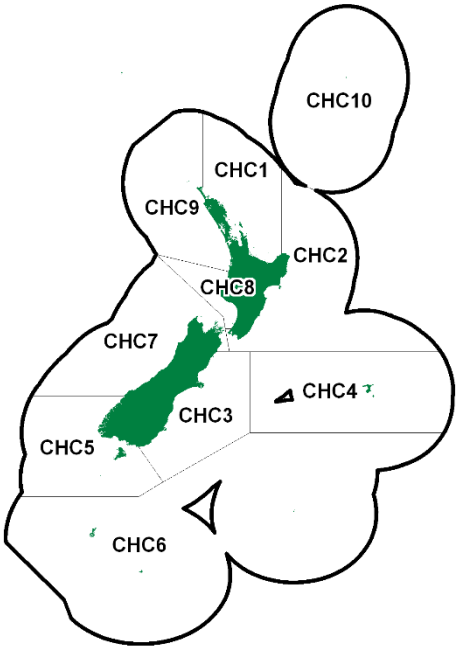
RED CRAB (CHC)

(*Chaceon bicolour*)



1. FISHERY SUMMARY

1.1 Commercial fisheries

The red crab (*Chaceon bicolor*) was introduced into the Quota Management System on 1 April 2004 with a combined TAC of 48 t and TACC of 48 t (Table 1). There are no allowances for customary, recreational or other sources of mortality. The fishing year is from 1 April to 31 March and commercial catches are measured in greenweight. There were no commercial catches of this crab until 2001–02, when landings of about 1.5 t were reported. *C. bicolor*, along with several other deepwater crabs, was the focus of an exploratory fishing (potting) permit during 2000–02. Significant quantities have been found in the Bay of Plenty, east of Great Barrier Island, and east of Northland. The other region fished was the east coast of the North Island south of East Cape, where smaller catches were periodically reported (Table 1). Figure 1 shows the historical landings and TACC for CHC 1.

There are two species of *Chaceon* known from New Zealand waters. *C. yaldwyni* is almost indistinguishable from *C. bicolor*, but is a very rarely caught species from the eastern Chatham Rise (fewer than five specimens have ever been caught).

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, although this crab is often taken as a bycatch in orange roughy fishing.

Table 1: TACCs and reported landings (t) of red crab by Fishstock from 2001–02 to present from CELR and CLR data. There have never been any reported landings of red crab from CHC 3–10, so these are not tabulated; although CHC 3–9 have TACCs of 4 t.

Fishstock	CHC 1		CHC 2		Total	
	Landings	TACC	Landings	TACC	Landings	
2001–02	1.132	-	0.065	-	1.27	-
2002–03	0.604	-	0	-	0.604	-
2003–04	0	-	0.009	-	0.009	-
2004–05	0	10	0.215	10	0.215	48
2005–06	0.021	10	0	10	0.021	48
2006–07	0.017	10	0.004	10	0.021	48
2007–08	5.870	10	0.081	10	5.951	48
2008–09	0	10	0.068	10	0.068	48
2009–10	0.985	10	0.071	10	1.056	48
2010–11	5.532	10	0.420	10	5.970	48
2011–12	0	10	0.011	10	0.043	48
2012–13	0	10	0.01	10	0.01	48
2013–14	1.052	10	0.063	10	1.135	48
2014–15	0	10	0.112	10	0.113	48
2015–16	0	10	0.056	10	0.056	48

*In 2001–02 77.5 kg were reportedly landed, but the FMA is not recorded. This amount is included in the total landings for that year.

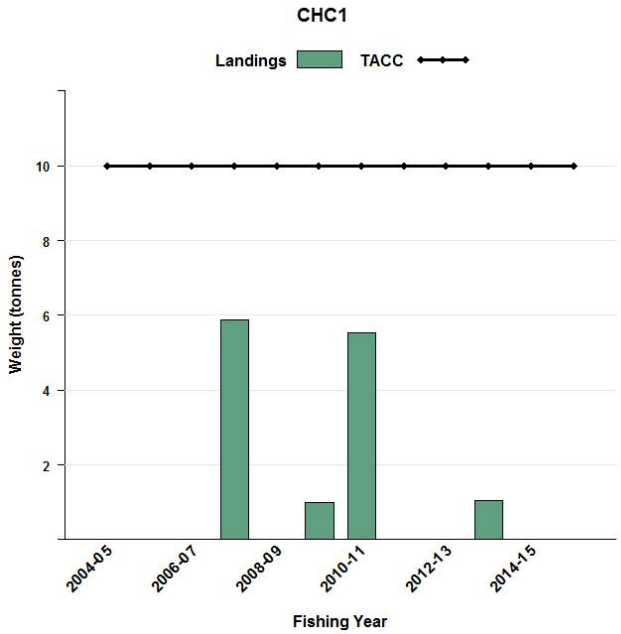


Figure 1: Reported commercial landings and TACC for CHC 1 (Auckland East). QMA data from 2004–05 to present.

