White Teatfish (Sea Cucumber) (2020)

Holothuria fuscogilva

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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Commonwealth	Coral Sea Fishery	Undefined	Catch, effort
Commonwealth	Torres Strait Beche-de-mer Fishery	Sustainable	Catch
Northern Territory	Northern Territory	Undefined	Nil
Queensland	East Coast Sea Cucumber Fishery	Sustainable	Catch, Effort, Catch rate, MSE

STOCK STRUCTURE

White Teatfish is broadly distributed throughout the tropical Indo-Pacific [Conand 1990]. There are likely to be multiple populations in all northern Australian states and territories. However, there is very little information on the distribution, abundance and stock structure of White Teatfish in northern Australia. Current taxonomic records indicate that its distribution extends from Ningaloo in Western Australia to Brisbane, Queensland [ALA 2018]. The known depth range of this species is 0–40 m, but most animals are caught between 15 m and 30 m [Conand et al. 2013].

Here, assessment of stock status is reported at the management unit level—Torres Strait Beche-de-mer Fishery, Coral Sea Fishery (Commonwealth), Trepang Fishery (Northern Territory) and East Coast Sea Cucumber Fishery (Queensland).

STOCK STATUS

Coral Sea There are no reliable indicators of current White Teatfish biomass for the Coral

Fishery

Sea Fishery, nor are there any reliable indicators of the impact of recent and historical catches on the successful recruitment of the stock. There is therefore insufficient information available to confidently classify the status of this stock. Annual catch of White Teatfish in the Coral Sea Fishery has averaged <2 tonnes (t) over the last decade.

On the basis of the evidence provided above, the Coral Sea Fishery (Commonwealth) management unit is classified as an **undefined stock**.

East Coast Sea Cucumber Fishery

White Teatfish in Queensland is only harvested commercially. Nominal catch rates for White Teatfish have stabilised after a minor peak in 2010–11 and are now close to the average catch rate over the past 10 years [Roelofs et al. 2018]. Decreases in reported harvest over the past 15 years (from 131 t in 2003–04 to 43 t in 2011–12) are due to reductions in the quota for White Teatfish and do not reflect biomass declines. These voluntary reductions allowed the fishery participants to increase the take of other species within the constraints of the overall total allowable catch limit for the fishery. The above evidence indicates the biomass of this management unit is unlikely to be depleted and that recruitment is unlikely to be impaired.

White Teatfish are managed in Queensland under a rotational zoning scheme (RZS) and fishing pressure is further constrained under a Total Allowable Commercial Catch (TACC). Catches have been at or just below the 53 t TACC since its introduction in 2011–12 [QFISH 2020]. Management strategy evaluation (MSE) of the RZS determined that the risk of the fishery depleting White Teatfish biomass to below 40 per cent of unfished biomass was very low under Queensland Sea Cucumber (East Coast) Fishery management arrangements [Skewes et al. 2014]. Spatial closures in the Great Barrier Reef Marine Park protect an estimated 30 per cent of the White Teatfish spawning biomass and commercial catch quotas are in place to restrict catches to sustainable levels. Recreational harvest of White Teatfish is not allowed in Queensland waters. The above evidence indicates 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 East Coast Sea Cucumber Fishery (Queensland) management unit is classified as a **sustainable stock**.

Northern Territory

Northern Territory Trepang Fishery licensees are permitted to harvest White Teatfish, but have not done so in the last 10 years. This is because much of the area of the fishery (from the high–water mark to three nautical miles beyond the territorial sea baseline) is shallower than the apparent depth preference for this species (15–30 m), as well as lack of suitable reef habitat at this depth within the declared fishery. All six Northern Territory Trepang Fishery licenses are owned by a single entity, with only a subset of licenses being active in any given year. This being the case, catch data for the fishery are confidential.

White Teatfish have been caught in the Northern Territory outside of the Trepang Fishery under a single special research permit, but the resultant catch information is also confidential. Exploratory fishing undertaken through this permit was subject to stringent harvest and reporting conditions.

There are no accounts, formal or otherwise, of the harvest of White Teatfish by charter boat clients, Indigenous fishers or recreational fishers in the Northern Territory. The small, sporadic and exploratory commercial harvest of White Teatfish in this jurisdiction means that there is insufficient information available to confidently classify the status of this stock.

On the basis of the evidence provided above, the Trepang Fishery (Northern Territory) management unit is classified as an **undefined stock**.

Torres Strait Beche-de-mer Fishery

The Torres Strait White Teatfish stock was surveyed in 2009 [Skewes et al. 2010] and in 2019–20 [Murphy et al. 2020]. The results of the 2019–20 survey indicated that White Teatfish density is currently similar to or greater than densities measured in 1995, 2002 and 2005 [Murphy et al. 2020; Butler and Steven 2020]. Catches of the stock over the last decade have mostly been below the TAC (15 t), including in 2018 (1.4 t) and 2019 (1.6 t).

The above evidence indicates that the biomass of this stock is unlikely to be depleted, that recruitment is unlikely to be impaired, and 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 Torres Strait Beche-de-mer Fishery management unit is classified as a **sustainable stock**.

BIOLOGY

White Teatfish (Sea Cucumber) biology [Purcell et al. 2012]

Species	Longevity / Maximum Size	Maturity (50 per cent)
White Teatfish (Sea Cucumber)	12+ years, 570 mm TL	320 mm TL, 4 years

DISTRIBUTION

Distribution of reported commercial catch of White Teatfish. Due to confidentiality constraints, catches from the Northern Territory are not shown.

