

biological information and previous experience suggest that yabbies could pose a potentially serious threat as they reproduce at a younger age than marron, produce more eggs and can reproduce several times a year. Further, there is a possibility of yabbies spreading the disease *Thelohania* throughout the recreational marron fishery. Monitoring should continue and control measures should be considered in order to protect the marron fishery.

## Recreational Freshwater Angling

### MANAGEMENT OVERVIEW

A south-west freshwater angling licence was reintroduced in July 1992. A licence is required for all freshwater fishing (other than for crustaceans) in waters south of latitude 29° S. Juveniles under 16 years of age are not required to hold a freshwater angling licence.

Management controls include closed seasons and closed waters for trout spawning streams, bag and size limits and gear controls. These controls aim to protect juvenile fish and ensure the available catch is shared among anglers. The bag limit for trout is four, which is consistent with the community view of trout as a prized fish species, and also helps to distribute the stocked public resource to maximise community benefits.

A trout stocking committee, established in 1994 to maximise angler returns on fish available for stocking into public waterways, continued to operate successfully during 1998/99. The committee consists of agency officers including the Pemberton hatchery manager, and representatives from RFAC, the WA Trout and Freshwater Angling Association and the general freshwater angling public.

### COMPLIANCE AND COMMUNITY EDUCATION OVERVIEW

Compliance in this fishery was good in this period. The increased interest and participation in the fishery has continued, both by individual fishers and through dedicated fishing competitions organised by freshwater fishing organisations. This fishery is monitored by staff from the Bunbury, Busselton and Albany offices.

A number of VFLOs in the Bunbury area are members of freshwater angling and trout clubs or associations and are playing a key role in the education and awareness programs in place.

### RESEARCH OVERVIEW

Fisheries WA Research Division projects on trout involve the production and distribution of trout fry, yearlings and excess broodstock to public waters. In

addition, a number of research projects are currently being undertaken at the agency's Pemberton hatchery. Research is being undertaken to produce sterile trout with enhanced growth to provide superior angling fish. Further, comparison of the success of stocking fry versus stocking yearlings is being evaluated in several water bodies to reduce the predation rate of stocked fish, thus providing more angling opportunities. Genetic research into enhancing the quality of trout from the agency's hatchery facility is also under way comparing the tolerances of the hatchery strain, a small reproducing stock and hybrids of rainbow trout. Finally, rainbow trout yearlings have been allocated for trialling in inland saline waters, which may in future lead to additional recreational fishing opportunities. Research information from these projects, and the annual report from the manager of the Pemberton hatchery, have been used to compile the following status report.

### Fishery Status Report

#### Main Features

##### Catch current season (1998/99):

*Not assessed*

##### Participation rate for year 1998/99:

*11,906 licences (including 8,243 umbrella licences) issued for the 1998/99 season (as of April 1999), compared with 10,332 issued for the 1997/98 season*

##### Catch projection next year (1999/2000):

*Not available*

#### Boundaries and Access

The south-west inland fishing licence includes trout, red-fin perch and freshwater cobbler (but not marron). Waters with public access are limited to the major rivers and Government irrigation water supply dams. The only public rivers and dams that are stocked are those with a long history of trout stocking. Private waters, mainly large gully farm dams and waterlogged and salt-affected south coast areas, are also regularly stocked by private owners as part of the tourist put-and-take fishery. Rainbow trout yearlings are also being trialled for their potential in inland saline waters, for both aquaculture and recreational/tourist purposes.

#### Catch

##### Main fishing method

Angling with rod and line.

##### Landings

Not assessed. At present, there is no monitoring of the success or effort of this recreational fishery. However, a survey and logbook project are planned for 1999/2000.

**Fishing effort**

Not assessed. However, while no specific measures of effort are available, it can be assumed the increase in valid licences issued (up 15% from the 1997/98 season) reflects at least the expectation by anglers that more people would consider freshwater angling during the year.

**Catch rate**

Not assessed.

**Stock Assessment**

Rainbow and brown trout are produced in the Pemberton hatchery and stocked into public waters as breeding in south-west dams and rivers by trout is negligible. A total of 255,000 rainbow trout fry and 50,000 brown trout fry from the hatchery were stocked into public waters during 1998. In addition, 81,000 rainbow trout fry were sold to private dam owners for tourist fishing and private club fishing. Older fish were also produced and sold from the Pemberton hatchery in 1998. Approximately 10,000 rainbow trout yearlings and 3,000 brown trout yearlings were sold during the year, while a quantity of rainbow trout broodstock entering their second and third years of life (770 and 790 fish respectively) were sold from the hatchery or stocked for the recreational fishery.

**Breeding Stock Levels**

To maintain the trout stock for recreational fishing, hatchery releases are required in most waters as there is very little natural breeding due to high summer temperatures and limited suitable spawning areas. Native cobbler are self-sustaining. Introduced red-fin perch breed and grow rapidly but tend to over-populate waterways and stunt within a few years. Stocks of red-fin appear to be spreading due to deliberate unsanctioned releases in waterways that were previously free of the species. The apparent increase in the range of red-fin may impinge on the breeding success of native species including marron and could reduce the survival of trout fry.

**Catch Projection for Year 1998/99**

Not available.

**General Comments**

The stocking of trout in public waters throughout the south-west supports a significant and growing recreational sport fishery which adds substantially to the region's tourism value. Similarly, private stocking of privately owned dams in the south-west supports a specialist tourist sector by providing quality pay-fishing opportunities. The installation of eight cooling towers at the Pemberton hatchery has recently been completed and will ensure the availability of fry in the

future by reducing the mortality of broodstock due to high water temperatures during summer.

Stocking programs may also be influenced in the future by a translocation evaluation of the environmental impact of trout stocking, initiated in 1997/98. This translocation review document, now being finalised, concludes that trout are much less of a threat to remaining populations of south-west native fish than red-fin perch. Stocking success with trout is also thought to be affected by the distribution and spread of red-fin perch as these fish prey directly on young trout. Trials are also planned to determine whether the stocking of yearling trout is a more cost-effective measure than stocking fry owing to the reduction in predation by red-fin. In addition, carp are being occasionally reported from the fishery, probably through escapes of ornamental fish. Carp could pose another threat to the quality of freshwater angling and fish habitats in the south-west.

A survey and logbook has been designed to assess the scope, size and success of recreational freshwater fishing in the south-west. The implementation of the survey will depend on funding availability. Further information will also be compiled from fishing club logbooks and direct monitoring techniques.

## Inner Shark Bay Recreational Fishery

**MANAGEMENT OVERVIEW**

The stocks of pink snapper in the eastern and western gulfs of Shark Bay are genetically separate from each other and from the wide-ranging ocean stock. The stocks do not interbreed or 'top up' one another through migration. This makes them especially vulnerable to over-fishing.

Ongoing research has shown that the pink snapper stocks had been severely depleted in the eastern gulf and all available information indicated a very high risk of stock collapse. Following extensive public consultation, the following management objectives for pink snapper were agreed with stakeholders for the eastern gulf:

- to stabilise the fishery at current levels;
- to rebuild the breeding stock of pink snapper to 100 tonnes.

New management arrangements were introduced in the eastern gulf in June 1998 in response to serious concerns over the depletion of pink snapper stock. These included:

- a three-year ban on the take of pink snapper;
- a mixed bag and landing limit of five fish implemented to protect other species (black snapper, cod, groper) from a possible transfer of effort and subsequent over-fishing.