

RESEARCH REPORTS IN THE ECONOMICS OF GIANT CLAM MARICULTURE

Working Paper No. 28

The Market for Giant Clams as Aquarium
Specimens in Sydney and Melbourne: Results
of a Telephone Survey of Retail Outlets

by

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Thea Vinnicombe

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The technical feasibility of culturing giant clams for food and for restocking tropical reefs was established in an earlier ACIAR project. This project is studying the economics of giant clam mariculture, to determine the potential for an industry. Researchers will evaluate international trade statistics on giant clams, establish whether there is a substantial market for them and where the major overseas markets would be. They will determine the industry prospects for Australia, New Zealand and South Pacific countries, and which countries have property right factors that are most favourable for commercial-scale giant clam mariculture. Estimates will be made of production/cost functions intrinsic in both the nursery and growth phases of clam mariculture, with special attention to such factors as economies of scale and sensitivity of production levels to market prices.

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CONTENTS	Page No
Abstract	1
1. Introduction	2
2. Reasonable Purchase and Retail Prices for Giant Clams by Retailers	4
3. Expected Quantities of Sales of Giant Clams by Retailers of Aquarium Products	8
4. Saleable Sizes of Giant Clams	11
5. Ranking of Attributes of Giant Clams as Aquarium Specimens by Retailers	12
6. Observations on Economics of Retail Sales and Comparative Market Size	13
7. Conclusions	16
8. Acknowledgements	17
9. References	17
Appendix A: Questionnaire	19
Appendix B: List of Aquarium Retailers Interviewed in Sydney and Melbourne	22
Previous Working Papers	25

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ABSTRACT

During 1991 research based on the test-marketing of giant clams as aquarium species was conducted in Brisbane, Queensland. The results indicated giant clams to be potentially popular as aquarium specimens, being considered to be on a par with coral and anemones. However, the marketability of giant clams in Queensland was dampened by the requirements of the Queensland Department of Primary Industries, which compelled both retailers and customers to obtain permits to hold clams. Permits for retailers were expensive; being \$100 per aquarium, and those for customers required a time-consuming application process. The results of this test-marketing are reported in *Economics of Giant Clam Mariculture*, Research Report or Paper No. 26.

For comparison with Brisbane results, a telephone survey was conducted in Sydney and Melbourne, the capital cities of the two most populous states of Australia, New South Wales and Victoria. Insufficient resources were available to adopt test-marketing in those cities. The results of these surveys support the conclusions of the first, that a small but viable market exists for giant clams as aquarium specimens throughout Australia. Profit margins for retailing of clams in Sydney and Melbourne seem to be higher than in Queensland, partly due to the absence of Queensland's expensive permit requirements. Other differences are also noted. The economic experience of two retailers in Sydney and Melbourne selling farmed giant clams in relatively large quantities is encouraging.

Keywords: Giant clams, aquarium, supply and demand, farmed giant clams.

JEL Classifications: Q57, Q21, Q22

The Market for Giant Clams as Aquarium Specimens in Sydney and Melbourne Results of a Telephone Survey of Retail Outlets

1. Introduction

While the technical and biological feasibilities of giant clam mariculture are now well established, corresponding commercial viability still requires consideration. One of the possible market outlets for giant clams is as aquarium specimens. A test marketing survey was conducted in Brisbane in the latter half of 1991 to gauge the commercial potential for the sale of clams as aquarium specimens. This project concentrated on Queensland and in particular the Brisbane area. Because of resource limitations, it was not possible to do test marketing elsewhere, but a follow up telephone survey was then undertaken in December 1991 in Sydney and Melbourne in order to provide material for comparative analysis. Sydney and Melbourne are the capital cities of the two most populous states, New South Wales and Victoria, of Australia.

Information gleaned from the initial survey was based on actual clam sales, that is through the distribution of live clams to Brisbane marine aquarium outlets. Retailers then endeavoured to sell these clams and information was gathered from questionnaires completed by both retailers and customers. Details were obtained of such factors as potential demand, market size, price and the overall market prospects for giant claims as aquarium specimens. The results of this survey are reported in Tisdell (1991).

