Spanner Crab (2018)

Ranina ranina

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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Queensland, New South Wales	East Coast	N/A, OTLF, SCF	Depleting	Catch, fishery dependent CPUE, fishery independent CPUE

N/A Not Applicable (NSW), OTLF Ocean Trap and Line Fishery (NSW), SCF Spanner Crab Fishery (QLD)

STOCK STRUCTURE

Mitochondrial DNA analysis indicates that Spanner Crabs on the east coast of Australia comprise a single biological stock [Brown et al. 1999].

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

STOCK STATUS

East Coast

The East Coast Spanner Crab stock is shared between Queensland and New South Wales, with Queensland accounting for the largest harvest (about 80 per cent based on 2017 reported harvest).

In 2017, the total catch of Spanner Crabs in Queensland was below 1 000 tonnes (t) and, even when combined with the catch from New South Wales, there has been a continued decline in catch beginning in 1994 [QDAF 2018]. In Queensland, some of the reductions can be attributed to large reductions in effort (3–3.5 million pot-lifts in the mid-1990s compared to 1.1 million pot-lifts in 2015), caused by a transition to quota management (2000), the expansion of Federal and State Marine Parks (2004 and 2010), fishery economics and social factors. In New South Wales reductions, in effort are explained by the loss of fishing area and removal of endorsements with the creation of marine parks in the north east. However it is likely that the reductions in total catch also represent lower crab abundance.

The standardised catch rate of Spanner Crabs from an annual fishery independent survey in Queensland from 2000–17 increased up to 2015, however by 2017 the survey index had fallen by 30 per cent. In New South Wales the survey catch rate peaked in 2015–16, but also had a 30 per cent decline in 2017. In 2017, the survey catch rate, in crabs per dilly lift (10.73) was below the

target reference point (13.972), however the overall index remained above the target reference point due to the inclusion of the 2016 value (20.073) [QDAF 2018]. The limit reference point is 6.9 crabs per dilly lift. Assessment regions two and three, which are located in the northern portion of the fishery area, show concerning declines in abundance [QDAF 2018]. The survey shows consistent numbers of small crabs (below the minimum legal size), indicating continued recruitment to the fishery [QDAF 2018]. Taken together, these indicators suggest a declining trend in the abundance of Spanner Crabs, despite continued recruitment.

In Queensland, the 2017 commercial fishery standardised catch rate value (0.566) was below the target reference point (1.043), and was lower than all previous estimates within the times series [QDAF 2018]. The limit reference point is 0.5 crabs per dilly lift. Even with the uncertainty introduced to this index through changed fishing practices, it is clear that the longer term trend is indicative of a decline in Spanner Crab abundance.

Standardised catch rates from the New South Wales commercial fishery in 2017 remained within the upper and lower deciles, which are calculated from a 10 year historical mean (of catch rate). In contrast to the Queensland fishery, catch per unit effort in New South Wales has approximately doubled since a low point in the early-2000s and is currently the highest observed during the past two decades [QDAF 2018].

The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired. For the period 2011 to 2017 the biomass declined, but the stock is not yet considered to be recruitment impaired.

Fishing pressure in Queensland is controlled through a total allowable commercial catch (TACC). The TACC is set biennially, using an empirical model based on fishery catch rates (Queensland) and fishery-independent catch rates (Queensland and New South Wales) [O'Neill et al. 2010]. Prior to the 2018–20 quota setting process, fishery managers decided to review the current process, based on the continued decline of the commercial index, the 30 per cent decline in the survey index for 2017 and that the fishery quota was not being reached (or not constraining the catch).

In New South Wales, fishing mortality in the northern zone (Angourie Pt – New South Wales/Queensland border) is controlled through an Interim Total Commercial Access Level (ITCAL) of 164.1 t, with catch allocations based on current shareholdings, effective from 1 July 2015. Catch during the most recent complete quota year (July 2016 to June 2017) was 159.2 t, indicating that the ITCAL has been limiting total catch. Catches in the southern zone of the fishery (< 5 per cent of total New South Wales landings) will be capped when a fishery-wide catch quota commences in July 2018.

Fishing pressure from the recreational sector is negligible. The estimated harvest by recreational fishers in Queensland is less than one per cent of reported commercial catch [Webley et al. 2015] The most recent recreational survey completed in New South Wales did not report the capture of any Spanner Crabs [West et al. 2015]. However, the survey methodology is potentially too broad to pick up species, such as Spanner Crabs, which tend to be caught by relatively few fishers.

The spawning biomass of the East Coast stock is protected through minimum size limits, aimed at allowing mature individuals to spawn at least once, and temporal (spawning) closures to protect spawning animals. Egg-bearing females are rarely caught and cannot be retained. These regulations apply to both commercial and recreational fishers. Spanner Crabs are caught through entanglement and there is evidence that limb damage during removal from the fishing gear leads to increased mortality of discarded crabs [Brown et al. 1999, Kennelly et al. 1990], which may offset the benefits of the minimum legal size.

Current fishing practices in New South Wales and Queensland aim to minimise damage to discarded crabs to limit such post release mortality [Brown et al. 2003, Kennelly et al. 1990].

The above evidence indicates that the current level of fishing mortality is likely to cause the stock to become recruitment impaired.

On the basis of the evidence provided above, the East Coast biological stock is classified as a **depleting stock**.

