



AQUA INFO

AQUA INFO 28
2009/10

ESTIMATED WESTERN AUSTRALIAN AQUACULTURE PRODUCTION FOR 2009/10

Highlights for 2009/10

- There were 471 licensed aquaculture producers
- The farm gate value of aquaculture production in WA (excluding marine algae and pearl oysters) was over \$10.6 million
- The most valuable industry sector was barramundi (\$4.5 million), followed by mussels (\$1.9 million), marron (\$1.4 million) and yabbies (\$0.8 million)
- The industry sector with the most participants was marron with 182 productive licences

Introduction

The statistics contained in this document represent the reported production and estimated value of the aquaculture industry in Western Australia for the financial year 2009/10. Comparisons to the previous four years have also been presented. The following summaries were produced from information held within the Aquaculture Production Returns Database at the Department of Fisheries, Research Division, Hillarys.

Quarterly records received from industry are summarised by the Department of Fisheries and reported to Parliament by the Minister for Fisheries. They are also used in the yearly Department of Fisheries *State of the Fisheries and Aquatic Resources* report, the annual report provided by Australian Bureau of Agricultural and Resource Economics (ABARE) and other publications.

Producers' returns constitute the official production and value figures for the aquaculture industry and these are dependent on the accuracy of licensees' returns. The data presented are based on the Aquaculture Production Returns Database, as of the 18th January 2011.

Note that all production reported in tonnes throughout this document refers to whole weight and the farm gate value refers to the value of product at the first point of recorded sale.

The Industry in 2009/10

A total of 471 aquaculture licence holders were required to submit quarterly returns for one or more quarters in the 2009/10 financial year. Of the 471 licences, 253 (54 per cent) recorded production on their returns. Marron had the largest number of producers with 182 licences recording production (Table 1).

Estimated aquaculture production increased by four per cent from 1121 tonnes produced in 2008/09 to 1166 tonnes in 2009/10 (excludes algae, pearl oysters, and ornamental species) (Table 2). Finfish and freshwater crustacean production remained stable while mussel production increased (Figure 1), and ornamental production decreased (Figure 2).

The estimated value of Western Australian aquaculture (excluding algae and pearl oysters) decreased by seven per cent from \$11.4 million to \$10.6 million in 2009/10 (Table 3). Finfish aquaculture made up half of the total value for 2009/10 (Figure 3).

Some species produced in Western Australian aquaculture have not been reported in the following as there are less than 5 contributing licences. In Table 1 and Table 2 these species are categorised under 'others'. Species in this category include atremia, greenlip abalone, mulloway, murray cod, rotifers, western rock oysters and yellowtail kingfish.

Table 1. Growout production for the Western Australian aquaculture industry in 2009/10.

Common name	Productive licences	Quantity	Units*	Average price/ unit	Value
Barramundi	6	435.9	tonnes	\$10.35	\$4,512,123
Mussels	17	506.5	tonnes	\$3.69	\$1,870,531
Marron	182	53.3	tonnes	\$27.12	\$1,445,252
Yabbies	15	41.1	tonnes	\$18.49	\$760,595
Silver perch	12	27.2	tonnes	\$15.99	\$435,624
Ornamental fish & crustaceans	14	46,359	No.	n/a	\$230,856
Koi carp	9	38,787	No.	\$4.76	\$184,708
Rainbow trout	7	7.5	tonnes	\$13.51	\$101,681
Goldfish	5	15,035	No.	\$3.47	\$52,139
Other species with <5 producers	<5	**			\$1,018,211
Algae	<5	**			**
Total (not including algae or pearls)					\$10,611,720

