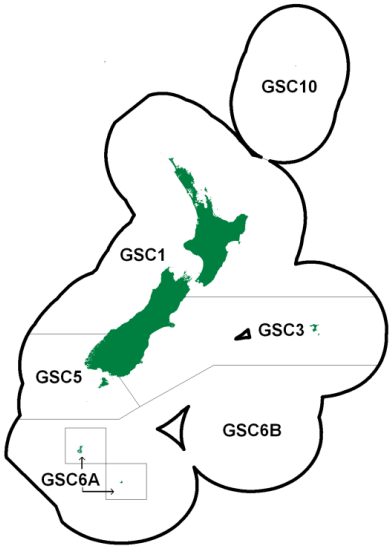
GIANT SPIDER CRAB (GSC)

(*Jacquinotia edwardsii*)



1. FISHERY SUMMARY

1.1 Commercial fisheries

The giant spider crab (*Jacquinotia edwardsii*) was introduced into the Quota Management System on 1 April 2004 with a combined TAC of 451 t and TACC of 419 t. In April 2021, the total TAC and TACC increased to 555 t and 513 t, respectively. There are no allowances for customary or recreational take. There is an allowance for other sources of mortality of 42 t. The fishing year is from 1 April to 31 March and commercial catches are measured in greenweight. Reported landings for the 2022–23 fishing year are considered preliminary.

Although profitable deepwater crab fisheries exist in other countries, targeted giant spider crab fisheries have not become established in New Zealand despite multiple attempts to do so since the 1960s. In recent years, all commercially caught giant spider crab have been taken as non-target catch (bycatch of up to 10 t per fishing event), principally by large trawl vessels targeting squid. Up until 2001–02, reported commercial catches of this crab were generally low (Table 1). Since then, total reported landings have risen from about 8 t to a peak of 264 t in 2019–20 but have declined since (Table 1).

There was exploratory fishing for this crab in the late 1960s and early 1970s at the Auckland Islands Shelf and Pukaki Rise areas. Following that, catches remained low (maximum 1 tonne) until the 1999–2000 fishing year when catches started to increase. Figure 1 shows the historical landings and TACC for the two main GSC stocks.

1.2 Recreational fisheries

There are no known records of recreational use of this crab.

1.3 Customary non-commercial fisheries

There are no known records of customary use of this crab.

1.4 Illegal catch

There is no known illegal catch of this crab.

1.5 Other sources of mortality

There is no quantitative information on other sources of mortality.

Table 1: TACCs and reported landings (t) of giant spider crab by Fishstock from 1990–91 to present. Reported landings for the 2022–23 fishing year are considered preliminary.The fishing year is from 1 April to 31 March.

	GSC 1		GSC 3		GSC 5		GSC 6A	
Fishing year	**Landings**	**TACC**	**Landings**	**TACC**	**Landings**	**TACC**	**Landings**	**TACC**
1990–91	< 1	–	0	–	0	–	0	–
1991–92	0	–	0	–	0	–	0	–
1992–93	0	–	0	–	0	–	0	–
1993–94	< 1	–	0	–	0	–	0	–
1994–95	0	–	0	–	0	–	0	–
1995–96	0	–	0	–	0	–	0	–
1996–97	< 1	–	0	–	< 1	–	0	–
1997–98	0	–	0	–	< 1	–	0	–
1998–99	< 1	–	0	–	0	–	0	–
1999–00	0	–	< 1	–	0	–	0	–
2000–01	0	–	< 1	–	0	–	0	–
2001–02	0	–	< 1	–	1	–	0	–
2002–03	0	–	< 1	–	< 1	–	0	–
2003–04	0	–	< 1	–	2	–	0	–
2004–05	0	1	< 1	14	5	19	24	148
2005–06	0	1	< 1	14	8	19	63	148
2006–07	0	1	< 1	14	5	19	23	148
2007–08	0	1	< 1	14	11	19	16	148
2008–09	< 1	1	13	14	10	19	13	148
2009–10	< 1	1	12	14	25	19	44	148
2010–11	0	1	1	14	19	19	23	148
2011–12	0	1	2	14	14	19	83	148
2012–13	< 1	1	<1	14	54	19	80	148
2013–14	0	1	2	14	72	19	52	148
2014–15	0	1	14	14	80	19	128	148
2015–16	0	1	2	14	39	19	37	148
2016–17	0	1	6	14	48	19	132	148
2017–18	0	1	8	14	91	19	140	148
2018–19	< 1	1	6	14	66	19	89	148
2019–20	< 1	1	11	14	86	19	167	148
2020–21	< 1	1	6	14	52	19	169	148
2021–22	< 1	1	8	19	70	86	108	170
2022–23	0	1	< 1	19	41	86	127	170

