

Northern Inland Bioregion

Regional Management Overview

The only commercial fishery in the northern inland bioregion is the Lake Argyle Freshwater Catfish Fishery. Future management arrangements for this fishery are currently under examination.

Regional Compliance and Community Education Overview

There is limited compliance monitoring activity in this fishery, and compliance continues to be a low priority. There were no compliance problems encountered during 2000/2001.

Lake Argyle Freshwater Catfish Fishery

MANAGEMENT SUMMARY

The only commercial freshwater fishery in Western Australia is in Lake Argyle in the Kimberley. This fishery specifically targets catfish (silver cobbler) and is managed through a set of licensing conditions. There is a two-month closure during the wet season breeding period of November and December.

As a result of conflict with charter operators on Lake Argyle as well as the general public and conservation groups, Lake Argyle catfish endorsement holders are currently in the process of developing an industry Code of Conduct. The code will specify the accepted means of operation in the fishery, as well as outlining contingency procedures for circumstances when fishing gear has been lost or abandoned. The code will be implemented during 2001.

Future management measures for this fishery will include a review of the possible impact of latent effort within the fishery and a shift in the seasonal closures to better accommodate the wet season breeding period.

Governing Legislation/Fishing Authority

Fisheries Notice no. 665 (Section 43 order)
Condition 42 on Fishing Boat Licence

RESEARCH SUMMARY

Data for assessing the status of this fish stock are derived from CAES returns provided by industry. These data are analysed annually using standard fisheries models to enable the following status report to be provided for management.

Lake Argyle Freshwater Catfish Fishery Status Report

Prepared by S. Ayzavian and G. Nowara

FISHERY DESCRIPTION

Boundaries and access

The fishery is contained in the impounded waters of the

Ord River at Lake Argyle and on part of Lake Kununurra. During 1999/2000 there were six licensees who had access to the Lake Argyle catfish fishery.

Main fishing method

Gillnet.

RETAINED SPECIES

Commercial production (season 1999/2000):
230.5 tonnes

Landings

The fishery developed from 1979 with increasing catches to 1988/89 (133 tonnes), and then fluctuated at a lower level until 1993/94. Since 1993/94 there has been a trend towards increasing catches in this fishery, with the current catch being the highest on record (Lake Argyle Catfish Figure 1).

Fishing effort

Nominal effort in this gillnet fishery is calculated as the total number of fishing days by all boats multiplied by the average daily total per boat of 100 m lengths of gillnet used. The fishing effort during 1999/2000 was 10,788 units, which is slightly lower than the previous year (Lake Argyle Catfish Figure 1).

Catch rate

Since 1987/88, the catch rate has remained fairly constant, although it declined in the three years from 1993/94 to 1995/96. During the past five years the CPUE has remained fairly constant at this lower level (Lake Argyle Catfish Figure 1).

Recreational component: **Not assessed**

Stock assessment completed: **Yes**

This year, a process error model and an observational error model have replaced the biomass dynamics model. The process error model has forecast an estimate of the catch for 2000/2001 of 193 tonnes. The results of this model indicate that the fishery is either fully fished or slightly over-fished. The alternative observational error model predicts a lower catch for 2000/2001 of 105 tonnes. Under this model, the fishery would be classified as severely over-fished, and would be approaching the point at which recruitment might be adversely affected. Both models indicate that the current catch levels reported from the fishery are not sustainable.

However, both models require a number of assumptions, and the available data are not sufficiently detailed to determine whether or not these assumptions are valid, creating a high degree of uncertainty around the results. The only way to reduce this uncertainty is to allocate more resources to the gathering of the necessary data from the fishery, and to gain an understanding of some key characteristics of both the fishery and the biology of the species.

Exploitation status: **Over-exploited**

Breeding stock levels: **Decreasing**



Commercial Fisheries

Assessment of the current stock indicates that the breeding stock level may not be sufficient to maintain existing recruitment to the fishery if fishing continues at the current level.

NON-RETAINED SPECIES

Bycatch species impact **Low**

Minimal fish bycatch occurs in this fishery as a result of the large mesh size used relative to the species present in the lake.

Protected species interaction: **Low**

There is an incidental capture of freshwater crocodiles by the freshwater catfish fishery in Lake Argyle. Lake Argyle is designated as a wetland of international importance under the Ramsar convention. While we assume that the crocodile population has increased in response to the creation of the dam, there are no assessments of the size of the population, nor of the proportion of the population being captured incidentally by the fishery. In the absence of this information, but on the basis of the fishers' anecdotal information, the incidental capture of crocodiles is considered to be of minimal ecological significance.

ECOSYSTEM EFFECTS

Food chain effects: **Not assessed**

Habitat effects: **Not assessed**

SOCIAL EFFECTS

During 1999/2000, the average number of fishers involved in the Lake Argyle catfish fishery was 12. Additional employment occurs at local processors' and distribution networks.

