

Pearling and Aquaculture

Southern Inland Bioregion

Regional Management Overview

The southern inland bioregion is dominated by production of yabbies, marron and freshwater finfish. Management and licensing arrangements have not changed significantly over the past year.

Trout ova and fry from the South West Freshwater Research and Aquaculture Centre (SWFRAC) at Pemberton were sold to freshwater trout farmers, and yearlings were sold to growers using inland saline waters.

The production of freshwater and marine ornamental fish species is a small but rapidly growing sector of the aquaculture industry in Western Australia. Improved extension material highlighting the opportunity for these species as candidates for aquaculture is available.

Southern Inland Aquaculture Figure 1 shows the extent of sites in this bioregion.

Regional Compliance/ Extension Overview

Aquaculture Development Officers stationed at Albany and Narrogin provide an extension service to farmers as well as providing displays and information at country shows and workshops. For 2000/2001 there was a particular focus on the production of trout, marron and

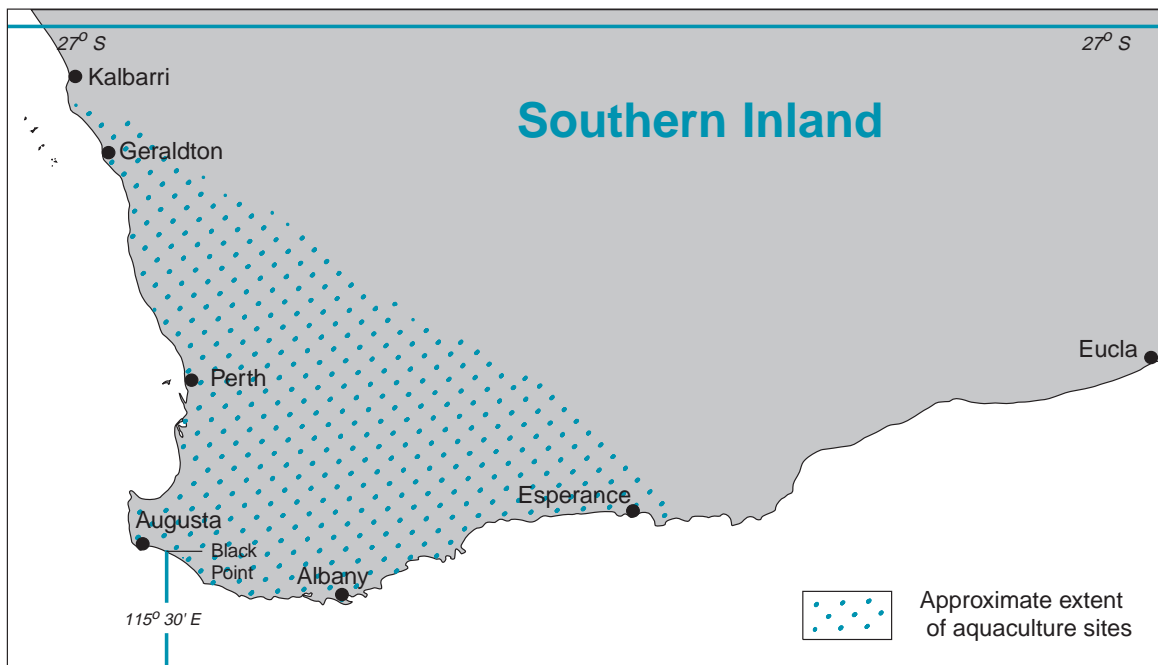
yabbies, with extensive resources being directed to providing development and extension assistance to farmers.

The south-west freshwater aquaculture industries are monitored by Fisheries Officers based in Esperance, Albany, Bunbury, Mandurah and Fremantle to ensure continuation of a high level of awareness of, and compliance with, management rules. Officers conducted site inspections to ensure compliance with licence conditions and site marking requirements. They were also involved in supervising the sampling of waters and shellfish and the monitoring of harvesting closures as part of the WA Shellfish Quality Assurance Program. One prosecution brief was submitted for the sale of yabbies without an aquaculture licence.

Regional Research Overview

Research activities have focused on work to assist marron, yabby and rainbow trout farming industries and to produce yearling trout at the SWFRAC for inland saline farming trials throughout the region. Research staff based at Perth and Pemberton provided advice to many farmers, particularly through workshops. Research staff in these locations also taught a five-month full-time course for potential marron and trout farm managers.

Research facilities have been greatly expanded to help improve the profitability of marron farming through genetic and pond management and by treating discharge water for reuse, particularly in summer. Model ponds and



SOUTHERN INLAND AQUACULTURE FIGURE 1

Map showing the major licensed aquaculture sites in the southern inland bioregion.

aquaria have been established at a joint facility with the University of WA at Shenton Park (with additional funding from ADF, FRDC and industry), while a pond complex has been built at the SWFRAC (with additional funding from the Commonwealth Regional Assistance program, South West Development Commission and the Department of Training).

