

West Coast Deep-Sea Crab (Interim) Managed Fishery

Management Summary

The West Coast Deep-Sea Crab (Interim) Managed Fishery is a 'pot' fishery. The fishery operates in depths of 150–1,200 m with the only allowable method for capture being baited pots (traps). Each licensee is permitted to use 700 pots in the fishery. Between 50 and 100 pots are attached to a main line marked by a float at each end.

Fishers target giant (king) crabs (*Pseudocarcinus gigas*), crystal (snow) crabs (*Chaceon bicolor*) and champagne (spiny) crabs (*Hypothalassia acerba*). For all species of deep-sea crabs the Department either has in place, or is currently introducing, regulations to protect breeding females and establish minimum size limits.

This fishery was previously accessed through various endorsements on a Western Australian fishing boat licence, but in 2003 an interim management plan was gazetted creating five zones in the fishery and replacing the former conditions with permits. Under the interim plan, access is limited to seven permit holders. At the time of writing the Department was about to issue five full-time (Class F) permits and two part-time (Class P) permits. Full-time licensees may operate for up to 12 months per year, while part-time licensees may fish a maximum of three months in the fishery. The Department is intending to issue Class F permits for each of Areas 1 to 5 and part-time permits for Areas 3 and 4.

Provided the fishery continues to demonstrate sustainability, the Department plans to provide equal access to all seven licensees when the interim plan expires in December 2004. However, given the vulnerability of deep-sea crab stocks to over-exploitation, and concerns about the ability of the fishery to support all licensees on a full-time basis, the Department is currently giving consideration to means to reduce and control effort under any new plan introduced after December 2004.

A final application has been submitted to Environment Australia for the fishery as part of EA's ecological sustainability reporting process under the *Environment Protection and Biodiversity Conservation Act 1999*. Following the public comment period, formal assessment by EA will be undertaken.

Governing Legislation/Fishing Authority

West Coast Deep Sea Crab Fishery (Interim) Management Plan 2003

Consultation Process

Department–industry meetings

Research Summary

Research in this sector involves assessing the current status of the west coast deep-sea crab stocks based on commercial catch returns, logbook information and at-sea research monitoring

of the catch. Funding was granted in 1999 by the FRDC to develop an understanding of the biology and fishery of champagne crabs. Further funding was made available in 2001 for similar research to be undertaken on snow crabs. Final reports for these research projects are due in the second half of 2005.

West Coast Deep-Sea Crab Stocks Status Report

Prepared by R. Melville-Smith

FISHERY DESCRIPTION

Boundaries and access

The West Coast Deep-Sea Crab Fishery, which during the season being reported (2002) was still in its developmental phase, operates between Cape Leeuwin and the Northern Territory border. Vessels are only permitted to fish outside the 150 m depth contour.

There are seven licences in this fishery.

Main fishing method

Moulded plastic pots operated in longline formation.

RETAINED SPECIES

Commercial production (2002): **205 tonnes**

Landings

A catch of 205 t of snow crabs was taken in the fishery in 2002, a decrease of 8% on the catch taken in the 2001 season (223 t), but nevertheless high compared to all previous years (Deep Sea Crab Figure 1). As in 2001, catches of champagne (Deep Sea Crab Figure 1) and giant crabs on the west coast were negligible.

Fishing effort

Effort increased by 14% from an estimated 96,500 pot lifts in the 2001 season to 110,400 pot lifts in the 2002 season. This effort estimate is based on a combination of compulsory catch and effort and research logbook data.

Catch rate

The catch per unit of fishing effort for snow crabs decreased by 17%, from 2.3 kg/pot lift in 2001 to 1.9 kg/pot lift in 2002. This catch per unit effort estimate is based on research logbook data.

Recreational component:

Nil

There is no recreational fishery for any of the deep-sea crab species, as a result of the distance off shore and depth of the fishing grounds, which require large vessels and specialist gear.

Stock assessment completed:

Not assessed

No stock assessment results are yet available, as research on the snow crab fishery only commenced in July 2001, and the

small landings of champagne and giant crabs do not justify an assessment. Catch rates in the snow crab fishery have fallen by 32% between 2000 and 2002. However, it is recognised that the fishery is new and long-term yields have yet to be established.

