

# Western Australian Salmon Fisheries

## Management Summary

The western Australian salmon (*Arripis truttaceus*) is taken primarily during its annual east-to-west migration, usually between February and May each year. Fishing operations are conducted by teams of fishers setting beach seine nets using small jet-powered boats.

There are two managed salmon fisheries:

- The South Coast Salmon Managed Fishery permits authorisation holders to operate from assigned beaches between Shoal Cape and Cape Beaufort.
- The South West Coast Salmon Managed Fishery operates north of Cape Beaufort. Fishermen can operate from any beach in this zone, and share the use of beaches under priority of netting rules specified in the Regulations.

Industry members are being encouraged to investigate ways of improving fish handling and value-adding techniques to improve their profit margin. As salmon is considered a prime recreational species, resource-sharing issues are likely to be a major consideration in future management of these fisheries.

A draft application has been submitted for the fishery as part of Environment Australia's ecological sustainability reporting process under the *Environment Protection and Biodiversity Conservation Act 1999*. A final application is being developed which will be submitted to EA in 2004.

### Governing Legislation/Fishing Authority

South Coast

South Coast Salmon Fishery Management Plan 1982

South Coast Salmon Managed Fishery Licence

Proclaimed Fishing Zone Notice (South Coast) 1975

South West Coast

South West Coast Salmon Fishery Management Plan 1982

South West Coast Salmon Managed Fishery Licence

Proclaimed Fishing Zone Notice (South West Coast) 1975

### Consultation Process

Australian Salmon and Herring Industry Advisory Committee  
Department–industry meetings

## Research Summary

The main information used to monitor this important commercial and recreational stock is from the analysis of the commercial CAES data in conjunction with the substantial level of historical biological research available.

Presently, a juvenile index of recruitment for Australian salmon in Western Australian waters is being developed as part of an FRDC-funded project. This index of recruitment and the potential link to subsequent levels of catch will be completed by late 2003. Time-series analysis of the historic Australian salmon commercial catches to predict future commercial

catches is also being investigated through a separate FDRC-funded project also due to be completed by the end of 2003. These two projects will be using different methods to assist in predicting future commercial Australian salmon catches.

A comprehensive ESD report has been completed for these fisheries which formed the basis for the application to meet the requirements of the Commonwealth's EPBC legislation.

## Western Australian Salmon Fisheries Status Report

Prepared by S. Ayvazian and G. Nowara

### FISHERY DESCRIPTION

#### Boundaries and access

As at May 2002, each of 18 licensed teams had access to a nominated beach in the South Coast Salmon Managed Fishery, the boundaries of which are 'Western Australian waters below high water mark from Cape Beaufort to the waters up to the eastern boundary of the State on the south coast of Western Australia'. There are no legislated net length or mesh size restrictions for the south coast fishers. A further 12 licensees collectively had access to beaches in the South West Coast Salmon Managed Fishery, the boundaries of which are 'Western Australian waters from the eastern boundary of the State on the north coast of Western Australia to Cape Beaufort on the south-west coast of Western Australia'. An additional three licensees have access to the west coast sector north of Busselton Jetty to Tim's Thicket, via a condition on their fishing boat licence. These licensed fishers are the only ones with authority to land and sell Australian salmon in Western Australia.

#### Main fishing method

Beach seine.

### RETAINED SPECIES

**Commercial production (season 2002): 2,623 tonnes**

#### Landings

The total State catch for the 2002 season was 2,623 t, which was about 200 t more than the previous year (Salmon Figure 1).

The 2002 south coast commercial catch of Australian salmon was 1,995 t, very similar to 2001. Once again, almost the entire catch was taken between February and May, which coincides with the time of the spawning run along the south coast, and there was only a negligible 'back run' (June–December) catch.

The south coast catch was taken from the designated salmon beaches, with a minor catch component from the estuaries. The highest proportion of the catch (1,211 t or 61%) was taken from the western sector of the fishery (west of Albany to Windy Harbour), with 580 t (29%) from the central region (east of Albany to Cape Riche). The smallest proportion (205 t or 10%) was again taken from the eastern sector of the fishery (from Cape Riche eastwards).

# SOUTH COAST BIOREGION

The south-west and west coast catch for 2002 totalled 627.5 t, nearly twice the low catch reported in 2001.

## Fishing effort

There are 18 south coast and 15 south-west and west coast fishing teams (three with access only from north of Busselton Jetty to Tim's Thicket). This is the same number that operated last year. Their methods of operation preclude a more precise calculation of effective fishing effort.