* Tonnes refer to whole weight

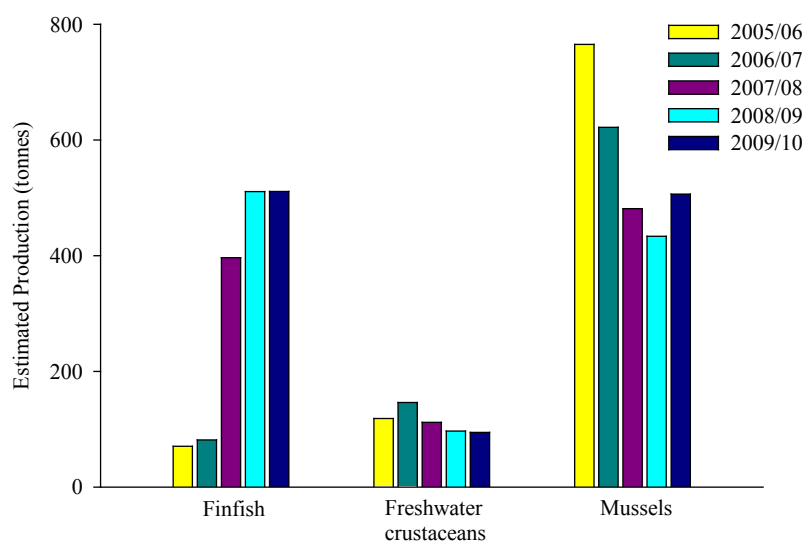
** Industry figures have not been included where there are less than five productive licensees in a category, to protect the confidentiality of individual producers.

Data Comparisons Over the Past Five Production Years (2005/06-2009/10)

Table 2. Estimated quantity of growout production of aquaculture species/categories in Western Australia over the past five financial years.

Common name	Units	2005/06	2006/07	2007/08	2008/09	2009/10
Mussels	tonnes	765.2	621.9	481.2	433.5	506.5 ↑
Barramundi	tonnes	18.5	43.2	365.9	455.2	435.9 ↓
Marron	tonnes	49.3	58.1	51.1	52.8	53.3 ↑
Yabbies	tonnes	69.3	87.9	60.8	44.1	41.1 ↓
Silver perch	tonnes	20.7	26.5	16.9	28.5	27.2 ↓
Rainbow trout	tonnes	29.6	11.7	13.3	11.7	7.5 ↓
Ornamental fish & crustaceans	No.	68,876	61,492	55,047	50,598	46,359 ↓
Koi carp	No.	26,149	30,124	35,620	34,270	38,787 ↑
Goldfish	No.	34,244	35,836	33,918	36,199	15,035 ↓
Other		*	*	*	*	*

* Industry figures have not been included where there are less than five productive licensees in a category, to protect the confidentiality of individual producers.

**Figure 1. Estimated production (whole weight in tonnes) of the major aquaculture industry sectors over the past five financial years in Western Australia.**

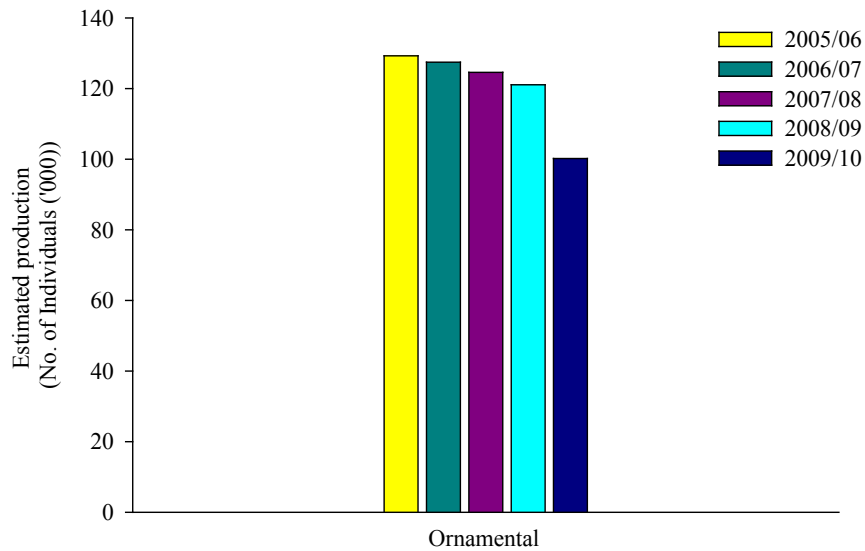


Figure 2. Estimated production (no. of individuals) of the ornamental sector over the past five financial years in Western Australia.

Table 3. Estimated farm gate value (\$) of growout aquaculture species/categories in Western Australia over the past five financial years.

