Yellowfin Whiting (2020)

Sillago schomburgkii

Greg Ferguson: South Australian Research and Development Institute, **Rodney Duffy**: Western Australia Department of Primary Industries and Regional Development

STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Western Australia	Northern Western Australia	Sustainable	Catch, effort, CPUE, age composition
Western Australia	Southern Western Australia	Sustainable	Catch
South Australia	Gulf St. Vincent	Sustainable	Catch, effort, CPUE
South Australia	Spencer Gulf	Sustainable	Catch, effort, CPUE

STOCK STRUCTURE

Yellowfin Whiting is endemic to south-western Australia, being found in coastal waters around Exmouth in Western Australia to the gulf waters of South Australia [Gomon et al. 2008]. There is some uncertainty about the continuity of the species' distribution through the remote coastal waters between Western Australia and South Australia. Based on this possible discontinuous distribution, there is a possibility of separate stocks in these areas [Steer et al. 2018]. Western Australian populations in northern (Gascoyne Coast Bioregion) and southern (West Coast and South Coast Bioregions) regions also appear to have low connectivity. Adults in northern and southern regions have distinctly different size-at-age due to different growth rates, which suggests low levels of movement among regions [DPIRD unpublished data]. Northern and southern regions are therefore assumed to support separate biological stocks. In South Australia, oceanographic separation of the two gulfs during the spawning season in summer must considerably reduce the opportunity for mixing of eggs and larvae. As such, the populations in the gulfs may constitute separate stocks, but more evidence is required to confirm this.

Here, assessment of stock status is presented at the biological stock level—Northern Western Australia, Southern Western Australia, Spencer Gulf (South Australia) and Gulf St. Vincent (South Australia).

STOCK STATUS

Gulf St. Vincent

The Yellowfin Whiting is considered to be a secondary species within South Australia's commercial multispecies, multi-gear and multi-sectoral Marine Scalefish Fishery. The most recent assessment of Yellowfin Whiting was completed in 2020 and used data to the end of December 2018 [Steer et al. 2020]. The primary indicators used for biomass and fishing mortality are catch, effort and targeted CPUE [Steer et al. 2020]. The Statewide estimated recreational catch of Yellowfin Whiting in 2013–14 was 45.3 t. This was estimated from nominal catch data and there was no regional breakdown of catches for this or other species (Giri and Hall 2015).

Catches from Gulf St. Vincent have consistently been considerably lower than those from Spencer Gulf [Steer et al. 2020]. Targeted catches from the netting sector in this region have been variable over time reflecting fluctuating effort. Estimates of CPUE have been relatively stable throughout the 2000s [Steer et al. 2020]. The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired. Furthermore, the above evidence indicates 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 Gulf St. Vincent biological stock is classified as a **sustainable stock**.

Northern Western Australia

The majority of commercial and recreational catches of Yellowfin Whiting in northern Western Australia occur in Shark Bay. The long-term catch and catch rate trends are relatively stable. Recent commercial catches in Shark Bay have declined due to a reduction in effort, but catch rates in this area have increased, possibly due to strong recruitment after the 2010–11 marine heatwave event, as seen in the Southern Western Australian stock [Jackson et al. 2020]. The age structure of fish in Shark Bay was sampled in 2001–03 and 2014 and was similar in both periods [Brown 2014, Coulson et al. 2005]. Age structure in 2014 was used to estimate fishing mortality and spawning potential ratio (SPR). Estimates of SPR were above the Target Reference Level of 40 per cent. The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired. Furthermore, the above evidence indicates 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 Northern Western Australia biological stock is classified as a **sustainable stock**.

Southern Western Australia

The previous level 3 assessment was based on age structure data collected in 2015 and 2016. 'Per recruit' modelling (SPR) suggested that spawning biomass was above the threshold level (30 per cent).

The current assessment of Yellowfin Whiting taken in Southern Western Australia is primarily based on estimates of biomass and fishing mortality from a data-limited Catch-MSY assessment model, compared periodically to reference levels relating to estimates of Maximum Sustainable Yield (MSY). The estimated biomass expected to achieve MSY (BMSY) is considered as the threshold reference level for the stock, and 50 per cent BMSY is set as the limit reference level. The target level is considered as any stock levels above BMSY.

The estimated fishing mortality experienced by the stock in 2019 was 0.07 year[-1], with the 95 per cent CLs ranging from 0.06 to 0.11 year[-1]. As the upper 95 per cent CL of this performance indicator is well below the level of FMSY (0.3 year[-1]), the stock is unlikely to deplete to a level at which recruitment could be impaired if the current catch level is maintained.

The point estimate for relative stock biomass in 2019 was high at 0.87 of the unfished level (95 per cent CLs = 0.78–0.95). The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired. Furthermore, the above evidence indicates 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 Southern Western Australia stock is classified as a **sustainable stock**.

