Crimson Snapper (2018)

Lutjanus erythropterus

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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Western Australia	North Coast Bioregion	NDSMF, NDSMF || PFTIMF || PLF || PTMF, PFTIMF, PLF, PTMF	Sustainable	Catch, indicator species status
Northern Territory, Queensland	Northern Australia	CLF, DF, GOCDFFTF, GOCLF, TRF	Sustainable	Catch, CPUE, egg production, fishing mortality
Queensland	East Coast Queensland	CRFFF	Undefined	Catch, effort, CPUE

CLF Coastal Line Fishery (NT), DF Demersal Fishery (NT), TRF Timor Reef Fishery (NT), LFR Line Fishery (Reef) (QLD), GOCDFFTF Gulf of Carpentaria Developmental Fin Fish Trawl Fishery (QLD), GOCLF Gulf of Carpentaria Line Fishery (QLD), NDSMF Northern Demersal Scalefish Managed Fishery (WA), PFTIMF Pilbara Fish Trawl (Interim) Managed Fishery (WA), PLF Pilbara Line Fishery (WA), PTMF Pilbara Trap Managed Fishery (WA), NDSMF || PFTIMF || PLF || PTMF Various Fisheries combined due to 3 boat rule (WA)

STOCK STRUCTURE

Crimson Snapper (*Lutjanus erythropterus*) is a widespread Indo-Pacific species found throughout tropical Australian waters. Research on the biological stock structure of this species in Australian waters has only occurred in northern Australia; including the Timor Sea, the Arafura Sea and the Gulf of Carpentaria [Salini et al. 2006]. A single genetic stock was found across this region. In addition to this Northern Australia biological stock, it is considered that the species has a similar biological stock structure to Saddletail Snapper (*Lutjanus malabaricus*), with a Western Australia (North Coast Bioregion) biological stock and a biological stock off the east coast of Queensland [Salini et al. 2006].

Here, assessment of stock status is presented at the biological stock level—North Coast Bioregion (Western Australia), Northern Australia and East Coast (Queensland).

STOCK STATUS

East Coast Queensland

There has been no stock assessment of Crimson Snapper across this biological stock and there is no estimate of MSY for the East Coast Queensland stock of Crimson Snapper. Crimson Snapper comprised approximately 43 per cent (50 t) [QDAF 2018] of the Crimson Snapper and Saddletail Snapper species complex reported during the 2013–14 recreational fishing survey [Webley et al. 2015]. Recreational catches of Crimson Snapper constitute around 73 per cent of the total landings for the species [QDAF 2018]. Commercial catches and catch rates have declined steadily over last five years, nearly halving from 19.4 t in 2012–13 to 11.5 t in 2016–17 and from around 35 kg per day in 2008–09 to 22 kg per day in 2016–17. However, commercial harvest of Crimson Snapper falls under the "Other Species" quota in the CRFFF (956 t in 2016–17), which comprises many other coral reef finfish species, and it is unclear whether CPUE provides a reliable index of abundance for this species. The Indigenous catch is unknown but is considered to be minor. A portion of the biomass is afforded some protection from fishing by the Great Barrier Reef Marine Park, although this has not been quantified. There is insufficient information available to confidently classify the status of this stock.

Based on the evidence provided above, the East Coast Queensland biological stock is classified as an **undefined stock**.

North Coast Bioregion

Crimson Snapper is caught primarily on the north west coast of Western Australia as a component of the multispecies Pilbara Demersal Scalefish Fisheries (which includes the Pilbara Fish Trawl (Interim) Managed Fishery, the Pilbara Trap Managed Fishery and the Pilbara Line Fishery) in the Pilbara management region of the North Coast Bioregion; and the Northern Demersal Scalefish Managed Fishery (NDSMF) in the Kimberley management region of the North Coast Bioregion of Western Australia [Newman et al. 2018a]. Crimson Snapper is assessed on the basis of the status of several indicator species (including, for example, Red Emperor and Goldband Snapper in the Kimberley region) that represent the entire inshore demersal suite of species occurring at depths of 30–250 m [Newman et al. 2018b]. The major performance measures for these indicator species are estimates of spawning stock levels estimated using an integrated age-structured assessment. The target level of spawning biomass is 40 per cent of the unfished level. The limit level is 30 per cent of the estimate of initial spawning biomass [DPIRD 2017]. Indicator species assessments determined that the spawning biomass levels of each of the indicator species were greater than 40 per cent of the unfished level in the Pilbara Demersal Scalefish Fisheries in 2015 (the year the last integrated assessment was undertaken). The spawning biomass levels of the indicator species were either greater than the target level or between the target level and the threshold level in the NDSMF in 2014 [Newman et al. 2018a]. The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

The catch of Crimson Snapper in the Pilbara Demersal Scalefish Fisheries has been stable for the past five years (2013–17), ranging from 150–175 tonnes (t), with a mean annual catch of 165 t. The catch of Crimson Snapper in the NDSMF has been low and variable for the past five years (2013–17), ranging from 38–89 t, with a mean annual catch of 57 t. 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 North Coast Bioregion biological stock is classified as a **sustainable stock**.

