Stripey Snapper (2020)

Lutjanus carponotatus

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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Commonwealth, Queensland	Eastern Australia	Sustainable	Catch
Commonwealth, Western Australia, Northern Territory, Queensland	Northern Australia	Sustainable	Catch, biomass

STOCK STRUCTURE

Stripey Snapper are widely distributed throughout tropical and sub-tropical waters in the eastern Indian Ocean to the western Pacific Ocean, extending from India to northern Australia. In Australia, Stripey Snapper range from Shark Bay in Western Australia (possibly also ranges further south), north and east to at least Moreton Bay in Queensland, and possibly further south into northern New South Wales.

Genetic analysis of this species within the Great Barrier Reef across four inshore island groups revealed that there is significant gene flow within the population (Evans et al 2010). Veilleux et al. (2011) examined mitochondrial DNA among populations from the Great Barrier Reef and Western Australia. These populations did not share migrants and were found to be distinct, and as such, could be managed separately. There is little information on stock structure explicitly within the Gulf of Carpentaria. DiBattista et al. (2017) examined single nucleotide polymorphisms (SNPs) among individuals from 51 locations from the Northern Territory to Shark Bay in Western Australia. DiBattista et al. (2017) demonstrated significant genetic subdivision between the Shark Bay region in the south and all other locations sampled. Importantly, DiBattista et al. (2017) identified a zone of admixture spanning a distance of 180 km at the border of the Kimberley and Canning bioregions, including the Buccaneer Archipelago and adjacent waters, which collectively experiences the largest tropical tidal range and some of the fastest tidal currents in the world. The identification of this transition zone was only possible using SNPs, as it was not detectable form the Kimberley and Pilbara/Canning populations of Stripey Snapper assessed using mitochondrial markers (Veilleux et al., 2011). Overall, these studies indicate that four separate populations are present in Australian waters, comprising (i) the Queensland east coast, (ii) the Kimberley and Northern Territory, (iii) Pilbara region, and (iv) Shark Bay. Due to the logistic and operational constraints of the relevant

monitoring, assessment and management agencies, assessment is only feasible at a broader scale.

Here, assessment of stock status is presented at the management unit level—Northern Australia (Western Australia, Northern Territory and Queensland Gulf of Carpentaria); and Eastern Australia (Queensland).

STOCK STATUS

Eastern Australia

Stripey Snapper is not targeted commercially on the East Coast, however it is an important and popular recreational species. Commercial harvest of Stripey Snapper in Queensland is constrained by a multi-species TACC, in addition to species-specific harvest control rules as part of the newly implemented Reef Line Fishery Harvest Strategy [QDAF 2020]. For secondary target and by-product species like Stripey Snapper, this includes catch reference points that trigger stock assessments and implementation of a species-specific TACC. In addition to the Harvest Strategy, Stripey Snapper are managed by minimum legal size limits that align with their reproductive biology (i.e. size at sexual maturity) [Kritzer 2004]. Given that the area of the fishery is largely within the confines of the Great Barrier Reef Marine Park, a portion of the biomass is afforded some protection from fishing through spatial zoning regulations, although this has not been quantified. In 2009, Heupel et al. indicated that, although Stripey Snapper exhibit some biological traits associated with vulnerability to overfishing, management regulations in Queensland were appropriate to maintain the population.

Commercial catch in Queensland reached a peak of 66 t in 2009–10 and has been steadily declining since then to 29 t in 2018–19 [QFISH 2020]. The reef line fishery has generally focussed on the live coral trout market since 2004 when quota controls were introduced. While catch has decreased by 56 per cent over this period, catch rate has remained steady at around 2 kg per dory day (mean 1.8; range 1.5–2.2). Recreational harvest is estimated to be around 9 t according to the most recent survey [Teixeira et al. 2021].

Stripey snapper is not targeted in any Commonwealth fisheries. There was no reported catch in 8 of the last 10 years. Catch in 2017–18 was just over 100 kg and catch in 2018–19 was under 20 kg. Commonwealth catch is considered to have a negligible effect on the stock status.

The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired. The above evidence also 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 , Stripey Snapper in Eastern Australia is classified as a **sustainable** stock.

Northern Australia

Stripey Snapper are not a target species in the demersal fisheries of Western Australia but are landed in small quantities as byproduct [Newman et al. 2020]. The total commercial catch of Stripey Snapper from the Western Australian part of the Northern Australia management unit has been low and stable over the last 9 years (2011–2019), ranging from <100 kg to 1.5 t per annum, with a mean annual catch of 630 kg. Stripey Snapper are also landed by recreational (~4.3 t) and charter fishers (~0.9 t) with the annual catch of recreational and charter fishers being greater than the commercial catch of this species. The low catches of Stripey Snapper in Western Australia are taken from a limited area compared to the wider distribution of the species.

