

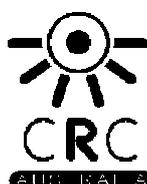
AUSTRALIAN OYSTER INDUSTRY SUPPLY CHAIN ANALYSIS

Shane Comiskey
CDI Pinnacle Management Pty Ltd

June, 2009



Project No: 2008 / 777



ISBN 978-0-9806740-0-2

Disclaimer

This report has been prepared for the Australian Seafood CRC's Oyster Consortium pursuant to a Consultancy Agreement between CDI Pinnacle Management and the Australian Seafood Co-operative Research Centre.

This report has been prepared from data and information gathered from various sources and from primary research carried out by CDI Pinnacle Management. CDI Pinnacle Management has used its best endeavours and exercised the best of its skill and ability to ensure accuracy of the data, information and research materials. CDI Pinnacle Management believes the various sources to be reliable. However, CDI Pinnacle Management does not warrant the accuracy of any of the data or information provided by third parties or of research materials not created by CDI Pinnacle Management.

CDI Pinnacle Management accepts no responsibility for any error contained in, or any omission from, the report arising from the data or information provided by third parties or from the research materials not created by CDI Pinnacle Management.

This report is for the use of the Australian Seafood CRC only. CDI Pinnacle Management accepts no responsibility whatsoever to any third party in respect of the whole or part of this report, including all appendices, or its use.

© CDI Pinnacle Management Pty Ltd 2009.

All rights reserved.

CDI Pinnacle Management

CDI Pinnacle Management (www.pinnaclemanagement.com.au) is an international consultancy specialising in the food and agribusiness sectors. We have been advising and assisting firms since 1989. Our core capabilities across food and agriculture sectors are in chain management, innovation, the development of new business opportunities and the application of new technologies, and assisting in the re-engineering of industries and regions.

Our clients are innovators, early adopters and industry leaders and agencies. They are corporations in the food and agribusiness industries, small to medium enterprises (SMEs), individual producer/marketers (and grower-packer-marketers), producer groups, development and government agencies, and marketers and processors.

CDI Pinnacle Management (CDIPM) takes a non-traditional, interactive approach to consultancy. Using a step-by-step process, we assist businesses and agencies to develop and implement progressive and tailor-made solutions. We assist firms, industries and regions to implement a global vision and provide the tools and assistance to achieve success in domestic and international arenas.

Contact: Shane Comiskey
Unit 16 / 43 Lang Parade
Milton QLD 4064 Australia
Tel: +61 7 3217 6466
Mob: +61 408 135043
Email: scomisk@pinnaclemanagement.com.au

Non-Technical Summary

PRINCIPAL INVESTIGATOR: Shane Comiskey

ADDRESS: CDI Pinnacle Management Pty Ltd
PO Box 1800
Milton QLD 4064
Telephone: 07 32176466 Fax: 07 32176905
Email: scomisk@pinnaclemanagement.com.au

OBJECTIVES:

1. To map the oyster supply chain from growers to end users, including providing estimations on the relative volumes of oysters moving along each pathway.
2. To calculate the volume, location of production for each oyster species.
3. To identify and discuss factors that influence oyster demand along each segment of the supply chain.
4. To calculate and present detailed information on the transaction mechanisms in existence along the supply chain.
5. Identify and provide recommendations to the oyster industry pertaining to future activities that will improve the sustainability of the oyster industry and in particular oyster growers.

NON-TECHNICAL SUMMARY

Australian oyster growers have a greater level of understanding about how their product moves through the supply chain from when they produce to when it is purchased by consumers. This knowledge will allow growers to be better informed and so allow them to make better business decisions in how they market their oysters. Further, the information provides growers with a better understanding of the factors that influence the purchasing decisions of others in the supply chain and hopefully to dispel some of the 'myths' associated with the marketing of oysters.

Importantly, the report provides a total of 11 prioritised recommendations for the industry to consider that in the opinion of the consultant will contribute to improved consumption and / or profit sustainability.

In 2007, oyster production in Australia was estimated at 16.5 million dozen with a farm gate value of between \$90 and \$100 million. The three principal production states NSW, South Australia and Tasmania accounted for 40.9%, 36.8% and 21.4% respectively of the total production level in that year.

The study identified four core segments of the oyster supply chain being:

1. oyster producers and directly related marketing intermediaries.
2. the Mid-Chain (including brokers, wholesalers, oyster openers, distributors and central markets).
3. End Users (including chain store retailers, fishmongers or independent retailers, restaurants, fish and chip operators, and pubs and clubs).
4. Consumers.

The Australian oyster industry chain is highly fragmented with a high degree of competition evident at virtually every level of the supply chain. With the exception of growers, some 'close to grower' marketing companies and specialist oyster shuckers, oysters form an integral but relatively small component of the turnover of many seafood businesses.

Up to seven transactions were evidenced in some grower to consumer supply chains, although the average appears to be four to five.

The general observations on the 2009 oyster supply chain are:

- A large number of growers, many of who are small, act independently of one another in respect of marketing (and production).
- Constraints are apparent on grower profitability, although this is untested at this stage.
- There is a complex mid-chain that involves a large number of seafood wholesalers / specialist oyster wholesalers / shucking / distribution, that supply a very broad range and large number of end user segments.
- Oysters are regarded by the mid-chain and some end user elements as an essential but comparatively unprofitable product which is often used as a loss leader.
- Generally, oysters are a component of a total seafood offer to end users.
- The mid chain sector is highly competitive due to the large number of comparatively small turnover firms. The number of businesses in the mid chain that would be turning over more than \$10 million per annum is small in comparison to other business sectors.
- The end user sector, particularly as it relates to the food service (over 38,000 restaurants Australia wide) and to a lesser extent the independent retail sectors, is highly competitive
- Chain retailers represent a small component of total oyster sales, unlike the majority of chains retailing in fresh agricultural products where they are the dominant player. There

is little scope for oyster grower or grower collectives to direct supply product to chain retailers due to the total seafood offer that selected wholesalers (often referred to as category or approved suppliers) can offer.

The food service sector (restaurants, fish and chips, pub and clubs) represent the largest end user customer base for Australian oysters. We estimate this sector utilises approximately 53% of Australian oyster production.