Those retailers of aquarium products in Sydney and Melbourne who indicated, through advertising in the Yellow Pages of the Telephone Directory, their participation in marine sales, were contacted and asked if they would take part in a telephone survey. Fourteen Sydney and eleven Melbourne outlets were willing to co-operate. In both cities two aquariums preferred not to take part. The survey took place in December 1991 and the questionnaire used is reproduced in Appendix A.

Although the Brisbane project related to actual sales, the interstate telephone survey used a similar questionnaire in order to make worthwhile comparisons possible. A major impediment to the research project in Brisbane and to prospects of a viable market for giant clams as aquarium specimens in Queensland were the requirements of the Queensland

Department of Primary Industry. Both customers and retailers were compelled to obtain permits to hold giant clams and considerable expense and effort was required to obtain these. Retailers must pay \$100 for permits which may be valid for a maximum period of twelve months. The **actual** period of validity, however, appears to be a matter of Departmental discretion. For instance, the project organisers obtained permits for all aquariums participating in the survey, but these permits were valid for one month only. The cost of permits for Brisbane retailers is then **at least** \$100 per annum, and could be more, depending on Departmental discretion.

Customers desiring to purchase a giant clam had firstly to apply for a permit, which typically took some time to be processed and approved. Once obtained, they were then able to return to the retail outlet to make their purchase. Understandably, retailers were not usually willing to hold a clam until a customer returned with a permit. The considerable trouble involved had an evident dampening effect on sales (Tisdell, 1991).

Governments in other Australian states take a less restrictive approach. In Victoria, there is no legislation restricting the sale or holding of giant clams, provided they are obtained from a licensed commercial venture. Information from the Fisheries Department of N.S.W. indicates that the import of clams from interstate requires a licence. However, under normal circumstances there is no fee for the issue of these licences.

Retailers contacted by telephone were initially asked if they supplied marine specimens and if they would be willing to take part in a telephone survey. Of the fourteen Sydney aquarium outlets willing to participate only one currently stocked giant clams, while in Melbourne a proportionally higher percentage of outlets, two out of eleven, held clams. Generally, giant clams were not stocked due to a perceived lack of availability. Retailers were frequently unaware that clams could be obtained from commercial farms in quantities sufficiently small for their requirements. An additional factor, however, was an evident lack of knowledge regarding giant clams, and consequent concern as to their care. While a number of respondents said they did not currently stock clams, most said that they actually had held 'the odd one or two', usually accidentally brought in on a piece of coral.

When asked if they would be interested in buying from clam farms, eleven Sydney retailers responded positively, while two were not interested. One outlet was already purchasing from a farm. A similar response pattern was recorded from Melbourne, where two retailers were

not interested, eight were interested and one was already making purchases from a clam farm. Of those expressing an interest their responses were often qualified by the need for more information regarding giant clams as well as likely cost of those.

The impression was gained that most retailers had limited knowledge of giant clams. This was reinforced by the inability of all respondents to identify different species of clams and comment on the suitability of different species as aquarium specimens. However, when asked if they would be interested in stocking *Tridacna gigas*, the largest growing of the giant clam species, often described as the 'true giant clam', approximately 50 percent of sellers said 'yes'.

2. Reasonable Purchase and Retail Prices for Giant Clams by Retailers

Retailers were asked to specify the sizes of giant clams that they would prefer to stock, along with the appropriate and the corresponding sales to be expected per annum. Tables 1 and 2 summarise the responses of respondents in Sydney and Melbourne respectively about reasonable purchase and retail prices. Giant clams were divided into five possible size-categories for respondents to indicate appropriate purchase and retail prices as well as their expected sales.