BIOLOGY

Spanner Crab biology [Baylon and Tito 2012, Brown 1986]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Spanner Crab	10–15 years, 160 mm RCL	Females 70 mm RCL

DISTRIBUTION

Distribution of reported commercial catch of Spanner Crab

TABLES

Commercial Catch Methods	New South Wales	Queensland
Tangle Net	✓	
Traps and Pots		✓
Unspecified	✓	

Fishing methods		
	New South Wales	Queensland
Charter		

Traps and Pots	✓	✓
Commercial		
Tangle Net	✓	
Traps and Pots		✓
Unspecified	✓	
Recreational		
Traps and Pots	✓	✓

Management Methods		
	New South Wales	**Queensland**
Charter		
Bag and possession limits		✓
Gear restrictions		✓
Protection of egg-bearing females		✓
Size limit		✓
Spatial closures		✓
Temporal closures		✓
Commercial		
Daily catch limits		✓
Gear restrictions	✓	✓
Limited entry	✓	✓
Protection of egg-bearing females	✓	✓
Size limit	✓	✓
Spatial closures	✓	✓
Temporal closures	✓	✓
Total allowable catch	✓	✓
Vessel restrictions	✓	✓
Indigenous		
Bag limits	✓	
Native Title	✓	

Section 37 (1d)(3)(9), Aboriginal cultural fishing authority	✓	
Recreational		
Bag and possession limits	✓	✓
Gear restrictions	✓	✓
Protection of egg-bearing females	✓	✓
Size limit	✓	✓
Spatial closures	✓	✓
Temporal closures	✓	✓

Active Vessels		
	New South Wales	**Queensland**
	13 Fishing Business in OTLF,	61 in SCF,

OTLF Ocean Trap and Line Fishery(NSW)

SCF Spanner Crab Fishery(QLD)

Catch		
	New South Wales	**Queensland**
Commercial	0.004t in N/A, 130.312t in OTLF,	905.217t in SCF,
Indigenous	None	< 1 per cent of recreational
Recreational	Unknown	< 1 per cent of commercial

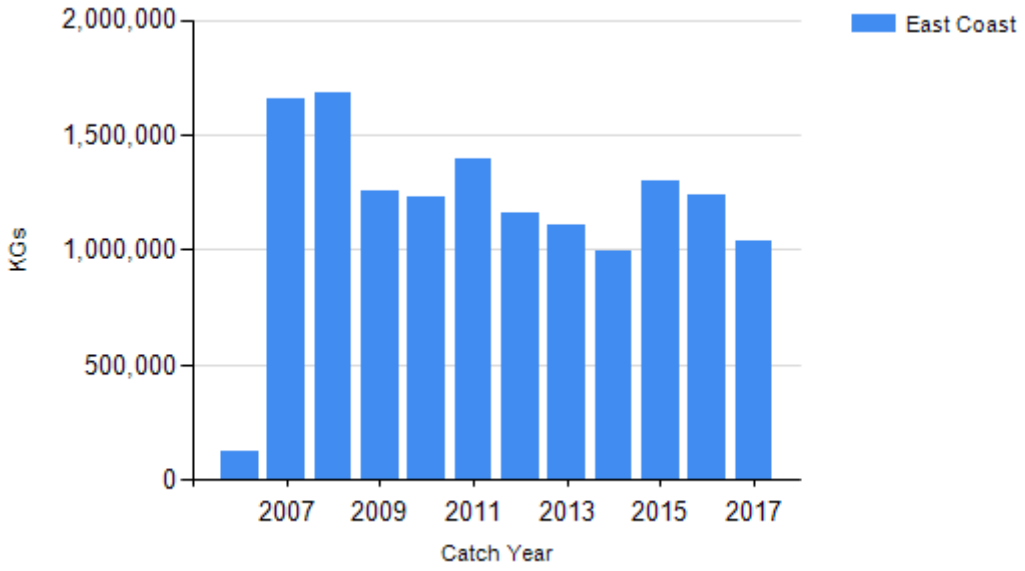
N/A Not Applicable (NSW), OTLF Ocean Trap and Line Fishery (NSW), SCF Spanner Crab Fishery (QLD),

Queensland - Indigenous In Queensland, under the *Fisheries Act 1994*, Indigenous fishers are able to use prescribed traditional and non-commercial fishing apparatus in waters open to fishing. Size and bag limits and seasonal closures do not apply to Indigenous fishers. Further exemptions to fishery regulations can be obtained through permits

New South Wales – Indigenous (management methods) (a) Aboriginal Cultural Fishing Interim Access Arrangement—allows an Indigenous fisher in New South Wales to take in excess of a recreational bag limit in certain circumstances; for example, if they are doing so to provide fish to other community members who cannot harvest for themselves; (b) The Aboriginal cultural fishing authority is the authority that Indigenous persons can apply to take catches outside the recreational limits under the *Fisheries Management Act*

1994 (NSW), Section 37 (1d)(3)(9), Aboriginal cultural fishing authority; and (c) In cases where the *Native Title Act 1993* (Cth) applies fishing activity can be undertaken by the person holding native title in line with S.211 of that Act, which provides for fishing activities for the purpose of satisfying their personal, domestic or non-commercial communal needs. In managing the resource where native title has been formally recognised, the native title holders are engaged with to ensure their native title rights are respected and inform management of the State's fisheries resources.

CATCH CHART



Commercial catch of Spanner Crab - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

ENVIRONMENTAL EFFECTS on Spanner Crab

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