

## CONSUMER ATTITUDES TOWARDS OYSTERS IN AUSTRALIA: AN ANALYSIS OF DEMOGRAPHIC CHARACTERISTICS

Yu Liu,

Australian Maritime College, Faculty of Fisheries and Marine Environment,  
liuyu23@hotmail.com

Dr. Felicia Kow,

Australian Maritime College, Faculty of Fisheries and Marine Environment,

[F.Kow@fme.amc.edu.au](mailto:F.Kow@fme.amc.edu.au)

Dr. Devinder Grewal,

Australian Maritime College, School of Maritime Business, [D.Grewal@mte.amc.edu.au](mailto:D.Grewal@mte.amc.edu.au)

Dr. Des Fitzgerald

University of Tasmania, School of Mathematics and Physics

[D.FitzGerald@utas.edu.au](mailto:D.FitzGerald@utas.edu.au)

### ABSTRACT

The need to understand the oyster consumption patterns has become a more and more important issue for Australian marketers today due to the dramatic increase of oyster production. This study sought to gain an insight into the influence of the different demographic characteristics on the consumer attitudes towards oysters. The method of face to face interviews of consumers at simple random sampled seafood retail shops in some Australian state capital cities, was used to collect the data in this study. The data was analysed by ANOVA, Scheffe test and T-tests. Some variables of consumer attitudes towards oysters such as quality, safety and psychological aspects were identified by principal component factor analysis. This information is imperative for the Australian oyster industry if it wishes to be at the competitive edge.

**Keywords:** consumer attitudes, principal component factor analysis, ANOVA, Scheffe test and T- tests, some state capital cities of Australia

### INTRODUCTION

The delicate flavour of Australian oysters can be attributed to the crystal clear waters and unpolluted environment in which they are cultured. The Australian oyster industry is one of the traditional seafood industries in Australia. There are two main oyster species cultured in Australia (Nell 2002): native Sydney rock oyster *Saccostrea glomerate* farmed in NSW, southern Queensland and southern Western Australia, and the introduced Pacific oyster *Crassostrea gigas* farmed in Tasmania, South Australia and Port Stephens, NSW. Over the past several years, the oyster production has increased dramatically. The production of oysters in Australia is around 10,000 ton a year, and contributes more than A \$57 million to the Australian economy (ABARE 2003). At the same time, oyster industries have realized the impact of the fast expanding production and the stronger market competition from other products, and need updated marketing information on consumer oyster purchase habits, such as who buys what, where and when, and why people buy the oysters they buy.

Understanding consumers and their needs is the core competence at the heart of any company with a strategic vision today. To survive in today's ever-changing marketing environment, an organization must provide its targeted customers with more value than its competitors. Therefore it requires the organization to anticipate and react to customer needs faster and better than its competitors. Over the past decades consumer research has become critical and essential to the seafood and aquaculture sectors (Anderson 1995). It helps marketers to understand what motivates consumer choice in general, its corresponding trends and identifies any new potential markets that may arise in the future.

Over the past few years there have been a number of studies exploring the characteristics of the seafood markets. These studies have addressed the demand pattern and substitution of seafood products (Cheng &

Capps 1988), the impact of advertising on retail demand (Kinnucan & Enkateswaran 1990; Brooks & Anderson 1991), the relationship between price and other product attributes (Wang & Kellogg 1988), the conjoint analysis of the seafood markets (Wirth et al. 1991; Anderson 1988; Halbrecht et al. 1990), seafood consumption studies (Skurray & Saeed 1991; Bose & Brown 2000, Nauman et al 1995), the effect of consumer attitudes on the seafood consumption based on Ajzen and Fishbein's theory (1980; 1988;1991), (Weinstein et al. 1999), the seafood safety considerations on seafood consumption (Lin et al 1991), using the discrete logit model to study the probability of consuming fish from home and away from home (Nayga and Capps 1995), recent issue of the eco-labelling of seafood (Wessels et al 1999) and many others.

These researches implied that consumers generate their preferences and attitudes from available information and experiences, which finally influence the consumer choice of seafood products. The study of Weinstein (1999) showed the importance of consumer attitudes for the consumer choice behaviour in the decision-making process. Consumers' choices of oysters are affected by their demographic, socio-economic and attitudinal characteristics.