Melbourne respondents indicated that an average purchase price of \$9.80 for the clams of 5 - 10 centimetres in size was reasonable, while a corresponding retail price of \$27.80 was on average believed to be reasonable. Lower prices were recorded as reasonable by Sydney retailers. They suggested on average that cost price for this size of \$6.20 was reasonable and on average that a retail price of \$18.60 is reasonable. Comparing Tables 1 and 2, it can be seen that higher purchase and retail prices for clams of all sizes were regarded as reasonable in Melbourne. The cost of clams would, in any case, be higher in Melbourne than Sydney because of extra freight costs. Possibly retail demand would be higher in Melbourne because the clam is regarded as more exotic in the colder climate.

Table 1: Array of purchase and retail prices for giant clams (\$A1/clam) suggested as reasonable by Sydney retailers

CUSTOMER	SIZE OF CLAM IN CMS				
	2.5 - 5	5 - 10	10 - 15	15 - 20	25 - 30
1	\$30				
2		\$5	\$7.50		
3	>\$5				
4			\$28		
5			\$28		
6	\$5 \$15	\$7 \$20	up to \$45	up to \$70	up to \$70
7	\$2.50 \$7.50	\$4 \$12.50	\$5 \$16	\$6-\$8 \$20	\$10 \$25-\$30
8	\$10 \$28				
9	\$5-\$6 \$10-\$15				\$20-\$30 \$120
10(b)		\$6-\$8 \$20-\$25	\$10 \$30		
simple averages	5.5 17.2	6.2 18.6	8.1 25.6	(6-8 or 7?) 48	17.5 72

- (a) Purchase prices to the left of columns and retail prices to the right
- (b) Retailers 11-14 did not suggest prices

Table 2: Array of reasonable purchase and retail prices for giant clams (\$A1/clam) suggested as reasonable by Melbourne retailers

SIZE OF CLAM IN CMS					
CUSTOMER	2.5 - 5	5 - 10	10 - 15	15 - 20	25 - 30
1	\$14-\$15 \$29.50	\$60			
2		\$8-\$10 \$25-\$30	\$8-\$10 \$25-\$30		
3		\$2.50 \$5-\$10	\$4 \$8-\$10		
4	\$10 \$19.95	\$15 \$28-\$30	\$20 \$30-\$40		
5	\$10-\$12 \$20-\$25	\$15-\$20 \$35	\$25 \$50		
6		\$10-\$15 \$25-30	\$15-\$17.50 \$35-\$40	\$20 \$45	
7	\$5 \$14.95	\$8 \$19.95	\$10-\$12	\$10-\$12	
8	\$2 \$8-\$10	\$4 \$16	\$6 \$24	\$8 \$32	\$10 \$40
simple averages	8.5 19.2	9.8 27.8	13 30.5	13 38.5	\$10 \$40

- (a) Purchase prices to the left of columns and retail prices to the right
- (b) Retailers 9-11 did not suggest prices

Comparisons can be made between suggested Sydney and Melbourne retail prices and those suggested to be reasonable by respondents in the Brisbane survey. Tables 3 and 4 show retail prices considered reasonable by sellers and customers in the Brisbane study. Comparison of the results suggests that higher prices could be charged in Melbourne and Sydney for giant clams as aquarium specimens than in Brisbane. For instance, the retail price suggested for giant claims of 5 - 10 centimetres in size ranged from \$10 to \$28 in Sydney and from \$5 to \$60 in Melbourne. The comparative price range suggested by Brisbane retailers was \$15 - \$18 and by customers \$9 - \$25.

Some retailers in Melbourne and Sydney indicated their usual mark-up because they felt unable to give reasonable retail price estimates when the cost-price of giant clams to them was not known. Mark-ups ranging from 100 to as much as 300 percent were normal. A significant factor said to contribute to the level retail price and the size of the mark-up was the rate of turnover of the commodity. Many sellers expressed a preference for low cost goods, for which they would give a corresponding low retail price in order to establish a large volume of sales and get quick turnover. The popularity of clams could therefore be an important factor determining their actual retail price.