Stripey Snapper are not targeted by commercial fisheries in the Northern Territory and are caught in very small numbers by the Coastal Line Fishery (annual average <0.15 t). However, the recreational and Fishing Tour Operator sectors do harvest substantial catches of this species (combined annual average approximately 45 t).

Stripey snapper is not targeted in any of the Commonwealth fisheries and very low levels of catch are reported; around 900 kg reported from a single year (2012). The Commonwealth catch is considered to have a negligible effect on the stock status.

In the Queensland part of the Northern Australia management unit, Stripey Snapper can be harvested by trawl (GOCDFFTF) or line (GOCLF) in the Gulf of Carpentaria. Commercial harvest of Stripey Snapper has not been recorded in the GOCLF for over a decade, and negligible amounts have been recorded in the trawl fishery (<1 t) which has been inactive since 2016. The Queensland harvest is considered to have a negligible effect on the stock status.

An assessment using catch data from the commercial and recreational sectors from Western Australia and Northern Territory applied to a modified catch-MSY model (developed by Martell and Froese [2013] and modified by Haddon [2018]), estimated that the 2019 biomass of Stripey Snapper was 62 per cent of unfished levels [Saunders et al., unpublished], suggesting that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired. Similarly, the fishing mortality in 2019 was 0.12 which was well below the limit reference point, indicating that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

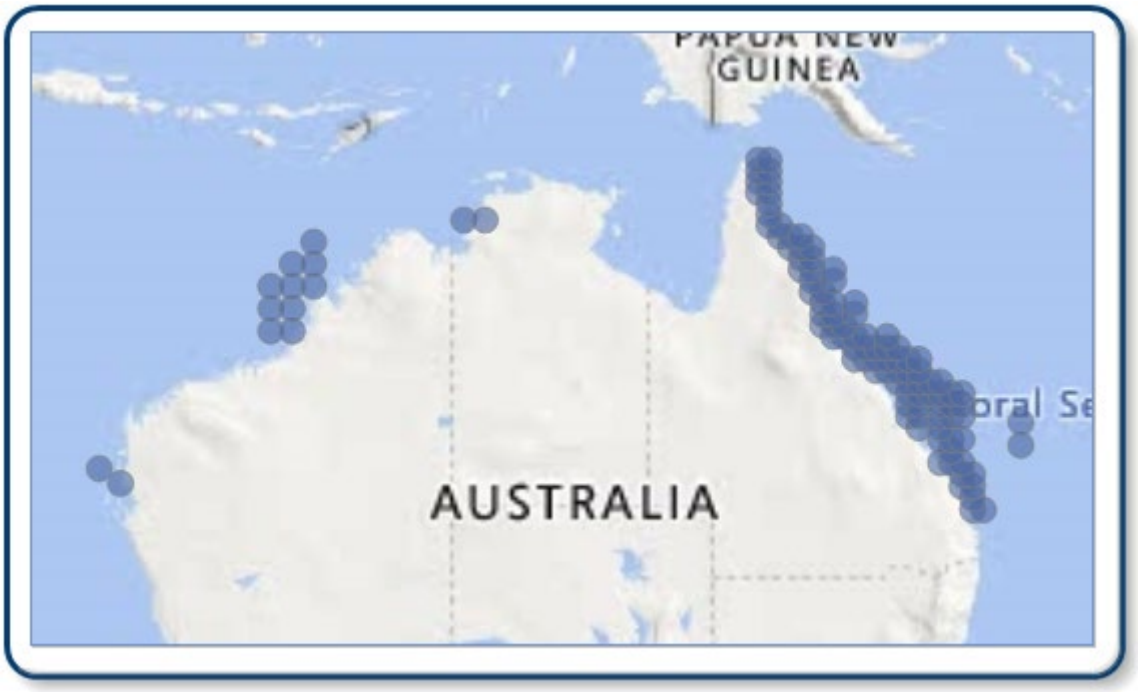
On the basis of the evidence provided above, Stripey Snapper in Northern Australia is classified as a **sustainable stock**.

BIOLOGY

Stripey Snapper biology [Newman et al. 2000, Kritzer 2004]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Stripey Snapper	20 years, 335 mm FL [Newman et al 2000]	2 years, 190 mm FL [Newman et al. 2000; Kritzer 2004]

DISTRIBUTION



Distribution of reported commercial catch of Stripey Snapper.