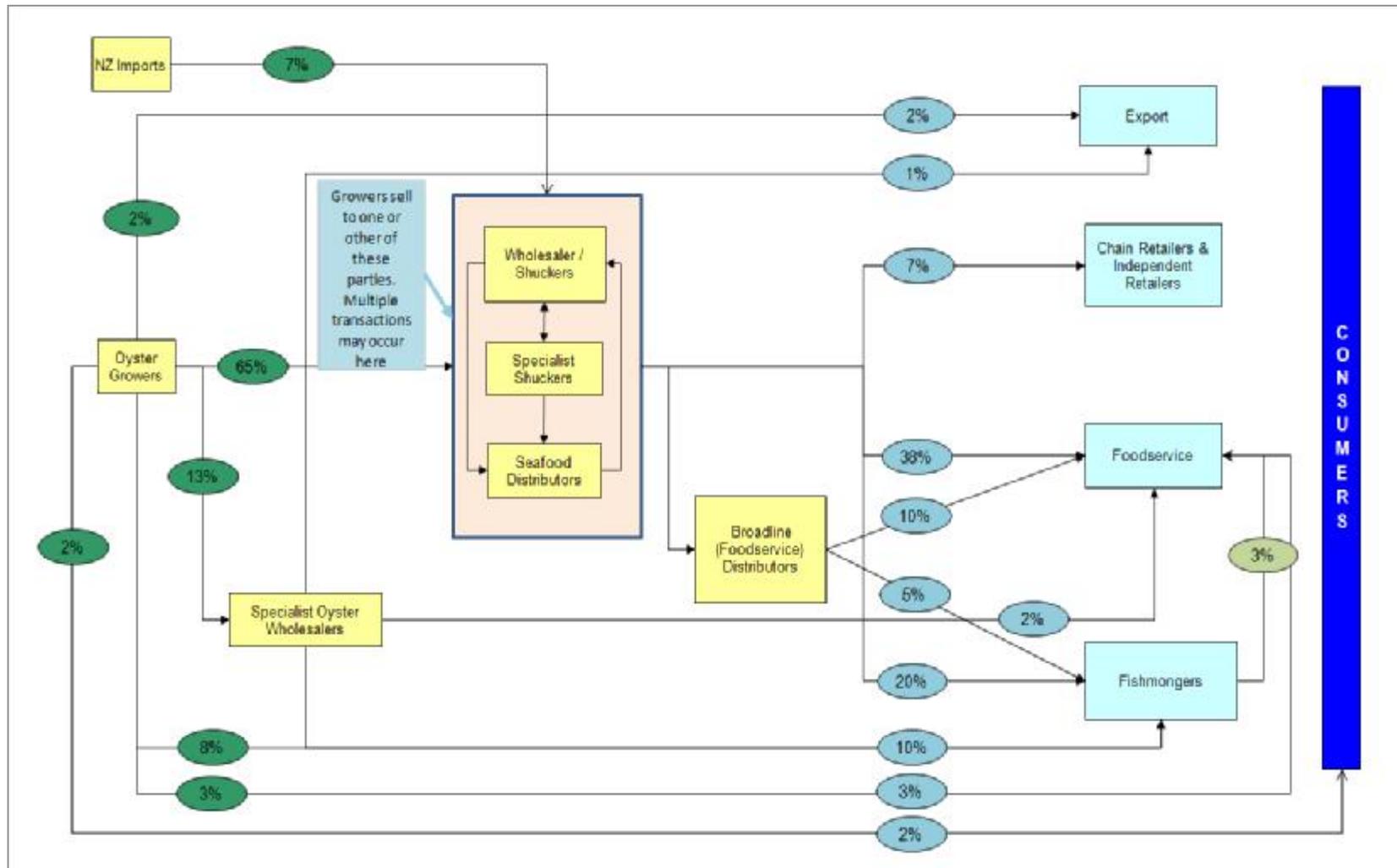
Fishmonger and independent retailers represent the second largest customer segment with approximately 37% of sales.

The two major chain retailers, Coles and Woolworths, we estimate consume around 7% of all oyster sales, which is low in comparison to their market share in general grocery, fresh produce and meat sales.

Exports represent around 3% of all oyster sales.

Figure 2 provides a representation of the Australian oyster industry supply chain with an estimation of the relative volumes of oysters that move along each chain pathway.

Figure 1: Australian Oyster Supply Chain



The study completed a detailed financial breakdown of eight supply chains from grower to consumer, the details of which are provided in the final report.

The study's observations concluded that there was no general market failure occurring in the oyster supply chain, although it is obvious that members of the supply chain who are able to differentiate themselves from their competitors are able to extract comparatively strong margins.

Largely, oyster growers are powerless in influencing the structure of the supply chains in which they operate. This is due to oysters generally being only a component of the business turnover of the vast majority of mid-chain and end users to whom they sell. Further, we consider it unlikely that individual growers are ever likely to invest in the mid-chain. However, a collective of growers may invest in certain aspects of value adding and wholesaling, but they will only be successful if they learn the lessons of past failures. Both critical success and failure factors on the formation of grower collectives and investment in value adding services is provided in this report.

With the rationalisation of the end user customer base and even greater levels of competition for customers at the mid-chain level, growers will increasingly be required to be able to deliver oysters that meet the customer specifications in terms of quality, consistency and volume across a wide proportion of the year. As a result, individual growers who tend to take a more 'speculative' approach to the dealings of their customers will increasingly become irrelevant and not needed by the mid-chain. Unless they have some clearly 'unique' characteristics to the product they offer, these smaller growers will increasingly become price takers, resulting in lower average returns. As average returns are lowered in the face of increasing costs, CDIPM consider that some smaller growers will exit the industry, particularly where they have no alternative income streams.

The study identified a range of industry development issues that, in the opinion of CDIPM, should be addressed for it to become more sustainable. A number of these issues were identified by supply chain parties consulted in this study.

CDIPM have provided a ranking in relation to each of the issues identified as we are aware of the limited available industry funding. As a consequence, we recommend that the highest priority issues be addressed first. However, CDIPM wish to stress that this study has not considered a range of industry development issues which undoubtedly exist inside the farm gate. It may be possible that in light of limited industry funds, these may assume a higher priority.