2. BIOLOGY

C. bicolor is a very large, purple and tan to yellowy tan coloured crab that reaches at least 192 mm carapace width (CW). It is found on and north of the Chatham Rise, and particularly along the east coast north of Hawkes Bay to North Cape. It has been found on both hard and soft substrates, but is considered to be a burrowing crab, living in soft sediments. It has been recorded from depths between 800 and 1100 m around New Zealand, and between 275 and 1620 m elsewhere in the Pacific.

C. bicolor was previously referred to as *C.* (sometimes *Geryon*) *quinquedens* and belongs to the family Geryonidae which has an almost world-wide distribution. There is no information on its reproduction, age, growth, or natural mortality in New Zealand waters—which may or may not be similar to the same or similar *Chaceon* species elsewhere.

Geryonid crabs such as *C. bicolor* tend to show partial sex segregation, females being in shallower water than males. Small crabs are usually found in deeper water than the adults, as a result of juvenile settlement in deep water. There can be both seasonal and ontogenetic movements between depth zones.

Females carry a single clutch of eggs during the winter, which hatch the following summer. Clutch size increases with female size, and egg numbers are of the order of 100 000 to 400 000. The eggs are small (0.5–0.6 mm diameter), suggesting a relatively long larval life, probably resulting in widespread dispersal. Off Western Australia, however, *C. bicolor* females may be ovigerous at any time of the year. One study off Western Australia found that the lengths at 50% maturity were 90.5 mm and 94 mm carapace length (CL) for females and males respectively.
Pot catches usually yield a very biased sex ratio favouring males, which may be due to the fact that ovigerous females remain buried in the substrate during incubation.

3. STOCKS AND AREAS

For management purposes stock boundaries are based on QMAs, however, there is currently no biological or fishery information which could be used to identify biological stock boundaries.

4. STOCK ASSESSMENT

4.1 Estimates of fishery parameters and abundance

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

4.2 Biomass estimates

There are no biomass estimates for any red crab fishstock.

4.3 Yield estimates and projections

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

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

5. STATUS OF THE STOCKS

There are no estimates of reference or current biomass for any red crab fishstock.

6. FOR FURTHER INFORMATION

Dawson, E W; Webber, W R (1991) The deep-sea red crab *Chaceon* ("*Geryon*"): a guide to information and a reference list of the family Geryonidae. *National Museum of New Zealand Miscellaneous Series* No. 24.

McLay, C L (1988) Brachyura and crab-like Anomura of New Zealand. *Leigh Laboratory Bulletin* No. 22. 463 p.

Manning, R B; Dawson, E W; Webber, W R (1990) A new species of *Chaceon* from New Zealand (Crustacea: Decapoda: Geryonidae). *Proceedings of the Biological Society of Washington* 103: 602–607.

Manning, R B; Holthuis, L B (1989) Two new genera and nine new species of geryonid crabs (Crustacea, Decapoda, Geryonidae). *Proceedings of the Biological Society of Washington* 102: 50–77.

Melville-Smith, R (1982) A brief exploitation of the stone crab *Lithodes murrayi* (Henderson) off South West Africa, 1979/80. *Fisheries Bulletin of South Africa* 16: 45–55.

Naylor, J R; Webber, W R; Booth, J D (2005) A guide to common offshore crabs in New Zealand waters. *New Zealand Aquatic Environment and Biodiversity Report No. 2*.

Smith, K D; Potter, I C; Hall, N G (2004) Biological and fisheries data for managing the deep-sea crabs *Hypothalassia acerba* and *Chaceon bicolor* in Western Australia. Projects No. 1999/154 and 2001/055. FRDC Australia.

Webber, R; Dawson, E; Stephenson, B (1989) The deep-sea red crab - a new resource? *Professional Fisherman* 3(6):10–11.