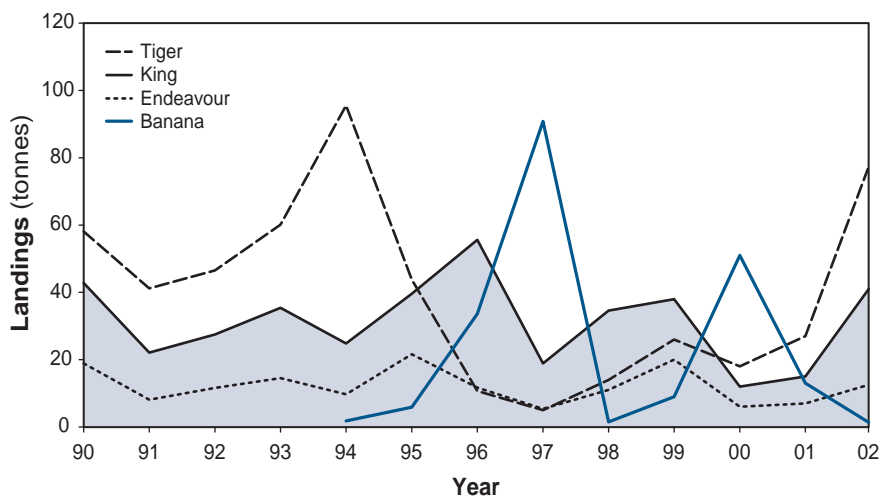


NORTH COAST BIOREGION

Onslow Annual Prawn Catch



ONSLow PRAWN FIGURE 2

Annual landings for the Onslow Prawn Managed Fishery, 1990–2002.

Nickol Bay Prawn Managed Fishery

Management Summary

The Nickol Bay Prawn Managed Fishery (NBPF) targets banana prawns (*Penaeus merguianus*), western king prawns (*Penaeus latisulcatus*), brown tiger prawns (*Penaeus esculentus*) and endeavour prawns (*Metapenaeus* spp.).

Management controls for the Nickol Bay Prawn Managed Fishery are based on limited entry, seasonal and area closures, gear controls and restrictions on boat size. Different areas within the fishery have different season dates. The main fishing ground for the 2003 fishing season opened on 1 May and will close on 15 November. Having a number of fishing areas with varying season dates allows access to target species, usually tiger and banana prawns, at appropriate times.

Bycatch reduction devices (grids) were fully implemented into the fishery in the 2003 season, with vessels required to have BRDs fitted to both nets. In addition, the Vessel Monitoring System has been implemented within the fishery since 2002.

A final application has been submitted to Environment Australia for the Onslow prawn 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

Nickol Bay Prawn Fishery Management Plan 1991
Nickol Bay Prawn Managed Fishery Licence

Consultation Process

Department–industry meetings

Research Summary

Research for the management of this small fishery involves stock monitoring and assessment utilising monthly return data provided by industry, information from boat skippers, and rainfall records. Stock assessment of the banana prawn stocks involves updating the catch–rainfall relationship. Research outcomes are reviewed at annual industry meetings which consider the status of the stocks and recommend changes to fishing operations.

A comprehensive ESD report has recently been completed for this fishery which was used as the basis of an application to meet the requirements of the Commonwealth's EPBC legislation. This process determined performance indicators based on catch for each of four main types of prawns taken by this fishery.

The following status report summarises these research findings.

Nickol Bay Prawn Managed Fishery Status Report

Prepared by M. Kangas and E. Sporer

FISHERY DESCRIPTION

Boundaries and access

The boundaries of this fishery are 'all the waters of the Indian Ocean and Nickol Bay between 116°45' east longitude and 120° east longitude on the landward side of the 200 m isobath' (Onslow/Nickol Bay Prawn Figure 1).

During the 2002 season the major fishing areas were open during the following periods:

Nickol Bay Nursery	1 May–31 August
Extended Nickol Bay Nursery	1 May–15 November
Depuch Nursery	1 May–31 August
De Grey Nursery	1 May–15 November

There were 14 boats licensed to trawl for prawns in Nickol Bay during 2002, with only 11 boats fishing.

Main fishing method

Otter trawl.

RETAINED SPECIES

Commercial production (season 2002): 100 tonnes

Landings

The total landings of major penaeids for the 2002 season were 100 t, comprising 22 t of banana prawns, 67 t of king prawns, 8 t of tiger prawns and 2 t of endeavour prawns (Nickol Bay Prawn Figure 2). The total catch was within the acceptable catch range for this fishery.

The catches of banana prawns during the last two years are the lowest recorded in 35 years and are, therefore, lower than the acceptable range which was based on catches of the 1990s. Nonetheless, the 2002 catch was within the projected catch range (1–40 t) forecast on the basis of very low rainfall over the period December–March. As a result of the low catch of banana prawns, the overall catch for the fishery was in the low end of the acceptable catch range.

