

West Coast Purse Seine Managed Fishery

MANAGEMENT OVERVIEW

This fishery is based on the capture of pilchards (*Sardinops sagax*) by purse seine nets in the waters off the west coast of Western Australia. The product is highly regarded and has accessed numerous markets, being sold for human consumption, angling bait, commercial bait, tuna food and pet food. The recreational angling bait market is currently the main focus.

As in the south coast fishery, the spread of a herpesvirus throughout the west coast in 1995 and again in 1998/99 is thought to have had a serious impact on the stock. The recent event and the possibility of a further outbreak represent a real threat to the industry.

Management arrangements are currently based on limited entry and controls on gear and boat size; however, it has been accepted for some time that the fishery should be managed under a quota arrangement. The framework of arrangements that would see the change to quota management has been developed following consultation with stakeholders but has yet to be legislated.

COMPLIANCE AND COMMUNITY EDUCATION OVERVIEW

The proposed introduction of quota management for this fishery is still to be implemented. This will increase the monitoring requirement to maintain the integrity of the quota allocation.

RESEARCH OVERVIEW

Research on this fishery continues to utilise CAESS data, biological monitoring of catches and spawning biomass estimates from egg and larval surveys.

These data are compiled into the following status report and ultimately will be used to set and review TACs once the fishery moves to quota management.

Fishery Status Report

Main Features

Stock assessment complete:

Yes

Exploitation status:

Fully exploited

Breeding stock levels:

Adequate

continued over

Previous catch projections for year 1998:

2,000-3,000 tonnes

Catch current season (1998):

1,832 tonnes

Estimated annual value (to fishers) for year 1998:

\$1 million

Catch projection next year (1999):

Under review following pilchard mass mortality

Recreational component (1998):

Nil

Boundaries and Access

The boundaries of this fishery are 'all Western Australian waters between 31° south latitude (near Lancelin) and 33° south latitude (near Cape Bouvard) and on the landward side of the 200 nautical mile Australian Fishing Zone limit, but excluding those waters within the boundaries of the Marmion Marine Park Reserve No. 1'. Access to the fishery is under a limited entry system with eight full licences and six supplementary access holders. No quota system is in place at present. As there is currently no evidence for separate adult assemblages along the lower west coast (in contrast to the situation on the south coast), catch data from the developmental purse seine fishing zone, which lies between Cape Bouvard and Augusta, is included in the total for the West Coast Purse Seine Managed Fishery.

Annual Production

Main fishing method

Purse seine net.

Landings

The combined catch of pilchards for the managed fishery area and the developmental zone decreased substantially from 3,989 tonnes in 1996 to 2,378 tonnes in 1997 and 1,585 tonnes in 1998 (West Coast Purse Seine Figure 1). The catch of scaly mackerel increased from 70 tonnes in 1996 to 121 tonnes in 1997 and 247 tonnes in 1998.

The availability of adult pilchards in the fishery was low in 1998 but juveniles were reported by fishers as extremely abundant in the latter part of the year prior to the virus disease event. This observation was supported by analysis of the age structure of the catch throughout the year.

Fishing effort

Not available.

Catch rate

Not applicable.

Stock Assessment

In early 1999, a mass mortality event passed through the west coast stock after originating in South Australian waters and passing through the south coast of Western Australia. Pilchard mortalities were estimated to be much higher than in the similar disease event in 1995. A post-mortality biomass survey was considered necessary to estimate the size of the remaining stock.

In 1996, spawning biomass was estimated using a plankton-based survey to be at least 20,000 tonnes. The most recent spawning biomass survey was carried out in late July/early August of 1998 to estimate the spawning biomass of pilchards along the lower west coast of Western Australia between Yallingup (south of Cape Naturaliste) and Jurien Bay. This survey resulted in a spawning biomass estimate of 18,985 tonnes, with a range of 9,000–28,951 tonnes. An important result from the 1998 survey was the reduced confidence intervals. That is, the range of lower and upper limits around the best estimate of spawning biomass was much narrower than for the 1996 survey (13,000–55,000 tonnes). However, it was noted that the previous estimate was extrapolated from a very poor number of adult samples, a problem addressed in the 1998 survey. The tighter confidence intervals obtained in 1998 markedly reduced the range between the upper and lower limits. Of particular importance was the upper end of the range, which appeared to be much less than the estimate of 55,000 tonnes obtained in the 1996 survey. This most recent survey indicated that the spawning biomass of pilchards off the lower west coast was likely to have been less than 25,000 tonnes prior to the mortality event.

Large numbers of two- and three-year-old pilchards contributed to this fishery in 1996, suggesting that recruitment in the region was very good. This was confirmed in 1997 when three- and four-year-old pilchards dominated the annual catch, and in 1998 when four- and five-year-olds dominated the catch. In 1998, adult pilchards were less abundant than usual on the fishing grounds, although late in the year juveniles were very abundant, which had been expected to result in a strong recruitment of two- and three-year-old pilchards in 1999.

There is anecdotal evidence that the stock of pilchards off Fremantle moved away from the regular fishing grounds in late 1997 and that the more tropical scaly mackerel (*Sardinella lemuru*) largely replaced pilchards as the dominant sardine in the metropolitan region of the fishery. The decline in the pilchard catch which continued into 1998 may, therefore, have resulted from decreased availability to the fleet rather than sudden changes in stock size. However, there is no quantitative evidence for this assumption.

