

WEST COAST FISHING TOURS TABLE I

Estimated catch of major finfish species reported by tour operators for 2002 and 2003.

SPECIES		ESTIMATED CATCH (tonnes) 2002	ESTIMATED CATCH (tonnes) 2003
Pink snapper	<i>Pagrus auratus</i>	14	20
Skipjack trevally	<i>Pseudocaranx dentex</i>	6	5
Dhufish	<i>Glaucosoma hebraicum</i>	25	23
Breaksea cod	<i>Epinephelides armatus</i>	5	4
Baldchin groper	<i>Choerodon rubescens</i>	7	8
Queen snapper	<i>Nemadactylus valenciennesi</i>	11	10
Samson fish	<i>Seriola hippos</i>	18	15
Sweetlip emperor	<i>Lethrinus miniatus</i>	2	5
Other finfish		25	25
Total		113	115

AQUACULTURE

Regional Research and Development Overview

Aquaculture production statistics are compiled at the WA Marine Research Laboratories in Perth by S. How and C. Lawrence. These show encouraging trends, with the value of aquaculture (revised) increasing by 11.3% and aquaculture tonnage increasing by 22.9% in 2002/03 compared to equivalent data for 2001/02 (excluding marine algae and all pearl oysters). While such precise data are not available for the aquaculture feeds industry, it is clear that the industry worldwide is using much more lupin kernel meal and Western Australia, as the major lupin producer in a world context, is developing a very significant industry as an ingredients supplier for domestic and export use.

Key matters for the Department in 2003/04 included addressing policy and environmental scoping issues in relation to a yellowfin tuna (*Thunnus albacares*) farm proposed for this bioregion. In addition, given encouraging experimental results from rock lobster (*Panulirus cygnus*) farming trials (see below), it was important to contribute policy perspectives that led to Ministerial Policy Guideline no. 20, 'Assessment of applications for authorisations with regards to rock lobster aquaculture'.

Another major activity involved developments in the ongoing management of environmental and safety issues associated with mussel (*Mytilus edulis*) leases. Examples include appropriate navigational lighting and the Western Australian Shellfish Quality Assurance Program, which ensures that mussels are only harvested when water quality is appropriate for safe consumption of the product.