Common name/ Category	2005/06	2006/07	2007/08	2008/09	2009/10
Barramundi	\$162,733	\$467,280	\$3,870,071	\$4,793,106	\$4,512,123 ↓
Mussels	\$2,159,056	\$1,811,298	\$1,531,849	\$1,618,594	\$1,870,531 ↑
Marron	\$1,160,834	\$1,387,449	\$1,298,672	\$1,434,494	\$1,445,252 ↑
Yabbies	\$1,036,980	\$1,381,248	\$1,059,532	\$810,608	\$760,595 ↓
Silver perch	\$258,949	\$317,275	\$245,157	\$405,506	\$435,624 ↑
Ornamental fish & crustaceans	\$161,412	\$294,308	\$237,408	\$276,986	\$230,856 ↓
Koi carp	\$248,098	\$137,195	\$160,597	\$168,279	\$184,708 ↑
Rainbow trout	\$172,459	\$105,391	\$135,007	\$140,422	\$101,681 ↓
Goldfish	\$55,797	\$65,536	\$80,732	\$73,992	\$52,139 ↓
Other	\$624,347	\$883,044	\$1,554,289	\$1,715,130	\$1,018,211 ↓
TOTAL (excluding algae & pearls)	\$6,040,665	\$6,850,022	\$10,173,312	\$11,437,116	\$10,611,720

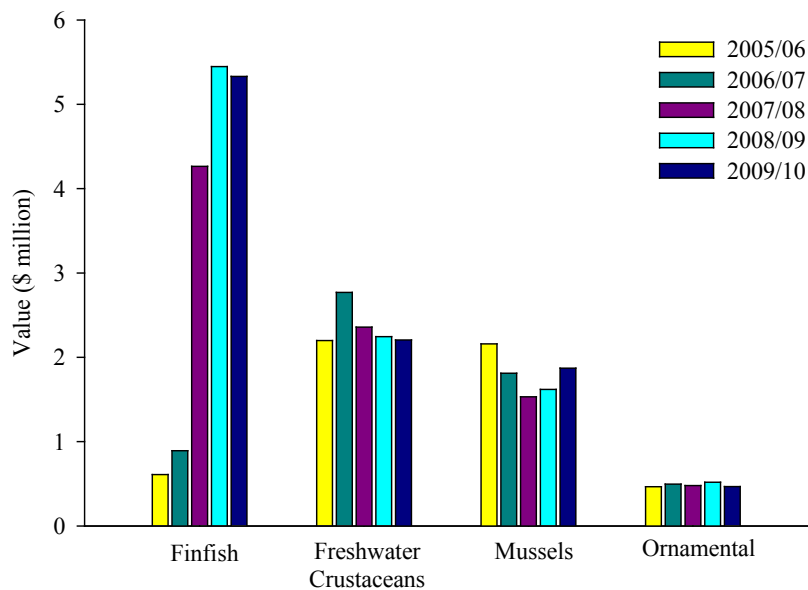


Figure 3. Estimated value (\$ million) of the major aquaculture industry sectors over the past five financial years in Western Australia.

Trends in Major Aquaculture Industries for 2009/10

FINFISH

The value of finfish production in Western Australia is dominated by the aquaculture of barramundi, silver perch and rainbow trout. Barramundi made up 85 per cent of the total finfish earnings for 2009/10 (Figure 4).

