

Shark Bay Beach Seine and Mesh Net Managed Fishery

MANAGEMENT OVERVIEW

This fishery operates in the waters of Shark Bay and takes a mixed catch of whiting, mullet, tailor and yellowfin bream. Entry to the fishery is limited, with restricted, family-only transfers and gear limitations. A unit in the fishery comprises one primary vessel, a maximum of three netting dinghies and a maximum team size of three fishers. Most of the catch is marketed through the fish processing factory in Denham which sets weekly delivery quotas and commercially acceptable size limits, which are above the legal minimum size for species concerned.

In June 1998 a total fishing ban on pink snapper was introduced in the waters of the eastern gulf of Shark Bay, as a result of stock depletion concerns. This had a minor impact on a limited number of licensees, who in the past have taken a small catch of pink snapper from this sector of the fishery.

COMPLIANCE AND COMMUNITY EDUCATION OVERVIEW

During 1998/99, inspections were undertaken at the Denham jetty and at sea using the PV *John Brockman*. Compliance with the management arrangements was good.

RESEARCH OVERVIEW

Research monitoring of the status of the stocks taken in the fishery is undertaken using CAESS data provided by industry to Fisheries WA, coupled with the extensive scientific knowledge gained from previous research.

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

Fishery Status Report

Main Features

Stock assessment complete:

Only for whiting (*Sillago schomburgkii*)

Exploitation status:

S. schomburgkii fully exploited

Breeding stock levels:

Adequate for *S. schomburgkii*

Previous catch projections for year 1998:

Whiting 90-140 tonnes

Catch current season (1998):

All species 265.4 tonnes

Whiting 114.8 tonnes

continued over

Estimated annual value (to fishers) for year 1998:

All finfish \$800,000

Whiting \$380,000

Catch projection next year (1999):

Whiting 95-140 tonnes

Boundaries and Access

The boundaries of this fishery are 'the waters of Shark Bay from high water mark lying -

- south of a line drawn from the northernmost point of Cape Inscription on Dirk Hartog Island due east to the mainland; and
- east of a line drawn from Surf Point on Dirk Hartog Island to Steep Point on the mainland; but excluding the waters of Shark Bay due south of a line drawn west of the highwater mark of Kopke Point on the mainland to the highwater mark on the mainland south of Petit Point on Peron Peninsula'.

During 1998, nine unit fishing boat licence holders were registered in the beach seine and mesh net fishery and were based at Denham.

Annual Production

Main fishing method

Beach seine and haul net.

Landings

Whiting is the main target species in Shark Bay, although the catch consists of two species of whiting, sea mullet, tailor, bream and some snapper. Thus assessments of the fishery have been based historically on the total whiting catch and effort data (Shark Bay Beach Seine Figure 1). Landings during 1998 were 114.8 tonnes of whiting. This was slightly lower than the 1997 catch of 122 tonnes, which was the highest reported between 1989 and the present. The 1998 total catch for the Shark Bay beach seine and haul net fishery of 265.4 tonnes has declined from last year's catch of 325 tonnes which was at the highest level reported during the past 10 years (Shark Bay Beach Seine Figure 2).

Fishing effort

During 1998, there was an average of seven boats fishing per month, expending 1,049 days of fishing effort (Shark Bay Beach Seine Figure 2). The overall trend in fishing effort in the Shark Bay beach seine and haul net fishery has been a decline in the number of boat days fished during the 1990s.

Catch rate

CPUE (based on nominal effort) for the whiting fishery has increased during the past 10 years, with only minor fluctuations recorded in the mid-1990s. The present CPUE is 109.4 kg/boat day for the whiting fishery, which is the highest value reported since 1989 (Shark Bay Beach Seine Figure 1). The CPUE for the

Shark Bay beach seine and haul net fishery increased steadily between 1989 and 1995 and has remained relatively constant since 1995. The reported CPUE for 1998 was 253 kg (all species)/boat day.

