Australian Herring Fishery

Management Overview

The majority of the commercial catch of herring *(Arripis georgianus)* is taken using herring trap nets (also known as 'G' trap nets) from south coast beaches. A relatively small quantity of herring are taken by beach seine and set net.

Fish traps are only permitted to be used by specific endorsement on specifically assigned south coast beaches for a specified period (10 February to 25 March each year). Herring caught in Cockburn Sound are managed under the Cockburn Sound (Fish Net) Managed Fishery. Apart from these restrictions, herring may be commercially caught by beach seine and set net by a licensed commercial fisherman holding an unrestricted fishing boat licence.

Herring is also a very important recreational fishing resource. In recognition of this, the South Coast Herring Fishery Voluntary Fisheries Adjustment Scheme has been introduced for the period February 1998 to 30 June 2000. In this process, fishermen are able to offer the surrender of their herring trap endorsement to the scheme and be compensated by a negotiated amount. Four herring trap endorsements were surrendered by this process in the year 1998/99.

Management issues and Ministerial advice relating to the herring fisheries are discussed at meetings of the Australian Salmon and Herring Industry Advisory Committee.

Compliance and Community Education Overview

The Australian herring fishery involves teams operating from nominated beaches and is mainly a continuation of each team's salmon fishing operation, with only two teams not being involved in the salmon fishery.

Compliance concentrates on the period of time for which nets may be set. There were no compliance problems encountered, with all fishers abiding by the season and time closures. No conflict was reported or investigated in this fishery during 1998-99.

Investigations were carried out into the alleged dumping of herring. Whilst not illegal, this practice is undesirable and was considered worthy of investigation, but no proof of dumping was identified.

A major herring research project led by Fisheries WA's Research Division, with support from compliance officers, commercial and recreational fishers and the community, concluded in June 1999. The cooperative fieldwork activities associated with this project continued to provide a better understanding of the roles of each group, as well as an excellent opportunity for community education on the importance of the fishery to both commercial and recreational fishers.

Research Overview

The annual assessment of the status of the herring stock has historically been undertaken utilising primarily CAESS data supplied by industry. As a result of a major downturn in herring catches during the early 1990s, a national research project funded by FRDC commenced in 1996/97 and is to be completed in June 1999. This project, involving Fisheries WA, the South Australian Research and Development Institute and Murdoch University, is providing more detailed data for future stock management.

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

Stock Status Report

Main Features

Stock assessment complete:
No

Exploitation status:
Fully exploited

Breeding stock levels:
Adequate

Previous catch projections for year 1998:

South coast only	*520-1,550 tonnes*

Catch current season (1998):

South coast only	*651 tonnes*
Total WA	*748 tonnes*

Estimated annual value (to fishers) for year 1998:

South coast only	*$247,000*

Catch projection next year (1999):

South coast only	*430-1,220 tonnes*

Recreational component (1998):
Although the recreational catch is not part of this fishery, some catch and effort data are available. There is no information for 1998; however, a recreational fishing survey of shore anglers was conducted during 1994 and 1995. Data for the range of catches of Australian herring over the two years are presented below.

West coast	*51-65% of combined recreational/commercial catch*
South coast	*5-9% of combined recreational/commercial catch*
South-east coast	*86-92% of combined recreational/commercial catch*

Boundaries and Access

All licensed commercial fishers are permitted to take Australian herring in any Western Australian open fishing waters. However, there are only 17 licensees (most are also Australian salmon fishers) permitted to take herring by means of a 'G' trap net set on 16 nominated south coast beaches during a short six-week season each year.

Annual Production

Main fishing method

Trap ('G') net and beach seine.

Landings

During 1998, the south coast Australian herring catch to the end of May (end of the trap net fishing season) was 628 tonnes (CAESS data). This is 300 tonnes less than the 1997 catch to that date. The annual south coast catch was 651 tonnes, which comprises 87% of the State total catch. Similarly the total State production has declined by over 200 tonnes between 1998 and 1997 (Herring Figure 1).

Fishing effort

There are 17 south coast fishing teams with access to the trap net fishery.

Catch rate

The average annual catch per south coast fishing team during 1998 was 38.3 tonnes.

Stock Assessment

A stock assessment is currently being prepared.

Breeding Stock Levels

As is the case with Australian salmon, virtually the entire commercial catch consists of mature individuals and peak seasonal catches are taken during the annual spawning migration. Increasingly, evidence suggests that the influence of factors other than fishing, i.e. environmental factors such as the Leeuwin Current, may be partly responsible for fluctuations in the catch and breeding stock levels. Further investigation is required.

Catch Projection for Year 1999

The catch prediction for the south coast fishery for 1999 is 430-1,220 tonnes. This projection is derived by double exponential smoothed forecasting of the past annual catches and the variation of observations around the predictions.