Recorded by-product species for 2002 were 10 t of coral prawns, 9 t of bugs (*Thenus orientalis*), 2 t of blue swimmer crabs (*Portunus pelagicus*) and less than 1 t each of black tiger prawns (*Penaeus monodon*), squid, shark and mixed finfish species.

Fishing effort

During 2002, 647 days of fishing was recorded by boats licensed to fish in the Nickol Bay prawn fishery. This was approximately 15% down on the average number of fishing days recorded in the five years 1996–2000.

Catch rate

Not assessed.

Recreational component: Nil

Stock assessment complete: Yes

A broad relationship exists between the summer rainfall (December–March) and the catch of banana prawns in the following season (April–July). This relationship is assessed annually (Nickol Bay Prawn Figure 3). The low catch in 2002 was in the expected range according to the relationship as a result of low summer rainfall in 2001/02, which was the second lowest recorded in 35 years. King, tiger and endeavour prawn catches were all within the acceptable ranges for these species.

Exploitation status: Fully exploited

Breeding stock levels: Adequate

Projected catch next season (2003):

Banana prawns 40–80 tonnes

The catch projection for banana prawns, based on the 89 mm of rain during the 2002/03 summer period, is between 40 t and 80 t (Nickol Bay Prawn Figure 3).

NON-RETAINED SPECIES

Bycatch species impact: Low

The Nickol Bay prawn fishery operates predominantly by specifically targeting schools of banana prawns. This results in relatively low effort and minimal bycatch compared with other trawl fisheries. In 2002, only 6% of the total Nickol Bay prawn fishery area was fished. The introduction of fish escapement devices within the nets by 2004/05 should reduce this risk even further.

Protected species interaction: Negligible

The Nickol Bay prawn fishery has on rare occasions caught turtles and sea snakes, but the very low effort levels and targeted coverage of the fishery suggest that such interactions would not have been significant. The introduction of bycatch reduction devices (grids) in the fishery during 2002 should eliminate the capture of large animals including turtles.

ECOSYSTEM EFFECTS

Food chain effects: Low

In view of the highly variable nature of banana prawn recruitment, positively related to cyclonic rainfall, any food chain impacts from fishing are likely to be minimal despite the relatively high annual exploitation rate.

Habitat effects: Low

The small fleet fishes on a limited number of discrete fishing grounds, making up approximately 6% of the coastal habitat within the fishery. Habitat types on the trawl areas associated with banana and king prawns are mud and sand respectively, which are not impacted significantly by trawl gear.

SOCIAL EFFECTS

Estimated employment for year 2002 was 20–30 skippers and crew, with up to 20 people involved in onshore processing in the region.

ECONOMIC EFFECTS

Estimated annual value (to fishers) for year 2002: \$1.3 million

Ex-vessel prices for prawns vary depending on the grade of the product and the market forces operating at any one time. Generally, average prices received by vessels fishing along the Pilbara coast in 2002 were as follows:

Banana prawns	\$12.00/kg
King prawns	\$12.50/kg
Tiger prawns	\$13.00/kg
Endeavour prawns	\$7.50/kg
Coral prawns	\$3.00/kg

NORTH COAST BIOREGION

FISHERY GOVERNANCE

Acceptable catch range: 90–300 tonnes

Under current effort levels and previous environmental conditions, the acceptable ranges of prawn catches, based on the catches of the 1990s, are as follows:

Banana prawns	40–220 t
King prawns	20–70 t
Tiger prawns	2–40 t
Endeavour prawns	1–10 t

Note the overall acceptable range for all species combined is different from the aggregate of the individual species ranges shown because the environmental circumstances that benefit banana prawns generally result in decreased catches of the other species in the same year. It should also be noted that the banana prawn catch has exceeded 400 t following extreme cyclonic rainfall on three occasions over the past 35 years.

EXTERNAL FACTORS

Banana prawns usually dominate the catch from Nickol Bay. The catch of this species is positively correlated with rainfall in the months December–March. With 89 mm of rainfall recorded

for this period during 2002/03 and the low catches observed in 2002, relatively low landings (40–80 t) of banana prawns are forecast for 2003. The king prawn catches were within their acceptable range, indicating a return to normal environmental conditions for this species.