Table 2 provides a summary of the industry recommendations identified by this study. The final report provides a detailed description of the rationale behind each recommendation.

Table 1: CDIPM Prioritisation of Industry Recommendations.

Recommendations	1	2	3	4	5
	Lowest		Highest		
Increasing Oyster Consumption & Promotional Levies					
Supply Chain Re-engineering					
Storage and Handling Practices					
Food Safety & Quality					
Product Description / Grade Standards / Size Standards					
Chain Communication					
Product Formats					
Value Adding Opportunities					
New Customer Segments					
Truth in Labelling					
Labour Availability					
Traceability					
Freezing Research					
Exporting					

Source: CDI Pinnacle Management

A central recommendation of the study was that oyster growers should investigate possible improvements to the current industry representation structures so as to provide a more sustainable R&D funding capability and representative structure at national and state levels.

Acknowledgements

The consultants wish to express their thanks to the members of the Oyster Consortium and other members of the oyster supply chain that made themselves available for discussions with CDIPM.

The consultancy team wish to express their sincere gratitude to all respondents who willingly gave up their valuable time to contribute to this study. Their overall willingness to provide detailed and often confidential information is greatly appreciated. Without your assistance the level of detail presented in this report would not have been possible.

In particular, we would like to express our gratitude to Rachel King, Oyster Consortium Executive Officer, who assisted with identifying the valuable touchstones and reference points for the project.

Lastly, we wish to express our thanks to the Seafood CRC for the opportunity to conduct this consultancy. We greatly enjoyed the opportunity to work on this project and contribute to a better livelihood for oyster growers and the supply chain it forms a part of.

TABLE OF CONTENTS

DISCLAIMER	1
CDI PINNACLE MANAGEMENT	2
NON-TECHNICAL SUMMARY	3
ACKNOWLEDGEMENTS	3
1. EXECUTIVE SUMMARY	9
1.1 Overview	9
1.2 Study Rationalise & Aims	9
1.3 Supply Chain Observations	9
1.4 End User Market Shares	10
1.5 Chain Costs and Returns	13
1.6 Oyster Industry Supply Chains in 2015	13
1.6.1 End Users	13
1.6.2 Mid-Chain	13
1.6.3 Growers	14
1.7 Key Issues	15
1.8 National Industry Organisation Formation – Core Recommendation ...	15
2 INTRODUCTION	17
2.1 Study Process & Issues	17
2.2 Consultation Issues	18

3	INTRODUCTION TO THE AUSTRALIAN OYSTER INDUSTRY	19
3.1	Background	19
3.1.1	Principal Species	20
3.1.2	Production Methods	21
3.1.3	Seasonality	21
3.1.4	Industry Size Standards	21
3.1.5	Product Forms	22
3.1.6	Packaging	25
3.1.7	Freight Costs	26
3.2	NSW Oyster Production Sector	27
3.2.1	Production Regions	27
3.2.2	Production Statistics	27
3.3	South Australian Oyster Production Sector	28
3.3.1	Production Regions	28
3.3.2	Production Statistics	29
3.4	Tasmanian Oyster Production Sector	30
3.4.1	Production Regions	30
3.4.2	Production Statistics	30
3.5	Queensland Oyster Production Sector	31
3.5.1	Production Regions	31
3.5.2	Production Statistics	32
3.6	Exports	32
3.7	Imports	33
3.7.1	Australian Imports	33
3.7.2	New Zealand Exports	34
4	OYSTER SUPPLY CHAIN	36
4.1	Chain Party Descriptions	36
4.2	Oyster Supply Chain in 2009	36
5	OYSTER PRODUCTION SECTOR	39
5.1	Grower Differentiation	39
5.2	Oyster Pricing at the Farmgate	40

5.2.1	Oyster Price Paid.....	40
5.2.2	Oyster Price Discovery	42
5.2.3	Price and Customer Transparency.....	43
5.2.4	Payment Terms	44
5.3	Individual Growers	44
5.4	Marketing Groups.....	45
5.5	Corporate Growers.....	46
5.6	Smaller Grower Owned Groups/Informal Marketing Alliances.....	47
6	MID-CHAIN.....	49
6.1	Specialist Oyster Wholesalers	49
6.2	Seafood Wholesalers	50
6.2.1	Wholesaler Margins.....	51
6.2.2	Costs of Handling and Processing Oysters	51
6.3	Oyster Openers / Shuckers	52
6.4	Sydney Fish Market.....	53
6.5	Distributors.....	53
6.6	Mainline Food Service.....	55
7	END USERS.....	56
7.1	Chain Retailers	56
7.1.1	Supply Chain Structure.....	56
7.1.2	Importance of Oysters at Store Level	57
7.1.3	Chain Store Margins and Costs	58
7.1.4	Increasing the Sales of Oysters in Chain Retail.....	60
7.1.5	Barriers to Increasing Oyster Sales.....	62
7.1.6	Strategies Aimed at Increasing Oyster Sales	63
7.2	Fishmongers / Independent Retailers.....	63
7.2.1	Importance of Oysters to Fishmongers.....	65
7.2.2	Sources of Supply	65
7.2.3	Fishmonger Business Costs	66
7.2.4	Growth or Decline of Fishmongers.....	66
7.3	Restaurants	68
7.3.1	Introduction	68

7.3.2	Perception of Oysters	69
7.3.3	Restaurant Business Costs	71
7.4	Fish & Chip Shops	72
8	CHAIN MARGIN MODELS	74
8.1	Introduction on Models	74
8.2	Key Observations	82
9	CONSUMERS	84
9.1	Oyster Consumption	84
9.1.1	Oyster Consumption	84
9.1.2	Profile of Consumers Who Don't Eat Oysters	85
9.1.3	Location for Oyster Consumption	86
9.1.4	Oyster Style Preferences	86
9.1.5	When Do Consumers Eat Oysters?	88
9.1.6	Frequency of Oyster Consumption	88
9.2	Consumer Drivers to Seafood Consumption	89
9.3	Investing in Value Adding	90
9.4	Oyster Promotion	91
10	OYSTER SUPPLY CHAINS IN 2015	92
10.1	Comparisons with the Horticultural Chain	92
10.2	Key Observations of Today's Oyster Supply Chain	92
10.3	End Users	93
10.4	Mid-Chain	95
10.5	Growers	96
10.5.1	Grower Investment Down the Chain	96
10.5.2	Non-Grower Investment Up the Chain	97
10.5.3	Other Consolidation Strategies	97
10.6	Aggregation in the Production Sector	97
10.6.1	Grower Consolidation & Network Growers	98
10.6.2	Emergence of Consolidator Networks	100
10.6.3	Shared Corporate Ownership	101
10.6.4	Co-operatives	102
10.6.5	Informal Marketing Alliances	102