Product Value for Year 1998

The landed value of the south coast herring catch for 1998 is approximately $247,000.

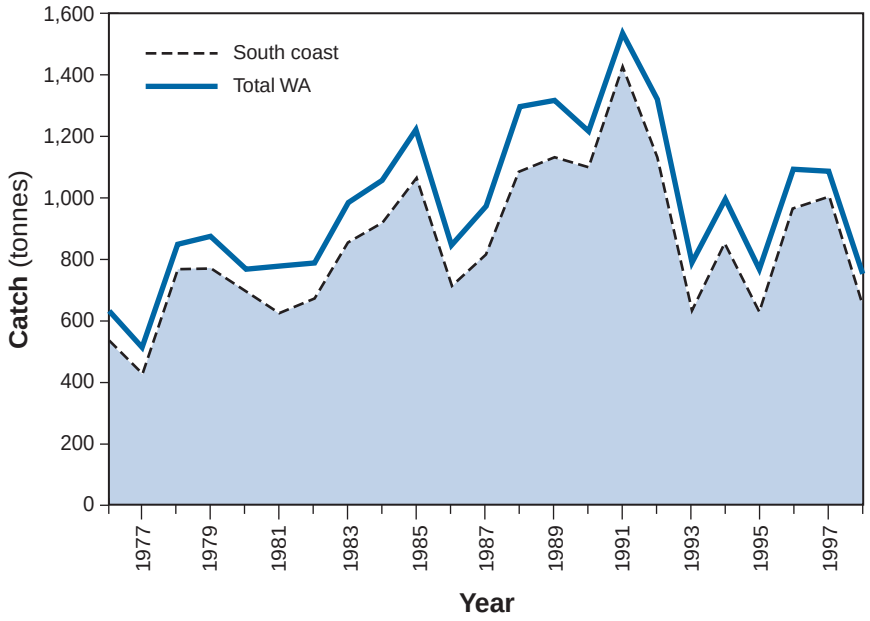
Historically, the major market for Australian herring was the western rock lobster fishery, with a small proportion sold for human consumption. The practice of using imported North Sea herring as rock lobster bait has been introduced in recent years, with varying proportions of local and imported herring species being used each year. In the 1997/98 rock lobster season, one bait supplier stated that the industry was using approximately 83% North Sea herring, with 17% being Australian herring.

General Comments

The trend over the decade to 1990/91 was towards increasing commercial catches of this species. As is the case with salmon, a proportion of the resource is recruited from South Australian nursery areas. Although this proportion has not yet been accurately assessed, it is thought that on a year-to-year basis, 'local' recruitment is far more important to the herring resource than it is for salmon. This is likely to be particularly true for the west coast sector of the resource, where it is believed that protected marine habitats, such as Geographe Bay, have now been shown to be substantial nursery areas and can be a source of significant recruitment. Indeed, historical catch records indicate clearly that the size of the west coast catch is unrelated to the size of the south coast catch, which is consistent with the above view. Correlation coefficient of 0.38 was found between the south and west coast catches using catch data between 1976 and 1998.

Over the first half of the 1990s there was a marked decline in the overall catch of this species by the commercial sector (Herring Figure 1). The lower catches experienced during this period may well be related to the impact of the long-running El Niño/ Southern Oscillation event (ENSO) from 1991 to 1994. This unusual event, which influenced oceanographic conditions along the Western Australian coast, may have affected the timing of the migratory spawning run, making fish less vulnerable to capture during the limited fishing season. Alternatively, the extremely weak Leeuwin Current may have adversely affected survival of juvenile stages of the herring, thus reducing recruitment to the fishery in subsequent years. Increases in the south coast catches from 1995 to 1997 may have resulted from a return of the strong Leeuwin Current. The 1998 reported total catch has decreased to 1995 levels. The lower catches may have resulted from climatic considerations or a reduced market demand for Australian herring as rock lobster bait.

An FRDC-funded research project is investigating both the basic biology of this species and factors influencing recruitment to the fishery. The agency's Fisheries Research Division is undertaking this project in collaboration with Murdoch University and the South Australian Research and Development Institute. The results from this research should be available for next year's report.



Herring Figure 1 Catches of Australian herring from the south coast and the total Western Australian catch for the period 1976 to 1998.

Lake Argyle Freshwater Catfish Fishery

Management Overview

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 which falls during the wet season breeding period of November and December.

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.

Compliance and Community Education Overview

Officers stationed in the East Kimberley region together with officers on patrol from Broome monitor this catfish fishery.

No compliance problems were encountered, however compliance for this fishery remains a low priority.

Research Overview

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