The majority of boats in the prawn fleet of Nickol Bay are also licensed to fish finfish stocks offshore in the Pilbara Fish Trawl (Interim) Managed Fishery (PFTF). Some are also licensed to fish for prawns in the Kimberley Prawn Managed Fishery. As such, the fishing effort in the Nickol Bay Prawn Managed Fishery is also affected by management measures imposed elsewhere, and the catch rates available in these other fisheries. Fishing for finfish has encouraged the construction of larger boats with greater fishing power than would otherwise have been supported by fishing prawns alone. In recent years, however, concern about over-exploitation in the PFTF has led to time quotas and other restrictions. The impact of these restrictions has forced some of these larger fishing vessels to return to the NBPF and other fisheries for which they have licences. These vessels, however, are not economically viable in the NBPF in low banana prawn years such as 2001 and 2002 and leave the fishery early, leading to highly variable effort in the fishery.

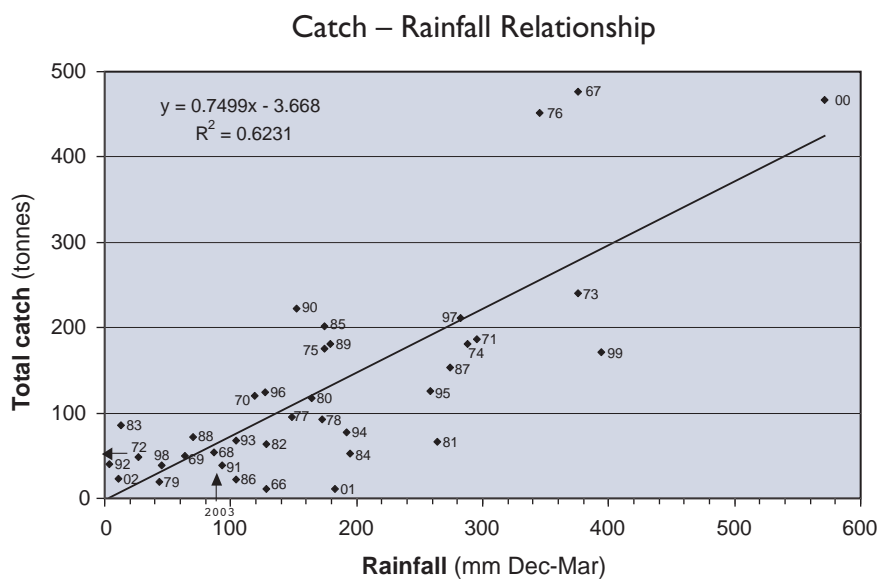
Nickol Bay Annual Prawn Catch



NICKOL BAY PRAWN FIGURE 2

Annual landings for the Nickol Bay Prawn Managed Fishery, 1990–2002.





NICKOL BAY PRAWN FIGURE 3

Relationship between banana prawn landings and rainfall between December and March for the years 1966–2002.

Broome Prawn Managed Fishery

Management Summary

The Broome Prawn Managed Fishery targets western king prawns (*Penaeus esculentus*) and coral prawns (a combined category of small penaeid species). The fishery operates in a designated trawl zone off Broome and generally coincides with the seasonal closures for the Commonwealth Northern Prawn Fishery (NPF) and the Kimberley Prawn Managed Fishery.

The 2003 fishing season commenced on 24 May and is scheduled to close on 12 August, taking advantage of the new moon phases in an attempt to maximise catches of king prawns. Management controls also include limited entry and gear restrictions.

Bycatch reduction devices (grids) were fully implemented in the 2003 season, with all vessels operating in the fishery required to install grids in all gear (except try nets).

A draft application has been submitted for the fishery as part of Environment Australia's ecological sustainability reporting process under the *Environment Protection and Biodiversity Conservation Act 1999*. A final application is being developed which will be submitted to EA in 2004.

Governing Legislation/Fishing Authority

Broome Prawn Managed Fishery Management Plan 1999
Broome Prawn Managed Fishery Managed Fishery Licence

Consultation Process

Department–industry meeting

Research Summary

Research data for managing this small seasonal fishery is provided by detailed research logbooks completed by all boats. This data is used for stock assessment and monitoring which is discussed with industry at annual review meetings. A Delury depletion analysis is also completed which assists in the assessment of the king prawn stocks within this region. A comprehensive ESD report has been generated for this fishery which formed the basis for the application to meet the requirements of the Commonwealth's EPBC legislation.

The following status report summarises these research findings.

Broome Prawn Managed Fishery Status Report

Prepared by M. Kangas and E. Sporer

FISHERY DESCRIPTION

Boundaries and access

The boundaries of this fishery are 'all waters of the Indian Ocean off the north-west coast of Western Australia east of 120° east longitude and west of 123°45' east longitude on the landward side of the 200 m isobath'.

Within this schedule, the permitted fishing area is 'all Western Australian waters bounded by a line commencing at the intersection of 17°20' south latitude and 121°50' east longitude; thence east to the intersection of 17°50' south latitude and 121°55' east longitude; thence north-east to the