## Catch rate

During 2002, the average catch per fishing team was 110.9 t for the south coast (down from 114.8 in 2001) and 41.8 t for the west coast (up from 21.7 in 2001).

## Recreational component: **6% (approx.)**

The most recent surveys, conducted in 1994 and 1995 (Ayvazian et al. 1997), indicated that the recreational catch share was about 6% of the total south coast catch and 8–16% of the west coast catch. Given the slightly increased commercial catch in 2002, it is likely that there would have also been an improved recreational catch for the year.

## Stock assessment completed: **Yes**

The results from preliminary yield-per-recruit and egg-per-recruit analyses were presented in the *State of the Fisheries Report 1999/2000*. Noting that the commercial fishing effort in the major part of the fishery on the south coast is fixed, the higher levels of catch since the mid-1990s indicate that the overall abundance of the stock is being maintained. The movement of more spawning-run fish from the south coast to the west coast indicates the influence of the environment rather than a higher stock level.

## Exploitation status: **Fully exploited**

## Breeding stock levels: **Adequate**

Current commercial catches indicate that the breeding stock is currently at an acceptable level. However, egg-per-recruit analysis indicates that the current exploitation level on the western Australian salmon population is high, owing to the 'gauntlet' nature of the fishery, which catches migrating schools of salmon as they pass each of the fishing beaches in turn. Any substantial increase in the catch from either commercial or recreational fishers, or significant reduction in recruitment due to unusual environmental effects, could take the stock below a limit biological reference point of 30% of virgin egg biomass.

## NON-RETAINED SPECIES

## Bycatch species impact: **Negligible**

The fishery uses beach seine nets to specifically target schooling salmon, primarily during the annual summer–autumn spawning migration. As a result of the fishing method, the design of the gear used and the way it is operated, the fishery captures minimal bycatch.

## Protected species interaction: **Negligible**

Seals or sea lions are occasionally surrounded by a beach

seine, but are released immediately by the fishers. This is possible because the seine netting operation is an active method of fishing involving fishers setting the net and immediately retrieving it. If any protected species are enclosed, they will be seen and the fishers are able to release them from the seine net soon after capture without injury.

## ECOSYSTEM EFFECTS

### Food chain effects: **Low**

As salmon are only one of a number of predatory species in the marine food chain of the lower west and south coasts, the fishery has minimal potential to reduce the mortality on prey species. Moreover, given the naturally occurring variability in Australian salmon biomass, any fishery effect is likely to be similar in magnitude to other factors contributing to the natural variation on prey species. Overall, the ecological impact of the fishery is assessed as low.

### Habitat effects: **Negligible**

No habitat impacts occur as the fishery operates seine nets only on sandy surf beaches.

## SOCIAL EFFECTS

The south coast fishery involved an average of 82 fishers and the south-west and west coast fishery involved an average of 38 fishers during the 2002 fishing season.

## ECONOMIC EFFECTS

### Estimated annual value (to fishers) for year (2002): **\$1.1 million**

The south coast catch in 2002 was received by five processors: Albany Bait Producers, Austral Fisheries, Bevans Fish Supplies, Bremer Fish Processors and Polar Group.