Analysis of harvest data from 40 commercial marron ponds was progressed. Quantitative analysis of the factors influencing production strongly supported agency extension advice on increasing feed rates and providing paddle-wheel aeration, refuges and bird protection. The quality of the water supply was less influential. A major feed trial with industry has indicated that feed quality is not the limiting factor even during the second year of the growout phase. A summer harvesting trial with industry was very encouraging for improving continuity of supply for live export markets.

Yabby research supported by the FRDC and the ADF has shown that hybrid Australian yabbies grew twice as fast as existing commercial yabbies under pond conditions. Very cost-effective procedures for providing feed and managing competition for food in dams were developed. About 20 yabby farmers participated in a logbook program which demonstrated substantial regional variation in production.

Upgrading of production facilities at the SWFRAC allowed production of about 50,000 yearling rainbow trout for farmer assessment of production in saline ponds or dams. Dry conditions have depressed demand in 2001, but trials, including marketing initiatives, are being continued with assistance from the Development and Better Interest Fund. Research trials in sea cages confirmed that selective breeding at SWFRAC over many years has produced a very fast-growing strain of rainbow trout.

Marron Farming

Marron Farming Status Report

Prepared by G. Maguire

INDUSTRY DESCRIPTION

Production areas

Licensed purpose-built farms extend from Esperance to Hutt River north of Geraldton, though the bulk of farms are concentrated in the higher-rainfall south-west coastal areas.

Two types of marron licence are available:

- An Aquaculture Licence (Marron) allows the holder to sell marron of any size to any person. Applicants must demonstrate that they own or occupy private property with a minimum of 2,500 m² of impounded water available for marron aquaculture purposes.
- An Aquaculture Licence (Marron Limited) allows the licence holder to sell marron of 76 mm or greater to the holder of a Fish Processor's Licence or an Aquaculture Licence (Marron).

Production methods

Semi-intensive farming in purpose-built earthen ponds; extensive farming in gully dams.

AQUACULTURE PRODUCTION

Production current season (1999/2000): 42 tonnes

Number of producers for year 1999/2000: 139

**Production projection next year (2000/2001):
50–60 tonnes**

ECOSYSTEM EFFECTS

Low risk because there is relatively little water discharged from marron farms. Fisheries WA recommends use of settlement and reed ponds to improve the quality of this discharge for reuse on the farm. A demonstration facility including settlement and reed ponds has been constructed at the SWFRAC.

SOCIAL EFFECTS

Diversification of farm usage away from other, sometimes unprofitable, agricultural uses. The industry involves a large number of family-based farms.

ECONOMIC EFFECTS

**Estimated annual value (to producers) for year
1999/2000: Nearly \$1 million**

INDUSTRY GOVERNANCE

Licence approvals are required.

EXTERNAL FACTORS

A significant number of new purpose-built marron farms have been developed during 1999/2000, and other existing farms have constructed more ponds. This should progressively contribute to expansion in State production. Development of a new farm to full production usually requires around three years and for most farms production is influenced by rainfall.



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Yabby Farming

Yabby Farming Status Report

Prepared by G. Maguire

INDUSTRY DESCRIPTION

Production areas

Yabbies are an introduced species and so for translocation reasons, the licensed commercial yabby farming industry is restricted to the drier inland developed agricultural area of the south-west, to the north of Perth and to the east of Albany. Agricultural farms may sell yabbies without a licence to licensed farmers/processors.

Production method

Harvesting of farm dams by baited traps.

AQUACULTURE PRODUCTION

Production current season (1999/2000): 211 tonnes

Number of producers for year 1999/2000: 27

(This number refers to licensed farmers or processors. Note most farmers do not require licences.)

**Production projection next year (2000/2001):
180–220 tonnes**

ECOSYSTEM EFFECTS

Low risk because negligible amounts of water are discharged from farm dams, whose primary purpose is the provision of water for stock. As the yabby farming industry is located away from the marron zone, it poses little threat to marron fisheries, which are more at risk from landholders within the marron zone stocking yabbies in dams on a non-commercial basis.

SOCIAL EFFECTS

Yabby farming is a female-dominated industry which provides direct income to a large number of families in the wheatbelt.

ECONOMIC EFFECTS

**Estimated annual value (to producers) for year
1999/2000: \$2.78 million**

The value has increased in part because of the reporting, for the first time, of wholesale value rather than farm gate value. Other factors are higher production, particularly with more winter harvesting, and emphasis on producing larger, more valuable yabbies.