Stock Assessment

A preliminary yield-per-recruit stock assessment was conducted for the whiting (*Sillago schomburgkii*) fishery in Shark Bay. Biological data were incorporated from research by Lenanton (1970).¹ A more detailed evaluation of the current status of the fishery cannot be achieved until a catch curve is developed for this species.

Breeding Stock Levels

As the mean size at first maturity for Shark Bay whiting is similar to the legal minimum length that applied up until 1988, and the minimum legal mesh size is the 50% selection point of 48 mm mesh net, virtually all of the catch is mature fish. Consistent catches of whiting over recent years provide a good indication that the breeding stock is being maintained.

Catch Projection for Year 1999

The catch projection for 1999 is 95-140 tonnes for whiting. The projection is derived by double exponential smoothed forecasting of past annual catches and the variation of observations around the predictions. The confidence intervals are set at 80%.

Product Value for Year 1998

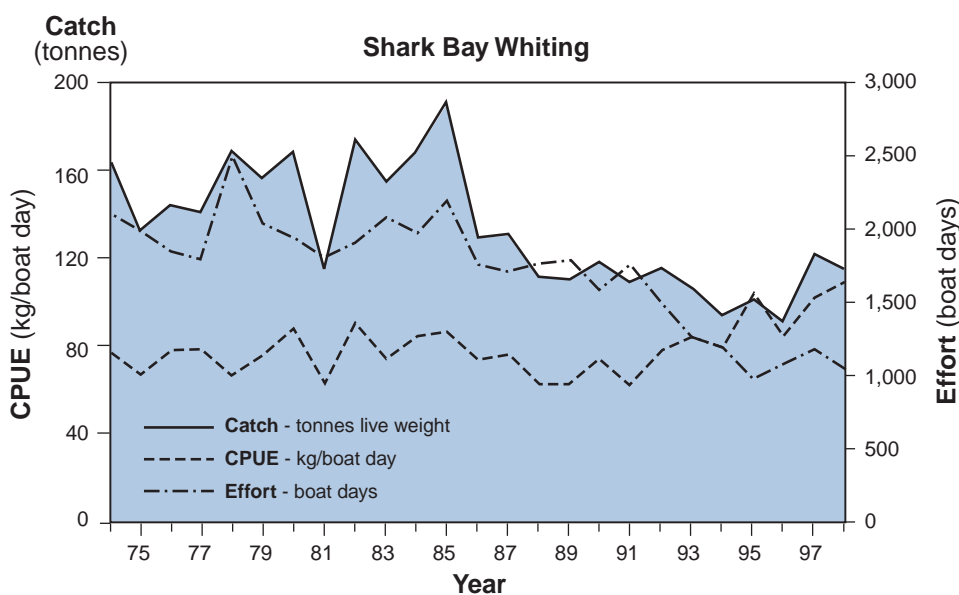
The estimated value of the total catch for 1998 is \$800,000. The estimated value of the whiting catch is \$380,000.