Northern Australia

This cross-jurisdictional biological stock has components in the Northern Territory and Queensland. Each jurisdiction assesses the part of the biological stock that occurs in its waters. The status presented here for the entire

biological stock has been established using evidence from both jurisdictions.

The Northern Territory manages the commercial harvest of Crimson Snapper and Saddletail Snapper together as 'red snapper'. Crimson Snapper has made up around 22 per cent of the red snapper catch for the past 15 years [DPIR 2018]. Analysis of Crimson Snapper using data up to 2016 in a stochastic stock reduction analysis model estimated egg production to be around 70 per cent of that prior to the start of the fishery [Martin 2018]; well above conventional fishery targets. This component of the stock is unlikely to be depleted.

Results of this stock assessment additionally indicated that the current harvest rate has a very low (< 8 per cent) probability of causing the stock to become recruitment impaired [Martin 2018]. The above evidence indicates that the current level of fishing pressure is unlikely to cause this part of the Crimson Snapper stock to become recruitment impaired.

Harvest of the Queensland component of this stock is estimated to have been below maximum sustainable yield (MSY) (~170 t) [Leigh and O'Neill 2016] since 2012 due to reduced fishing, with no fishing occurring since the 2016–17 financial year. This contrasts with harvests of 150–350 t per year during the period 2004–11. The total allowable commercial catch (TACC) for target species for the Queensland component of the GOCDFFTF was reduced from 1 250 t to 450 t in 2014 and changed to a species-specific non-transferable quota entitlement with a TACC of 169 t in 1 July 2016, as part of new permit arrangements. Less than 1 t of Crimson Snapper has been landed by the GOCLF since 2011. There is no reliable estimate of recreational or Indigenous harvest of Crimson Snapper in the Gulf of Carpentaria, but it is likely to be minor given the offshore nature of the fishery. The above evidence indicates that the biomass of this part of the Crimson Snapper stock is unlikely to be depleted and recruitment is unlikely to be impaired.

The above combined evidence indicates that the current level of fishing mortality is unlikely to cause the Northern Australia stock of Crimson Snapper to become recruitment impaired.

Based on the evidence provided above, the Northern Australia biological stock is classified as a **sustainable stock**.

BIOLOGY

Crimson Snapper biology [DAF unpublished data, Fry and Milton 2009, Fry et al. 2009, McPherson et al. 1992, McPherson and Squire 1992, Newman et al. 2000]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Crimson Snapper	Northern Australia: 42 years, 470 mm SL East Coast Queensland: 32 years, 790 mm FL	Northern Australia: Males 270 mm SL, Females 350 mm SL East Coast Queensland: Females 485 mm (+/- 1.7) FL

DISTRIBUTION

Distribution of reported commercial catch of Crimson Snapper

TABLES

Commercial Catch Methods	Northern Territory	Queensland	Western Australia
Demersal Longline	✓		
Dropline	✓		
Fish Trap	✓		✓
Hand Line, Hand Reel or Powered Reels			✓
Hook and Line	✓	✓	
Midwater Trawl	✓		
Otter Trawl	✓		✓
Trawl		✓	
Trotline	✓		
Unspecified			✓

Fishing methods			
	Northern Territory	Queensland	Western Australia
Charter			
Handline		✓	✓
Spearfishing		✓	
Commercial			
Fish Trap	✓		✓
Hand Line, Hand Reel or Powered Reels			✓

Hook and Line	✓	✓	
Midwater Trawl	✓		
Otter Trawl	✓		✓
Trawl		✓	
Unspecified			✓
Indigenous			
Handline		✓	
Spearfishing		✓	
Recreational			
Handline	✓	✓	✓
Spearfishing		✓	

Management Methods			
	Northern Territory	**Queensland**	**Western Australia**
Charter			
Bag limits			✓
Gear restrictions		✓	
Limited entry			✓
Passenger restrictions			✓
Possession limit		✓	
Size limit		✓	
Spatial closures		✓	✓
Spatial zoning			✓
Temporal closures		✓	
Commercial			
Effort limits			✓
Gear restrictions	✓	✓	✓
Limited entry		✓	✓
Quota		✓	
Size limit		✓	
Spatial closures	✓	✓	✓
Spatial zoning	✓		✓
Temporal closures		✓	
Total allowable catch	✓	✓	
Total allowable effort			✓

Vessel restrictions		✓	✓
Indigenous			
Laws of general application apply			✓
Recreational			
Gear restrictions		✓	
Licence (Recreational Fishing from Boat License)			✓
Possession limit	✓	✓	✓
Size limit		✓	
Spatial closures	✓	✓	✓
Temporal closures		✓	