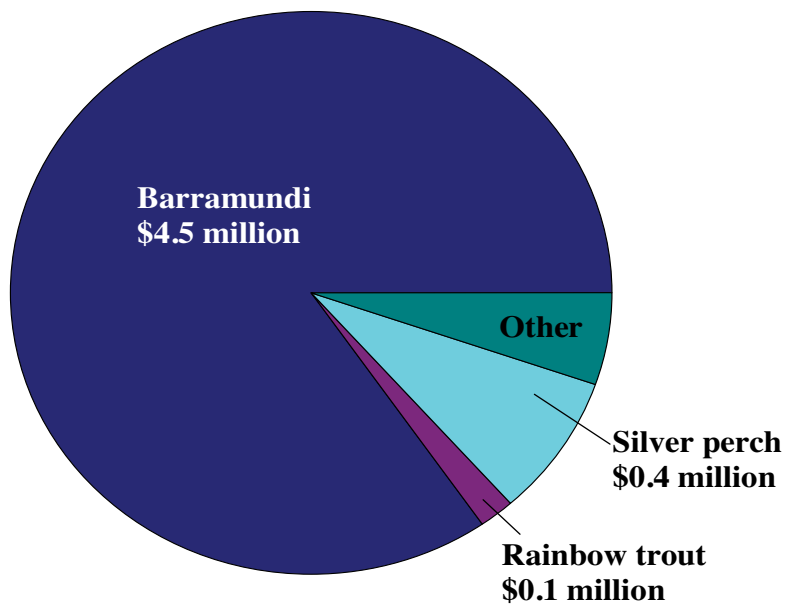


Figure 4. Breakdown of estimated value (\$) of finfish in Western Australia for 2009/10.

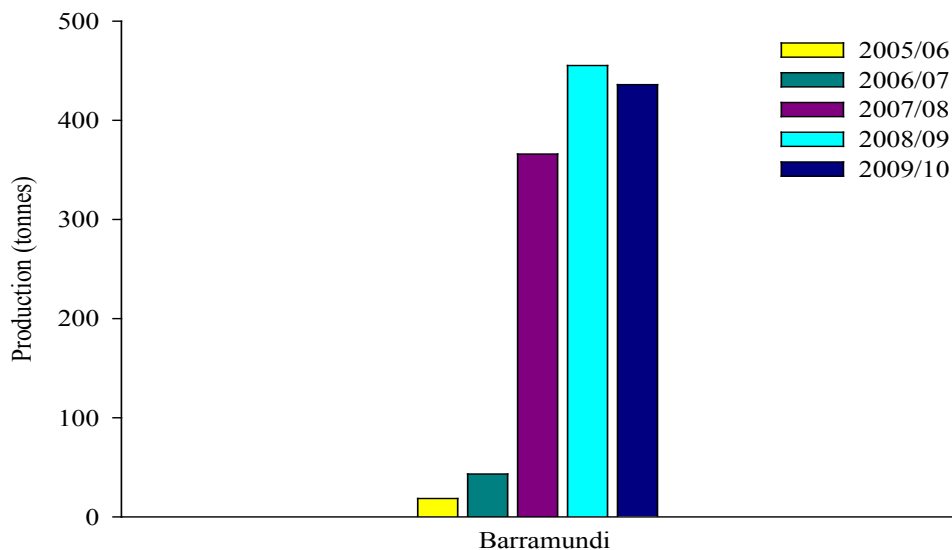


Figure 5. Barramundi production (whole weight in tonnes) over the past five financial years.