INDUSTRY GOVERNANCE

Licence approvals are required. Commercial yabby farming is only permitted to the east of the 'yabby boundary' and north of Perth.

EXTERNAL FACTORS

Stocks recovered, from drought-induced low yields, after the above-average rainfall of 1996. The strategic plan for development aims at increasing farmer participation and increasing the low or inconsistent production of many dams.

The discovery of the parasite *Thelohania* in a variety of farms was a major setback in 1998/99 although it posed no threat to consumers. Production data for the first six months of 2000/2001 indicate that the industry has recovered well from this setback. Prospects for the industry are very good as research results (e.g. monosex growout, improved feeding regimes and regular, more effective trapping) are adopted by industry, although production depends greatly on rainfall.

Trout Farming

Trout Farming Status Report

Prepared by G. Maguire

INDUSTRY DESCRIPTION

Production areas

Intensive trout culture is confined to the lower south-west by summer water temperatures and limited by the need for a large through-put volume of water. Potential exists to expand production by the utilisation of irrigation dam water in transit to agricultural farms on the south-west coastal plain. In addition, farmers with saline underground water are evaluating the performance of rainbow trout, stocked as yearlings and grown out in dams during cooler months.

Production methods

Highly intensive pond culture for food and extensive farming in large gully dams stocked for pay fishing. Low-intensity purpose-built ponds are being constructed by inland saline farmers.

AQUACULTURE PRODUCTION

**Production current season (1999/2000):
Not reportable**

Where fewer than five producers are involved in a particular industry, the data are subject to the confidentiality provisions of the *Fish Resources Management Act 1994* and are not reported. However, the trout production forms a significant part of a statewide freshwater finfish farming industry of 55 tonnes.

Number of producers for year 1999/2000: 4

Production projection next year (2000/2001):
Not reportable

ECOSYSTEM EFFECTS

Trout farming is considered to present a low to medium risk to the environment. Farms producing more than one tonne require discharge licensing including monitoring of water quality. Fisheries WA recommends use of swirl separators to improve the quality of this discharge prior to release or reuse. A demonstration facility, including a swirl separator, settlement pond and reed pond for stripping nutrients, has been constructed at the SWFRAC. Inland saline trials usually involve little discharge and farms developed in the future to utilise high flow rates of pumped underground saline water can use swirl separators to improve water quality prior to enacting current discharge patterns.

A translocation review is largely completed, particularly for direct stocking of trout into public fisheries. Trout farms pose a low risk to public waterways as inadvertent release from land-based farms is low and there are few localities in Western Australia where escapees could reproduce.

SOCIAL EFFECTS

Recreational trout fishing is a significant contributor to the tourism industry in the south-west region. Inland saline trout production may have potential for improving returns from salt-affected land, but production is still highly dependent on rainfall.

ECONOMIC EFFECTS

Estimated annual value (to producers) for year 1999/2000:
Not reportable

INDUSTRY GOVERNANCE

A licence must be issued. Translocation approval can also be a requirement.

EXTERNAL FACTORS

The SWFRAC trout hatchery provides support for the commercial trout farming industry as a by-product of producing trout fry for recreational stocking programs. Fry are also supplied to private buyers who stock private dams within tourist complexes. Trout sold via tourist fishing ventures do not appear within the commercial production records, although they add significant commercial benefits to that sector and the regional economy. There is a trend for major trout producers to move towards tourist fishing ventures, effectively ‘adding value’ to the trout grown in these systems. While there is no reliable method of estimating the value of this sector, its tourism value within the south-west may be similar to that of the trout grown for the general fish market trade. Inland saline farming trials based on growing yearling rainbow trout to table size have been promising and may help the industry recover to earlier production peaks (more than 40 tonnes per year), but production still is rainfall-dependent.

Ornamental Fish Farming

Ornamental Fish Farming Status Report

Prepared by G. Maguire

INDUSTRY DESCRIPTION

Production areas

Statewide.

Production methods

Dedicated small ponds and aquaria; breeding and rearing of juveniles for live sales.

AQUACULTURE PRODUCTION

Production current season (1999/2000): 126,000 fish

Number of producers for year 1999/2000: 32

Production projection next year (2000/2001):
200,000–300,000 fish

ECOSYSTEM EFFECTS

Low environmental risk because there is relatively little water discharged from ornamental fish farms. Operators are required to ensure that stock does not escape into natural waterways.

ECONOMIC EFFECTS

Estimated annual value (to producers) for year 1999/2000:
 \$170,000

INDUSTRY GOVERNANCE

Licence approvals need to be obtained.

EXTERNAL FACTORS

Commercial production recorded for 1999/2000 indicated considerable volatility in production for major aquarium fish groups.