Active Vessels			
	Northern Territory	Queensland	Western Australia
	14 LICENCES in CLF, 8 LICENCES in DF, 5 LICENCES in TRF,	95 in CRFFF, 0 in GOCDFFTF, 3 in GOCLF,	<3 in PFTIMF, 6 in PLF, <3 in PTMF, 16 in Charter, 6 in NDSF,

CLF Coastal Line Fishery(NT)

DF Demersal Fishery(NT)

TRF Timor Reef Fishery(NT)

LFR Line Fishery (Reef)(QLD)

GOCDFFTF Gulf of Carpentaria Developmental Fin Fish Trawl Fishery(QLD)

GOCLF Gulf of Carpentaria Line Fishery (QLD)

PFTIMF Pilbara Fish Trawl (Interim) Managed Fishery(WA)

PLF Pilbara Line Fishery(WA)

PTMF Pilbara Trap Managed Fishery(WA)

Charter Tour Operator(WA)

NDSF Northern Demersal Scalefish Fishery(WA)

Catch			
	Northern Territory	Queensland	Western Australia
Charter			1.18 t
Commercial	0.072t in CLF, 505.13t in DF,	11.538t in CRFFF, 0t in	243.399t in NDSMF,

	151.821t in TRF,	GOCDFFTF, 0.495t in GOCLF,	PFTIMF || PLF || PTMF,
Indigenous	Unknown	Unknown	Unknown
Recreational	55 t (in 2010)	50 t [QDAF 2018]	1.35 t ± 0.294 t se

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

Western Australia – Recreational (Catch) Boat-based recreational catch is from 1 September 2015–31 August 2016. These data are derived from those reported in [Ryan et al. 2017].

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 the defence that applies under 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.

Northern Territory and Queensland – Recreational (catch) Saddletail Snapper and Crimson Snapper catch were combined during the Northern Territory 2010 recreational fishing survey [West et al. 2012] and the Queensland 2013–14 recreational fishing survey [Webley et al. 2015].

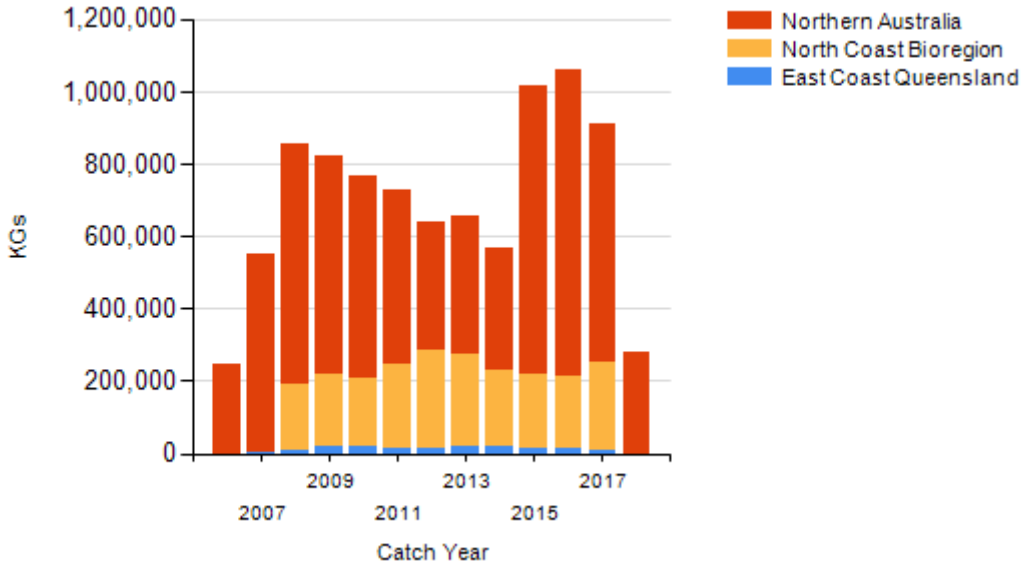
Northern Territory – Charter (management methods) In the Northern Territory, charter operators are regulated through the same management methods as the recreational sector but are subject to additional limits on license and passenger numbers.

Northern Territory – Indigenous (management methods) The *Fisheries Act* 1988 (NT), specifies that "…without derogating from any other law in force in the Territory, nothing in a provision of this Act or an instrument of a judicial or administrative character made under it limits the right of Aboriginals who have traditionally used the resources of an area of land or water in a traditional manner from continuing to use those resources in that area in that manner".

Queensland The reporting period for the commercial Coral Reef Fin Fish Fishery (Queensland) is the 2016–17 financial year.

Queensland – Indigenous (management methods) Under the *Fisheries Act 1994* (Qld), Indigenous fishers in Queensland are entitled to use prescribed traditional and non-commercial fishing apparatus in waters open to fishing. Size and possession limits, and seasonal closures do not apply to Indigenous fishers. Further exemptions to fishery regulations may be applied for through permits.

CATCH CHART



Commercial catch of Crimson Snapper - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

ENVIRONMENTAL EFFECTS on Crimson Snapper

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