A review of the scientific advice provided by Fisheries WA was conducted in April 1999 by Dr Kevern Cochrane of the Food and Agriculture Organisation. The outcome of the review was that the stock assessment methods being used are appropriate. With specific reference to the west coast fishery, it was clear that the plankton-based surveys need to extend farther offshore to ensure that the whole of the spawning area is sampled.

Although a plankton-based survey of the spawning biomass was conducted in 1998, the mass mortality in early 1999 renders this biomass estimate invalid and a post-mortality survey is planned for July–August 1999.

Breeding Stock Levels

See Stock Assessment.

Catch Projection for Year 1999

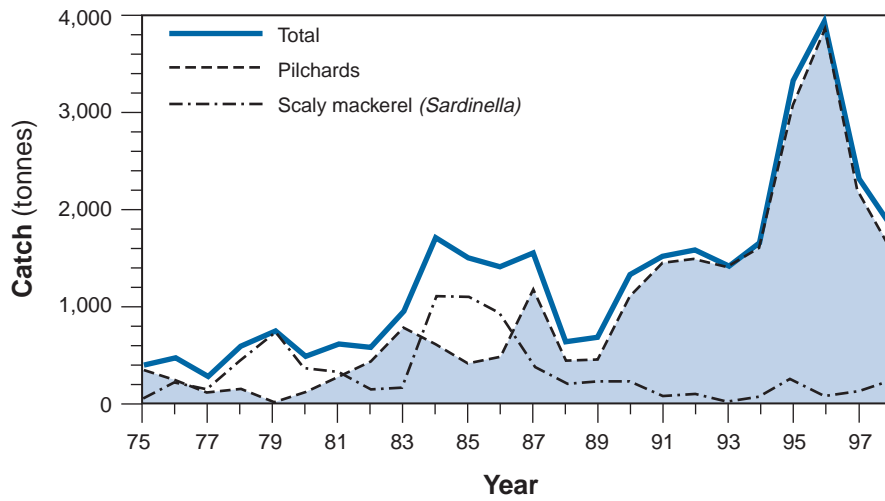
As a result of the unknown level of reduction in stock size due to the mass mortality in early 1999, a catch projection cannot be made.

Product Value for Year 1998

The majority of the product is still processed for angling bait, pet food and tuna food, although increasing amounts are now processed for human consumption. Total catch value for 1998 was approximately \$1 million.

General Comments

A TAC of 3,000 tonnes (15% of the then spawning biomass of 20,000 tonnes) was proposed for this fishery in 1997 but was not implemented, and a management plan for this fishery has yet to be finalised. Less than 2,500 tonnes were caught in 1997, and less than 2,000 tonnes in 1998 in the absence of any quota restrictions, indicating that the stock size was smaller than estimated or that the stock had moved out of the normal searching range of the fishery. The reduction in stock size due to the mass mortality in 1999 is unknown. The biomass survey in 1999 will extend much farther offshore than previous surveys, taking into account any offshore shift in pilchard distribution. The post-mortality biomass estimate from this survey will be used to advise on appropriate TACs for the west coast fishery for the year 2000.



West Coast Purse Seine Figure 1 Annual catch of pilchards and scaly mackerel along the lower west coast.

Northern Demersal Scalefish Interim Managed Fishery

MANAGEMENT OVERVIEW

The Northern Demersal Scalefish Interim Managed Fishery (NDSIMF) was established on 1 January 1998. The boats with access to this fishery previously operated within the Kimberley Trap Fishery and the Kimberley Demersal Line Interim Managed Fishery. Several applicants seeking authorisation to operate within this fishery are involved in an independent tribunal process, which will determine their future access.

Both the trap and line sectors target demersal scalefish. The management methods for this fishery presently include a limited number of vessels, gear restrictions, size limits for some species and unitisation of time access.

This fishery was established by the Minister following a report from a working group set up in August 1995 to develop recommendations on long-term management arrangements for the Northern Demersal Scalefish Interim Managed Fishery.

In April 1998, the Minister appointed a Management Advisory Committee (MAC) for the fishery.

It is anticipated that the fishery will move to fully managed fishery status on 1 January 2000 at the cessation of the interim management arrangements.

The permit holders, the MAC and Fisheries WA are currently preparing a draft management plan for the Minister's consideration.

COMPLIANCE AND COMMUNITY EDUCATION OVERVIEW

The vessels in this fishery are based mainly at Broome, with some operating from Darwin at certain times of the year. During 1998/99 seven boats, utilising varying access entitlements, participated in the fishery. The fishery is under interim management arrangements and is managed mainly under time, gear and area restrictions.

The Vessel Monitoring System (VMS) is the major compliance tool used in this fishery, and compliance largely centres on the use of this system to manage individual fishing units' access time. Patrols were conducted to inspect catch during jetty unloads and at local processing establishments. Gear inspections were conducted during at-sea patrols using the joint agency patrol vessel *Walcott*.

RESEARCH OVERVIEW

A major research project is under way to assess the status of the major stocks which contribute to this fishery. This project will continue to the end of the year 1999/2000 and will provide the basis for setting long-term effort levels to maintain catches.