

Burrowing Blackfish (Sea Cucumber) (2020)

Actinopyga spinea



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Queensland	East Coast Queensland	Sustainable	Catch, CPUE, Risk assessment

STOCK STRUCTURE

Burrowing Blackfish has a Western Central Pacific distribution and is found in Australia, New Caledonia, Palau and Micronesia [Conand 1998]. In Queensland it is found along the east coast in depths from 10 to 50 m. It appears to be locally abundant in some locations (deep reef lagoons) in the Great Barrier Reef (GBR). The genetic stock structure is poorly known.

Here, assessment of stock status is presented at the jurisdictional level—East Coast Queensland.

STOCK STATUS

East Coast Queensland Burrowing Blackfish are collected by commercial divers on the Queensland east coast and the Great Barrier Reef Marine Park (GBRMP). Nominal catch rates have been mostly stable since targeted harvest of Burrowing Blackfish began in 2006–07, although the annual catch rate in 2018–19 was near the historical minimum level. Catches of Burrowing Blackfish are constrained by spatial yearly catch limits set at conservative estimates of MSY (~10% of unfished biomass). The annual catch limits apply to three discrete zones. The limits were developed with advice from a scientific advisory group and based on population surveys completed prior to commencement of fishing. Burrowing Blackfish can be also harvested outside of the three zones, however these catches in these areas are subject to a rotational harvest strategy that limits effort to 158 zones. Each zone is available for harvesting in the fishery once every 3 years for 15 days of fishing.

Catches declined after 2010–11 when a number of Burrowing Blackfish zones were closed to fishing. Under the fishery Performance Measurement System (to be superseded by a fishery Harvest Strategy from 2021 [QDAF 2020]), all zones

required re-surveying at industry's expense after three years. Limited financial resources precluded further re-surveys, with the industry instead preferring to reduce the number of fishing zones from seven to three. Catches stabilised at a reduced level from 2011–12 to 2016–17 but then declined in 2017–18 and 2018–19 following the loss of skilled fishers and a fishing vessel from the fleet. Effort reduced by 36 per cent to 187 days in 2017–18 from the previous 10-year average. Burrowing Blackfish populations have not been surveyed in areas closed to fishing in the GBRMP although they are highly likely to occur there. It is estimated that about one third of the surveyed Lizard Island population is within the nearby closed area. This suggests a proportion of the overall Burrowing Blackfish spawning biomass is protected by GBRMP closures although the degree of connectivity of these populations has not been established. The above evidence indicates the biomass of this management unit is unlikely to be depleted and that recruitment is unlikely to be impaired.

The risk of the fishery locally depleting Burrowing Blackfish to unsustainable levels under the spatial resource limits is low given the conservative nature of these limits ($= < 10\%$ of unfished biomass). Harvest levels since have been close to or below the spatial limits. Burrowing Blackfish harvest levels outside of the three specific zones are constrained by effort limits under the rotational harvest strategy and an annual catch trigger that, if exceeded, initiates a series of management actions ranging from harvest closures to conducting resource assessments. The review reference points are set at conservative sustainable yield estimates developed by industry members and scientists with expertise in sea cucumber resource monitoring and biology. Additionally, legislation limits the number of vessels and divers that may operate in the fishery.

A management strategy evaluation (MSE) of the rotational zoning scheme predicted the risk of the fishery depleting the Burrowing Blackfish biomass below 40% of unfished biomass was low under current management arrangements [Skewes et al. 2014]. The authors noted that the risk is relatively higher for Burrowing Blackfish compared to other species mainly because of information gaps in their distribution of throughout the GBRMP, especially for areas closed to fishing. The above evidence indicates the current level of fishing pressure is unlikely to cause the stock to become recruitment impaired.

On the basis of the evidence provided above, Burrowing Blackfish in East Coast Queensland is classified as a **sustainable stock**.

BIOLOGY

Burrowing Blackfish biology [Conand 1998, Skewes et al 2014]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Burrowing Blackfish (Sea Cucumber)	Longevity unknown, 38 cm TL	3 yrs (est.)

DISTRIBUTION



TABLES

Fishing methods	
	Queensland
Commercial	
Diving	✓
Recreational	
Diving	✓

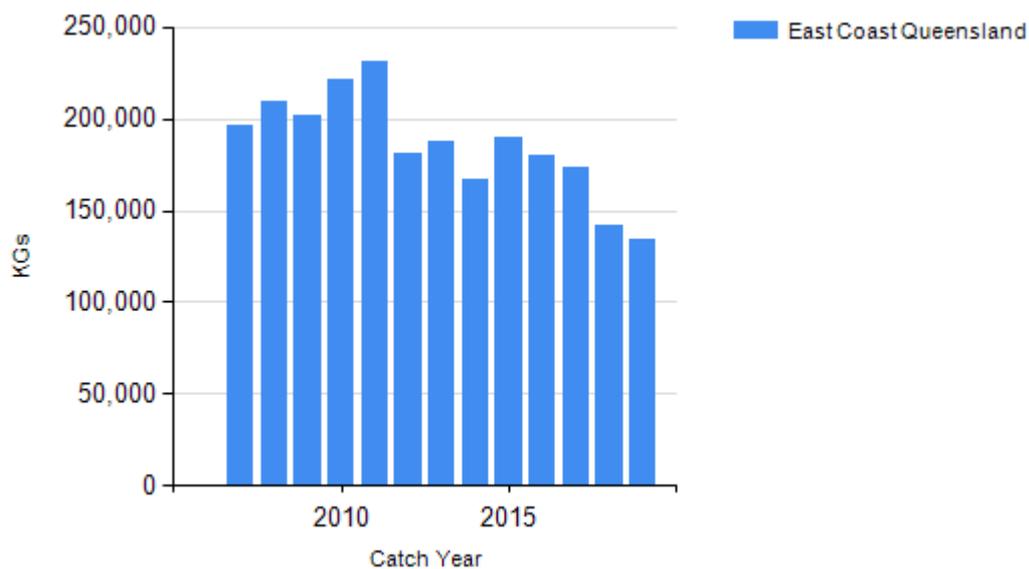
Management Methods	
	Queensland
Commercial	
Catch limits	✓
Gear restrictions	✓
Individual transferable quota	✓
Limited entry (licensing)	✓
Marine park closures	✓
Rotational closures	✓
Spatial restrictions	✓
Vessel restrictions	✓
Recreational	

Possession limit	✓
Spatial closures	✓

Catch	Queensland
Commercial	133.77 t
Indigenous	Unknown
Recreational	Unknown

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

CATCH CHART



References	
Conand 1998	Conand, C 1998, Holothurians (sea cucumbers, Class Holothuroidea), p. 1157-1190, In Carpenter, KE and VH Niem (eds.), FAO Species Identification Guide for Fishery Purposes, The Living Marine Resources of the Western Central Pacific. Vol. 2. Cephalopods, crustaceans, holothurians and sharks, FAO Rome.
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
QDAF 2020	QDAF 2020, Draft Sea Cucumber Fishery Harvest Strategy, State of Queensland

