

## Victorian giant crab fishery stock assessment report 2012

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This document reports time series of giant crab (*Pseudocarcinus gigas*) catch, effort (expressed as target and total target equivalent in potlifts and potdays), and catch per unit effort (CPUE) across the fishery from mandatory logbook returns with daily records provided by licence holders. The data are summarised by fishing year (November–September) (Table 1, Figure 1). On 28 February 2012, no additional giant catch had been reported for the 2010–11 fishing year since 16 November when the data summaries for this report were prepared. In addition, negligible catch is reported for the present fishing year 2011–12 (12 kg in Nov 2011, 54 kg Dec 2011, and 1066 kg 2011).

Separate giant crab and southern rock lobster fishing returns were introduced with the introduction of quota management in November 2001. For returns prior to April 1998, target species was not specified and effort targeted at giant crab was separated from effort targeted southern rock lobster on the basis of two criteria. Where pots were set at depths greater than 140 metres or where more than 70% of the combined catch of these two species was giant crab, all of the effort was assumed to be targeted at giant crab. Following the introduction of quota management, separate logbooks for the giant crab and southern rock lobster fisheries led to some inconsistencies in the reporting of the target species. This resulted in reduced giant crab CPUE overall, which was inconsistent with the observations of the most active fishers. A second measure of CPUE was therefore used involving the targeted catch and effort for only those fishers landing more than one tonne of giant crab in a fishing year.

Total effort expressed as giant crab target equivalent effort is calculated by weighting giant crab target effort by the total catch of giant crab divided by the targeted catch of giant crab. It is necessary to distinguish the giant crab effort from southern rock lobster effort.

Giant crab targeted CPUE is expressed as catch per potlift and catch per potday because the pots are usually left to soak for several days. Prior to 2001–02, soak days were estimated by counting days between entries in the daily logbook with the maximum soak days in this calculation capped at seven days. Logbooks were modified during the 2001–02 fishing year to collect soak days directly.

A total of nine fishers landed giant crab during the 2010–11 fishing year with six targeting giant crab, and less than five fishers landed more than 1 tonne. With the exceptions of 2007–08 and 2009–10, the number of fishers landing more than 1 tonne has been less than five since 2001–02 (Table 2).

The total landing of giant crab by all fishers was 11.3 tonne in 2010–11, 5.1 tonne less than the previous assessment year. The catch from fishers targeting giant crab was 10.4 tonne, 4.3 tonne less than the previous assessment year. Compared with the previous year, the average weight of targeted crabs dropped from 3.22 to 2.92 kg.

The assessment was undertaken comparing the biological stock performance indicator of targeted CPUE, measured as kilograms of giant crab catch per 24-hour potlift of soak-time (i.e. kg per potday) targeted at giant crab against biological reference points (Figure 2). The reference points prescribed in the Management Plan are based on 'fishing year' (November–September) and include target reference point (half peak CPUE) (0.83 kg per potday), a limit reference point (mean for the 3-fishing year period from 1998–99 to 2000–01) (0.37 kg per potday), and the trigger (80% of limit reference point) (0.29) kg per potday

The trend in targeted CPUE by 'fishing year' for fishers landing more than one tonne triggered a review of the TAC by decreasing for four successive years: 0.52 (2006–07), through 0.45 (2007–08), 0.37 (2008–09), and 0.27 (2009–10), to 0.26 kg per potday (2010–11) (Table 1, Figure 2) and by falling below the trigger CPUE during 2009–10 and 2010–11. CPUE is well below the target CPUE, below the limit CPUE, and below the trigger CPUE for review of the TAC (Figure 2).

**Table 1. Giant crab trends in total and target catch, effort, CPUE and number of fishers during fishing years (1 November–30 September) from 1978–79 to 2010–11**

Target equivalent fishing effort = targeted effort x total catch weight / targeted catch weight; CPUE, catch per unit effort.