The oyster marketing study for the American Pacific Coast (Hardesty 2001) investigated oyster consumers' perceptions of oysters and their oyster buying and marketing practices. The results show that there is a need to carry a variety of oysters from different waters; markets for large oysters are growing (Asian and Hispanic preference); half-shell oysters are the most popular preparation for oysters; oysters eaten in restaurants are more popular than those eaten at home; consumers are concerned about the health benefits of oysters. Hanson et al. (2002) surveyed U.S. consumers' attitudes toward oysters to find out that price, product safety and availability of fresh products were the factors that could increase oyster consumption. Non-oyster consumers usually had strong negative reactions to the taste, texture and smell of oysters. Ruello (2002) found that oyster appearance and meat size were the critical product quality attributes of oysters. The study of Unic (2003) shows that the oyster bar is trendy for the future oyster consumption. However, in Australia, rare studies have been focused solely on oysters to understand the complementary relationship between the consumer attitudes towards oysters and variation in demographic characteristics. Lack of information about consumer preferences for oysters is an important impediment to the growth of oyster consumption and to the growth of the oyster industry as a whole in Australia.

This study aims to examine what crucial factors influence consumer choices of oysters and to ascertain the extent to which various demographic factors play a role in the consumer attitudes towards oysters. Furthermore the study seeks to find some implications for marketing, as well as identifying new potential markets for the oyster industry in major Australian cities. The study will give an insight into current consumer habits of purchasing oysters. The results of the study will also be a guide for sellers to use in targeting consumers who are most likely to increase their oyster consumption. Finally, this study will help to ensure that the Australian oyster industry maintains its competitive advantage and utilises its reputation for clean, safe, reliable and quality oyster products.

## **METHODS**

### **Data collection**

The data used in this study was collected from 696 respondents interviewed randomly at fish shops within large shopping centres in Sydney, Melbourne, Brisbane, Adelaide and Hobart from April to July 2003. Purposive random sampling was applied to choose the sampled fish shops. At least 100 respondents were interviewed in each city. The interviewers were trained on how to correctly conduct the survey to disclose the respondents' genuine opinions of oysters. The trained interviewers approached prospective respondents in a random manner. There were 468 oyster eaters, 228 non-oyster eaters. For non-oyster

eaters, interview questions simply included the reason for not eating oysters and some demographic questions for respondents to reply if they wished.

Nearly half of respondents were from the age of 39 and younger. The education profile showed that 19.3% had a high school or lower qualification, 34.5% had TAFE qualificatino, and 46.2% had university or higher degree. Similar numbers of males and females were respondents in the study: 48.5% were male and 51.5% were female. Overall, most of the respondents were native-English speakers accounting for 67.3 %, leaving 32.7 % respondents originally from the other countries. It showed that the respondents of this study have different culture backgrounds.

### **Questionnaire**

A focus group was conducted to gain an insight into people's preferences of oysters and identify some critical attributes to Australian consumer choice of oysters. Based on the results of the focus group and the related literature (Bose & Brown 2000; Nauman et al 1995; Weinstein et al. 1999), a structured questionnaire was developed, and 24 attributes that might influence consumer choice of oysters were identified. The questionnaire was tested through a pilot study. Then it was revised to the final questionnaire. Respondents in the interview were asked to answer each statement, indicating their level of agreement or disagreement using a five-Likert scale, with the possible responses ranging from 'strongly disagree' to 'strongly agree'. Among the 24 attributes, there were physical attributes, including taste, freshness, size, shape, nutrition, packaging, presentation etc., and other intangible attributes such as personal eating experiences, labelling, reputation of retailers, knowledge of preparation, seasonability, price etc.. The questionnaire also collected demographic information incorporating age, gender, residence, education and the language spoken at home.

### **Data analysis**

Descriptive statistics was used to clarify the demographic variables and the consumer attitudes to oysters. Principle factor analysis was employed first to identify underlying dimensions that may explain the correlation among a set of oyster attributes. The principle factor analysis was used to identify the scales that underline the similar constructs (Spector 1992). It was also used to examine the reliability and validity of the consumer attitude scales (Page & Meyer 2000). The rotation method used was varimax rotation.

Next, an analyses of variance (ANOVA) and T-tests were conducted examining the relationship between the demographic variables and the consumer attitudes to oysters. Significance values (P-values) were calculated for each of the tests. Following the ANOVAs, Scheffe tests were used to measure the significant differences between the demographic groups. The statistical analysis was carried out using the Statistical Package for the Social Sciences (SPSS) 11.0.

## **FINDINGS**

### **Attributes and their associated values**

Factor analysis grouped the 24 attributes into six factors with eigen-values greater than 1.0. These six factors accounted for 55.3% of the total variance.