Quick turnover for larger sizes of clams, 15 - 20 and 25 - 30 centimetres, was regarded by retailers as impossible. Most said these clams would move slowly and the price mark-up would need to be correspondingly high. While the suggested cost-prices for these sizes was as low as \$10 or \$20 (See Tables 1 and 2), the corresponding retail prices were as high as \$120 (See Table 1).

Table 3: Sizes of claims preferred by Brisbane aquarium retailers and range of retail prices for clams thought to be reasonable

Size of Clam		Number of Retailers expressing a preference for this size ^a	Reasonable retail price per clam. Range in \$A
2½ - 5cm	(1 - 2")	2	10 - 13
5 - 10cm	(2 - 4")	5	15 - 18
10 - 15cm	(4 - 6")	4	18 - 20
15 - 20cm	(6 - 8")	0	20 - 25
20 - 25cm	(8 - 10")	0	25 - 30

(a) Some retailers expressed a preference for several sizes of clams. One respondent ranked all 5 sizes. So in this case only the three most desired sizes were included in the above distribution.

Table 4: Sizes of claims preferred by Brisbane customers and range of prices suggested as reasonable by them

Size of Clam		Number preferring this size	Retail price range suggested as reasonable (\$/clam)
2½ - 5cm	(1 - 2")	4	5 - 13
5 - 10cm	(2 - 4")	8	9 - 25
10 - 15cm	(4 - 6")	5	15 - 30
15 - 20cm	(6 - 8")	3	15 - 50
20 - 25cm	(8 - 10")	1	30 - 80

3. Expected Quantities of Sales of Giant Clams by Retailers of Aquarium Products

Tables 5 and 6 show, for Sydney and Melbourne respectively, expected quantity of sales of giant clams by size-categories of clams. It is perhaps in this area that retailers' inexperience with clams is most evident. Their sales estimates varied so widely that ignorance appeared to be a problem. For example, Sydney retailers' estimates of annual sales ranged from 12 to 1000 for clams of a size of 2.5 to 5 centimetres. Such a wide variation between aquariums may demonstrate not only considerable disparity between their markets, but also lack of knowledge of the market. Differences in quantities were particularly evident for clams of smaller sizes, while for the larger clams, most retailers agreed that only a few would be sold each year. However, retailers frequently avoided the question of expected quantity of sales altogether, saying they could not comment on expected sales in a market in which they had had no experience.

The experience of the two Melbourne and one Sydney operators actually selling clams is therefore particularly relevant. Of the two Melbourne outlets, only one was currently supplied from a clam farm. The second did not reveal his source of supply and did not appear to be dealing in significantly large quantities. His expected per annum sales were only twelve giant clams for each size category. The other outlet, however, was quite specific. He currently stocks the two smallest size categories, 2.5 - 5 centimetres and 5 - 10 centimetres. These are

purchased at cost prices of five and eight dollars, respectively. Corresponding retail prices are \$14.95 and \$19.95. His expected sales were in the range of 300 - 400 clams per year for each size category, although this prediction was qualified to some extent by the colour of the clams. Those described as being of good colour could be expected to move quickly, with less attractive clams being more difficult to sell.

The Sydney retailer was less forthcoming, perhaps being more pressed for time. He presently stocks only clams in the size range 5 - 10 centimetres, selling approximately twenty per week at a retail price of \$28. This would result in sales of about 1000 clams per year by this outlet. The corresponding cost price was not made available. It is interesting to note that actual retail prices vary in the opposite direction to the averages for each city suggested as reasonable by respondents. The Sydney price is considerably higher than that for Melbourne, which may reflect higher overhead costs in N.S.W., particularly shop rentals.