	GSC 6B		GSC 10		Total	
Fishing year	**Landings**	**TACC**	**Landings**	**TACC**	**Landings**	**TACC**
1990–91	0	–	0	–	< 1	–
1991–92	0	–	0	–	0	–
1992–93	0	–	0	–	0	–
1993–94	0	–	0	–	1	–
1994–95	0	–	0	–	0	–
1995–96	0	–	0	–	< 1	–
1996–97	0	–	0	–	< 1	–
1997–98	0	–	0	–	< 1	–
1998–99	0	–	0	–	0	–
1999–00	0	–	0	–	2	–
2000–01	0	–	0	–	< 1	–
2001–02	0	–	0	–	8	–
2002–03	0	–	0	–	4	–
2003–04	0	–	0	0	27	419
2004–05	2	237	0	0	35	419
2005–06	1	237	0	0	72	419
2006–07	< 1	237	0	0	30	419
2007–08	2	237	0	0	29	419
2008–09	< 1	237	0	0	36	419
2009–10	3	237	0	0	84	419
2010–11	< 1	237	0	0	43	419
2011–12	< 1	237	0	0	99	419
2012–13	5	237	0	0	140	419
2013–14	< 1	237	0	0	127	419
2014–15	2	237	0	0	224	419
2015–16	2	237	0	0	80	419
2016–17	< 1	237	0	0	186	419
2017–18	4.2	237	0	0	243	419
2018–19	< 1	237	0	0	162	419
2019–20	< 1	237	0	0	264	419
2020–21	< 1	237	0	0	227	419
2021–22	< 1	237	0	0	186	513
2022–23	8	237	0	0	177	513