Table 1 presents the summaries of the six factors. Factor 1, which accounted for 23.0% of total variance, was dominated by attributes that related to correct labelling of site of catch, the date of catch, the name of the oyster, fresh or defrost on the products label. These are more about the labelling issue. Factor 2, was dominated by attributes that associated with the preference of the retail premises with seafood quality and safety management systems implementation, importance of the seafood safety and quality assurances, environmental concerns, whether it was safe to eat, concerns of health and safety regulations. Factor 2, therefore, talks about the safety values. Factor 3 was dominated by attributes more related to seasonability, trying different styles of oysters, price, packaging, future expectations. Hence Factor 3, is more associated with preferred values. Factor 4 was dominated by attributes that related to ability to determine the quality, health influence, eating experience. So Factor 4 denoted psychological aspects. Factor 5 was dominated by attributes that related to taste, freshness, quality, preparation. Factor 5 mostly represented quality values. Factor 6 related to attributes including attractive presentation, shape of the shell and size of the oysters. Factor 6 most likely indicated presentation values. Factor analysis was saved and used in subsequent analysis.

Table 1 Factors and correlated variable loadings

Subscale/items	Mean	SD	Factor loading
<b>Factor 1 Labelling</b>			
the site of the catch on the label	4.06	0.88	0.754
the date of the catch on the label	4.21	0.88	0.732
the name of the oyster on the label	4.14	0.85	0.688
either fresh or defrost sign on the label	4.25	0.83	0.536
Variance explained			23.032
Eigenvalue			5.542
Combined subscale		4.1654	0.6607
<b>Factor 2 Safety</b>			
the premises that adopt seafood safety and quality assurances	4.419	0.81	0.725
importance of the seafood safety and quality assurance	4.44	0.70	0.619
environmental issues	4.16	0.86	0.596
safe to eat	3.75	0.83	0.519
the health and safety regulations concerns	4.36	0.76	0.480
Variance explained			32.892
Eigenvalue			2.352
Combined subscale		4.18	0.55
<b>Factor 3 Preferred values</b>			
season	3.18	0.95	0.697
buy more oysters in the future	3.44	0.87	0.657
try different styles of oysters if someone suggests	3.13	0.90	0.613
buy good quality oysters even if the price is higher	3.35	1.02	0.584
nicely-packaged oysters	3.19	1.02	0.465
Variance explained			40.856
Eigenvalue			1.911
Combined subscale		3.2581	0.6255
<b>Factor 4 Psychological aspects</b>			
ability to determine the quality of the oysters	3.74	1.12	0.711
health influence	4.11	0.74	0.608
experience of eating oysters	4.12	1.08	0.572

Variance explained			46.15
Eigenvalue			1.267
Combined subscale	3.9878		0.7216
<b>Factor 5 Quality</b>			
taste	4.31	0.73	0.612
freshness	4.52	0.63	0.602
quality	4.40	0.74	0.552
how to prepare	3.16	1.07	0.511
Variance explained			50.929
Eigenvalue			1.151
Combined subscale		4.1012	0.5280
<b>Factor 6 Presentation</b>			
Attractive presentation	3.49	0.89	0.729
shape of the shell	3.07	0.95	0.695
size of the oysters	3.52	0.93	0.513
Variance explained			55.339
Eigenvalue			1.073
Combined subscale		3.3571	0.6772

**Bivariate statistics**

Figures 1-7 presents the relationship between the consumer attitudes to labelling, safety, preferred values, psychological aspects, quality and presentation respectively, and demographic factors.

It was found that the differences of consumer attitudes to 'quality' ( $F= 3.17 P \leq 0.05$ ) and 'safety' ( $F= 3.91 P \leq 0.05$ ) between different age groups are significant. As for 'quality' factor, the result of a Scheffe test revealed that respondents aged between 40-59 (mean= 4.15) are significantly more concerned about quality than the respondents aged between 15-19 (mean= 3.76). One of the reasons could be possible that respondents between 15-19 usually do not go shopping by themselves. Hence, they do not know much about how to choose good quality oysters. Regarding the 'safety' factor, the result of a Scheffe test indicated that the respondents aged over 60 (mean= 4.28) had significantly higher concerns on safety of consuming oysters than respondents aged between 15-19. It can see that respondents aged over 60 being older, and were more careful of the safety of consuming oysters. The results also show that the differences of consumer attitudes to 'presentation' and 'labelling' between different age groups are not statistically significant.

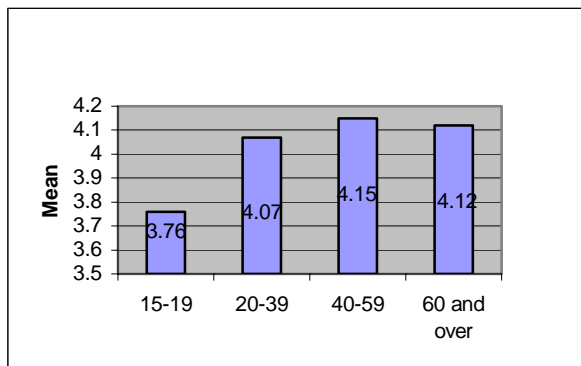


Figure 1: Consumer attitudes to quality by age ( $F= 3.17 P \leq 0.05$ )