10.7	The Role of Industry Organisations in Supply Chain Re-Engineering	103
11	RECOMMENDATIONS FOR DEVELOPING A MORE SUSTAINABLE INDUSTRY	104
11.1	Increasing Oyster Consumption & Promotional Levies	105
11.1.1	Increasing Oyster Consumption	105
11.1.2	Promotional Levies	107
11.2	Supply Chain Re-Engineering	107
11.3	Storage and Handling Practices	108
11.4	Food Safety & Quality	108
11.5	Product Description / Grade Standards / Size Standards	109
11.5.1	Product Descriptor / Grade Standards	109
11.5.2	Size Bracket Creep	112
11.6	Chain Communication	112
11.7	Product Formats	113
11.8	Value Adding Opportunities	114
11.8.1	Potential Value Adding Alternatives	114
11.8.2	Factors to Consider in Developing New Value Adding Opportunities	115
11.9	New Customer Segments	117
11.9.1	Independent Chain Retailers	117
11.9.2	Mainline Food Distributors	117
11.10	Truth in Labelling	117
11.11	Labour Availability	118
11.12	Traceability	119
11.13	Freezing Research	119
11.14	Exporting	121
11.15	Prioritising the Recommendations	122
11.16	National Industry Organisation Formation – Core Recommendation	123
	BIBLIOGRAPHY	124

1. Executive Summary

1.1 Overview

The Australian oyster industry is Australia's third largest single seafood product industry with an estimated farm gate value of approximately \$90-\$100 million per annum. In 2007, the industry produced an estimated 16.5 million dozen oysters, with production centred around the states of New South Wales (NSW), South Australia (SA) and Tasmania (TAS).

1.2 Study Rationale & Aims

The Oyster Consortium recognised that an examination of the structure and costs within the supply chain is vital before any market focussed projects can be designed and funded for the oyster industry.

This study aims to provide:

1. Detailed knowledge pertaining to the physical flows and volumes of oysters that move along various chains to consumers.
2. Various supply chain models that the oyster supply chain from growers to consumers currently have in existence including information on the volume flows.
3. Recommendations to the Oyster Consortium pertaining to strategies, projects or other activities that are required for the growing sector of the industry to become more profitable.
4. Recommendations to the Oyster Consortium pertaining to strategies, projects or other activities that will in concert with other supply chain members have the potential to increase the demand for oysters by providing growers with a better understanding of the end users who supply consumers.

1.3 Supply Chain Observations

The study identified four core segments of the oyster supply chain being:

5. oyster producers and directly related marketing intermediaries.
6. the Mid-Chain (including brokers, wholesalers, oyster openers, distributors and central markets).
7. End Users (including chain store retailers, fishmongers or independent retailers, restaurants, fish and chip operators, and pubs and clubs).

8. Consumers.

The Australian oyster industry chain is highly fragmented with a high degree of competition evident at virtually every level of the supply chain. With the exception of growers, some 'close to grower' marketing companies and specialist oyster shuckers, oysters form an integral but relatively small component of the turnover of many seafood businesses.

Up to seven transactions were evidenced in some grower to consumer supply chains, although the average appears to be four to five.

The general observations on the 2009 oyster supply chain are:

- A large number of growers, many of who are small, act independently of one another in respect of marketing (and production).
- Constraints are apparent on grower profitability, although this is untested at this stage.
- There is a complex mid-chain that involves a large number of seafood wholesalers / specialist oyster wholesalers / shucking / distribution, that supply a very broad range and large number of end user segments.
- Oysters are regarded by the mid-chain and some end user elements as an essential but comparatively unprofitable product which is often used as a loss leader.
- Generally, oysters are a component of a total seafood offer to end users.
- The mid chain sector is highly competitive due to the large number of comparatively small turnover firms. The number of businesses in the mid chain that would be turning over more than \$10 million per annum is small in comparison to other business sectors.
- The end user sector, particularly as it relates to the food service (over 38,000 restaurants Australia wide) and to a lesser extent the independent retail sectors, is highly competitive
- Chain retailers represent a small component of total oyster sales, unlike the majority of chains retailing in fresh agricultural products where they are the dominant player. There is little scope for oyster grower or grower collectives to direct supply product to chain retailers due to the total seafood offer that selected wholesalers (often referred to as category or approved suppliers) can offer.

1.4 End User Market Shares

The food service sector (restaurants, fish and chips, pub and clubs) represent the largest end user customer base for Australian oysters. We estimate this sector utilises approximately 53% of Australian oyster production.