Table 5: Size of giant clams saleable by Sydney retailers, purchase and retail prices suggested as reasonable by them and expected quantity of sales per year

SIZE	NO OF RETAILERS INDICATING THIS SIZE SALEABLE	SUGGESTED PURCHASE PRICE	SUGGESTED RETAIL PRICE	EXPECTED QUANTITY OF SALES PER YEAR (NO OF CLAMS) ^a
2½ - 5cm (1 - 2")	8	\$2.50 - \$10.00	\$10.00 - \$30.00	150 - 200 300 - 1,000 (150 - 1,000)
5 - 10cm (2 - 4")	11	\$4.00 - \$8.00	\$10.00 - \$28.00	12 70 - 100 150 - 200 300 - 1,000 1,000 (12 - 1,000)
10 - 15cm (4 - 6")	9	\$5.00 - \$10.00	\$14.00 - \$45.00	6 - 8 70 - 100 150 - 500 (6 - 500)
15 - 20cm (6 - 8")	5	\$6.00 - \$8.00 \$20.00 - \$30.00 Only 2 responses to price - the remaining 3 were uncertain	\$20.00 \$70.00 Only 2 responses to price - the remaining 3 were uncertain	Approx 3 All uncertain as to sales, but felt there would be few
20 - 25cm (8 - 10")	5	\$10.00 - \$30.00 again uncertain	\$25.00 - \$120.00	as above

(a) Responses by individual retailers indicated. Not all respondents indicated quantities likely to be sold.

Table 6: Size of giant clams saleable by Melbourne retailers, purchase and retail prices suggested as reasonable by them and expected quantity of sales per year

SIZE	NO OF RETAILERS INDICATING THIS SIZE SALEABLE	SUGGESTED PURCHASE PRICE	SUGGESTED RETAIL PRICE	EXPECTED QUANTITY OF SALES PER YEAR (NO OF CLAMS) ^a
2½ – 5cm (1 – 2")	5	\$2.00 – \$15.00	\$8.00 – \$29.50	12 – 400 12 12 12 100 300–400
5 – 10cm (2 – 4")	8	\$2.50 – \$20.00	\$5.00 – \$60.00 all but one in the range \$5.00 – \$35.00	6 12 12 30 – 40 50 – 100 300 – 400 500
10 – 15cm (4 – 6")	7	\$4.00 – \$50.00	\$8.00 – \$50.00	12 12 15 – 20 20 200
15 – 20cm (6 – 8")	3	\$8.00 – \$20.00	\$32.00 – \$45.00	12
20 – 25cm (8 – 10")	2	\$10.00 – \$12.00	\$40.00	?

(a) Responses by individual retailers indicated. Not all respondents indicated quantities likely to be sold.

Sellers in the Brisbane area also expressed some indecision as to the size of their market. While some said only a few clams could be sold, one respondent claimed that he could 'move plenty' if it were not for the permit requirements of the Department of Primary Industry. However, from the Brisbane responses summarised in Table 7, it appears that average annual sales would be approximately 50 clams per year per aquarium retailer. Without the restrictions imposed by the Queensland Department of Primary Industry, twice this level of sales might be expected.

Table 7: Individual responses of Brisbane aquarium retailers to the question ‘how many clams can you sell on a monthly basis?’

Respondent	Responses
1	Not many.
2	After initial interest about five.
3	Not known. Small numbers.
4	Plenty. But permits taking too long to come through to move these.
5	4 to 6.
6	With paperwork for permits - 4. Without paperwork and need for permits - 10 to 20.

Considerable differences in expected annual sales per aquarium are therefore evident. In particular, the Melbourne and Sydney outlets currently stocking clams appear to have a larger market than that evident in Brisbane from the survey. Brisbane is a smaller city, with an evidently smaller and more specialised market for marine aquarium products (Tisdell, 1991). Most retailers were well known to each other and appeared to see themselves as sharing as opposed to competing, in the marine specimens market.

In calculating expected sales, their estimations made allowance for sales that could be expected to be made by other outlets. Melbourne and Sydney retailers may be more specialised, with perhaps room for only a few outlets to sell large numbers of clams, while others could expect to sell only small numbers or none at all.

Some evidence for this view may be found in that a number of Sydney and Melbourne retailers spoke of not being 'geared up' for giant clams and seemed to consider that additional costs would be involved in them 'gearing up' to stock giant clams. While most Brisbane marine aquarium retailers had existing tanks specifically for coral, with few if any fish, this was not so common in Sydney and Melbourne. In order to stock giant clams, a number of retailers in Sydney and Melbourne would need to establish separate tanks.