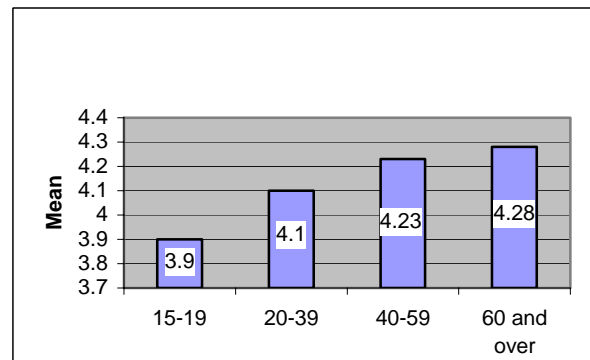


Figure 2: Consumer attitudes to safety by age ( $F= 3.91 P \leq 0.05$ )

Significant differences in mean scores were observed for consumer attitudes to 'quality' ( $F= 6.74$   $P<0.001$ ), 'safety' ( $F= 3.63$   $P< 0.01$ ), 'labelling' ( $F= 15.63$   $P< 0.001$ ) and 'presentation' ( $F= 9.68$   $P< 0.001$ ) among those who were from different capital cities. The results of Scheffe tests showed that regarding factor 'quality', the respondents in Melbourne expressed more concerns on quality (mean= 4.01) than the respondents in Hobart (mean= 1.27). The difference in attitudes to quality between the respondents in Sydney (mean= 4.12) and respondents in Brisbane (mean= 3.93) is significant. The difference in attitudes to quality between the respondents in Brisbane (mean= 3.93) and respondents in Sydney (mean= 4.12), Hobart (mean= 1.27) and Adelaide (mean= 4.23) is significant. The difference of attitudes to quality between the respondents in Hobart (mean= 1.27) and respondents in Melbourne (mean= 4.01) and Brisbane (mean= 3.93) is significant. The difference in attitudes to quality between the respondents in Adelaide (mean= 4.23) and respondents in Brisbane (mean= 3.93) is significant. It shows that respondents from Hobart are much less concerned with quality of oysters when purchasing oysters. During the interviews, some respondents in Hobart said that sometimes they prefer buy fresh oysters straight from the oyster farms.

As for factor 'safety', the difference in attitudes to safety between the respondents in Melbourne (mean= 4.10) and the respondents in Hobart (mean= 4.37) is significant. The difference in attitudes to safety between the respondents in Brisbane (mean=4.17) and the respondents in Hobart (mean= 4.37) is significant. The difference in attitudes to safety between the respondents in Hobart (mean= 4.37) and the respondents in Melbourne (mean= 4.10), Brisbane (mean=4.17) and Adelaide (mean= 4.10) is significant. The difference of attitudes to safety between the respondents in Adelaide (mean= 4.10) and the respondents in Hobart (mean= 4.37) is significant. Some respondents were still scared of getting sick from eating oysters.

In terms of factor 'presentation', the difference in attitudes to presentation between the respondents in Melbourne (mean= 3.27) and the respondents in Sydney (mean= 3.69) is significant. The difference in attitudes to presentation between the respondents in Sydney (mean= 3.21) and the respondents in Melbourne (mean= 3.27), Brisbane (mean= 3.21), Hobart (mean= 3.20) and Adelaide (mean= 3.36) is significant. The difference in attitudes to presentation between the respondents in Brisbane (mean= 3.21) and the respondents in Sydney (mean= 3.69) is significant. The difference in attitudes to presentation between the respondents in Hobart (mean= 3.20) and the respondents in Sydney (mean= 3.69) is significant. The difference in attitudes to presentation between the respondents in Adelaide (mean= 3.36) and the respondents in Sydney (mean= 3.69) is significant. The respondents from Adelaide perceived presentation was much more important in influencing their oyster purchase.

As for factor 'labelling', the difference in attitudes to labelling between the respondents in Melbourne (mean= 3.89) and the respondents in Sydney (mean= 4.35), Brisbane (mean= 4.28) and Hobart (mean= 4.43) is significant. The difference in attitudes to labelling between the respondents in Sydney (mean= 4.35) and the respondents in Melbourne (mean= 3.89) and Hobart (mean= 4.43) is significant. The difference in attitudes to labelling between the respondents in Brisbane (mean= 4.28) and the respondents in Melbourne (mean= 3.89) and Hobart (mean= 4.43) is significant. The difference in attitudes to labelling between the respondents in Hobart (mean= 4.43) and the respondents in Melbourne (mean= 3.89) and Adelaide (mean= 3.90) is significant. The difference in attitudes to labelling between the respondents in Adelaide (mean= 3.90) and the respondents in Sydney (mean= 4.35), Brisbane (mean= 4.28) and Hobart (mean= 4.43) is significant. The concerns of correct labelling for the purchased oysters by respondents from Melbourne were just over average, while the respondents from other cities showed higher concerns.

