

Saddletail Snapper (2016)

Lutjanus malabaricus



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Western Australia	North Coast Bioregion	GDSMF, NDSMF, PLF, PTMF, PFTIMF	Sustainable	Catch, <u>CPUE</u> , Indicator species status
Northern Territory, Queensland	Northern Australia	DF,CLF,TRF, GOCDFFTF, GOCLF	Sustainable	Catch, <u>CPUE</u> , <u>SRA</u>
Queensland	East Coast Queensland	CRFFF	Undefined	Catch

DF,CLF,TRF Demersal Fishery, Coastal Line Fishery, Timor Reef Fishery (NT), CRFFF Coral Reef Fin Fish Fishery (QLD), GOCDFFTF Gulf of Carpentaria Developmental Fin Fish Trawl Fishery (QLD), GOCLF Gulf of Carpentaria Line Fishery (QLD), GDSMF Gascoyne Demersal Scalefish Managed Fishery (WA), NDSMF Northern Demersal Scalefish Managed Fishery (WA), PLF Pilbara Line Fishery (WA), PTMF, PFTIMF Pilbara Trap Managed Fishery, Pilbara Fish Trawl (Interim) Managed Fishery (WA)

STOCK STRUCTURE

Saddletail Snapper is a widespread Indo-Pacific species found from Shark Bay in Western Australia, across northern Australia to the east coast of Queensland[1]. Genetic studies indicate that the species is comprised of three biological stocks: the North Coast Bioregion biological stock, the Northern Australian biological stock (including the Timor Sea, Arafura Sea and the Gulf of Carpentaria) and the East coast of Queensland biological stock[2,3].

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

STOCK STATUS

East Coast Queensland Saddletail Snapper is taken in both the commercial and recreational sectors,

probably in similar numbers.

Recreational harvest estimates group Saddletail Snapper and Crimson Snapper together because these two species are often not separately identified. The recreational harvest of these species was estimated at approximately 73 000 fish in 2013–14[8], similar to the estimates in 2000 and 2012[9]. The relative proportions of the two species in this figure are not known.

Since 2004, commercial harvest has declined from an average of 150 t per year to around 50 t per year. This decrease coincided with expansion of no-take marine reserves within the Great Barrier Reef Marine Park and the introduction of a quota management system for coral reef finfish species. Both management interventions are likely to have influenced commercial harvest. Commercial harvest is not effectively constrained as this species is managed as part of the 'other species' quota category, which comprises many other coral reef finfish species. There is a cap on the total catch for the group, but no individual cap on any one species within the group. Although recreational fishing effort is not capped, the present level of combined fishing pressure is unlikely to cause the stock to become recruitment overfished.

Current information on population composition is unavailable and no stock assessment has been completed. There is insufficient information available to confidently classify the status of this stock.

On the basis of the evidence provided above, the East coast Queensland biological stock is classified as an **undefined stock**.

North Coast Bioregion Saddletail Snapper is exploited primarily on the north-west coast of Western Australia as a component of the Pilbara Trap Managed Fishery (PTMF), Pilbara Fish Trawl Interim Managed Fishery (PFTIMF), Pilbara Line Fishery (PLF) and the Northern Demersal Scalefish Managed Fishery (NDSMF) (in the Kimberley region of Western Australia)[4]. Saddletail Snapper is assessed on the basis of the status of several indicator species (for example, Red Emperor—*Lutjanus sebae*, and Goldband Snapper—*Pristipomoides multidens* in the Kimberley region) that represent the inshore demersal suite of species occurring at depths of 30–250 m. The major performance measures for these indicator species are estimates of spawning stock levels. 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. Indicator species assessments using an integrated age-structured model determined that the spawning biomass levels of each of the indicator species were greater than 40 per cent of the unfished level in the PTMF, PFTIMF and PLF in 2007[5]. 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[5]. The above evidence indicates that the biomass of this stock is unlikely to be recruitment overfished.

The catch of Saddletail Snapper in the NDSMF has been stable for the past 5 years (2010–14), ranging from 87–126 tonnes (t)[5]. Similarly, the catch of Saddletail Snapper in the Pilbara demersal fisheries has been low and stable, ranging from 64–73 t over the past 3 years[5]. The catch per unit effort for the PFTIMF and the NDSMF has been stable over the past 5 years. The above evidence indicates that the current level of fishing pressure is unlikely to cause the stock to become recruitment overfished.

On the basis of the evidence provided above, the North Coast Bioregion (Western Australia) 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 that part of the biological stock that occurs in its waters. Status presented here for the entire biological stock has been established using evidence from both jurisdictions.

For the Northern Territory component of this biological stock (where most of the commercial catch is taken), Saddletail Snapper was assessed in 2013 using a stochastic stock reduction analysis (SRA) model[6]. Egg production in 2013 was estimated to be around 80 per cent of that prior to the start of the fishery. This part of the stock is not considered to be recruitment overfished.

