multi-sectoral Marine Scalefish Fishery (MSF). No catches of Warehou species were reported in the MSF during 2018–19. There is no information available on the catch of Warehou species by Aboriginal and Torres Strait Islander people in South Australian waters. The most recent recreational fishing survey in South Australia in 2013–14 indicated that the annual catch of Blue Warehou was zero.

Blue Warehou landings in the Tasmanian Scalefish Fishery peaked in 1991–92 at 318 t and have since decreased to 0.8 t in 2018–19 [Krueck et al. 2020], with about one-third of the catch assumed to be from the Western stock.

The above evidence indicates that the biomass of this stock is likely to be depleted and that recruitment is likely to be impaired.

Fishing mortality has been constrained by the Commonwealth TAC and catches are low in other jurisdictions. The catch restrictions are intended to allow the stocks to recover from their recruitment impaired state; however, as with the Eastern stock, measurable improvements are yet to be detected.

On the basis of the evidence provided above the Blue Warehou Western biological stock is classified as a **depleted stock**.

BIOLOGY

Blue Warehou biology [Knuckey and Sivakumaran 2001]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Blue Warehou	25 years, ~760 mm TL and 4 kg	3-4 years, mean length at female maturity is about 330 mm LCF

DISTRIBUTION



Distribution of reported commercial catch of Blue Warehou

TABLES

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

Management Methods	Commonwealth	New South Wales	South Australia	Tasmania	Victoria
Charter					

Gear restrictions			✓		
Limited entry			✓		
Commercial					
Gear restrictions	✓	✓	✓	✓	✓
Limited entry	✓	✓	✓	✓	✓
Marine park closures	✓				
Quota	✓				
Size limit				✓	✓
Spatial closures	✓	✓	✓		✓
Total allowable catch (incidental)	✓				
Trip limits	✓				
Recreational					
Bag and possession limits		✓		✓	✓
Bag limits				✓	✓
Gear restrictions			✓		✓
Licence		✓		✓	✓
Limited entry					✓
Size limit				✓	✓
Spatial closures		✓	✓		✓

Catch	Commonwealth	New South Wales	South Australia	Tasmania	Victoria
Commercial	51.6541 t	0.4154 t	0 t	1.4473 t	0 t
Indigenous		Unknown	Unknown	Unknown	Unknown (no catch under permits)
Recreational		Unknown	Unknown	15.4 t (2012–13) 0.8t (2017-18)	Unknown

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

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

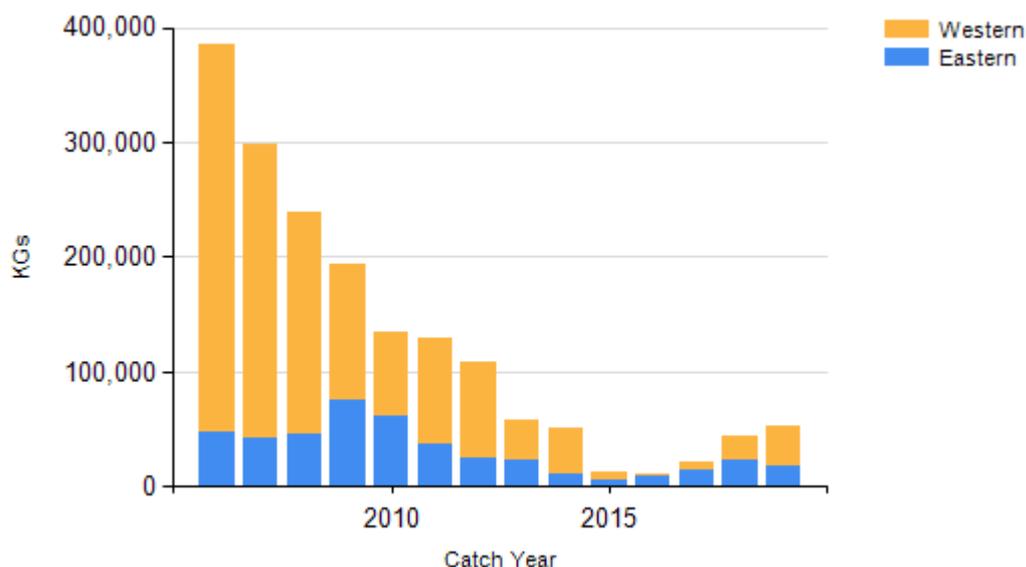
Tasmania – Commercial (catch) Catches reported for the Tasmanian Scalefish Fishery are for the period 1 July to 30 June the following year. The most recent assessment available is for 2016–17.