Assuming the differences of consumer attitudes to oyster consumption were valid, then the possibility of 'winning' the consumers over from different cities to purchasing and consuming more oysters does not seem far-fetched. The related marketing strategies should be well designed to target the particular consumer groups.

When examining the relationship between psychological aspects and the education level, significant differences in mean scores were observed for 'psychological aspects' ( $F= 5.73$   $P < 0.001$ ). The result of a Scheffe test reveals that the difference in scores of 'psychological aspects' is statistically significant between the respondents with high school qualification (mean= 3.82) and the respondents with TAFE qualifications (mean= 4.18). The difference in scores of 'psychological aspects' is statistically significant between the respondents with TAFE qualifications (mean= 4.18) and the respondents with high school qualification (mean= 4.18) and with higher degree qualifications (mean= 3.69). The difference in scores of 'psychological aspects' is statistically significant between the respondents with higher degree qualification (mean= 3.69) and the respondents with TAFE qualifications (mean= 4.18). Respondents with TAFE qualifications seem more likely to have the highest concerns of psychological aspects when eating oysters. The results of the interview show that the oyster consumption of this group of consumers was more likely to be influenced by external factors such as friends' recommendations or their personal eating experiences.

Within the groups of respondents from different cities, consumer attitudes to 'psychological aspects' was significant ( $F= 4.66$   $P \leq 0.01$ ). The result of a Scheffe test clarifies that the difference in scores of 'psychological aspects' is statistically significant between the respondents from Melbourne (mean= 3.57) and the respondents from Sydney (mean= 4.22), Brisbane (mean= 4.16) and Hobart (mean=4.34). The difference in scores of 'psychological aspects' is statistically significant between the respondents from Sydney (mean= 4.22) and the respondents from Melbourne (mean= 3.57) and Adelaide (mean=3.7). The difference in scores of 'psychological aspects' is statistically significant between the respondents from Brisbane (mean= 4.16) and the respondents from Melbourne (mean= 3.57) and Adelaide (mean=3.7). The difference in scores of 'psychological aspects' is statistically significant between the respondents from Hobart (mean= 4.34) and the respondents from Melbourne (mean= 3.57) and Adelaide (mean=3.7). The difference in scores of 'psychological aspects' is statistically significant between the respondents from Adelaide (mean=3.7) and the respondents from Sydney (mean= 4.22), Brisbane (mean= 4.16) and Hobart (mean= 4.34). Respondents' beliefs in the influence of psychological aspects on the oyster consumption in Melbourne and Adelaide are just over average.

Significant differences of scores of 'preferred values' were observed among different age groups ( $F= 4.66$   $P < 0.01$ ). Those findings attained that the difference of mean scores of 'preferred values' is statistically significant between the respondents aged 15-19 (mean= 2.73) and the respondents aged 20-39 (mean= 3.3), the respondents aged from 40-59 (mean= 3.27) and the respondents aged over 60 (mean= 3.24). The difference in scores of 'preferred values' is statistically significant between the respondents aged 20-39 (mean= 3.3) and the respondents aged 15-19 (mean= 2.73). The difference in scores of 'preferred values' is statistically significant between the respondents aged 40-59 (mean= 3.27) and the respondents aged 15-19 (mean= 2.73). The difference of scores of 'preferred values' is statistically significant between the respondents aged over 60 (mean= 3.24) and the respondents aged 15-19 (mean= 2.73). The results indicated that the respondents aged 15-19 did not have much interest in 'preferred values', such as price, availability and others. Respondents aged 15-19 were a group of consumers whose oyster eating habits are developing. They present a critical portion of the 'next generation' of consumers, and thus play a very important role in improving the future oyster consumption. The consumption patterns of teenagers should be further researched and related strategies to improve the consumption for this group of consumers should be designed.