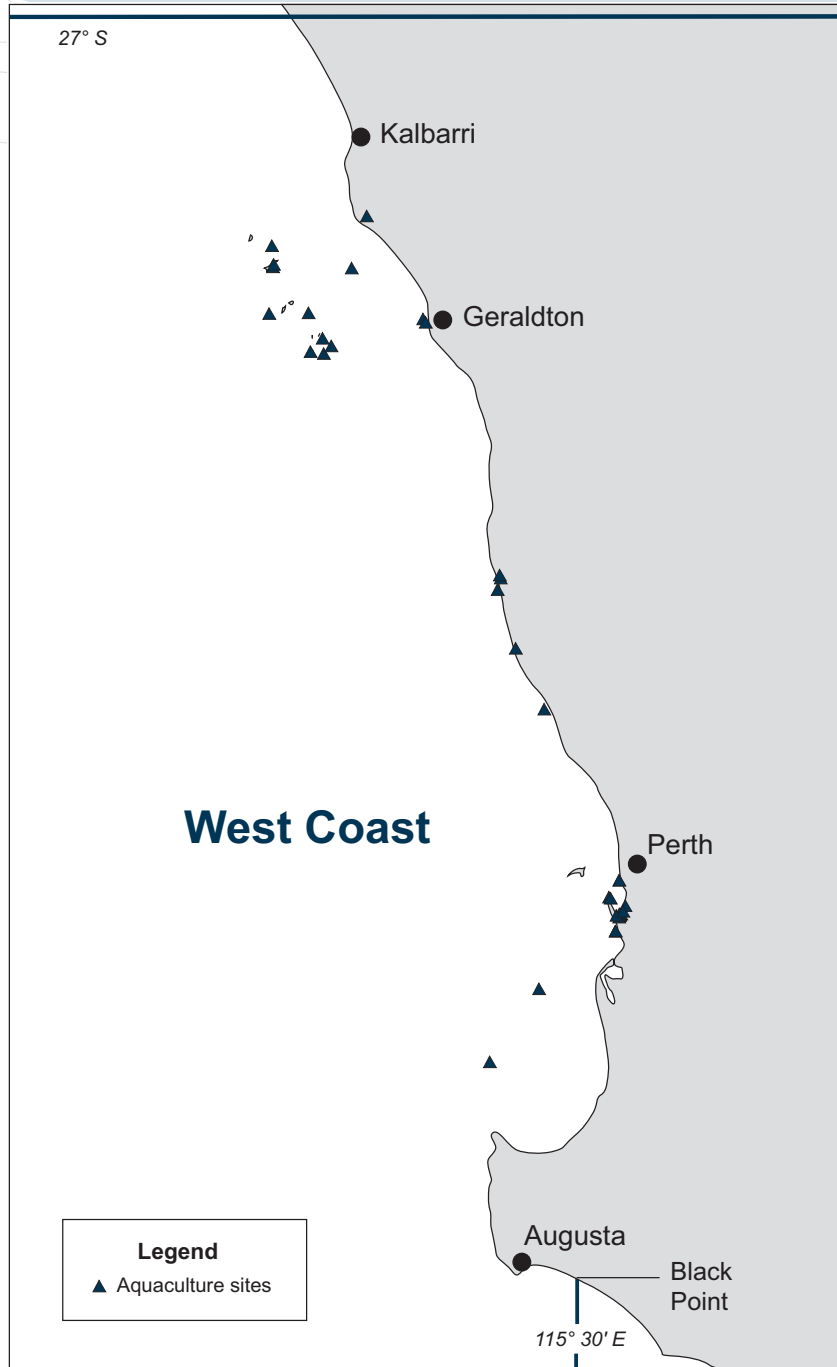
Joint research on marine finfish aquaculture, led by S. Kolkovski, continued with the Challenger TAFE WA

Maritime Training Centre. One encouraging result has been the production of broodstock from hatchery-reared fish in an intensive system for yellowtail kingfish (*Seriola lalandi*) culture as part of a project on aquaculture of this very fast-growing species funded by the Aquaculture Development Fund.

Other research led by S. Kolkovski, and based at a marine algae farm in Port Gregory, has shown good progress with growing brine shrimp (*Artemia*) for cyst production. Reliance on unpredictable supplies of imported cysts poses a major risk for marine finfish and prawn farming initiatives. Within this FRDC project, different experimental and commercial products have been evaluated for improving the nutritional content of brine shrimp larvae (enhancement) while minimising transfer of bacterial load to finfish larval tanks. This has already led one international feed company to redesign its main enhancement product. One of the microdiets developed with Challenger TAFE researchers has outperformed a key international product when used to reduce reliance on brine shrimp larvae for larval finfish.

Using the algal facility at Challenger TAFE, joint abalone research with S. Daume and Murdoch University has shown that the common sea lettuce is a promising seaweed for growing juvenile greenlip abalone on to a robust size for stocking into growout systems.

Initial results within an FRDC project involving R. Melville-Smith, D. Johnston and S. Saxby, aimed at growing wild western rock lobsters in land-based tanks, suggest that relatively low water exchange rates are needed and that periodic additions of fresh mussels, to complement a formulated feed, have helped produce encouraging growth and survival rates.



WEST COAST AQUACULTURE FIGURE 1

Map showing the major licensed aquaculture sites of the west coast bioregion.

Mussel Farming Status Report

Prepared by C. Lawrence

INDUSTRY DESCRIPTION

Production method

Mussels (*Mytilus edulis*) are farmed by collecting wild spat that is then attached to vertical ropes for grow-out to market size on longlines.

Production areas

Mussel farms are found mainly in Cockburn Sound and Warnbro Sound, as well as in the Albany harbours and Wilson Inlet on the south coast. Growth of this industry is constrained by resource-sharing issues that limit access to additional sites in protected and productive areas. Production has commenced in the Southern Flats area of Cockburn Sound where mussel farmers now have more secure access to growing areas.