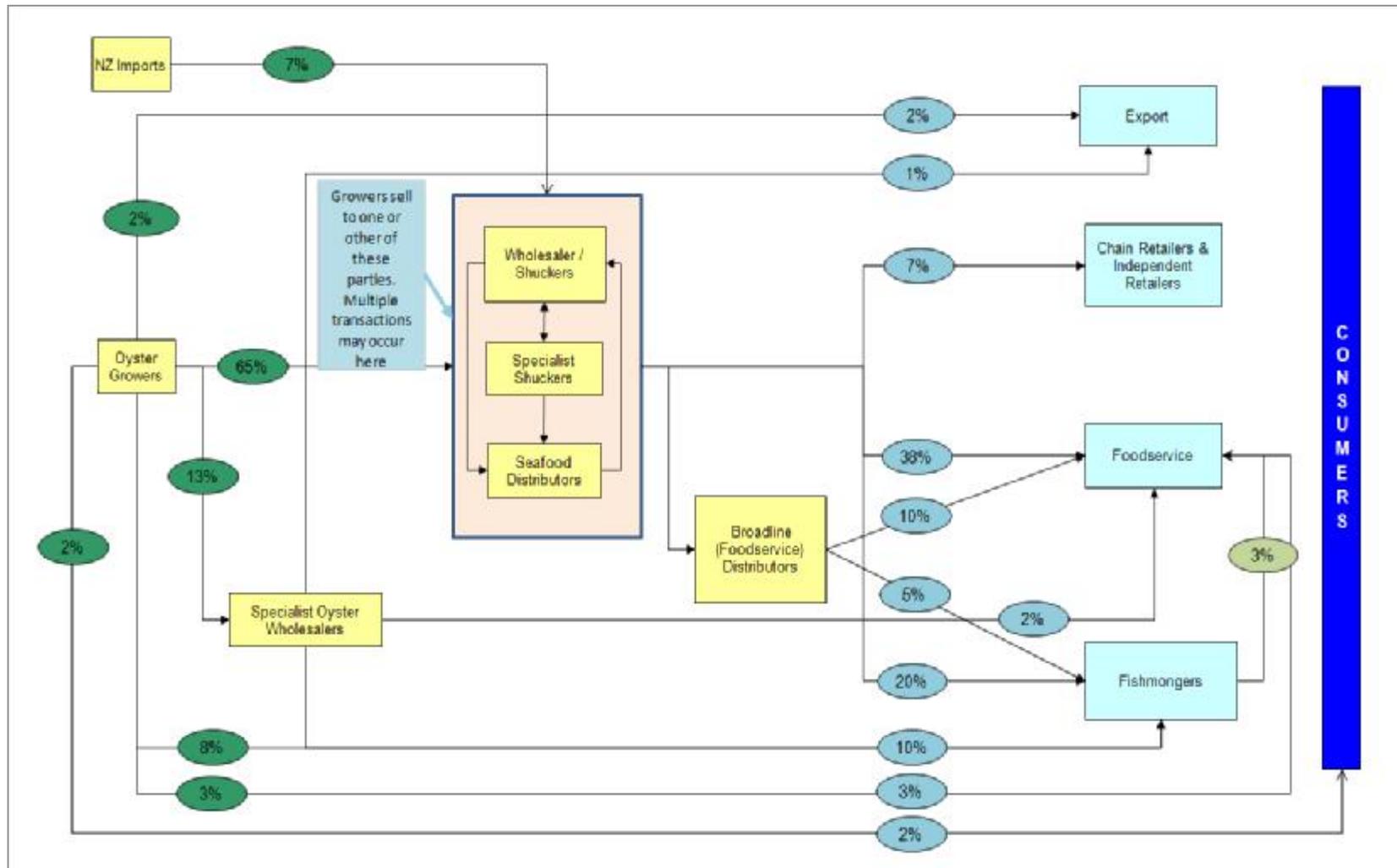
Fishmonger and independent retailers represent the second largest customer segment with approximately 37% of sales.

The two major chain retailers, Coles and Woolworths, we estimate consume around 7% of all oyster sales, which is low in comparison to their market share in general grocery, fresh produce and meat sales.

Exports represent around 3% of all oyster sales.

Figure 2 provides a representation of the Australian oyster industry supply chain with an estimation of the relative volumes of oysters that move along each chain pathway.

Figure 2: Australian Oyster Supply Chain



1.5 Chain Costs and Returns

A detailed analysis of eight supply chains from grower to consumer identified that margins along the chain are highly variable and are generally reflective of:

1. The number of parties involved in the individual chain.
2. The level of competition between each element of the supply chain.
3. The income profile of the region where the end user operates.

Our observations concluded that there was no general market failure occurring in the oyster supply chain, although it is obvious that members of the supply chain who are able to differentiate themselves from their competitors are able to extract comparatively strong margins.

1.6 Oyster Industry Supply Chains in 2015

This study concluded a number of general observations in relation to the potential structure of the 2015 oyster supply chain in Australia.

1.6.1 End Users

We anticipate that for end users in 2015 there will be:

1. An increased market share of chain retailers, although there are a number of barriers to overcome to enable this.
2. A continuing strong presence of fishmongers in shopping centres.
3. Limited growth in seafood franchises.
4. A decline in the presence of “High Street” fishmongers.
5. A static growth in the development of integrated fresh food markets.
6. Greater integration of the fresh seafood offer with other retail business activities.
7. A decline in the market share of high end food service outlets for the foreseeable future due to the current economic crisis and a decline in consumer spending. This situation may change by 2015 depending on economic circumstances. Conversely, mid and lower tier food service outlets appear to be gaining a greater share of the consumer food service spend as consumers become more price conscious.

1.6.2 Mid-Chain

We provide the following observations for the mid-chain sector of the 2015 supply chain.

1. Increased Consolidation

The mid-chain sector must consolidate over time as distributors and wholesalers ‘fight’ to access greater levels of the market share. Smaller wholesalers may come under increased

financial pressure as stronger and larger wholesalers who are able to offer wider ranges of product and increased customer service gain more market share at their expense. Further, wholesalers who distribute and distributors who become wholesalers are likely to grow as each seeks to internalise operations and save costs as well as becoming more 'full service' providers to customers.

2. Independent Oyster Shuckers

Independent oyster openers will face increasing economic pressures as their competitors are able to provide 'full service' seafood offerings and potentially do so by averaging overhead costs across a larger volume of product.

3. Specialist Oyster Wholesalers

There are only a few specialist oyster wholesalers in Australia. We see no evidence to suggest that oyster wholesalers will not continue to prosper, particularly those who have a large segment of their sales directly linked to end users (as opposed to seafood wholesalers).

4. Mainline Food Distribution

Due to their ability to offer a 'full menu' offer to their customers, it is unlikely that specialist seafood distributors will be able to compete for any additional share in this market segment against mainline food distributors. CDIPM believe the high level of consolidation that has occurred in mainline food distribution in the last three years will result in a low level of change in this sector in the next five years.

1.6.3 Growers

Oyster growers are largely powerless in influencing the structure of the supply chains in which they operate. This is due to oysters generally being only a component of the business turnover of the vast majority of mid-chain and end users to who they sell. Further, we consider it unlikely that individual growers are ever likely to invest in the mid-chain. However, a collective of growers may invest in certain aspects of value adding and wholesaling, but they will only be successful if they learn the lessons of past failures. Both critical success and failure factors on the formation of grower collectives and investment in value adding services is provided in this report.