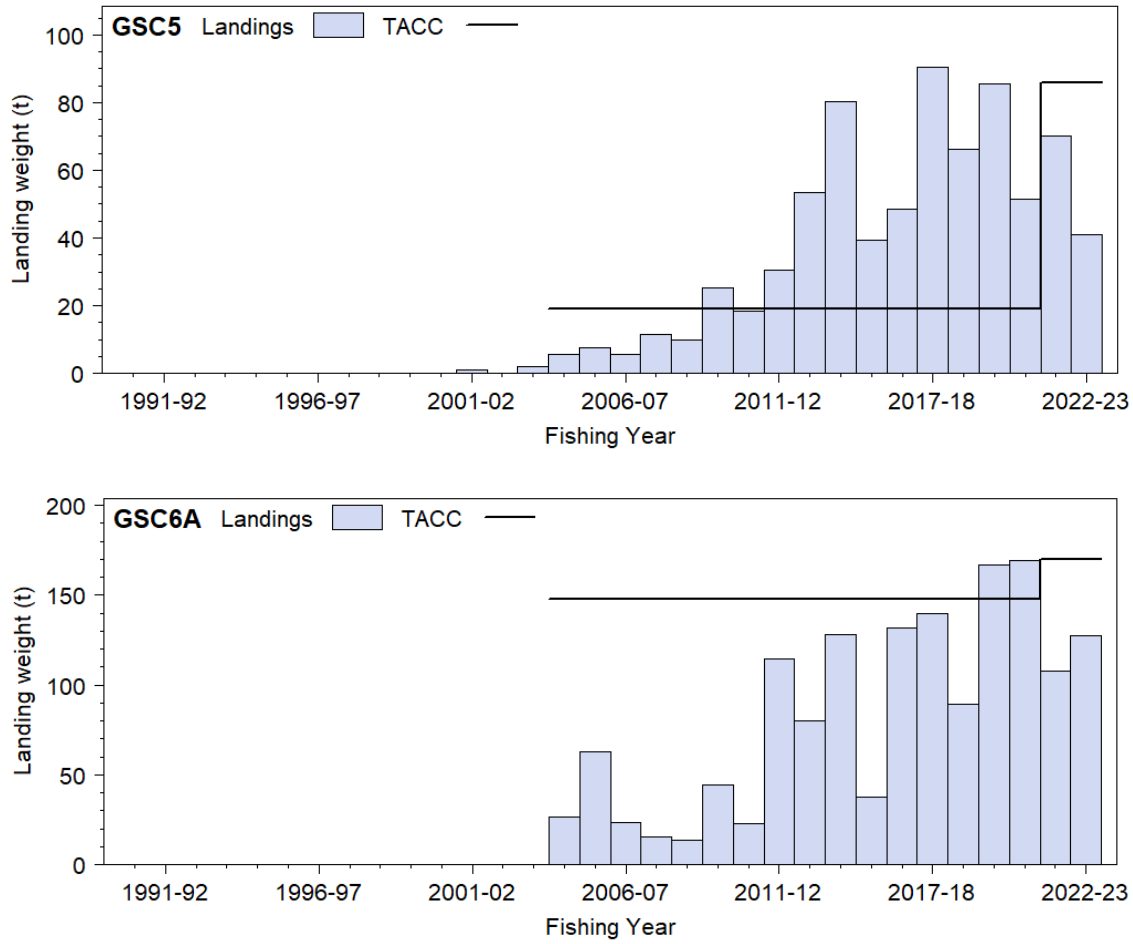


Figure 1: Reported commercial landing and TACC for GSC5 (Southland) and GSC 6A (Southern Islands).

2. BIOLOGY

Jacquinotia edwardsii is found from the intertidal to over 500 m in the southeast and south of New Zealand from near Mernoo Gap to Campbell Island. It appears to attain highest densities southeast of the Snares, on the Pukaki Rise, and around the Auckland Islands. Ryff & Voller (1976) recorded *Jacquinotia edwardsii* in highest quantities on the Pukaki Rise and at the Auckland Islands, with decreasing quantities at the Campbell Islands, Bounty Islands, Stewart Island, Stewart-Snares shelf, Puysegur Bank, and off Otago Heads. This observation is consistent with earlier resource surveys (Ritchie 1970, 1973; Webb 1972). At the Auckland Islands they appear to be most abundant between 20 m and 40 m. However on the Pukaki Rise they appear to be most abundant between 140 m and 160 m.

This spider crab, also sometimes known as the southern spider crab or the Auckland Islands crab, is a large, conspicuous brachyuran with a brick red carapace and bright red to yellowish-white chelae. The male grows much larger than the female, to at least 20 cm across the back and, together with its up to 40 cm long clawed legs, can give a total spread approaching 1 m. The males may be migratory. There have been reports of 'mounding' behaviour associated with moulting and mating (Bennett 1964, Ritchie 1970) in which large numbers of crabs form clumps, particularly in spring and autumn. This is consistent with trawl vessels occasionally reporting catches of several tonnes of crabs in a single tow.

Large males have been observed feeding on ribbed mussels (*Aulacomya maoriana*) and they probably also feed on other shellfish, both bivalves (*Mytilus*, *Mactra*) and gastropods (*Haliotis*, *Maurea*, *Struthiolaria*). In contrast, females are detritus feeders on sandy substrates, and juveniles seem to feed on drift algae. These differences mean that, although both males and females may enter pots, only males have been observed feeding on fish bait.

Sexes are separate and in both there appears to be a terminal moult. Males reach maturity at 110 mm carapace length (CL) and females at 100 mm CL. It appears that, at least near land masses, large males migrate between shallow and deep water seasonally. Pairs form in shallow water (less than 10 m) or just out of the water in September–November, when females are in late berry. Egg extrusion probably takes place in September to February and larval release in September to November. A female of 101 mm CL carries about 37 500 eggs; a female of 126 mm CL about 71 200 eggs. Only one batch of eggs is produced each year and the interval between hatching of one batch of eggs and extrusion of the next batch is very short. In summer, females and pre-puberty males occur mainly in shallow water whereas large males are found deeper.

Larval duration, survival, behaviour, and settlement are poorly known. There are two zoeal stages but the megalopa is unknown. Zoea probably occur in the plankton during September to November. Juveniles have been found in large numbers close inshore at the Auckland Islands, where shoreline rock meets the deeper mud and sand flats. Seaweed present here was apparently both food and shelter for the young crabs.

There is little or no information available on age, growth, and natural mortality. Moulting appears to take place between November and March. Males reach 220 mm CL; females 144 mm. According to Ritchie (1970), *M* for mature females is 13–25% and may be slightly higher for mature males.

3. STOCKS AND AREAS

For management purposes stock boundaries are based on FMAs; however, there is currently no biological or fishery information which could be used to identify stock boundaries. The GSC 6A and 6B fishstocks were intentionally aligned with those for the sub-Antarctic scampi stocks.

4. STOCK ASSESSMENT

4.1 Estimates of fishery parameters and abundance

There are no estimates of fishery parameters or abundance for any giant spider crab fishstock.

4.2 Biomass estimates

There are no biomass estimates for any giant spider crab fishstock.

4.3 Yield estimates and projections

There are no estimates of *MCY* for any giant spider crab fishstock.

There are no estimates of *CAY* for any giant spider crab fishstock.

5. STATUS OF THE STOCKS

For all Fishstocks there is insufficient information to estimate current stock status.

6. FOR FURTHER INFORMATION

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