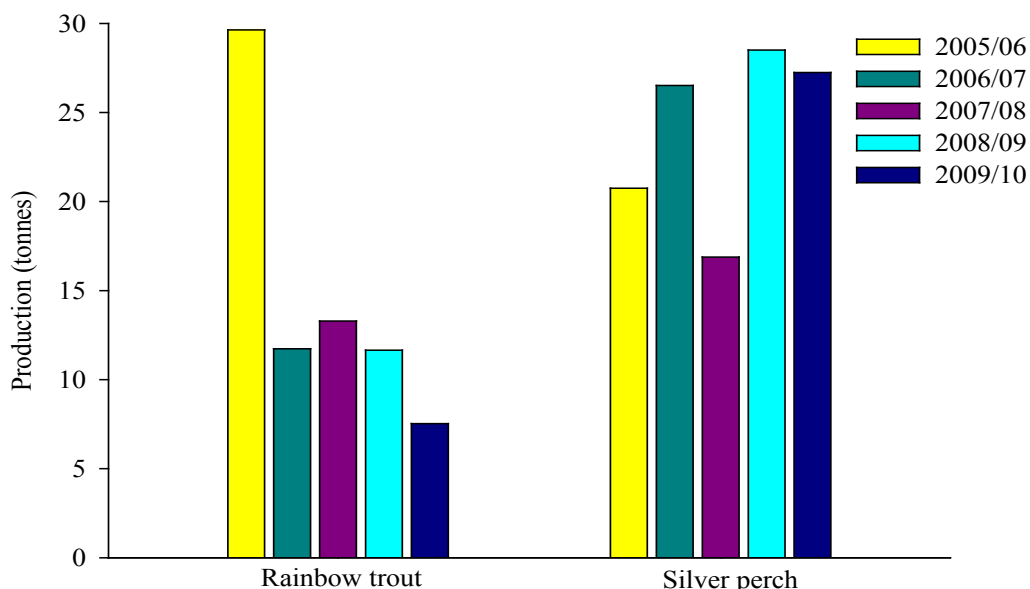


Figure 6. Rainbow trout and silver perch production (whole weight in tonnes) over the past five financial years.

Barramundi

In Western Australia barramundi (*Lates calcarifer*) farms produce their fish in offshore sea cages and in freshwater intensive recirculating systems. Barramundi production has been increasing over the past few years after a large drop in the 2005/06 financial year (Figure 5). Production in 2009/10 decreased by four per cent and the value by six per cent on the figures for 2008/09 (Figure 5). Six licences recorded production in 2009/10 with a total of 435.9 tonne of barramundi produced for a value of just over \$4.5 million (Table 1).

Silver perch

Silver perch (*Bidyanus bidyanus*) are farmed in the southern half of the state in purpose-built earthen ponds equipped with aeration, water supply and a drain to facilitate harvesting. In 2009/10 silver perch production decreased by four per cent dropping from 28.5 to 27.2 tonne of fish produced (Figure 6). Value decreased in 2009/10 by seven per cent with 12 productive licences recording a total value of \$435,624 (Table 3).

Rainbow Trout

In 2009/10 there were seven licences producing rainbow trout (*Oncorhynchus mykiss*). Intensive culture of trout is confined to the lower south-west by summer water temperatures and limited by the availability of sites with sufficient water.

The production of rainbow trout fell from 11.7 tonnes in 2008/09 to 7.5 tonnes in 2009/10, that is a decrease of 35 per cent in 2009/10 (Figure 6). With the 35 per cent drop in production, value fell 28 per cent to total \$101,681 in 2009/10 (Table 1).

CRUSTACEANS

The value of crustacean aquaculture production in Western Australia is dominated by two species of freshwater crayfish, yabbies and marron. Total production of freshwater crayfish in Western Australia was valued at \$2.2 million in 2009/10 (Figure 3). Marine crustaceans are also produced however the production information cannot be released because fewer than five licences are productive.

Marron

The majority of marron (*Cherax cainii* and *Cherax tenuimanus*) farming occurs in purpose-built earthen ponds. Each pond is equipped with aeration, water supply and a drain to facilitate harvesting. Licensed purpose-built marron farms now extend from Esperance to Hutt River, north of Geraldton, with the majority concentrated in the higher-rainfall south-west coastal areas.

The marron industry has more licensed farmers than any other sector of the aquaculture industry in Western Australia. The number of productive licences has been around 170 to 180 for the past five financial years but the majority of production comes from relatively few farms. It is clear that marron farming is separated into two

styles, a low input and low production “lifestyle” type of farming represented by the majority of the licensed marron farms, or well designed and constructed farms that follow “best practice” production strategies that, although representing fewer farms are responsible for the majority of production. The most productive 10 per cent of marron farms grow more than 50 percent of the marron produced in Western Australia.

Marron production stayed relatively unchanged in 2009/10 only increasing by one per cent on 2008/09 figures to produce 53.3 tonne of marron (Figure 7). The value also increased by one per cent in 2009/10 reaching over \$1.4 million (Table 3).

Yabbies

Yabbies (*Cherax albidus*) are farmed in stock watering dams. Although yields per dam are relatively low in comparison with other forms of aquaculture, the combined production of a large number of farmers throughout the wheatbelt region results in a significant form of farm diversification. Yabby production decreased by seven per cent in 2009/10 dropping to a low of 41.1 tonnes (Figure 7). The value decreased by six per cent to \$760,595 in 2009/10 (Table 3).