| Fishing year | Total catch and target equivalent fishing effort |               |                          |                |                |               | Targeted catch, effort and CPUE |                |                       |                |                     |                 | Number of fishers contributing |                     |   |                          |             |                |
|--------------|--|---------------|--------------------------|----------------|----------------|---------------|---------------------------------|----------------|-----------------------|----------------|---------------------|-----------------|--------------------------------|---------------------|---|--------------------------|-------------|----------------|
|              | Catch  |               | Target equivalent effort |                | Average        |               | Fishing effort                  |                | Catch per unit effort |                | Total catch         |                 | Targeted catch                 | Targeted catch >1 t |   |                          |             |                |
|              | Weight (tonne)                                   | Number ('000) | Potlifts ('000)          | Potdays ('000) | Weight (tonne) | Number ('000) | Potlifts ('000)                 | Potdays ('000) | Potlifts ('000)       | Potdays ('000) | Potdays per potlift | Potlifts ('000) | Potdays ('000)                 | Potdays per potlift | Kg per potlift (all fishers) (>1 tonne) | Kg per potday (>1 tonne) | Total catch | Targeted catch |
| 1978-79      | 4.4  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 44                       | <5          | <5             |
| 1979-80      | 2.2  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 34                       | <5          | <5             |
| 1980-81      | 1.8  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 28                       | <5          | <5             |
| 1981-82      | 1.0  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 27                       | <5          | <5             |
| 1982-83      | 0.4  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 15                       | <5          | <5             |
| 1983-84      | 0.4  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 14                       | <5          | <5             |
| 1984-85      | 3.2  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 28                       | <5          | <5             |
| 1985-86      | 1.6  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 25                       | <5          | <5             |
| 1986-87      | 4.0  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 23                       | <5          | <5             |
| 1987-88      | 6.2  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 26                       | <5          | <5             |
| 1988-89      | 4.4  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 26                       | <5          | <5             |
| 1989-90      | 4.4  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 31                       | 5           | <5             |
| 1990-91      | 18.5   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 26                       | 5           | 5              |
| 1991-92      | 56.7   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 33                       | 9           | 7              |
| 1992-93      | 226.2  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 44                       | 19          | 17             |
| 1993-94      | 121.9  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 48                       | 16          | 12             |
| 1994-95      | 38.8   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 51                       | 15          | 7              |
| 1994-96      | 40.9   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 41                       | 13          | 7              |
| 1996-97      | 68.5   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 40                       | 20          | 12             |
| 1997-98      | 50.6   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 36                       | 14          | 12             |
| 1998-99      | 50.2   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 43                       | 9           | 12             |
| 1999-00      | 25.3   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 26                       | 8           | 8              |
| 2000-01      | 19.5   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 27                       | 6           | 6              |
| 2001-02      | 9.6  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 17                       | 12          | <5             |
| 2002-03      | 8.4  |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 17                       | 12          | <5             |
| 2003-04      | 10.5   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 12                       | 5           | <5             |
| 2004-05      | 22.7   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 18                       | 9           | <5             |
| 2005-06      | 21.7   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 17                       | 10          | <5             |
| 2006-07      | 22.8   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 18                       | 8           | <5             |
| 2007-08      | 27.6   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 15                       | 9           | 5              |
| 2008-09      | 27.2   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 13                       | 7           | <5             |
| 2009-10      | 16.4   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 12                       | 8           | 5              |
| 2010-11      | 11.3   |               |                          |                |                |               |                                 |                |                       |                |                     |                 |                                |                     |   | 9                        | 6           | <5             |

Source: Fisheries Victoria CanDE database (16 November 2011)