ECONOMIC EFFECTS

Estimated annual value (to fishers) for year (1999–2000): **\$0.61 million**

FISHERY GOVERNANCE

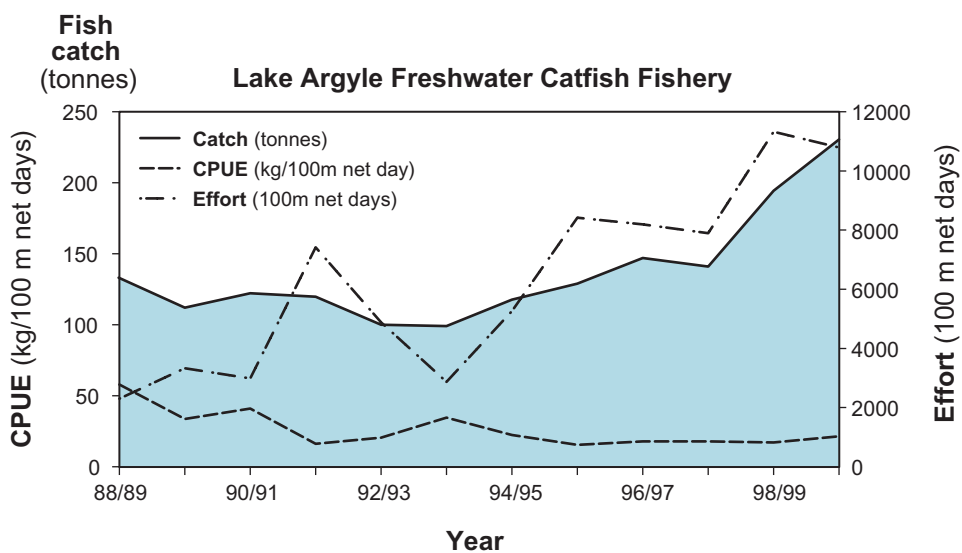
Acceptable catch range: **100–140 tonnes**

The acceptable catch range under the current management regime is 100–140 tonnes of Lake Argyle catfish. This estimate is based on the 80% confidence limits around the average of the observed catches for the 10 years up to 1997/98. The 1998/99 annual catch figure of 194 tonnes and the 1999/2000 catch of 230.5 tonnes are above the upper limit of the catch projection and the sustainable level of catch determined by the observational and process models. This increased level of catch reflects the dramatic increase in effort between 1997/98 and the present (Lake Argyle Figure 1). Under this scenario, management action may need to be considered to ensure the sustainability of this resource.

EXTERNAL FACTORS

An annual research report was made available for the annual management meeting with operators in Kununurra in April 2000. At that time the present high catch levels were presented to the fishers with the concerns about the continuation of fishing at this high level.

With the introduction of licence transferability, the unused ('latent') effort in this fishery is of biological concern because of the specialised reproductive behaviour and the low fecundity of the species, which may predispose the stock to recruitment over-fishing. Anecdotal evidence from sectors of the Lake Argyle catfish fishing industry has indicated a decline in fish size during recent years, supporting the view that exploitation rates may be too high.



LAKE ARGYLE CATFISH FIGURE 1

The annual catch, effort and catch per unit effort (CPUE, kg/100 m net day) for the Lake Argyle Freshwater Catfish Fishery over the period 1988/89 to 1999/2000.

Statewide Fisheries

There are a small number of fisheries which operate across all bioregions of the State. Information on these minor fisheries is reported under this 'statewide' category.

Marine Aquarium Managed Fishery

MANAGEMENT SUMMARY

The Marine Aquarium Managed Fishery comprises 13 licensees who operate throughout Western Australian waters under the Marine Aquarium Fishery Management Plan.

The fishery targets in excess of 250 different species of fish for the marine aquarium industry. Because these species are not being targeted as a food product, there is not the same incentive as in other commercial fisheries to maximise catches, and no species has been identified as being at risk of over-exploitation at current levels of fishing. Operators cannot take juvenile specimens of the commercially exploited species where there are specific size limits, and are not permitted to take species for which there are specific management arrangements or management plans.

The fishery's management plan establishes the legislative controls for the number of licences issued, boat replacement size, the permitted means of capture and fishing gear. Other legislation imposes constraints on the areas in which commercial collecting of marine aquarium species can be undertaken. Fishing activities are targeted and relatively low in volume, and have limited effect on fish populations.

There are reporting requirements to Environment Australia in relation to the commercial harvest of syngnathids to maintain the 'Controlled Specimens Declaration' which allows these species to be exported. In addition, the Marine Aquarium Managed Fishery is being assessed as a case study as part of the national project to develop ESD reporting arrangements for all fishing activities.

Governing Legislation/Fishing Authority

Marine Aquarium Fishery Management Plan 1995
Marine Aquarium Managed Fishery Licence

Consultation Process

Agency-industry meeting

RESEARCH SUMMARY

Production from this fishery is monitored by way of a statutory record completed by each fisher, which is recorded in a database held in the Fisheries Research Division.

Specimen Shell Managed Fishery

MANAGEMENT SUMMARY

The Specimen Shell Managed Fishery comprises 34 licensees who operate under the Specimen Shell Management Plan. The fishery targets a broad range of specimen shell species along the entire Western Australian coastline, except where there are specific closures, for example within marine parks or aquatic reserves.

The management plan establishes the legislative controls for the number of licences issued, boat replacement size, permitted means of capture and fishing gear.

There are also reporting requirements to Environment Australia to maintain the 'Controlled Species Declaration' for eight of the species taken by the fishery, which allows them to be exported.

Governing Legislation/Fishing Authority

Specimen Shell Management Plan 1995
Specimen Shell Managed Fishery Licence

Consultation Process

Agency-industry meeting

RESEARCH SUMMARY

Production from this fishery is monitored by way of a statutory record completed by each fisher, which is recorded in a database held in the Fisheries Research Division.