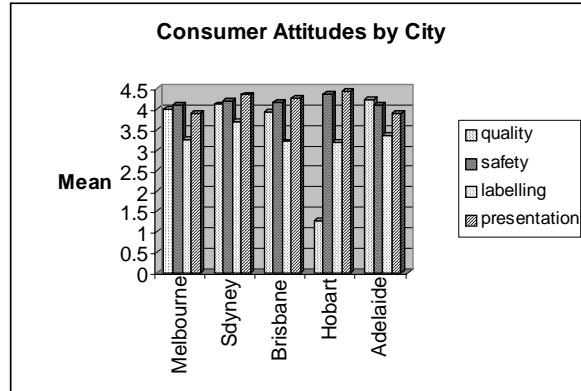
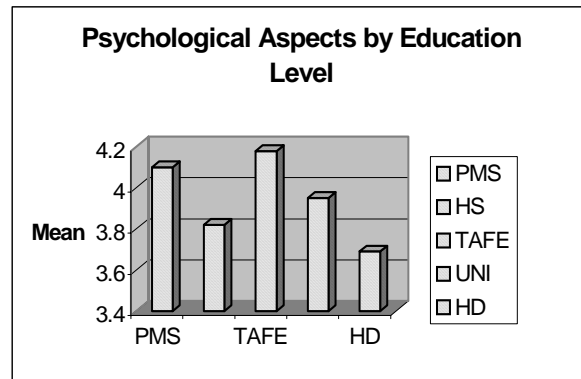


Figure 3: Consumer attitudes to quality ( $F= 6.74 P \leq 0.001$ ), safety ( $F= 3.63 P \leq 0.01$ ), labelling ( $F= 9.68 P \leq 0.001$ ) and presentation ( $F= 15.63 P \leq 0.001$ ) by residence



PMS: Primary School; HS: High school;UNI: University; HD: Higher degree

Figure 4: Consumer attitudes to psychological aspects by education level ( $F= 5.73 P \leq 0.001$ )

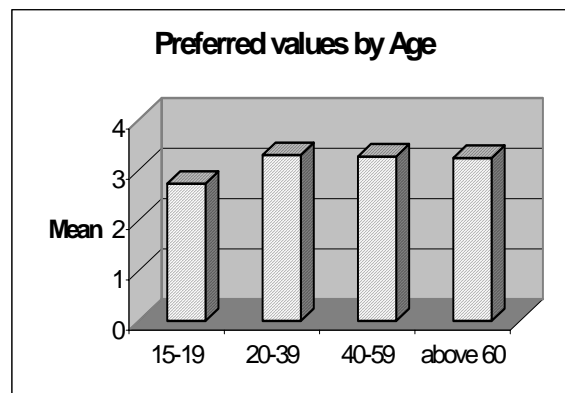


Figure 5: Consumer attitudes to referred values by age ( $F= 4.66 P \leq 0.01$ )



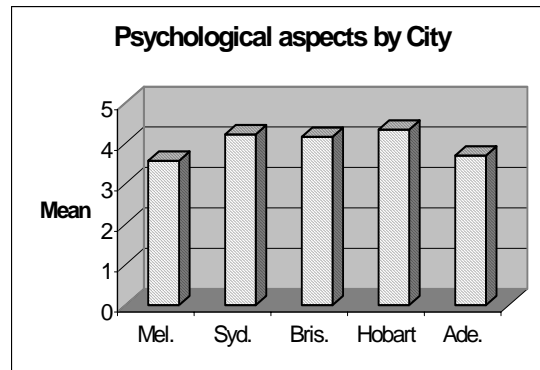


Figure 6: Consumer attitudes to psychological aspects by city ( $F= 25.79 P \leq 0.001$ )

Among the respondents from different cities, significant differences in scores of 'preferred values' was observed ( $F= 23.62 P \leq 0.001$ ). The result of a Scheffe test indicates that the differences in scores of 'preferred values' is statistically significant between the respondents from Melbourne (mean= 3.10) and the respondents from Sydney (mean= 3.62) and Adelaide (mean= 3.41). The differences in scores of 'preferred values' is statistically significant between the respondents from Sydney (mean= 3.62) and the respondents from Melbourne (mean= 3.10), Brisbane (mean= 2.89) and Hobart (mean= 3.27). The differences in scores of preferred values is statistically significant between the respondents from Brisbane (mean= 2.89) and the respondents from Sydney (mean= 3.62), Hobart (mean= 3.27) and Adelaide (mean= 3.41). The differences in scores of preferred values is statistically significant between the respondents from Adelaide (mean= 3.41) and the respondents from Melbourne (mean= 3.10) and Brisbane (mean= 2.89). The respondents from Sydney expressed the highest interests in 'preferred values', such as price, availability and others. This reflects the fact that these preferred values are actively affecting the consumer oyster purchase.