4. Saleable Sizes of Giant Clams

From Tables 5 and 6, the sizes of clams which are most saleable as aquarium specimens can be seen. Responses of retailers indicate that the size 5-10cms (2 - 4") and then 2½ - 5cms (1 -

2"). In Sydney, 11, 9 and 8 respondents indicated that they would be able to sell clams of 5 - 10cms, 10 - 15cms and 2 - 5cms respectively. The corresponding responses in Melbourne were 8, 7 and 5.

These results accord with those obtained from responses of retailers in the Brisbane survey. Brisbane retailers of aquarium said that their preference is to stock clams of size 5 - 10cms, with their next preference being for those of 10 - 15cms in size then 2½ - 5cms in size.

5. Ranking of Attributes of Giant Clams as. Aquarium Specimens by Retailers

The final question aquarium retailers related to the attributes of giant clams as aquarium specimens. Respondents were asked to rank these on a scale from poor to excellent. The results are recorded in Tables 8 and 9. In general, the clam's attractiveness in terms of colour and exotic value was considered to be very good, but its shell less so. This corresponds with the results of the Brisbane survey, as do the findings with respect to the clam's ability to remove nitrate. While scientific evidence indicates that the clam may be beneficial in removing nitrate from the home aquarium (Lucas, 1991). This is not generally evident or known to retailers of marine aquarium products. However, one respondent in this survey had kept a comparatively large clam in an aquarium for some time and reported positive reductions in nitrate levels. Those whose experience had been limited to small clams, such as the participants in the Brisbane survey, (Tisdell 1991) had noticed no effects.

Table 8: Ranking by Sydney aquarium retailers of attributes of giant clams, frequency of responses and average rating

ATTRIBUTES (a)	RANKING					AVERAGE	
	Excellent	Very Good	Good	Not very good	Poor	(b)	(c)
Colourful (9)	1	3	4		1	3.3	2.3
Exotic (9)	1	4	3		1	3.4	2.4
Shell (9)		2	2	1	4	2.2	1.2
*Nitrate removal (6)	1		3			3.5	2.5

* 5 were uncertain about nitrate removal

(a) No of respondents in brackets

(b) Ranked on a scale of 1 to 5 corresponding to Poor to Excellent

(c) Ranked on a scale of 0 to 4 corresponding to Poor to Excellent

Table 9: Ranking by Melbourne aquarium retailers of attributes of giant clams, frequency of responses and average rating

ATTRIBUTES (a)	RANKING					AVERAGE	
	Excellent	Very Good	Good	Not very good	Poor	(b)	(c)
Colourful (9)	2	4	3			3.9	2.9
Exotic (9)	1	1	4	3		3	2
Shell (9)			3	4	2	2.1	1.1
*Nitrate removal (6)		2	3	1		3.2	2.2

* 3 were uncertain about nitrate removal

(a) No of respondents in brackets

(b) Ranked on a scale of 1 to 5 corresponding to Poor to Excellent

(c) Ranked on a scale of 0 to 4 corresponding to Poor to Excellent

6. Observations on Economics of Retail Sales and Comparative Market Size

Current cost prices were obtained from Bruce Stephens of Reefarm, Cairns, the commercial farming venture used in supplying clams to the retailers participating in the Brisbane survey. Dr. Stephens sells two types of clams, *Tridacna gigas* and *Tridacna crocea*. The former are

priced according to size, being one dollar per centimetre up to a size of twenty centimetres, and two dollars per centimetre beyond this. The croceas are priced according to numbers obtained, with current prices as follows;

Batch Size	Price
0 - 500	\$5.50
500 - 1,000	\$4.50
over 1,000	\$3.50.

At current realistic retail prices of \$28 per clam for Sydney and. \$14.95 to \$19.95 for Melbourne, compared to a cost price of approximately \$5 to \$10, a considerable margin exists between the basic wholesale and retail price. After freight charges sufficient margins exist for retailing of giant clams to be profitable.