With the rationalisation of the end user customer base and even greater levels of competition for customers at the mid-chain level, growers will increasingly be required to be able to deliver oysters that meet the customer specifications in terms of quality, consistency and volume across a wide proportion of the year. As a result, individual growers who tend to take a more 'speculative' approach to the dealings of their customers will increasingly become irrelevant and not needed by the mid-chain. Unless they have some clearly 'unique' characteristics to the product they offer, these smaller growers will increasingly become price takers, resulting in lower average returns. As average returns are lowered in the face of increasing costs, CDIPM consider that some smaller growers will exit the industry, particularly where they have no alternative income streams.

1.7 Key Issues

Many agricultural industries have limited funds to invest in research and industry development projects and further demand creation strategies.

The study identified a range of industry development issues that, in the opinion of CDIPM, should be addressed for it to become more sustainable. A number of these issues were identified by supply chain parties consulted in this study.

CDIPM have provided a ranking in relation to each of the issues identified as we are aware of the limited available industry funding. As a consequence, we recommend that the highest priority issues be addressed first. However, CDIPM wish to stress that this study has not considered a range of industry development issues which undoubtedly exist inside the farm gate. It may be possible that in light of limited industry funds, these may assume a higher priority.

Table 2 provides a summary of the industry recommendations identified by this study. Sections 11.1 to 11.14 of the report provide a detailed description of the rationale behind why each issue has been highlighted and the recommendations to address them.

Table 2: CDIPM Prioritisation of Industry Recommendations.

Recommendations	Section	1	2	3	4	5
		Lowest		Highest		
Increasing Oyster Consumption & Promotional Levies	11.1					
Supply Chain Re-engineering	11.2					
Storage and Handling Practices	11.3					
Food Safety & Quality	11.4					
Product Description / Grade Standards / Size Standards	11.5					
Chain Communication	11.6					
Product Formats	11.7					
Value Adding Opportunities	11.8					
New Customer Segments	11.9					
Truth in Labelling	11.10					
Labour Availability	11.11					
Traceability	11.12					
Freezing Research	11.13					
Exporting	11.14					

Source: CDI Pinnacle Management

1.8 National Industry Organisation Formation – Core Recommendation

The Oyster Consortium is regarded as the Australian oyster industry's de-facto industry body.

In reality the Oyster Consortium does not provide all oyster growers with the ability to provide input into the direction of its industry, despite the undoubted best intentions of the Oyster Consortium members.

Further, beyond the life of the Seafood CRC there are currently no mechanisms in place for the Oyster Consortium to conduct additional R&D activities.

Without a truly commercial industry body to provide the access to funding mechanisms to generate revenue to undertake project activities, it is the opinion of CDIPM that the industry will not be able to adequately invest in the necessary industry projects that would enable the oyster production sector to grow and achieve greater sustainability.

Although untested at a grower level, the projects completed, currently underway and proposed could and should be used as case examples on the merits of industry R&D spending.

Further, while not the current role of Oyster Consortium, the oyster industry lacks its own identity and, more importantly, a voice to be able to communicate with industry regulators and government organisations. CDIPM considers that a key role for a national industry organisation is the ability to be seen as an industry voice that has the ability to lobby federal and state government authorities on national and state issues.

With the assistance of external consultants, the Oyster Consortium are about to commence a five year strategic planning process. CDIPM believes that a key objective in this process should be investigations into what models and funding mechanisms could be adopted to develop a national industry organisation. CDIPM further suggest that this strategic planning process should test industry support for the development of a national industry organisation.

2 Introduction

2.1 Study Process & Issues

CDIPM conducted a series of face-to-face interviews in QLD, NSW and VIC in January, February and March, 2009. Telephone interviews were conducted with companies located in TAS and SA during the same period.

In total there were 35 interviews conducted which represented the following sectors (excluding growers):

Sector*	Number
Chain store retailers	3 [#]
Fishmongers	10
Wholesalers	8
Food distributors	4
Restaurants	4
Specialist oyster shuckers	2
Brokers/agents	2
Marine distribution	2
TOTAL	35

* We have classified them under their predominant business activity as many undertake multiple roles in the chain.

[#] This includes both Coles and Woolworths head offices + 1 senior operator.

The number of interviews that were conducted was greater than originally anticipated due to the high degree of complexity of the supply chain, and in a number of instances reservations we had about the accuracy of the data that some interviewees provided. In addition to face-to-face interviews, the business operations of chain store retailers, wholesalers, oyster shuckers and fishmongers were visited in QLD, NSW and VIC to identify business practices, examples of value adding, product displays, product qualities and source, and pricing.

Through a combination of internet searches as well as direct approaches to international contacts, CDIPM sourced other information with a view to providing a snapshot of the international oyster supply chain and direct comparisons to the Australian industry.

2.2 Consultation Issues

Only one party declined to be interviewed for this research project.

The vast majority of parties consulted were quite willing to contribute to the study once they became aware of the objectives of the study.

A number of mid-chain and end user parties declined to provide costs and returns information pertaining to their businesses for reasons of confidentiality.

However, the vast majority of parties were willing to provide commercially sensitive information provided they were guaranteed anonymity.

Some of the costs and returns information provided by a small minority of parties was inaccurate when cross-referenced. Therefore that information was discarded.

3 Introduction to the Australian Oyster Industry

3.1 Background

In 2007 the Australian oyster industry was estimated to have produced 16.5 million dozen oysters for sale. Taking into consideration oyster imports and exports, Australian oyster consumption is estimated at 17.2 million dozen. The principal production states are NSW, SA and TAS. Much smaller volumes of oysters are grown for commercial sale in QLD and WA.

Table 3 provides a summary by source of oyster production in Australia in 2007.

Table 3: Summary by source of oyster production in Australia in F2007

Source	Dozen (2007 season)	% of Aust. Production
New South Wales	6,723,294	40.9%
South Australia	6,058,000	36.8%
Tasmania	3,528,501	21.4%
Queensland	136,400	0.8%
Total	16,446,195	100.0%
Plus: Imports	1,266,262	
Minus: Exports	530,000	
Net Australian "Consumption"	17,182,457	

Source: State Government Departments of Agriculture (Qld, NSW, Tas, SA), various pers. comm.

