

indicate the current level of fishing is not over-exploiting the stock, provided the exploitation rate of mature animals does not exceed 4%. This is a reasonable assumption as there is no dedicated fishery targeting this sector of the stock.

Gummy shark: The total catch of gummy sharks in 1997/98 was similar to that for the previous three seasons. Catch rates of gummy sharks have remained relatively stable since the early 1980s, before which catch rates had declined. Estimates of the current level of biomass (relative to the 1975 level) range from 22.6% to 60.2%, with the best estimate at 42.7%. At this level of biomass, the gummy shark stock is considered fully exploited. Risk assessment was used to calculate the probability of attaining the stock target set by the WADGDLF MAC (40% or greater of the 1975 level of biomass by 2010). To achieve this target the effort level in the fishery needs to be less than 70% of the 1993/94 level to ensure that the stock target of 40% of original biomass is met. The 1997/98 level of effort is approximately 4% higher than in 1996/97 and 70.1% of the 1993/94 level of effort.

Breeding Stock Levels

Whiskery shark	Best estimate 38.3% of virgin level and stable
Dusky whaler	Not determined, but considered likely to be above 40% of the virgin level
Gummy shark	Best estimate 42.7% of 1975 level and stable

Catch Projection for Year 1998/99

Whiskery shark	200-250 tonnes
Dusky whaler	400-500 tonnes
Gummy shark	275-325 tonnes

Product Value for Year 1997/98

<i>JASDGLDF:</i>	\$2.84 million (shark and scalefish)
<i>WCDGDLIMF:</i>	\$1.44 million (shark and scalefish)

The estimate of the value of the fishery declined substantially from previous years, due largely to a review of the prices that fishers obtain for product. Product values for these fisheries do not include the value of shark fins, which are not reported on catch returns. At approximately 5% of live weight, and a price of \$20/kg, the estimated value of fins produced by these fisheries is \$1.4 million.

General Comments

Stock assessment indicates the need for further effort reductions to meet or maintain the long-term stock biomass targets for whiskery and gummy sharks respectively. Management measures addressing these

concerns are planned for introduction in the fisheries over the next three years. Assuming these measures are effective, the current level of exploitation of dusky whaler sharks appears to be sustainable, while the other two species are expected to stabilise and their breeding stock levels to gradually recover to acceptable levels.

North Coast Shark Fishery

MANAGEMENT OVERVIEW

The Western Australian-controlled sector of the North Coast Shark Fishery is managed by a notice implemented under section 43 of the *Fish Resources Management Act 1994*. This notice was first gazetted in May 1993 and covers the taking of shark in all waters off the north coast, from longitude 114°06' E to 123°45' E with longline, and from 114°06' E to the WA/NT border with dropline.

The taking of shark by longline and gillnet between 123°45' E and the WA/NT border is controlled by Joint Authority between Western Australia and the Commonwealth.

In light of changes to this fishery, in terms of jurisdiction and area, resulting from the most recent Offshore Constitutional Settlement arrangements in February 1995, FisheriesWA plans to implement a management strategy with one of the main aims being the minimisation of scalefish bycatch taken in the fishery.

There is a lack of knowledge regarding the dynamics of the target species in this fishery, and the lack of research in this area is a direct result of low fishing activity. The paucity of knowledge on northern shark species is not a problem unique to Western Australia, and to address this concern FisheriesWA is part of a cooperative approach to shark research across northern Australia that includes CSIRO and the Northern Territory and Queensland fisheries agencies.

COMPLIANCE AND COMMUNITY EDUCATION OVERVIEW

Limited fisheries compliance activities were directed at in this fishery in 1998/99. In view of its overall low level of production, it is likely to continue to have a low priority.

RESEARCH OVERVIEW

Research to monitor the status of the northern shark stocks has been undertaken as an extension of the south and west coast shark research project. To improve the state of knowledge on this sector, a

collaborative research project proposal covering all tropical Australian shark stocks is being developed.

The following status report has been prepared based on CAESS data from industry and a general knowledge of tropical shark stocks from the scientific literature.

Fishery Status Report

Main Features

Stock assessment complete:

No

Exploitation status:

No assessment

Breeding stock levels:

No assessment

Previous catch projections for year 1997/98:

Not made

Catch current season (1997/98):

Western Australian area 205.8 tonnes
(shark and scalefish)

Joint Authority area 51 tonnes (shark only)

Kimberley Gillnet and Barramundi
Managed Fishery 50 tonnes
(shark and ray only)

Estimated annual value (to fishers) for year 1997/98:

Approximately \$530,000 from the three sectors

Catch projection next year (1998/99):

Not made

Recreational component (1997/98):

Small

Boundaries and Access

The North Coast Shark Fishery's management boundaries depend upon the type of gear used. Western Australia controls dropline fishing from longitude 114°06' E to the WA/NT border (129° E) and longline fishing from longitude 114°06' E to 123°45' E. Longline and gillnet fishing from longitude 123°45' E to the WA/NT border is managed by Joint Authority between Western Australia and the Commonwealth. Gillnet fishing west of longitude 123°45' E is not permitted.

A total of 13 fishers have licensed access to one or more of these zones. Shark is also a significant component of the Kimberley Gillnet and Barramundi Managed Fishery.

Annual Production

Main fishing method

Dropline, longline and gillnet.

Landings

Western Australian area:

Shark and scalefish 205.9 tonnes
(by North Coast Shark
Fishery operators only)

Joint Authority area:

Shark 51 tonnes

Kimberley Gillnet and Barramundi Fishery:

Shark and ray 50 tonnes
Scalefish Reported separately in the
Kimberley Gillnet and Barramundi
Managed Fishery Status Report

Although catches of shark by these fisheries are reported by species, the categories used in CAESS are insufficient to reflect all species taken in this diverse fishery. As a result, catch by species is not reported.

Fishing effort

There are 13 vessels with specific licence access to these stocks, in addition to the Kimberley Gillnet and Barramundi Managed Fishery vessels. Because a number of these vessels take shark as non-target species, the extraction of useful effort statistics for these stocks is not possible.

Catch rate

Not calculated.

Stock Assessment

No assessment.

Breeding Stock Levels

No assessment.

Catch Projection for Year 1997/98

Not made.

Product Value for Year 1997/98

The overall value of shark catches in the three sectors making up this fishery is approximately \$530,000. This figure does not include the value of shark fins, which are not reported on catch returns. At approximately 5% of live weight and a value of \$20/kg, the estimated fin production value for these fisheries could be in excess of \$100,000.

General Comments

The catches of shark from the State's northern sector are largely taken when fishing for other target species. This factor, in addition to the multi-species nature of the tropical shark fishery, makes formal stock assessment processes particularly difficult and uneconomic to pursue. Monitoring of the fishery is therefore likely to remain at a basic level, utilising CAESS data on catches. Improvements to the data and a better understanding of these fishing activities may, however, be possible as a by-product of the new FRDC-funded research project on the Spanish mackerel fishery, which is closely linked to shark fishing.