While some differences exist in freight charges between Cairns and the three cities, these differences are not large. The air freight of livestock to all three destinations incurs a basic initial charge of \$30. The per kilogram charge, on top of this, then varies, being \$11.22 for Brisbane, \$12.05 for Sydney and \$14.55 for Melbourne. A packaged box of 50 clams weighs 5.5 kilograms.

Given this information it is possible to tabulate the wholesale costs inclusive of air freight so that comparisons can be made. Because Brisbane retailers expected to sell only 50 clams annually, costs have been estimated on the basis of a batch of this size.

Table 10: Estimated minimum cost of 50 giant clams at size 2.5 - 5cm to Brisbane retailers

Item	Total \$	Cost/Clam \$	%
Air Freight	91.71	1.83	19.57
Cost of Clams @ \$5.50 each	257.00	5.50	54.83
Local Delivery Charge	20.00	0.40	4.27
Department of Primary Industry Permit	100.00	2.00	21.33
Total	468.71	7.73*	100.00

* Without permits, \$5.53.

Table 11: Estimated minimum cost of 50 giant clams at size 2.5 - 5cm to Sydney retailers

Item	Total \$	Cost/Clam \$	%
Air Freight	96.28	1.93	24.61
Cost of Clams @ \$5.50 each	275.00	5.50	70.28
Local Delivery Charge	20.00	0.40	5.11
Total	391.28	7.83	100.00

Table 12: Estimated minimum cost of 50 giant clams at size 2.5 - 5cm to Melbourne retailers

Item	Total \$	Cost/Clam \$	%
Air Freight	110.03	2.20	27.17
Cost of Clams @ \$5.50 each	275.00	5.50	67.90
Local Delivery Charge	20.00	0.40	4.93
Total	405.03	8.10	100.00

These figures indicate the cost price to be far higher in Queensland than the other states due to the imposition of the Queensland Department of Primary Industry permits. Retail prices in Brisbane were simultaneously somewhat lower than Melbourne and Sydney, with clams in the survey selling at between \$10 and \$13 (Tisdell, 1991 p 31). However, this does not account for other overheads, particularly shop rental, which may be somewhat higher in the other states. It was also expected that the profit margin for the larger sized clam, 5-10cm would be higher, given a higher retail price and less than proportional increases in other costs. Nevertheless, it would appear that a more profitable market in Australia exists for giant clams as aquarium specimens outside Queensland, despite Queensland being their state of origin. This is due largely to Queensland permit requirements but also partly to the fact that giant clams can command a higher retail price in the southern states.

7. Conclusions

Indications are that giant clams, as aquarium specimens, would be purchased by aquarium outlets at higher prices in Sydney and Melbourne and sold at higher prices than in Brisbane. These higher prices are greater than is needed to cover extra transport costs of sending clams to southern capitals. As for the quantities of sales to be expected, the estimates given by retail outlets are of limited value, because most saltwater aquarium outlets contacted have had little or no experience in selling giant clams as aquarium specimens. However, two outlets were very experienced in selling farmed clams and the results from those were very encouraging. While a market exists, results seem to support the conclusion of Tisdell (1991) that it is not

large and it is consistent with annual sales of giant clams as aquarium specimens in Australia of around 5000 per year. The pattern of sales in Sydney and Melbourne may differ from that likely in Brisbane. Only special outlets currently sell farmed giant clams in Sydney and Melbourne and their annual sales seem comparatively large at around 1000 and 300 - 400 respectively.