The locations of the major oyster production regions in NSW, SA and TAS are presented in Figure 3.

Figure 3: Major Australian Oyster Production Regions



Source: CDI Pinnacle Management.

Almost all of the commercial oyster production in SA and TAS are the Pacific Oyster species. NSW is the major region for the production of the native Sydney Rock Oyster (*Saccostrea glomerata* sp.) with only a comparatively small percentage of non-native Pacific Oyster (*Crassostrea gigas* sp.). Very small volumes of the Flat Oyster and Black lipped Oyster are grown in a number of the states.

3.1.1 Principal Species

The two principal species grown in Australia are the Sydney Rock Oyster (SRO) and the Pacific Oyster. SRO account for around 40% of the total Australian production of oysters, with Pacific Oysters at 60%. The Flat and Black Lipped Oysters are only semi-commercially produced and represent less than 1% of the total industry supply.

The five principal oysters species grown in Australia and their scientific names are:

- Sydney Rock Oyster (*Saccostrea glomerata* sp.)
- Pacific Oyster (*Crassostrea gigas* sp.)
- Flat Oyster (*Ostrea angasi* sp.)
- Black Lipped Oyster (*Saccostrea echinta* sp.)
- Milky Oyster (*Saccostrea amasa* sp.).

3.1.2 Production Methods

This document does not seek to provide the reader with a detailed understanding of oyster production methods in Australia. Each of the state government agricultural agencies, industry associations and universities has amassed a wealth of knowledge in oyster production methods and the reader is referred to these sources if they require knowledge in this area.

In particular, the NSW Department of Primary Industries produced a comprehensive paper on the various technologies used in Australian oyster production, which is referenced in the attached bibliography.

3.1.3 Seasonality

The peak demand period for oysters is in December up until Christmas, although demand is traditionally strong right through the summer period as oysters are seen as a 'summer' food. A smaller peak in demand then occurs prior to and during Easter, whereafter demand falls away considerably until approaching the next December period.

A number of independent fishmongers stated that during the two weeks prior to Christmas, an inadequate supply of shucked oysters limit potential sales. Typically fishmonger sales of oysters increased between 7 and 20 fold over that two week period.

Table 4 shows the typical supply periods when oysters are available from each of the major producing states. The lighter supply periods for Pacific Oysters reflect the periods when they are spawning. The spawning period varies each year due to water temperatures, with warmer temperatures being conducive to spawning activity.

Triploid Pacific don't spawn and so are available all year. The ability to access year long supplies of triploids is seen as a major advantage by some end users, although supply continuity is an issue due to the lack of volumes.

Table 4: Australian Oyster Production Seasonality Chart

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NSW - SRO												
NSW - Pacific												
TAS - Pacific												
SA - Pacific												

	Peak Production
	Lower Production

3.1.4 Industry Size Standards

The oyster industry has no legally enforceable standards applying to size grading of oysters. The terminology used for each size range varies from state to state. While growers and the mid-chain

understand the variability in size standards, it is apparent that many end users and virtually all consumers do not understand them.

The industry-recognised size grade standards in use in each state of the major production states are provided in Table 5, Table 6 and Table 7.

Table 5: Tasmanian Pacific Size Standard

Grade	Size
Bistro	50-60mm
Buffet / Plate	60-70mm
Standard	70-85mm
Large	85-100mm
Jumbo	100-120mm
Super Jumbo	120-150mm

Source: www.tasea.com.au

Table 6: South Australian Pacific Size Standard

Grade	Top Shell Length (mm)
Club	45-55mm
Bistro	50-60mm
Plate	60-70mm
Standard	70-80mm
Large	85-100mm
Jumbo	>100mm

Source: www.oysterbob.com.au

Table 7: Sydney Rock Oyster Size Standard

Grade	Top Shell Length (mm)
Bottle	35-40mm
Bistro	40-50mm
Plate	50-60mm

Source: *Pers comm.*

There are no quality grade standards enforced by legislation in Australia that refer to the meat quality appearance and fullness in the shell. When they were trading, companies such as Tasea and OYSA, had quality grade standard charts established which were seen positively by end users. Further discussion on the subject of quality and grade standards is provided in Section 11.5.

3.1.5 Product Forms

Oysters are sold to Australian consumers in the following forms including:

1. Fresh, chilled ½ shell (dead-abductor muscle cut);
2. Fresh, chilled ½ shell (alive-abductor muscle intact);
3. Frozen then defrosted in ½ shell;
4. Fresh, chilled full shell (unopened);
5. Cooked, value added ½ shell (eg. Kilpatrick, mornay);
6. Bottled; and,
7. Canned.

Fresh and frozen ½ shell oysters (forms 1 and 3) account for the vast majority of oyster sales through retailers (chain retailers, independent retailer chains and fishmongers).

Value added ½ shell oysters (form 5) are traditionally sold through the vast variety of food service outlets including high, medium and lower end restaurant dining and buffets. The production of pre-prepared value added oysters, into forms such as Kilpatrick and Mornay has reportedly been undertaken a number of times, without commercial success. That said CDIPM did view a number of examples of oysters in these forms that had been processed fresh 'in-house' for sale to the public for cooking at home. These businesses commented that sales were good and justified the additional expenditure. We believe the lack of expenditure, by value adding processors towards developing consumer awareness of these products, is a major factor in the lack of success of this product.

Although figures are difficult to estimate, CDIPM believe that approximately 15-25% of oysters sold to consumers come from product that had been previously frozen. The mid-chain and some grower processors will freeze oysters in the months leading up to Christmas. This is so they can supply their customers with oysters during the busy Christmas period, when oyster openers are not able to keep up with demand. The freezing of oysters in Australia typically involves the use of a blast freezer. Many of the imported New Zealand oysters are typically processed using Individually Quick Frozen ("IQF") which its proponents and researchers agree results in a better quality product. IQF causes less damage to the cells of the oyster in the IQF process in comparison with the slower freezing process of blast freezers.

Fishmongers who stock live full shell oysters (form 4) estimate that less than 10% of their sales are sold in this form. The majority of retailers do not even offer a live full shell oyster.