TABLES

Fishing methods				
	Commonwealth	Northern Territory	Queensland	Western Australia
Charter				
Hook and Line		✓	✓	✓
Spearfishing			✓	✓
Commercial				
Fish Trap				✓
Hand Line, Hand Reel or Powered Reels				✓
Handline		✓		
Handline (mechanised)	✓			
Line			✓	
Unspecified			✓	
Recreational				
Hook and Line		✓	✓	✓
Spearfishing			✓	✓

Management Methods		
	Queensland	Western Australia

Charter		
Bag limits		✓
Gear restrictions	✓	✓
Licence		✓
Limited entry		✓
Passenger restrictions		✓
Possession limit	✓	✓
Seasonal closures	✓	
Size limit	✓	✓
Spatial closures	✓	✓
Spatial zoning		✓
Commercial		
Effort limits		✓
Gear restrictions	✓	✓
Individual transferable quota	✓	
Limited entry		✓
Limited entry (licensing)	✓	
Seasonal closures	✓	
Size limit	✓	
Spatial closures	✓	✓
Spatial zoning		✓
Total allowable catch	✓	✓
Total allowable effort		✓
Vessel restrictions	✓	✓
Recreational		
Bag limits		✓
Gear restrictions	✓	✓
Licence (Recreational Fishing from Boat License)		✓
Possession limit	✓	✓

Seasonal closures	✓	
Size limit	✓	✓
Spatial closures	✓	✓

Catch				
	Commonwealth	**Northern Territory**	**Queensland**	**Western Australia**
Charter		8 t	1.8 t	< 1 t
Commercial	0.0199 t	0.021 t	28 t	0 t
Indigenous		Unknown	Unknown	
Recreational		35 t (2015)	9 t (2019-20)	4 t (2017/18)

Western Australia – **Active Vessels** Data is confidential as there were fewer than three vessels operating in Pilbara Fish Trawl Interim Managed Fishery and Pilbara Trap Managed Fishery.

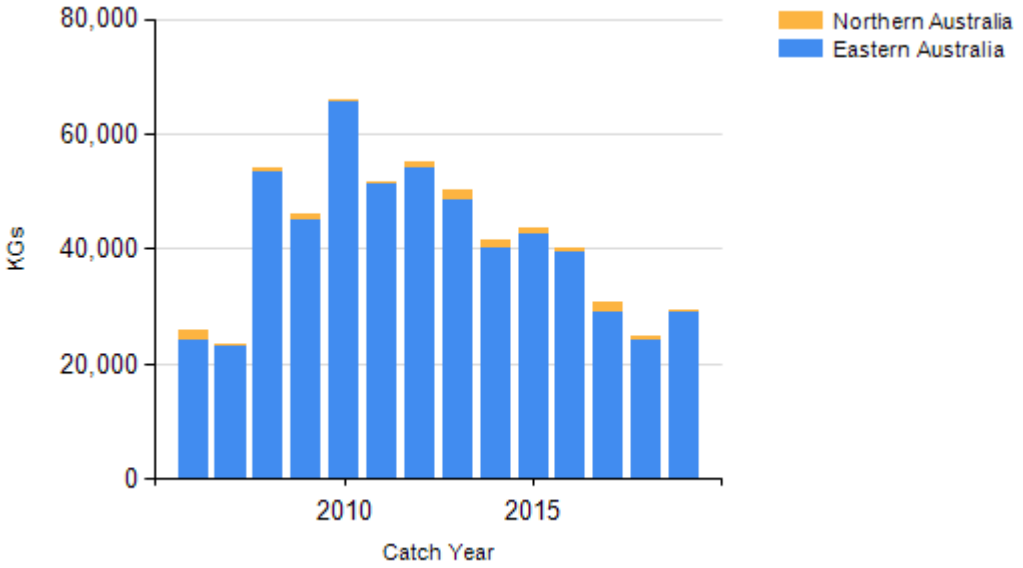
Western Australia – Recreational (Catch) Boat-based recreational catch is from 1 September 2017–31 August 2018. These data are derived from those reported in Ryan et al. [2019].

Western Australia – Recreational (management methods) A Recreational Fishing from Boat License is required for the use of a powered boat to fish or to transport catch or fishing gear to or from a land-based fishing location.

Western Australia – Indigenous (management methods) Subject to application of Section 211 of the *Native Title Act 1993* (Cth), and the exemption from a requirement to hold a recreational fishing licence, the non-commercial take by Indigenous fishers is covered by the same arrangements as that for recreational fishing.

Queensland – Indigenous (management methods) for more information see https://www.daf.qld.gov.au/business-priorities/fisheries/traditional-fishing

CATCH CHART



Commercial catch of Stripey Snapper - note confidential catch not shown

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