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 (all Warehou species) 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.

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*.

CATCH CHART



Commercial catch of Blue Warehou - note confidential catch not shown

References	
AFMA 2014	AFMA, Blue Warehou (<i>Seriolella brama</i>) Stock Rebuilding Strategy, 2014, AFMA Report.
EPBC Act, Department of the Environment 2015	Operation of the Environment Protection and Biodiversity Conservation Act 1999, 2015. Legislative Report.
Haddon 2013	Haddon, M 2013, Tier 4 Analyses in the SESSF, including Deep Water Species. Data from 1986–2011. In Tuck GN (ed.) 2013, Stock assessment for the Southern and Eastern Scalefish and Shark Fishery 2012, Part 2. Australian Fisheries Management Authority and CSIRO Marine and Atmospheric Research, Hobart. pp. 407–514.
Henry and Lyle 2003	Henry, GW and Lyle, JM 2003, The national recreational and Indigenous fishing survey. Fisheries Research and Development Corporation, Canberra.
Knuckey and Sivakumaran 2001	Knuckey, IA and Sivakumaran KP 2001, Reproductive characteristics and per-recruit analyses of blue warehou (<i>Seriolella brama</i>): implications for the South East Fishery of Australia. Marine and Freshwater Research, 52(4) 575–587
Punt 2006	Punt, AE 2006, Updated stock assessment of blue warehou (<i>Seriolella brama</i>) based on data up to 2006, CSIRO SlopeRAG report.
Talman et al. 2004	Talman, S, Hamer, P, Robertson, S, Robinson, N, Skinner, A and Smith, DC 2004, Stock structure and spatial dynamics of the warehouse: a pilot study. Final Report of FRDC Project 2001/004. Primary Industries Research Victoria, Marine and Freshwater Systems, Department of Primary Industries, Queenscliff, Victoria, 3225 pp.
West et al. 2015	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.
VFA 2017	Victorian Fisheries Authority Commercial Fish Production Information Bulletin 2017, Victorian Fisheries Authority, Queenscliff, Victoria, Australia.
Murphy et al. 2020	Murphy, J.J., Ochwada-Doyle, F.A., West, L.D., Stark, K.E. and Hughes, J.M., 2020. The NSW Recreational Fisheries Monitoring Program - survey of recreational fishing, 2017/18. NSW DPI - Fisheries Final Report Series No. 158.
AFMA, 2019	AFMA 2019, Harvest strategy framework for the Southern and Eastern Scalefish and Shark Fishery 2009 (amended 2019), Australian Fisheries Management Authority, Canberra.
Emery et. al. 2020	Emery, T, Marton, N, Woodhams, J and Curtotti, R 2020, Commonwealth Trawl and Scalefish Hook sectors, in H Patterson, J Larcombe, J Woodhams and R Curtotti (ed.s), Fishery status reports 2020, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra https://doi.org/10.25814/5f447487e6749 .
AFMA, 2018	AFMA 2018, Total allowable catch recommendations for Southern and Eastern Scalefish and Shark Fishery (SESSF) 2019-20 fishing year, Australian Fisheries Management Authority, Canberra.
Burch et al. 2019	Burch, P, Althaus, F & Thomson, R 2019, Southern and Eastern Scalefish and Shark Fishery (SESSF) catches and discards for TAC purposes using data until 2018, Prepared for the SERAG Meeting, 3-4 December 2019, Hobart, CSIRO Oceans and Atmosphere, Hobart, Tasmania.
Lyle et al. 2019	Lyle, J. M., K. E. Stark, G. P. Ewing, and S. R. Tracey. 2017-18 Survey of recreational fishing in Tasmania. Institute for Marine and Antarctic Studies, Hobart, Tasmania.
Krueck et. al. 2020	Krueck, N., K. Hartmann and J. Lyle, Tasmanian Scalefish Fishery Assessment 2018/19
Department of Environment 2015	Department of Environment 2015, Operation of the Environment Protection and Biodiversity Conservation Act 1999, 2015. Legislative Report