Management arrangements

Licence approvals are required and regular site inspections are carried out to ensure farmers are operating within their site coordinates and that their sites are clearly marked for marine safety compliance.

The mussel industry must also meet the requirements of the WA Shellfish Quality Assurance Program. This program contributes significantly to the overall monitoring of the water quality of waterways such as Cockburn Sound. It also provides the mussel industry with a mechanism whereby harvesting and processing can be stopped when water quality declines.

AQUACULTURE PRODUCTION

Production current year (2002/03): **653 tonnes**
 Number of producers for year 2002/03: **16**
 Production projection next year (2003/04): **700–800 tonnes**

Mussel production declined again in 2002/03 (Mussel Farming Figure 1), this year reflecting an over-reliance on the new lease areas in Southern Flats.

ECOSYSTEM EFFECTS

Mussel farms present a low risk to the environment because there is no addition of feeds. In general, mussel farms can be considered as significant removers of excess nutrients from waterways. The algae that utilise these nutrients are consumed by mussels and are subsequently removed when harvested as mussel biomass.

While faecal wastes from the farms may occur, these are far less likely to cause high organic loadings on the sea bed in Western Australia than in mussel industries elsewhere in the world, because the local mussel lines are more widely separated in response to the low local food (plankton) levels. Monitoring of potential impact on seagrass beds below mussel lines at Albany indicated negligible impact. In Cockburn Sound, large pink snapper that aggregate in the area to spawn are attracted to the mussel farms in some years and are thought to consume significant amounts of mussels.

SOCIAL EFFECTS

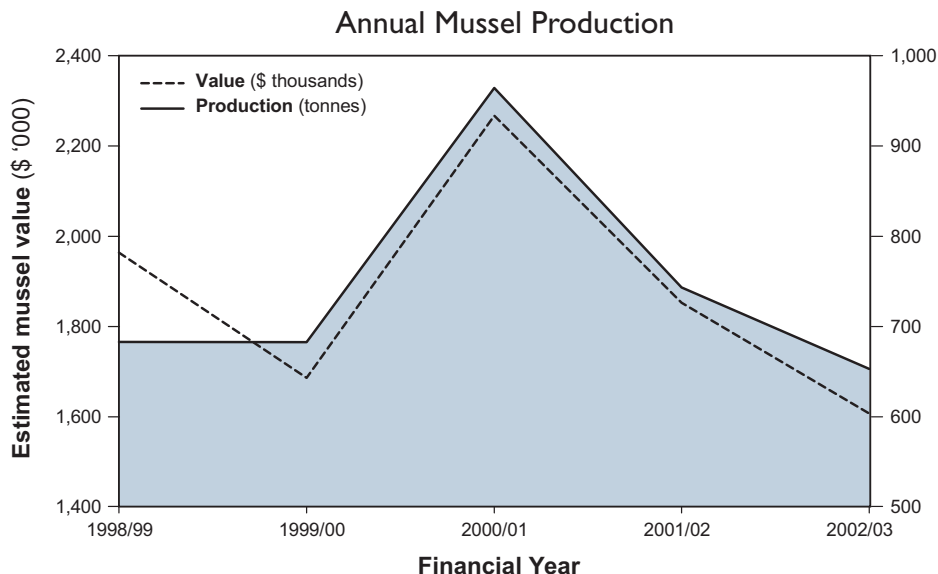
The industry provides direct employment to 40–50 personnel and adds valuable diversity to the Western Australian seafood industry.

ECONOMIC EFFECTS

Estimated annual value (to producers) for year 2002/03: **\$1.61 million**

EXTERNAL FACTORS

Productive areas are generally in protected waters where nutrients from terrestrial sources raise the food levels above those in coastal waters, which are dominated by the low-nutrient, tropical Leeuwin Current.



MUSSEL FARMING FIGURE 1

Estimated mussel production and value from 1998/99 to 2002/03.