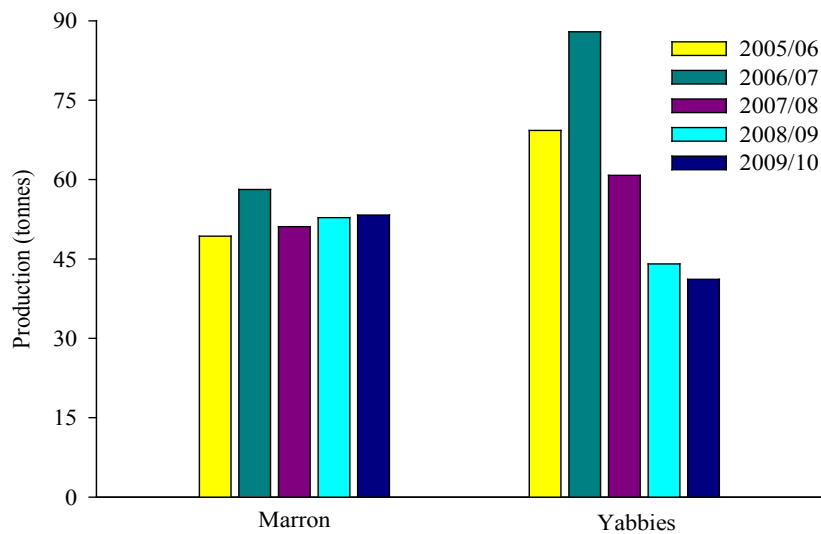


Figure 7. Marron and yabby production (whole weight in tonnes) over the past five financial years.

MOLLUSCS

Mussels, oysters and abalone dominate the value of mollusc aquaculture production.

Mussels

Mussel (*Mytilus edulis*) farms growing mussels attached to long lines require sheltered sites with adequate natural feed. Located mainly in Cockburn and Warnbro sounds, mussel farms are also found on the south coast in Albany Harbour and Wilson Inlet. The future growth of this industry is constrained by resource-sharing issues that limit access to additional sites in protected and productive areas.

Mussel production has been decreasing over the past few years but in 2009/10 production increased by 17 per cent

to 506.5 tonnes (Figure 1) with 17 licences recording production in 2009/10 (Table 1). The value increased by 16 per cent from the previous year (Figure 3), allowing mussels to retain their position as one of the most valuable aquaculture sectors in Western Australia, earning just under \$1.9 million for 2009/10 (Table 3).

ORNAMENTAL

Koi carp, goldfish, native Western Australian and non- native Western Australian ornamental fishes and crustaceans are included in this category. Koi carp had the highest earnings of all ornamental categories in 2009/10 (Figure 8). The production of ornamental fish and crustaceans occurs throughout the State, but is mainly focused in metropolitan areas adjacent to the main markets.

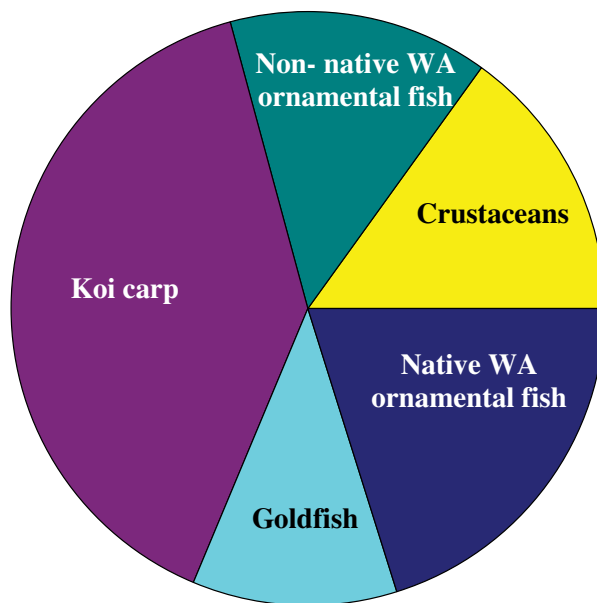


Figure 8. Breakdown of the estimated \$467 702 earned by the ornamental sector in Western Australia for 2009/10.

