# Spanner Crab

*Ranina ranina*

**Jason McGilvray** (Department of Agriculture and Fisheries, Queensland), **Daniel Johnson** (Department of Primary Industries, New South Wales)

## STOCK STATUS OVERVIEW

### Stock status determination

| Jurisdiction | Stock | Fisheries | Stock status | Indicators |
|---|---|---|---|---|
| **Queensland, New South Wales** | East Coast | SCF, OTLF | Sustainable | Target CPUE, target fishery independent CPUE |

**OTLF** Ocean Trap and Line (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 [1].

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 (~90 per cent based on 2015 reported harvest).

In 2015, total catch of Spanner Crabs was ~30 per cent higher than 2014, but remained within the bounds of the total harvests realised between 2009 and 2014 (Figure 2). This increased total catch was due to a small increase in effort combined with a slightly improved catch per unit effort (CPUE). Despite this, the 2015 catch is still significantly reduced compared to the mid-1990s [2]. These reductions in catch can be attributed to large reductions in fishing effort (for Queensland; 3–3.5 million pot-lifts in the mid-1990s compared to 1.1 million pot-lifts in 2015), caused through fishery economics, social factors and the loss of fishing area and removal of endorsements with the creation of marine parks in north east New South Wales.

The standardised catch rate of Spanner Crabs from an annual fishery independent survey (in Queensland 2000–15 and in New South Wales 2006–15) has increased since 2000 [2]. The time series of survey data shows significant low points between 2001 and 2003, and a gradual increase between 2005 and 2015. In 2015, the survey catch rate was above the target reference point. The survey also shows consistent numbers of small crabs (below the minimum legal size), indicating continued recruitment to the fishery [2]. These fishery independent indicators suggest an increasing Spanner Crab biomass.

In Queensland, the 2015 commercial fishery standardised catch rate value was below the target reference point, however the value is similar to the one calculated for the years 2000–03 [2]. Large reductions in effort between 2000 and 2015 have offset the reductions in harvest over the same time period, and contributed to this result. The nominal catch rate from the New South Wales commercial fishery in 2011–12 financial year was within historical levels [2].

The above evidence indicates that the biomass of this stock is unlikely to be recruitment overfished.

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) [3]. In 2015, the pooled index (the arithmetic mean of the commercial and survey indices) recommended the commercial quota remain at the base level (1631 tonnes [t]) for the June 2016–May 2018 period.

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. The ITCAL was set a level commensurate with current catches. A total allowable catch for the fishery will be determined and a fishery-wide catch quota will commence July 2017. Given the small proportion of total landings taken in New South Wales, it is unlikely that fishing of this part of the stock is having a detrimental effect on the entire East Coast stock [4].

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, while the estimated recreational catch from New South Wales is unknown (Table 3). The most recent recreational survey completed in New South Wales did not report the capture of any Spanner Crabs [5]. However, the survey methodology is potentially too broad to pick up species, such as Spanner Crabs, which tend to be caught by ‘niche’ fisheries.

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 [6], 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 [6,7].

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 East Coast biological stock is classified as a **sustainable stock**.

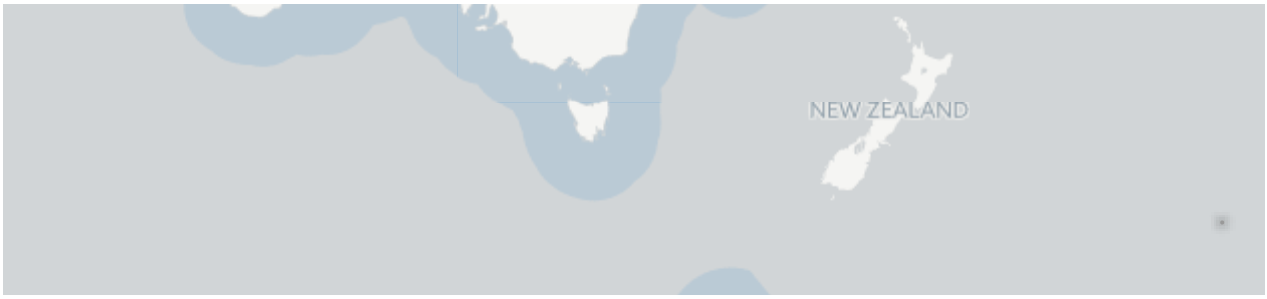
## BIOLOGY

Spanner Crab biology [8,9]

### Biology

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

## DISTRIBUTIONS




Distribution of reported commercial catch of Spanner Crab

## TABLES

### Fishing methods

| | Queensland | New South Wales |
|---|---|---|
| Commercial | | |
| Tangle Net | ✔ | ✔ |
| Recreational | | |
| Tangle Net | ✔ | ✔ |

### Management methods

| Method | Queensland | New South Wales |
|---|---|---|
| Commercial | | |
| Daily catch limits | ✔ | |
| Egg bearing females protected | ✔ | ✔ |
| Gear restrictions | ✔ | ✔ |
| Limited entry | ✔ | ✔ |
| Size limit | ✔ | ✔ |
| Spatial closures | ✔ | ✔ |
| Temporal closures | ✔ | ✔ |
| Total allowable catch | ✔ | ✔ |
| Vessel restrictions | ✔ | ✔ |
| Indigenous | | |
| Section 31 (1)(c1), Aboriginal cultural fishing authority | | ✔ |
| Recreational | | |
| Bag/possession limits | ✔ | ✔ |
| Egg bearing females protected | ✔ | ✔ |
| Gear restrictions | ✔ | ✔ |
| Size limit | ✔ | ✔ |
| Spatial closures | ✔ | ✔ |
| Temporal closures | ✔ | ✔ |