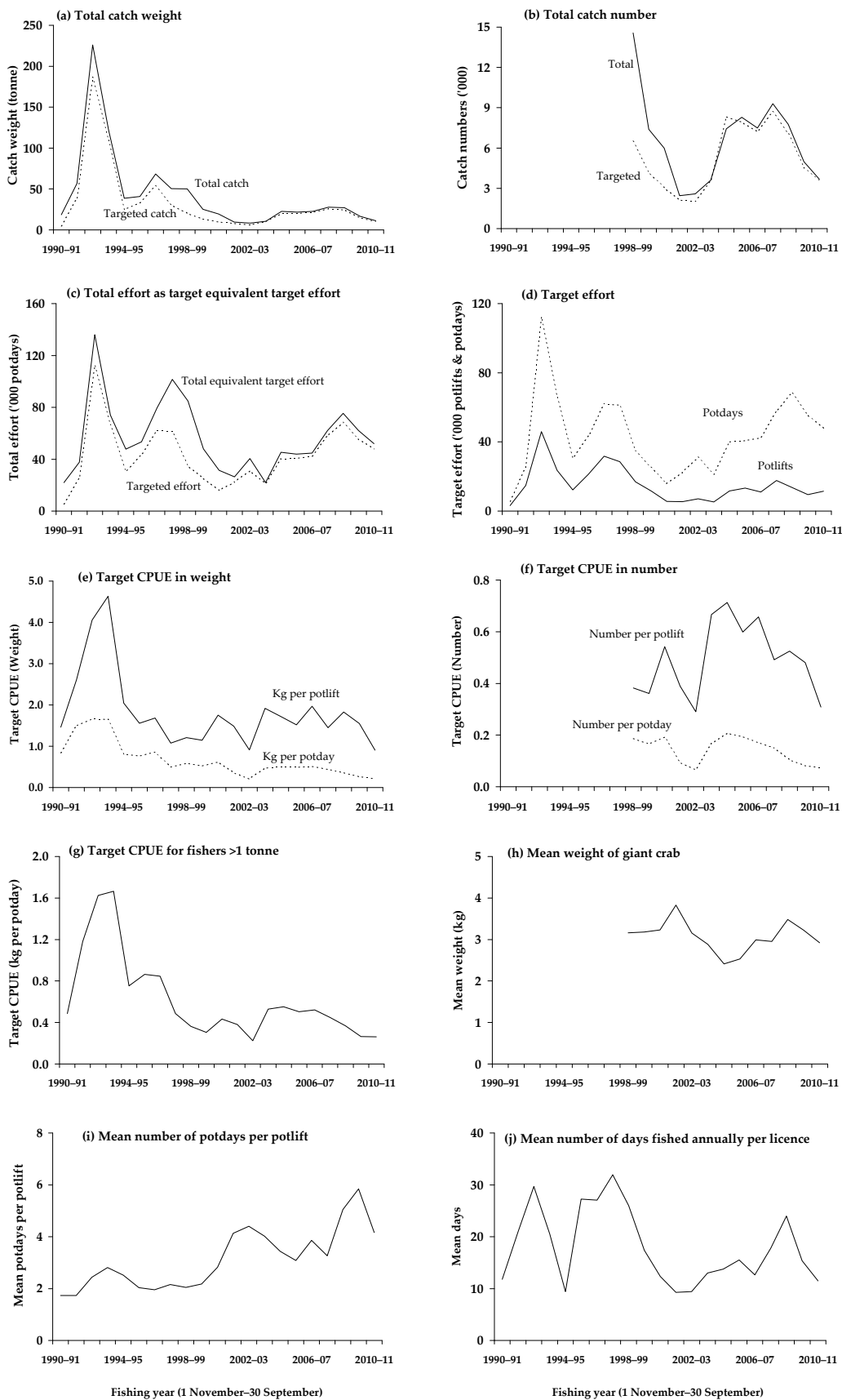
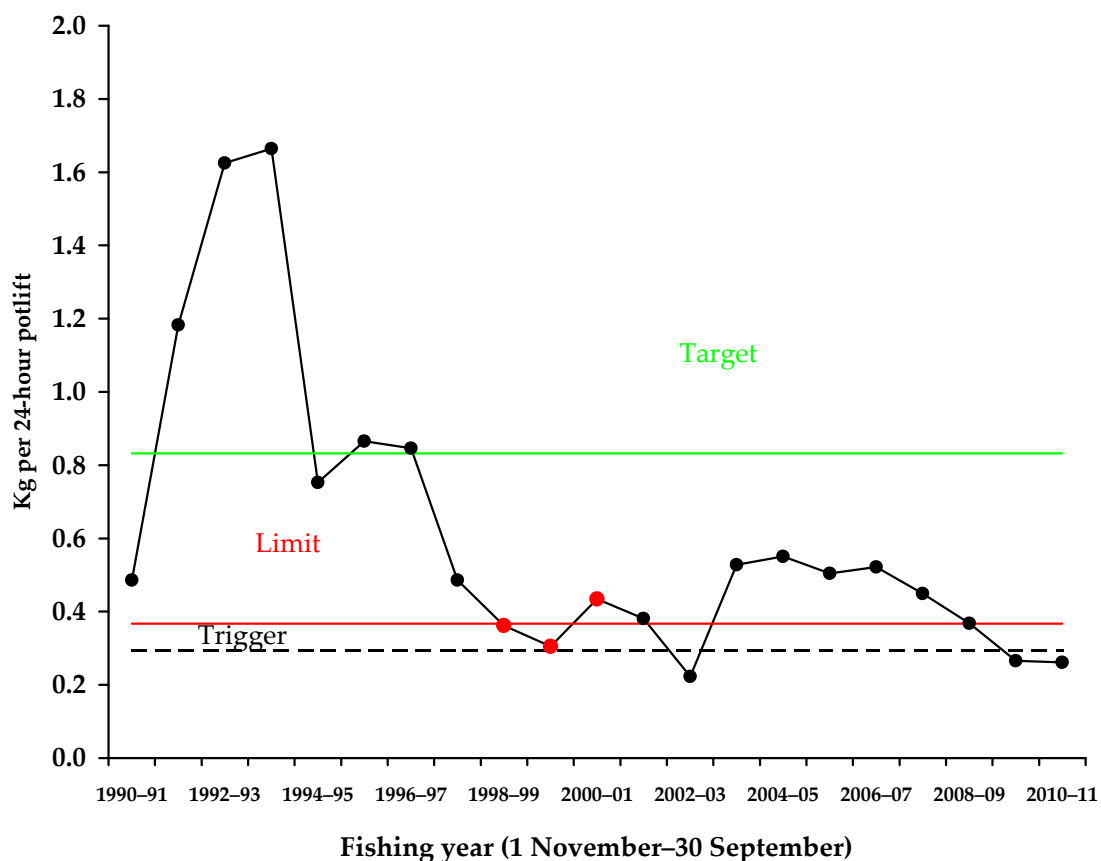


Figure 1. Trends in catch, fishing effort and CPUE for fishing years (1 November–30 September) from 1990–91 to 2010–11

Target, catch and effort where fishers specify giant crab as target species; target equivalent fishing effort = targeted effort x total catch weight / targeted catch weight; CPUE, catch per unit effort.

Source: Fisheries Victoria CandE database (16 November 2011)



**Figure 2. CPUE trends for fishers landing >1 t against biological reference points (BRP)**

Target BRP is 50% of peak CPUE, Limit BRP is mean CPUE for for 3 years from 1998-99 to 2000-01 fishing years, and Trigger is 80% of Limit BRP.

Source: Fisheries Victoria CandE database (16 November 2011)