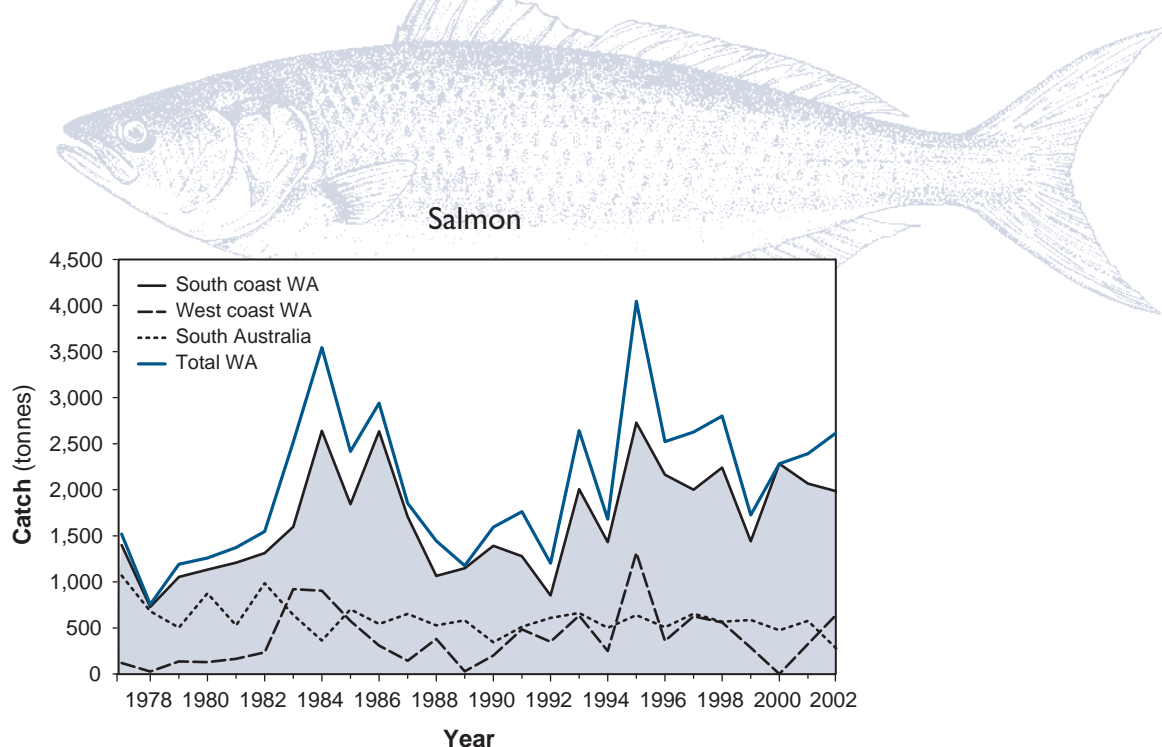
## FISHERY GOVERNANCE

### Acceptable catch range: **1,300–3,600 tonnes**

The expected catch range under the current management regime is 1,300–3,600 t (rounded to the nearest 50 t) of salmon. This projection is derived by double exponential smoothed forecasting of the 35 years of annual catches to 1998 and the variation of observations around the predictions. The confidence intervals have been set at 85%. Future annual catch values that fall outside of this range will be investigated. Where consecutive values occur outside of the range, changes to the management arrangements to protect the stock may need to be considered. The 2002 catch of 2,623 t fell well within the catch range.

## EXTERNAL FACTORS

The higher catches of Australian salmon along the west coast during 2002, compared to earlier years, are thought to be associated with the behaviour and strength of the southward-flowing Leeuwin Current, which was relatively weak during the autumn period of 2002. In this situation, coastal waters are cooler and the salmon typically migrate further up the west coast, becoming more vulnerable to the west coast recreational and commercial fisheries.



SALMON FIGURE 1

Australian salmon catches for South Australia and Western Australia for the period 1977 to 2002.

## Australian Herring Fishery

### Management Summary

The majority of the commercial catch of Australian herring (*Arripis georgianus*) is taken using herring trap nets (also known as 'G' trap nets) from south coast beaches. Many commercial participants within the herring fishery are also involved in the salmon fishery.

South coast herring trap fishers are individually assigned to particular beaches. There is a closed season (10 February to 25 March each year) which closely matches the peak salmon migration season along the south coast.

Herring may also be commercially caught by beach seine and set net by any licensed commercial fisher holding an unrestricted fishing boat licence, provided the use of this method is permitted in the particular area and the waters being fished are not subject to other fishery management arrangements.

As herring is considered a prime recreational species, resource-sharing issues are likely to be a major consideration in future management arrangements for this fishery.

#### **Governing Legislation/Fishing Authority**

Fisheries Notice no. 478 (Section 43 order)  
Condition 42 on a Fishing Boat Licence

#### **Consultation Process**

Department–industry meetings

### Research Summary

The annual assessment of the status of the herring stock has been undertaken utilising CAES data supplied by industry and detailed biological information from a national research project conducted between 1996 and 1999.

Currently an Australian herring stock assessment model has been developed using all available research data and CAES information from Western Australia and South Australia and is in the final stage of preparation. Additionally there are two FRDC projects which are nearing completion. The first is focused on the development of a juvenile index of recruitment for Australian herring, while the second is using time-series analysis of historic commercial catches. Both are due for completion by the end of 2003 and will assist in the accurate prediction of herring catches.

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

## Australian Herring Stock Status Report

Prepared by S. Ayyazian and G. Nowara

### FISHERY DESCRIPTION

#### **Boundaries and access**

During 2002 there were 10 licensees (most of whom are also Australian salmon fishers) permitted to take herring using 'G' trap nets set on nine nominated south coast beaches. On the west coast, the Cockburn Sound (Fish Net) Managed Fishery specifically fishes for Australian herring. In addition, small