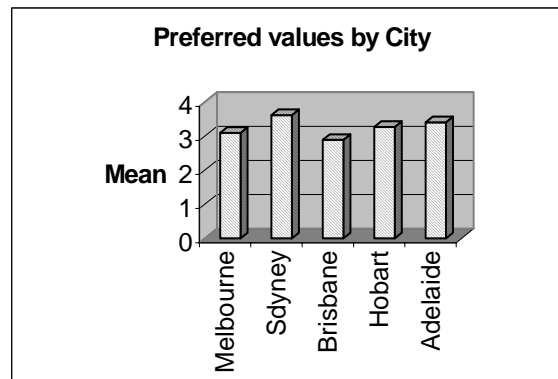


Figure 7: Consumer attitudes to preferred values by city ( $F= 23.62 P \leq 0.001$ )

## CONCLUSION

This study examined the relationship between consumer attitudes to oysters and demographic factors in five capital cities of Australia. The results concluded in the findings section above elicited that different age group have significant influence on consumer attitudes to quality and safety, as well as the 'preferred values' factor. The consumer attitudes to 'psychological aspects' was significantly affected by respondents' different education levels. Also the respondents from different cities significantly influence the consumer attitudes to 'psychological aspects' and 'preferred values'. In particular, age, residence,

education level seem to be the imperative factors considered to increase the oyster consumption. These elements of information are important to oyster marketers to develop feasible marketing strategies for the domestic market.

There might be a potential to differentiate oyster markets among different capital cities. Nutritional benefits (lower cholesterol than other shellfish) of oysters should be strongly promoted in regard to healthy eating habits. Distributors and retailers should begin to promote oysters as a regular product listing, since sales could increase because of the availability of supply. Consequently, consumption patterns will gradually change, reflecting a year round availability of supply. With the issue of water quality for oysters, consumers are eager to have the knowledge concerning the location of the bought products. Consumers need to be aware and be educated on the new dynamics of the oyster industry. Marketing campaigns that focus on creating awareness and additional sales should be well designed. Brochures which introduce growing regions, growing methods, handling procedures, storage knowledge, nutritional benefits (lower cholesterol than other shellfish), quick and easy recipes and flavour profiles, should be developed. Maps of growing regions should be available at retail shops. Consumers could compare oysters from different areas.

The oyster consumption of young Australian generations will be a big challenge for the increase of oyster consumption in the future. More education should be available to young Australians such as TV advertisements with the involvement of a famous star, or promotions aimed at parents to encourage children to try oysters such as kilpatrick or deep-fried. Size uniformity and good meat yield are important for consumers' choice of oysters. Therefore the related grading system of harvest oysters is important for the branding of the quality of produced oysters. Outlets should also develop a special activity such as 'oyster of the day' 'served as a special with other drinks (wine) ' or a 'Food exhibition' to promote oysters.

This study may be a good basis for future research on the Australian domestic oyster markets. A broader sample such as rural residents and urban residents, more diverse ethnic groups and the investigation of the respondents income level would be recommended for the future research. The results of this study would be very useful in organising the retail of oysters as well as advertising and publicity campaigns to encourage the marketing of oysters in Australia.

## **ACKNOWLEDGEMENTS**

The authors would like to thank the Tasmanian Oyster Research Council, the South Australia Oyster Research Council and the Australian Maritime College for their funding support. Appreciation also extends to oyster growers, processors, wholesalers, retailers, government officers and others who assisted and supported this project, and all respondents who kindly took the time and effort to participate in the interviews.

## **REFERENCES**

- ABARE, 2003, *Australian Fisheries Statistics 200*., Australian Bureau of Agricultural Resource Economics, Canberra.
- Ajzen, I. & Fishbein, M., 1980, *Understanding attitudes and predicting social behaviour*, Prentice Hall, Englewood Cliffs, New Jersey.
- Ajzen I. 1988, *Attitudes, personality and behaviour*, The Dorsey Press, America.