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APPENDIX A

UNIVERSITY OF QUEENSLAND MARKET STUDY OF GIANT CLAMS AS AQUARIUM SPECIMENS

1. Name of seller
- Address
- Telephone

2. Do you sell aquarium specimens for saltwater tanks?
YES
NO
(If NO, no further questions)

3. Do you sell giant clams?
YES
NO
Reasons why or why not (specify)
-
-

4. Would you be interested in, or do you buy giant clams as aquarium specimens from clam farms? (Tick as appropriate)
BUYING NOW FROM FARM
NOT CURRENTLY BUYING FROM A FARM, BUT INTERESTED
NOT INTERESTED
If not interested, indicate reasons why
-
-

5. If buying, or interested in doing so, which species of clam do you purchase, or wish to purchase? (Tick as appropriate)

Tridacna gigas (Giant Clam)

Tridacna squamosa (Fluted or Scaly Clam)

Tridacna derasa (Smooth Giant Clam)

Tridacna crocea (Boring or Crocus Clam)

Other (Please specify)

6. Would you be interested in purchasing Tridacna gigas (the 'true' giant clam) as an aquarium specimen?

YES

NO

7. Please rank clams of the following sizes, from that most preferred for your trade to the least preferred. How much are you willing to pay for clams of each size? How much would you expect to sell these for?

Preferred size	Cost Price	Retail Price	No. of clams per year
2.5 - 5 cm (1 - 2")
5 - 10 cm (2 - 4")
10 - 15 cm (4 - 6")
15 - 20 cm (6 - 8")
20 - 25 cm (8 - 10")

8. How do you rate giant clams as aquarium specimens in relation to the following attributes?

Attributes	Ranking (Please tick)					Comments
	Excellent	Very good	Good	Not very good	Poor	
Colourful						
Exotic						
Shell						
Nitrate Removal						

Others (specify)

APPENDIX B

LIST OF AQUARIUM RETAILERS INTERVIEWED IN SYDNEY AND

Sydney

Ace Aquariums 1091 Victoria Road West Ryde NSW	02-858 5729
A Quality Aquarium Life 16 Ingleburn Road Ingleburn NSW	02-829 1818
Aqua Life Highway Plaza Cnr Great Western Hwy & Lane Street Wentworthville NSW	02-896 1030
Aquarium World Joyce Man Centre 111 Parramatta Road Auburn NSW	02-648 5200
Aquarium World Birkenhead Point Shopping Complex Drunmoyne NSW	02-819 7718
Coral Sea Aquariums 20C St Paul's Street Randwick NSW	02-399 6763
Crystal Palace Aquariums 50 Ramsay Road FiveDock NSW	02-713 7348
Marine Life 130 Dudley Street Punchbowl NSW	02-759 0635
Padstow Aquarium 92B Chamberlain Road Padstow Heights NSW 2211	02-771 3791
Reef Aquariums 322 Pacific Highway Hornsby NSW	02-476 5675

St George Aquarium
625 Princess Highway
Rockdale NSW 02-599 3766

The Aquarium
Greenwich Rare Fish
481 Pittwater Road
Brookvale NSW 02-938 5911

Troubled Waters Aquarium
Best Road
Seven Hills NSW 02-636 2105

Yagoona Aquarium and Pet Mart
568 Hume Highway
Yagoona NSW 02-709 3755

Melbourne

Aquarium Plus
457 Centre Road
Brentleigh Vic 03-557 2388

A to Z Aquarium
Cnr Scott & Thomas Street
Dandenong Vic 03-792 3250

Bayside Aquariums
126 Nepean Highway
Seaford Vic 03-786 1617

Black Shark Aquarium
259 Glenhuntly Road
Elsternwick Vic 03-523 8228

Chadstone Aquariums
649 Warrigal Road
Chadstone Vic 03-586 6962

Emperor Marine Aquarium
479 Gibert Road
Preston West Vic 03-470 1548

Highett Aquarium
8 Railway Parade
Highett Vic 03-555 9781

Knox Aquarium Shop 10, 1310 High Street Wantirna South Vic	03-801 6155
Living Aquarium 1404 High Street Malvern Vic	03-509 5106
Lots of Fins Aquariums 3 Valley Fair Drive Naree Warren Vic	03-704 2951
Malvern Aquarium Supplies 56 Glenterrrie Road Malvern	03-509 1141

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