Exploitation status: **Not assessed**

Breeding stock levels: **Adequate**

In snow, champagne and giant crab species, the males grow considerably larger than the females. The legal minimum sizes of 92 mm carapace length for champagne crabs and 140 mm carapace length for giant crabs, together with the voluntarily agreed minimum of 120 mm carapace width for snow crabs, offer significant protection for the female portion of the populations. Furthermore, preliminary evidence shows that sizes at maturity for males and females of both snow and champagne crabs are well below the minimum sizes in both species (Kim Smith, Murdoch University, unpub. data). Therefore, the broodstock is well protected.

A greater level of research has been undertaken on the state of the breeding stock levels of giant crabs than for snow and champagne crabs. Estimates made by Andrew Levings of Deakin University (unpub. data) suggest that the 140 mm carapace length minimum size protects 40% of pristine egg production in the Western Australian portion of Australia's giant crab population.

NON-RETAINED SPECIES

Bycatch species impact: **Low**

The gear used in this fishery generates minimal bycatch and the design of the pots is such that they do not 'ghost fish' if lost.

Protected species interaction: **Negligible**

The pots and ropes used in crab longlines have minimal capacity to interact with protected species in this fishing area.

ECOSYSTEM EFFECTS

Food chain effects: **Negligible**

Catches of the three species of deep-sea crabs landed represent a very small biomass, and any impact of fishing on the general food chain is expected to be minimal.

Habitat effects: **Low**

Crab potting is considered to have a low impact on the largely soft mud habitat over which the fishery operates.

SOCIAL EFFECTS

The developing fishery is based on mobile vessels that employ two or three crew. The product is landed live at ports between Carnarvon and Fremantle, generating some additional economic activity and benefits.

ECONOMIC EFFECTS

Estimated annual value (to fishers) for year (2002):
\$2.7 million

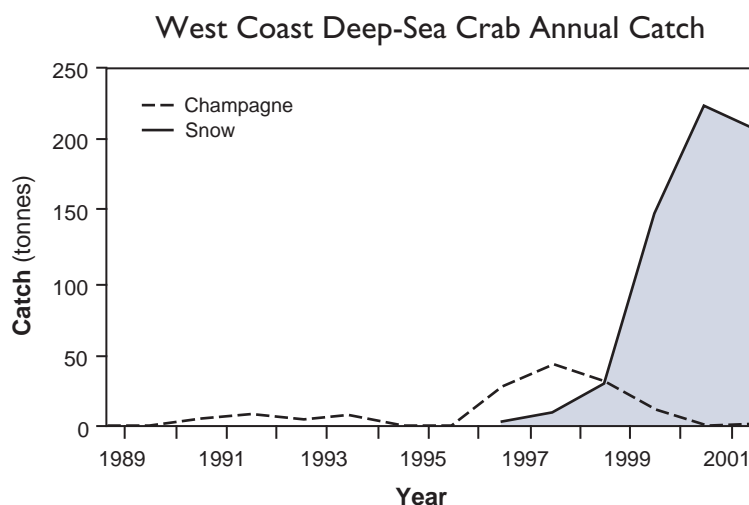
The beach value of the fishery was about \$2.7 million in 2002, based on an average beach price of \$13/kg for snow, \$9.5/kg for champagne and \$25/kg for giant crabs. The majority of the catch is exported live to south-east Asia.

FISHERY GOVERNANCE

Acceptable catch range: **Not assessed**

The effort in this developing fishery during 2002 was restricted to three full-time and four part-time fishers spread throughout the range of the fishery. At this stage, not all these licences are being utilised and it is not yet possible to determine what the acceptable catch should be.

Future access arrangements under the interim management plan are designed to limit the level of exploitation, but still obtain a sufficient spread of fishing effort across the five zones of the fishery for stock assessment purposes.



WEST COAST DEEP-SEA CRAB FIGURE 1

Annual catches of snow and champagne crabs from 1989 to 2002. Annual giant crab catches have always been small, and they have therefore been excluded.