

Kimberley Prawn Managed Fishery

Management Summary

The Kimberley Prawn Managed Fishery (KPMF) operates off the north of the State between Koolan Island and Cape Londonderry and abuts the western boundary of the Commonwealth Northern Prawn Fishery (NPF). The KPMF predominately targets banana prawns (*Penaeus merguianus*) but also catches tiger prawns (*Penaeus esculentus*), endeavour prawns (*Metapenaeus endeavouri*) and western king prawns (*Penaeus latisulcatus*). A significant number of vessels hold authorisations to operate in both the KPMF and the NPF, and opening and closing dates are aligned to prevent large shifts of fishing effort into the Kimberley fishery.

The management controls for the Kimberley Prawn Managed Fishery are based on limited entry, seasonal closures, gear controls and restrictions on boat replacements. In 2003 a total effort cap system was introduced that restricts the number of fishing days available within the fishing season to explicitly deal with the latent effort arising from the large number of vessels authorised to operate in the fishery. For the 2003 season, effort levels were notionally set at 600 and 900 boat days for the first and second parts of the season respectively.

The Vessel Monitoring System was introduced into the fishery during 2001. From the second half of the 2003 season, bycatch reduction devices (specifically grids) were also required 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

Kimberley Prawn Fishery Management Plan 1993
Kimberley Prawn Fishery Managed Fishery Licence

Consultation Process

Department–industry meeting

Research Summary

Research data for monitoring this fishery are provided by Western Australian fishers' monthly returns, and by research logbooks collected by the Australian Fisheries Management Authority for NPF boats licensed to operate in the Kimberley fishery. Research assessments are provided to annual meetings of boat operators and provide the basis for recommending changes to management arrangements each year.

A comprehensive ESD report was completed for this fishery which formed the basis of the application to meet the requirements of the Commonwealth's EPBC legislation.

The following status report summarises these research findings for this fishery.

Kimberley Prawn Managed Fishery Status Report

Prepared by M. Kangas and E. Sporer

FISHERY DESCRIPTION

Boundaries and access

The boundaries of this fishery are 'all Western Australian waters of the Indian Ocean lying east of 123°45' east longitude and west of 126°58' east longitude'.

Seasonal dates for the Kimberley Prawn Managed Fishery are aligned with those of the adjacent Northern Prawn Fishery. Consequently, the 2002 season opened on 1 April and closed for the mid-season closure on 27 May. The fishery re-opened on 4 August and ran until the final season closure on 9 November.

Although a total of 135 boats had access to the Kimberley Prawn Managed Fishery under various licensing arrangements, only 30 boats operated in the fishery during the 2002 season.

Main fishing method

Otter trawl.

RETAINED SPECIES

Commercial production (season 2002): **378 tonnes**

Landings

The total landings for the 2002 season were 378 t, comprising 239 t of banana prawns, 80 t of tiger prawns, 58 t of endeavour prawns and 1 t of king prawns (Kimberley Prawn Figure 1).

The banana prawn catch was within the projected catch range (200–380 t) using the preliminary relationship between summer rainfall and catches. The endeavour prawn catch was also in the acceptable catch range (7–80 t). The tiger prawn catch was the highest on record and slightly higher than the acceptable catch range for this species (15–60 t) as a result of improved recruitment (rather than targeting). Recorded by-products were 19 t of squid, 6 t of bugs and 3 t of coral prawns.

Fishing effort

During the 2002 season, 30 vessels operated in the fishery for a total of 1,135 fishing days.

Catch rate

Not assessed.

Recreational component:

Nil

Stock assessment complete:

Yes

Although there has been no formal stock assessment based on catches and fishing effort for the Kimberley prawn stocks, nevertheless the relationship recognised from other fisheries between rainfall and catches of banana prawns (the dominant species taken in this area) may provide a degree of forecasting.

Investigations have shown a promising relationship between early season rainfall (January and February) and the subsequent catch of banana prawns. Rainfall during the period January–February 2003 was 645 mm at Derby and 610 mm at Kalumburu, which indicates that banana prawn catches for 2003 should be in the range of 240–370 t. Investigations on refining rainfall–catch relationships are continuing.

Exploitation status:	Fully exploited
Breeding stock levels:	Adequate
Projected catch next season (2003):	Banana prawns 240–370 tonnes

The projected catch for 2003 based on the rainfall–catch relationship is 240–370 t for banana prawns.

NON-RETAINED SPECIES

Bycatch species impact:	Low
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The majority of the catch in this fishery comprises banana prawns, which usually form schools that are specifically targeted, meaning that bycatch is minimal. In the Kimberley, however, banana prawns may be dispersed due to local tidal conditions, with the result that more general untargeted trawling may also occur. Overall, the fishery is likely to have a low impact on bycatch species. The introduction of fish escapement devices within the nets by 2004/05 should reduce this risk even further.

Protected species interaction:	Negligible
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Turtle exclusion devices are used by the NPF boats that operate in this fishery. Trials of bycatch reduction devices (grids) commenced in the Kimberley Prawn Managed Fishery during 2002. Once implemented, these measures should eliminate the catch of large animals including turtles.

ECOSYSTEM EFFECTS

Food chain effects:	Low
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As the fishery targets banana prawns, which are highly variable in recruitment due to cyclonic rainfall, any food chain impacts from fishing are likely to be negligible.

Habitat effects:	Low
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The Kimberley prawn trawl fishery operates over a very limited sector, estimated to be less than 5% of the licensed area. Owing to the unusual nature of the environment, characterised by extreme (10 m) tidal ranges, heavy mud substrates and high turbidity, the fishing is judged to have minimal impact on the habitat.