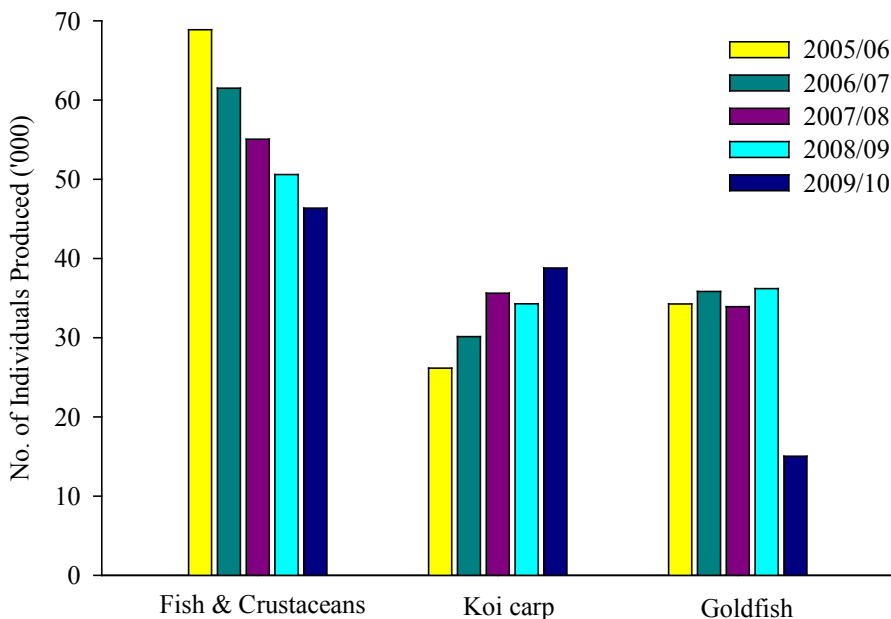


Figure 9. Ornamental production (no. of individuals) over the past five financial years.

Goldfish

In 2009/10 there were five licences producing goldfish (*Carassius auratus*). The production of goldfish more than halved in 2009/10 falling 58 per cent from 36,199 individuals produced in 2008/09 to 15,035 individuals in 2009/10 (Figure 9). The value fell 30 per cent in 2009/10 to total \$52,139 (Table 3).

Koi carp

Koi carp production increased by 13 per cent and the value by 10 per cent in 2009/10. While the number of licences producing koi carp has remained constant this industry has been increasing production over the past few years (Figure 9).

Ornamental fish and crustaceans

Some native Western Australian ornamentals produced in 2009/10 include minnows, damselfish, gudgeon, rainbowfish, pygmy perch and Syngnathidae. Ornamental species not native to Western Australia included bristlenose catfish, cardinal fish, cichlids, damselfish, guppies and dottybacks. There was a decrease in ornamental fish and crustacean production by eight per cent and a decrease in the value by 17 per cent for 2009/10 (Figure 9).

HATCHERY OUTPUT

During the 2009/10 financial year 1,856,631 juvenile crustaceans and finfish were sold to other farms for a value of \$420,322. Ornamental hatchery stocks have not been included in this calculation as juvenile ornamental fish and ornamental crustaceans are sold directly to consumers and retailers and are not to be grown out further by other aquaculture facilities. For this reason they have been included in the previous grow out calculations.

Ideally, the hatchery production outlined would not include any eggs sold or individuals transferred to growout facilities. The amount of eggs produced is often recorded in the millions (particularly for molluscs and finfish) however the numbers are not a true indication of the numbers of animals reaching a more viable larval or juvenile stage. This information is recorded when juveniles are sold or transferred to growout.

Acknowledgments

Thankyou to Monica Mumme, Mark Cliff, Craig Lawrence, Brian Jones and Steve Nel.

Please note that this document may contain some updated data from previous years.

The information in this publication is provided as general advice only. For application to specific circumstances, industry advice should be sought. The Department of Fisheries has taken all reasonable steps to ensure the information is accurate at the time of publication. For additional information about how to complete Quarterly Aquaculture Production Returns, please refer to the explanatory notes in your Aquaculture Production Quarterly Return Book and Aqua info 16/2005. (<http://www.fish.wa.gov.au/docs/aq/index.php?0404>) or contact Kristie Nobes at the Department of Fisheries on (08) 9203 0260.

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