- Ajzen I. 1991, The theory of Planned behaviour, *Organisational behaviour and human decision processes*, 50, pp 179-211.
- Anderson J. L. (1995) Purchase Behaviour, Food Safety, and Quality Control in Seafood and Aquaculture Marketing: Discussion. *American Journal of Agriculture Economics*, Vol. 77, pp. 1319-1321.
- Anderson, J. L., 1988, Current and Future Market for Salmon in the United States, in *Proceedings of Aquaculture International Congress and Exposition*, Vancouver Trade and Convention Centre, Vancouver, BC, September 6-9, pp. 81-88.
- Brooks, P. M. and Anderson, J. L., 1991, Effects of Retail Pricing, Seasonability and Advertising on Fresh Seafood Sales, *Journal of Business and Economics Studies*, 1, pp. 55-68.
- SPSS Inc. (2002) *SPSS 11.0 Base for Windows, User's Guide*. SPSS Inc., Chicago, IL.
- Bose S., 2000, 'A Preliminary Investigation of Factors Affecting Seafood Consumption Behaviour in the Inland and Coastal Regions of Victoria, Australia', *Journal of Consumer Studies & Home Economics*, 24 (4), pp 257-262.
- Cheng, H. and Capps, O., 1988, Demand Analysis of Fresh and Frozen Finfish and Shellfish in the United States, *American Journal of Agricultural Economics*, 70 (3), pp. 533-542.
- Gempesaw M. C. Bacon J.R. Wessells C.R., Manalo A., 1995, Consumer Perceptions of Aquaculture Products, *American Journal of Agriculture Economics*, December, pp. 1306-1312.
- Halbrendt, C.K., F. F. Wirth, and G. F. Vaughn, 1990, *Conjoint Analysis of the Mid-Atlantic Food-Fish Market for Farm-raised Hybrid Striped Bass*, Agricultural Experiment Station Bulletin # 488, University of Delaware.
- Hadlett H.M., Raab C.A., 1990, Consumer perceptions of fresh fish quality, *Journal of the American Dietetic Association*, August 1990, 90 (8), pp 1109-1111.
- Herrmann R.O. Rauniyar G.P., Hanson G.D. Wang G., 1994, Identifying Frequent Seafood Purchasers in the Northeastern U.S., *Agricultural and Resource Economics Review*, October, pp 226-235.
- Houston J. E. Li. H. S., 1998, Factors Affecting Consumer Preferences for Shrimp in Taiwan, *Proceedings of the International Institute of Fisheries Economics and Trade*, IIFET, Tromso, Norway, July 1998.
- Kinnucan, H. W., Nelson, R. G. & Hiariey, J. 1993, U. S. Preferences for fish and seafood: an evoked set analysis, *Marine Resource Economics*, 8, pp 273-291.
- Kinnucan, H. W., and Venkateswaran, M., 1990, Effects of Generic Advertising on Perceptions and Behaviour: The Case of Catfish, *Southern Journal of Agricultural Economics and Social Measurement*, Decemeber 1990, pp. 137-151.
- Lin, J. C. T., Milon J. W. & Babb E. 1991. Determinants of Subjective Food Safety Perceptions: A Case Study of Oysters in the Southeast', *Journal of Agribusiness*, Spring 1991.

- Maddala, G. S., 1983, *Limited Dependent and Qualitative Variables in Econometrics*, Cambridge University Press, Cambridge.
- McFadden, D., 1973, 'Conditional Logit Analysis of Qualitative Choice Behaviour', in *Frontiers in Econometrics*, P. Zarembka, ed. Academic Press, New York.
- Nell, J. A. 2002, 'The history of oyster farming in Australia', *Marine Fisheries Review*, National Marine Fisheries Service, NOAA, Seattle, Washington, 63 (3), pp. 14-25.
- Nauman, F.A., Gempesaw, C. M., Bacon, J.R. & Manalo, A. 1995, Consumer choice for fresh fish: factors affecting purchase decisions, *Marine Resource Economics*, 10, pp. 117-142
- Nayga, R., and O. Capps, Factors Affecting the Probability of Consuming Fish and Shellfish in the Away from Home and at Home Markets. *Journal of Agricultural and Applied Economics*, 27 (1), pp. 161-171.
- Page C. Meyer D., 2000, *Applied Research Design for Business and Management*, The McGraw-Hill Companies, Inc., Sydney.
- Redkar S. B., Bose S., 2004, 'Modelling Purchasing Decisions of Seafood Products: A Case Study of Mumbai, India', *International Journal of Consumer Studies*, vol 28, no.1, pp. 75-82.
- Saunders, M., Lewis, P. & Thornhill, A., 2000, *Research Methods for Business Students, 2nd edition*, Harlow: Pearson Education.
- Spector P. E., 1992, *Summated Rating Scale Construction: An Introduction*, SAGE Publications Inc. California, USA. Spinks A. & Bose S. 2002, Factors affecting household's seafood purchasing decisions in Auckland, New Zealand: an empirical analysis, *International Journal of Consumer Studies*, Vol 26, pp 62-70.
- Skurray G. Sae J., 1991, Consuming Interest, *Australian Fisheries*, November, pg 39.
- Wang, S. D. and Kellogg, C. B., 1988, An Economic Model for American Lobster, *Marine Resource Economics*, 5, pp. 61-70.
- Wessels, C. R., Johnston, R. J. and Donath, H., 1999, Assessing Consumer Preferences for Eco-labelled Seafood: the Influence of Species, Certifier, and Household Attributes, Paper Presented at *the American Agricultural Economics Association*, Nashville, USA, August 8-11.
- Weinstein S. J., Bisogni C.A. Frongillo E.A.JR. Knuth B.A., 1999, Factors Explaining seafood consumption among hispanics living in New York city, *Journal of Nutrition Education*, 31 (4), pp. 212-223.
- Wirth, F. F., Halbrendt, C.K. and Vaughn, G. F., 1991, 'Conjoint Analysis of the Mid-Atlantic Food Fish Market for Farm Raised Hybrid Striped Bass', *Southern Journal of Agricultural Economics*, vol 23, pp. 155-164