The Northern Territory manages the commercial harvest of Saddletail Snapper and Crimson Snapper together as ‘red snappers’ with a combined total allowable commercial catch of 3800 t. Saddletail Snapper has averaged 78 per cent of the annual red snapper catch over the past 10 years, with the 2015 commercial catch of this species being 1756 t. Trawl effort and catch per unit effort have both increased since 2012. The 2013 assessment indicated that the current harvest rate of Saddletail Snapper is well below that required to achieve maximum sustainable yield (MSY). This level of fishing pressure is unlikely to cause this part of the stock to become recruitment overfished.

For the Queensland part of the biological stock, commercial catch in 2015 was 67 t, constituting four per cent of the total 2015 Saddletail Snapper catch from the biological stock. This contrasts with catches of 150–250 t per year during the period 2006–11 and catches of 0–23 t during the period 2012–14. The MSY for this part of the stock is approximately 150 t[7] and the average catch from 2006–15 was slightly below this level. This part of the stock is not considered to be recruitment overfished.

The catch (67 t) in the Queensland part of the biological stock in 2015 was well below the MSY however, the current quota does not constrain catch below the MSY. This level of fishing pressure is unlikely to cause this part of the stock to become recruitment overfished.

On the basis of the evidence provided above, the Northern Australian biological stock is classified as a **sustainable stock**.

BIOLOGY

Saddletail Snapper biology[10–13]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Saddletail Snapper	Northern Australia: 33 years; 680 mm <u>SL</u> East coast north Queensland; 830 mm <u>FL</u>	Northern Australia: 9 years; Males 270–280 mm <u>SL</u> , Females 350–370 mm <u>SL</u> East coast north Queensland: Females 566–586 mm <u>FL</u>

DISTRIBUTION



Distribution of reported commercial catch of Saddletail Snapper

TABLES

Commercial Catch Methods	Northern Territory	Queensland	Western Australia
Line		✓	
Otter Trawl		✓	
Various	✓		✓
Fishing methods	Northern Territory	Queensland	Western Australia
Commercial			
Line		✓	
Otter Trawl		✓	
Various	✓		✓
Indigenous			
Hand Line, Hand Reel or Powered Reels		✓	
Recreational			
Hand Line, Hand Reel or Powered Reels	✓	✓	✓
Management Methods			

	Northern Territory	Queensland	Western Australia
Commercial			
Effort limits			✓
Gear restrictions	✓	✓	✓
Limited entry		✓	✓
Size limit		✓	
Spatial closures	✓	✓	✓
Spatial zoning	✓		✓
Temporal closures		✓	
Total allowable catch	✓	✓	✓
Total allowable effort			✓
Vessel restrictions		✓	✓
Indigenous			
Laws of general application			✓
Recreational			
Bag limits			✓
Licence			✓
Limited entry			✓
Passenger restrictions		✓	✓
Possession limit	✓	✓	✓
Size limit		✓	
Spatial closures	✓	✓	✓
Spatial zoning			✓
Temporal closures		✓	
Active Vessels			
	Northern Territory	Queensland	Western Australia
	5 Vessel in CLF, 9 Vessel in DF, 11 Vessel in TRF,	119 License in CRFFF, 2 License in GOCDFFTF, 1 License in GOCLF, 0 Vessel in DWFFF,	16 License in GDSMF, 8 License in NDSMF, 6 License in PLF,

CLF Coastal Line Fishery(NT)

DF Demersal Fishery(NT)

TRF Timor Reef Fishery(NT)

CRFFF Coral Reef Fin Fish Fishery(QLD)

DWFFF Deep Water Fin Fish fishery(QLD)

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

GOCLF Gulf of Carpentaria Line Fishery (QLD)

GDSMF Gascoyne Demersal Scalefish Managed Fishery(WA)

NDSMF Northern Demersal Scalefish Managed Fishery(WA)

PLF Pilbara Line Fishery(WA)

Catch	Northern Territory	Queensland	Western Australia
Commercial	1745.51t in DF,CLF,TRF,	63.491t in CRFFF, 66.91t in GOCDFFTF, 0.056t in GOCLF,	0.5782t in GDSMF, 99.4672t in NDSMF, 4.991t in PLF,
Indigenous	Unknown	Unknown	Unknown
Recreational	10.5 t	14 t	2.98 t

DF,CLF,TRF Demersal Fishery, Coastal Line Fishery, Timor Reef Fishery (NT), CRFFF Coral Reef Fin Fish Fishery (QLD), GOCDFFTF Gulf of Carpentaria Developmental Fin Fish Trawl Fishery (QLD), GOCLF Gulf of Carpentaria Line Fishery (QLD), GDSMF Gascoyne Demersal Scalefish Managed Fishery (WA), NDSMF Northern Demersal Scalefish Managed Fishery (WA), PLF Pilbara Line Fishery (WA), PTMF, PFTIMF Pilbara Trap Managed Fishery, Pilbara Fish Trawl (Interim) Managed Fishery (WA),

a Queensland For Queensland, the reporting period for the Coral Reef Fin Fish Fishery (Queensland) and Deep Water Fin Fish Fishery (Queensland) is financial year (2014–15).

b Queensland – Commercial (fishing methods) In Queensland, Saddletail Snapper is trawled in only one of the Queensland fisheries in which it is caught commercially - the Gulf of Carpentaria Developmental Fin Fish Trawl Fishery

c 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.