Spencer Gulf

Yellowfin Whiting are considered to be a secondary species within South Australia's commercial multispecies, multi-gear and multi-sectoral Marine Scalefish Fishery. The most recent assessment of Yellowfin Whiting was completed in 2020 and used data to the end of December 2018 [Steer et al. 2020]. The primary indicators used for biomass and fishing mortality are catch, effort and targeted CPUE [Steer et al. 2020].

Most of the Yellowfin Whiting taken in South Australia are taken from northern Spencer Gulf, although the fishery in this region is characterised by high levels of variability. This may reflect the transient nature of targeted fishing effort, with fishers opportunistically targeting Yellowfin Whiting due to market demands, or when the availability of higher-value species is low [Steer et al. 2020]. There was a long-term declining trend in fishing effort for Yellowfin Whiting until 2017 and 2018. The decline in effort was not reflected in total catch, targeted catch or targeted CPUE. The higher effort in the last two years was associated with increases in total catch, targeted catch and CPUE [Steer et al. 2020]. The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired. Furthermore, the above evidence indicates 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 Spencer Gulf biological stock is classified as a **sustainable stock**.

BIOLOGY

Yellowfin Whiting biology [Ferguson 2000, Hutchins and Swainston 1986, Hyndes and Potter 1997]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Yellowfin Whiting	Western Australia: 12 years, 420 mm TL South Australia: 11 years, 420 mm TL	Western Australia: 2 years, 180– 200 mm TL South Australia: 2 years, 220–240 mm TL

DISTRIBUTION

Distribution of reported commercial catch of Yellowfin Whiting

TABLES

Fishing methods		
	South Australia	Western Australia
Charter		
Rod and reel		✓
Commercial		
Beach Seine		✓
Gillnet		✓
Hand Line, Hand Reel or Powered Reels		✓
Haul Seine		✓
Seine Nets	✓	
Unspecified	✓	
Recreational		
Hook and Line	✓	✓

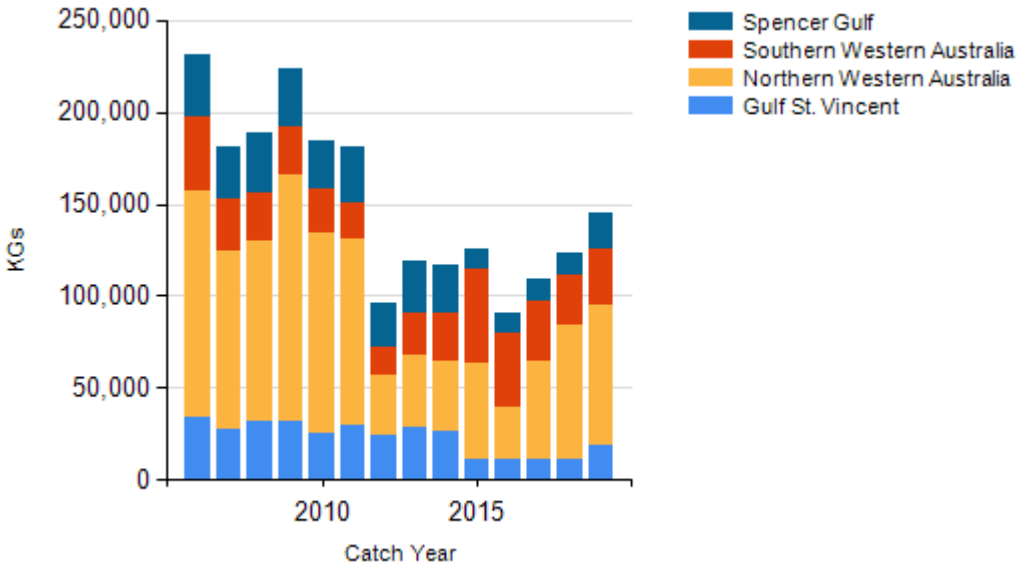
Management Methods		
	South Australia	Western Australia
Commercial		
Effort limits	✓	
Gear restrictions	✓	✓

Limited entry	✓	✓
Size limit	✓	
Spatial closures	✓	✓
Temporal closures	✓	
Recreational		
Bag limits	✓	✓
Gear restrictions	✓	
Possession limit		✓
Size limit	✓	

Catch		
	South Australia	Western Australia
Commercial	38.494 t	106.278 t
Indigenous	Unknown	
Recreational	45.3 t (in 2013/14) [Giri and Hall 2015]	7 t (2017/18)

Western Australia – Recreational (catch) Recreational catches of Yellowfin Whiting are taken by shore-based fishers. The current recreational catch is unknown due to the absence of any recent surveys of shore-based fishing.

CATCH CHART



Commercial catch of Yellowfin Whiting - note confidential catch not shown

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