General Comments

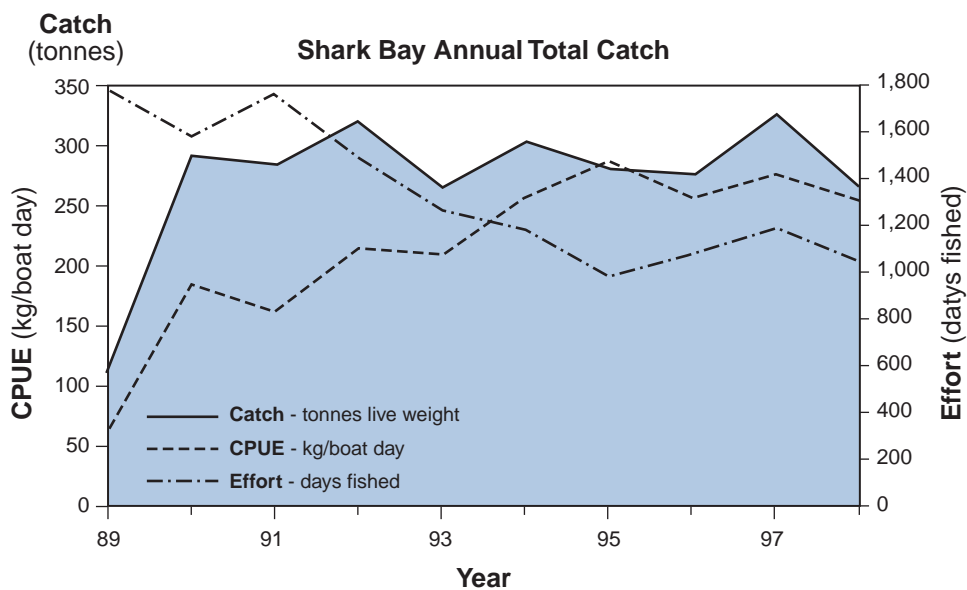
Historically, this status report has detailed the commercial Shark Bay Beach Seine and Mesh Net Managed Fishery catch and effort statistics. While there is no management plan for the fishery, the fishery is constrained by limited entry. At present, Shark Bay is an increasingly popular recreational fishing destination. Shark Bay has been designated a World Heritage Area, with all but a small portion also designated as a marine park. Recent research into Shark Bay snapper and an anglers' creel survey highlight the need for an integrated approach to the management of the fish resources within Shark Bay.

Annual catch and effort data are extracted and accumulated from statutory monthly CAESS returns provided by commercial fishers. Data within the CAESS database are continually maintained, both by addition of new statistical returns and by modification of records to correct errors of data entry or interpretation that are detected during ongoing analysis and data quality control by the research section responsible for studying each fishery.

1. Lenanton, R.C.J. 1970. The biology of the commercially fished whiting (*Sillago* spp.) in Shark Bay, Western Australia. Master of Science thesis, University of Western Australia. 160 pp + appendix.



Shark Bay Beach Seine Figure 1 The annual catch (tonnes), effort (boat days) and catch per unit effort (CPUE, kg/boat day) for whiting from Shark Bay over the period 1989-1998.



Shark Bay Beach Seine Figure 2 The annual catch (tonnes), effort (boat days) and catch per unit effort (CPUE, kg/boat day) for the total finfish fishery of Shark Bay over the period 1974–1998.

Lower West Coast Beach and Embayment Fisheries

MANAGEMENT OVERVIEW

Within this sector there are five managed fisheries focused mainly in the Cockburn Sound area, details of which are listed below.

West Coast Beach Bait (Fish Net) Managed Fishery:

There are 13 licensees in this fishery. Small pelagic fish are taken primarily by beach seine method within the coastal waters between the mouth of the Moore River, north of Perth, and Tims Thicket, south of Mandurah.

The major target species for this fishery is whitebait, *Hyperlophus vittatus*, with small quantities of other species being taken.

The whitebait stock in the south-west of Western Australia is found mainly in a thin coastal strip close to the coast and the stock size is relatively small. The exploitation rate by commercial fishers should not be permitted to increase above current levels.

The northern section of the stock is managed under the West Coast Beach Bait (Fish Net) Management Plan which applies to the area from Lancelin to Tims Thicket. Management of the southern section will come under the review of the south-west beach seine access arrangements, which are still to be finalised. Beach seining is the predominant method of fishing, which provides a measure of protection for the stock because of the limited ability to access the whitebait from the beaches.

The fishery is currently being assessed as to whether it qualifies under the Voluntary Resource Sharing Guidelines program.

Cockburn Sound (Crab) Managed Fishery: There are eight transferable Class A and eight non-transferable Class B licences with access to this fishery. This fishery has fully converted from using demersal tangle nets to using crab pots as the means of capture.

The future management arrangements for this commercial fishery are currently being reviewed under the Voluntary Resource Sharing Guidelines program. Outcomes from this process are likely to include