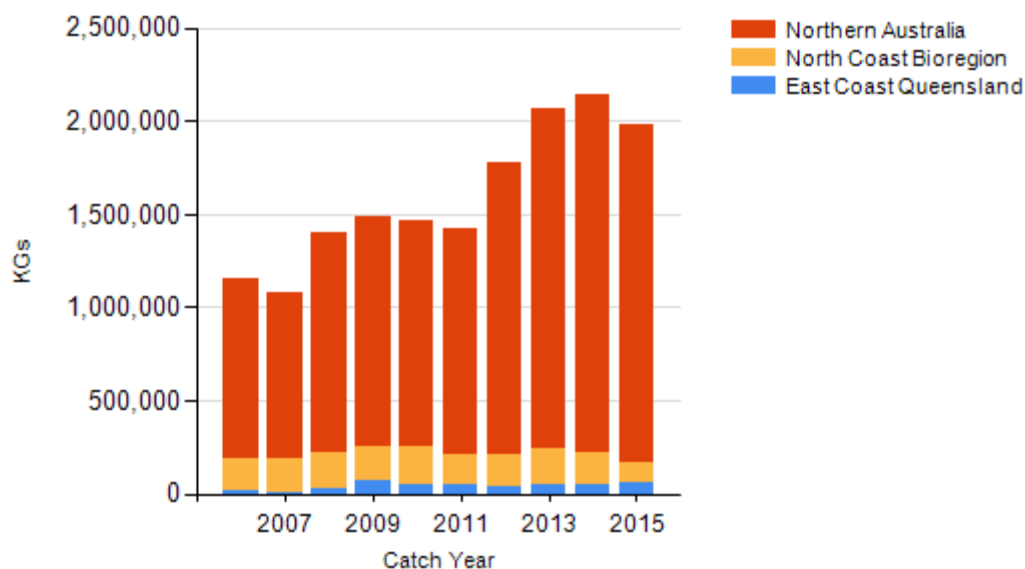
d Indigenous (management methods) Subject to the defence that applies under Section 211 of the Native Title Act 1993 (Cth), and the exemption from a requirement to hold a recreational fishing licence, the non-commercial take by indigenous fishers is covered by the same arrangements as that for recreational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

e Western Australia – Commercial (catch) For Pilbara Fish Trawl Interim Managed Fishery (Western Australia) and Pilbara Trap Managed Fishery (Western Australia), catch is unavailable as there were fewer than three vessels in the fishery.

f Western Australia – Recreational (catch) Boat-based recreational catch from 1 May 2013–30 April 2014.

g Northern Territory – Recreational (catch) Saddletail Snapper and Crimson Snapper catch were combined during the Northern Territory 2010 recreational fishing survey¹⁴ and the Queensland 2013–14 recreational fishing survey⁸.

CATCH CHART



Commercial catch of Saddletail Snapper - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

- The impacts on the benthic habitat of fishing activity for Saddletail Snapper are limited to those of the trawl fisheries, which is restricted to around seven per cent of the north-west shelf of Western Australia[4] and parts of the Northern Territory and Queensland.
- There are few bycatch issues associated with trap and line-based fishing. Bycatch of dolphins and turtles can occur in the fish trawls, but this has decreased significantly since the introduction of turtle excluder devices introduced in Western Australia in 2005 and the Northern Territory in 2006. Given the area of distribution and estimated population size of these protected species, the impact of the fish trawl fishery on the stocks of these protected species is likely to be minimal[15,16]. Gear and fishing modification continue to reduce this level of interaction[4,16,17].
- The Northern Territory fisheries that target Saddletail Snapper have received full Export Exemption accreditation under the *Environment Protection and Biodiversity Conservation Act 1999*. The Western Australian and Queensland east coast fisheries that target Saddletail Snapper have received Approved Wildlife Trade Operation Exemptions accreditation under the *Environment Protection and Biodiversity Conservation Act 1999* (except for the Pilbara Trap Managed Fishery [Western Australia], which does not export fish). These assessments, subject to adherence to any accompanying conditions and recommendations, demonstrate that these fisheries are managed in a manner that does not lead to overfishing, and that fishing operations have a minimal impact on the structure, productivity, function and biological diversity of the ecosystem.

ENVIRONMENTAL EFFECTS on Saddletail Snapper

- Climate change and variability have the potential to impact fish stocks in a range of ways, including influencing their geographic distribution (for example, latitudinal shifts in distribution). However, it is unclear how climate change may affect risks to the sustainability of this species. Slow growing and long lived species such as Saddletail Snapper are less likely to be affected by short duration environmental changes (of one or a few years), with adult stocks comprising fish recruited over many years.
- Changes in ocean chemistry such as ocean acidification have the potential to impact on the replenishment rates of fish populations by affecting larval survival[18], and also individual growth rates and spawning output[19].

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STATUS OF AUSTRALIAN FISH STOCKS REPORT
Saddletail Snapper (2016)

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