SOCIAL EFFECTS

Estimated employment for the year 2002 was 120 skippers and crew.

ECONOMIC EFFECTS

Estimated annual value (to fishers) for year 2002:
\$4.9 million

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

Banana prawns	\$12.00/kg
Tiger prawns	\$18.71/kg
Endeavour prawns	\$9.00/kg

FISHERY GOVERNANCE

Acceptable catch range: **240–500 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	200–450 t
Tiger prawns	15–60 t
Endeavour prawns	7–80 t

Note the overall acceptable range for all species combined is different from the aggregate of the individual species ranges shown, as the environmental circumstances that benefit banana prawns generally result in decreased catches of the other species in the same year.

EXTERNAL FACTORS

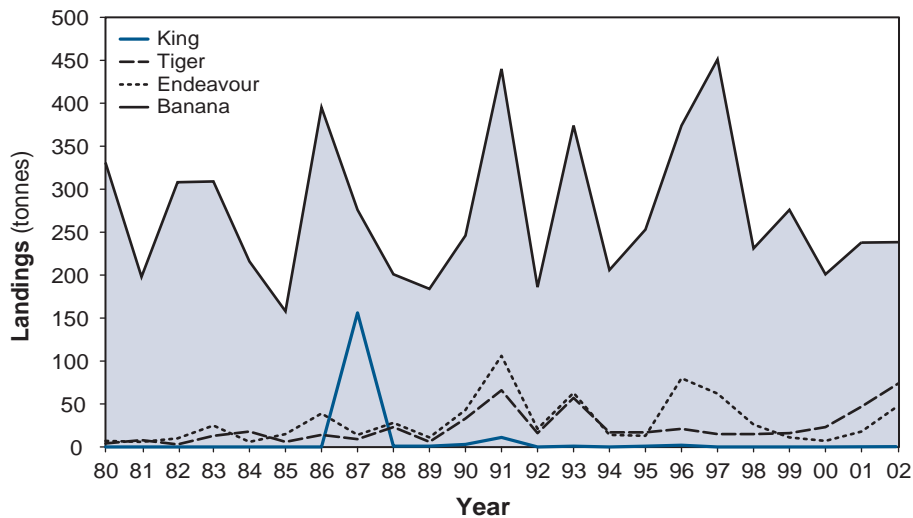
The relationship between summer rainfall and the catch of banana prawns is being investigated further. As banana prawns usually comprise the majority of the prawn catch from this fishery, this correlation will assist fishers and managers to make the best use of the fishery.

Few Kimberley-only boats operate for the complete fishing season. In general, boats from Nickol Bay and elsewhere in Western Australia operate within this fishery at certain times of the year to complement catches in their 'local' fisheries. Boats fishing in the Northern Prawn Fishery in the Gulf of Carpentaria also operate in this fishery for periods each year, with the Kimberley fishing season set to mirror dates used in the NPF. This is done to prevent the small Kimberley fishery from attracting too much fishing effort from its much larger neighbour. However, it must be noted that the level of latent effort in this fishery is high and this issue is currently being addressed by management.



NORTH COAST BIOREGION

Kimberley Annual Prawn Catch



KIMBERLEY PRAWN FIGURE 1

Annual landings for the Kimberley Prawn Managed Fishery, 1980–2002

Kimberley Gillnet and Barramundi Managed Fishery

Management Summary

The Kimberley Gillnet and Barramundi Managed Fishery (KGBF) extends from the WA/NT border to the top of Eighty Mile Beach, south of Broome (latitude 19° S). It encompasses the taking of any fish by means of gillnet and the taking of barramundi by any means.

The species taken are predominantly barramundi (*Lates calcarifer*) and threadfin salmon (*Polydactylus macrochir* and *Eleutheronema tetradactylum*). The main areas of the fishery are the river systems and tidal creek systems of the northern Kimberley, King Sound, Roebuck Bay and the top end of Eighty Mile Beach.

Following the development in 2000 of the ‘Barramundi Accord’, management arrangements have now been put into place for both the commercial and recreational exploitation of barramundi. These arrangements include extensive areas closed to commercial fishing around major town sites and recreationally important fishing locations.

Governing Legislation/Fishing Authority

Kimberley Gillnet and Barramundi Managed Fishery Management Plan 1989

Kimberley Gillnet and Barramundi Managed Fishery Licence

Consultation Process

Department–industry meeting

Research Summary

A collaborative three-year FRDC-funded research project between Murdoch University and Department of Fisheries began in July 2002 to study the biology of both the threadfin salmon species along with estuary cod (*Epinephelus coioides*), Malabar grouper (*E. malabaricus*) and mangrove jack (*Lutjanus argentimaculatus*). A detailed stock assessment of the threadfin salmon in the KGBF will be undertaken at the completion of this project.

The data used in this report to assess the status of the series of barramundi stocks taken by this fishery are provided from the CAES database. The following status report is compiled annually and provided to industry and regional management.

In previous years, the data for this fishery has been reported on a financial year basis, but from this year it is presented on a calendar year basis to better reflect the actual fishing season and summer closure.

Kimberley Gillnet and Barramundi Managed Fishery Status Report

Prepared by S. Newman

FISHERY DESCRIPTION

Boundaries and access

The boundaries of this limited entry fishery are defined as ‘all Western Australian waters lying north of 19° south latitude and west of 129° east longitude and within three nautical miles seaward of the low water mark of the mainland