TABLES

Fishing methods			
	Commonwealth	Northern Territory	Queensland
Commercial			
Diving	✓		✓

Hand		✓	

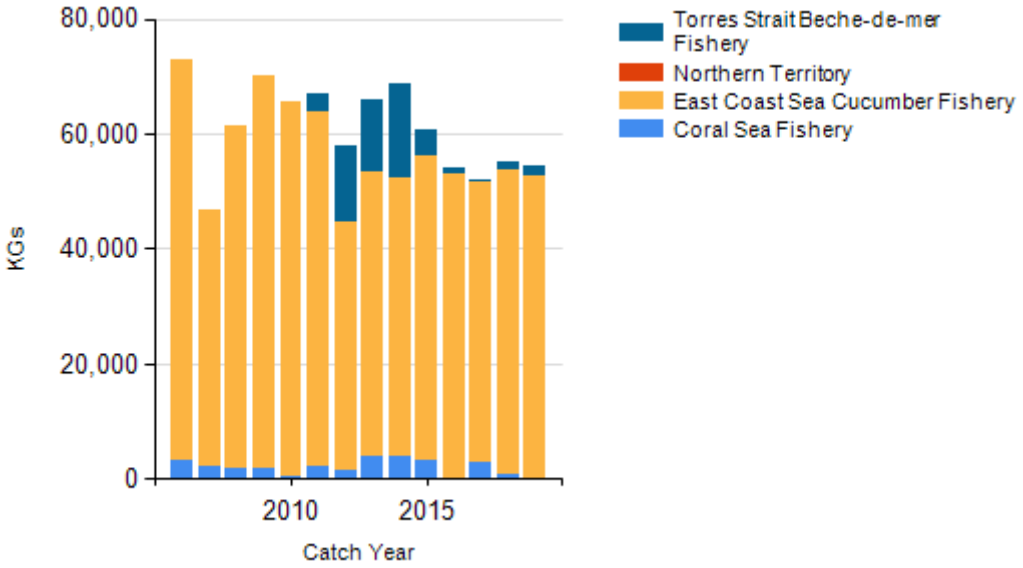
Management Methods			
	Commonwealth	Northern Territory	Queensland
Commercial			
Effort limits		✓	✓
Gear restrictions			✓
Limited entry	✓	✓	✓
Marine park closures			✓
Quota			✓
Rotational closures			✓
Size limit	✓	✓	✓
Spatial closures	✓	✓	✓
Total allowable catch	✓		✓
Vessel restrictions	✓	✓	✓

Catch			
	Commonwealth	Northern Territory	Queensland
Commercial	1.556 t	0 t	52.8305 t
Indigenous	Unknown	Unknown	Unknown
Recreational		Unknown	

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

CATCH CHART



Commercial catch of White Teatfish - note confidential catch not shown

References

Butler and Steven 2020	Butler, I, and Steven, AH, 2020, Torres Strait Beche-de-Mer and Trochus fisheries. In Patterson, H, Larcombe, J, Woodhams, J and Curtotti, R (Eds) Fishery status reports 2020, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.
ALA 2018	Atlas of Living Australia (ALA) 2018, Holothuria (Microthele) fuscogilva Cherbonnier, 1980.
Conand 1990	Conand, C 1990, The fishery resources of Pacific island countries. Part 2. Holothurians, FAO, Rome.
Conand et al. 2013	Conand, C, Purcell, S and Gamboa, R 2013, Holothuria fuscogilva. The IUCN Red List of Threatened Species 2013: e.T200715A2681354. Downloaded on 27 July 2018.
Purcell et al. 2012	Purcell, S, Samyn, Y and Conand, C 2012, Commercially important sea cucumbers of the world, FAO Species Catalogue for Fishery Purposes. No. 6, Rome, 150 pp.
Skewes et al. 2014	Skewes, T, Plaganyi, E, Murphy, N, Pascual, R and Fischer, M 2014, Evaluating rotational harvest strategies for sea cucumber fisheries, CSIRO, Brisbane.
QFISH 2020	QFish, Department of Agriculture and Fisheries, www.qfish.gov.au
Roelofs et al. 2018	Roelofs, A, Woodhams, J and Grubert, M, 2018, White Teatfish (Sea cucumber) Holothuria fuscgilva, in Carolyn Stewardson, James Andrews, Crispian Ashby, Malcolm Haddon, Klaas Hartmann, Patrick Hone, Peter Horvat, Stephen Mayfield, Anthony Roelofs, Keith Sainsbury, Thor Saunders, John Stewart, Simon Nicol and Brent Wise (eds) 2018, Status of Australian fish stocks reports 2018, Fisheries Research and Development Corporation, Canberra.
Skewes et al. 2010	Skewes, TD, Murphy, NE, McLeod, I, Dovers, E, Buridge, C and Rochester, W, 2010, Torres Strait Hand Collectables, 2009 survey: Sea cucumber. CSIRO, Cleveland. 70pp.
Murphy et al. 2020	Murphy, NE, Plagányi, EE, Edgar, S, Salee, K, Skewes, TD (2020) Stock survey of sea cucumbers in East Torres Strait. Draft final report. December 2020. CSIRO, Australia. 120 pp.