### Active vessels

| | Queensland | New South Wales |
|---|---|---|
| | 57 in SCF | 19 in OTLF |

**OTLF** Ocean Trap and Line (NSW)
**SCF** Spanner Crab Fishery (QLD)

### Catch

| | Queensland | New South Wales |
|---|---|---|
| **Commercial** | 1.18Kt in SCF | 109.27t in OTLF |
| **Indigenous** | < 1 per cent of recreational | None |
| **Recreational** | < 1 per cent of commercial | Unknown |

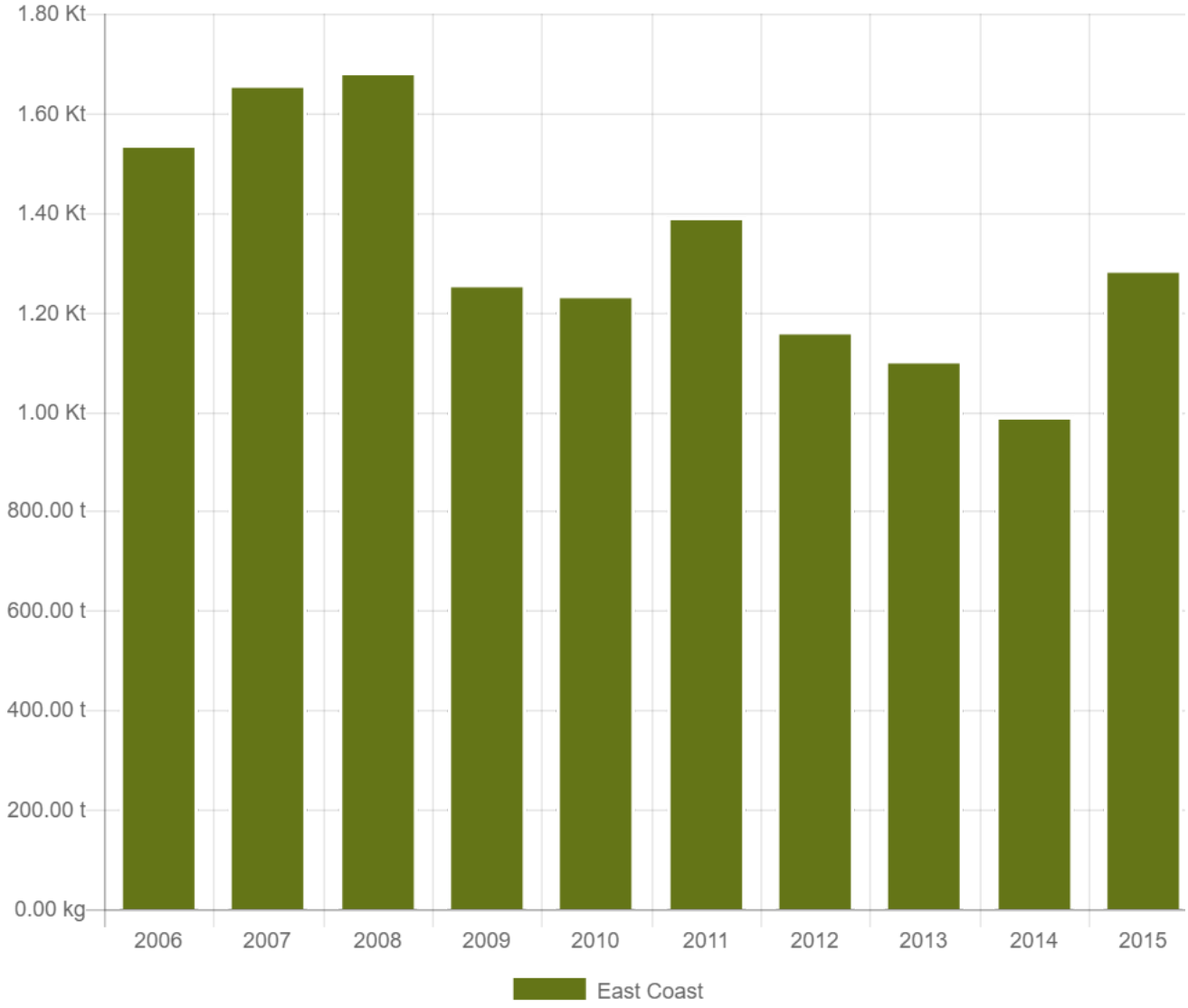
**OTLF** Ocean Trap and Line (NSW)
**SCF** Spanner Crab Fishery (QLD)

**a 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

**b New South Wales - Indigenous** Aboriginal Cultural Fishing Interim Access Arrangement allows an Aboriginal 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 themselves.

**c New South Wales - Indigenous** Aboriginal cultural fishing authority - the authority that indigenous persons can apply for to take catches outside the recreational limits under the Fisheries Management Act 1994 (NSW), Section 37 (1)(c1), Aboriginal cultural fishing authority.

## CATCH CHART




Commercial catch of Spanner Crab

## EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

- Undersize and berried Spanner Crabs are the most common bycatch of this fishery, and fishers, managers and researchers have developed specific regulations and industry best practice guidelines to minimise post release mortality [7]. These include gear design and amount, vessel manning requirements and regulated fishing practices, such as the immediate removal and return to the water of unwanted crabs. Spanner Crabs are targeted using passive gear. Bycatch is minimal and interactions with protected species are rare [6].

## ENVIRONMENTAL EFFECTS ON SPANNER CRAB

- The impact of environmental factors on Spanner Crab stocks is unknown.

## REFERENCES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