Small SRO oysters have traditionally been sold on the ½ shell, or more often, one dozen in plastic / glass bottles in sea water. Bottled oyster sales are still important in QLD and NSW although total sales are decreasing as consumers prefer to buy the in-shell product. This is particularly evident in metropolitan markets. Industry observers indicate the sales of bottled oysters are 'holding up' in regional centres close to supply sources, where local growers supply a variety of outlets (eg. small fishmongers and fish and chip shops).

Processing of oysters into sauce does not occur in Australia. In China, which produces 87% of the world's oysters, approximately half of its production is sold for processing into oyster sauce.

Canned oysters are sold through all but the smallest grocery retailers. All canned oysters are imported, predominantly from China. Oysters are not treated separately in the compilation of retailer statistics, however, in 2006 the retail value of canned shell and crustacea, which includes crabs, prawns and oysters, was \$21 million. Our retailer industry discussions indicate most sales in this category would be oysters. Therefore canned oyster sales are significant when compared against the sales of fresh Australian oysters.

Canned oysters are on offer in all major supermarkets in Australia. The price the product is offered at varies considerably depending on the brand. The oyster 'offering' for two adjacent inner-western Brisbane supermarkets is presented in Table 8. All product offered was produced in China.

Table 8: Price Scan Data for Tinned Oysters in Two Brisbane Chain Retailers.

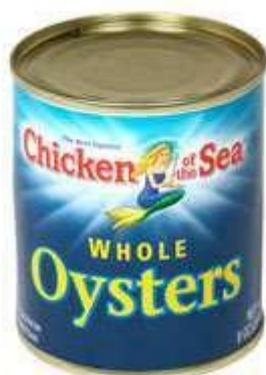
Source	Brand	Price	Packed Weight	Drained Weight	\$ per Kg Drained Weight
Woolworths – Toowong, Brisbane	Homebrand	\$1.40	100g	70.0g	\$20.00
	John West – Oil & BBQ Sauce	\$2.72	85g	63.8g	\$42.67
Coles – Toowong, Brisbane	John West – Oil, BBQ Sauce, Chilli, Springwater	\$2.85	85g	63.8g	\$44.71
	Always Fresh - Oil	\$3.14	85g	63.8g	\$49.25

Source: CDI Pinnacle Management

A brief scan of the USA market indicated that the product forms in which oysters are sold do not vary significantly from Australia.

For example, in Oregon, the 227 gram can of unsmoked oysters in brine shown in Figure 4 was sold by a chain retailer for US\$3.29 (or \$29.58 per kg drained weight – assuming an exchange rate of US\$0.70=A\$1.00).

Figure 4: Tinned Oyster Available in the USA and sourced from Korea



Source: CDI Pinnacle Management

More traditional canned oysters are offered widely overseas. For instance, in the mid-North West USA, Korean processed oysters were sold being offered in Safeway for US\$3.19 for a 106 gram pack (A\$57.32 per kg drained weight equivalent). Similarly, the “Chicken of the Sea” brand was

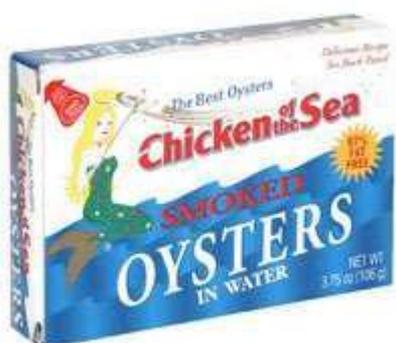
being offered for US\$2.95 for the same size pack. Figure 5 and Figure 6 show examples of smoked tinned oysters offered in the USA.

Figure 5: Smoked Tinned Oysters Offered in the USA



Source: CDI Pinnacle Management

Figure 6: Smoked Tinned Oysters Offered in the USA



Source: CDI Pinnacle Management

3.1.6 Packaging

Nearly 100% of the oysters leaving an oyster farm are live (full shell / unopened) oysters. Oysters are traditionally size graded and packed in hessian or plastic bags. Bags traditionally weigh between 18-22kg each, although some are still transported in 50kg bags. The number of dozen oysters contained in each bag varies according to the bag size. The generally accepted industry number of dozen contained in each bag are illustrated in Table 9 and Table 10.

Table 9: Typical No. of Dozen of Pacific Oysters Contained per Bag

Grade	No. of Dozen
Bistro	45
Buffet / Plate	30
Standard	25
Large	20

Source: Pers comm.

Table 10: Typical No. of Dozen of SRO Oysters Contained per Bag

Grade	No. of Dozen
Bottle	65-70
Bistro	55-65
Plate	45-50

Source: *Pers comm.*

Oysters are distributed in five or 10 dozen lots in waxed cartons or polysterene cases. The oysters are packed either on plastic trays (traditionally blue or black) or in layers with each layer separated by a plastic sheet. Many retailers would prefer to have a five dozen box to enable better stock rotation. TQF introduced a five dozen box packed with 2 x 2.5 dozen moulded plastic presentation trays.

Chain retailers have trialled a plastic moulded tray with a sealed plastic overwrap holding a dozen oysters. The tray is able to be labelled with a barcode, price code and use by date, although this was not done in the product seen by the authors on the shelves. Labelling the tray provides the opportunity for better stock rotation by staff therefore reducing losses.

3.1.7 Freight Costs

Refrigerated vans are used for oysters being transported any significant distance.

The cost of freight paid varies considerably between growers. This variation depends on where the oysters are produced, how far the growers are from a consolidation point or major highway, and the volume of oysters that they produce. Large growers who are able to consistently provide full pallets of oysters may benefit by around 25% less in freight costs compared to the smaller growers.

Table 11 provides a cost estimate based on full pallet loads of freight from the various production sources to major metropolitan markets. Between 32 and 36 bags are packed onto a full pallet. These costs are indicative only and may vary from grower to grower.

Table 11: Estimated Freight Rates from Production Locations to Major Metropolitan Centres

Origin	Destination	Cost per Bag
South Australia	Melbourne	\$8.00
South Australia	Sydney	\$11.00
South Australia	Brisbane	\$11.00
Tasmania	Melbourne	\$10.00
Tasmania	Sydney	\$13.00
NSW	Brisbane	\$7.00

Source: *Pers Comm.*

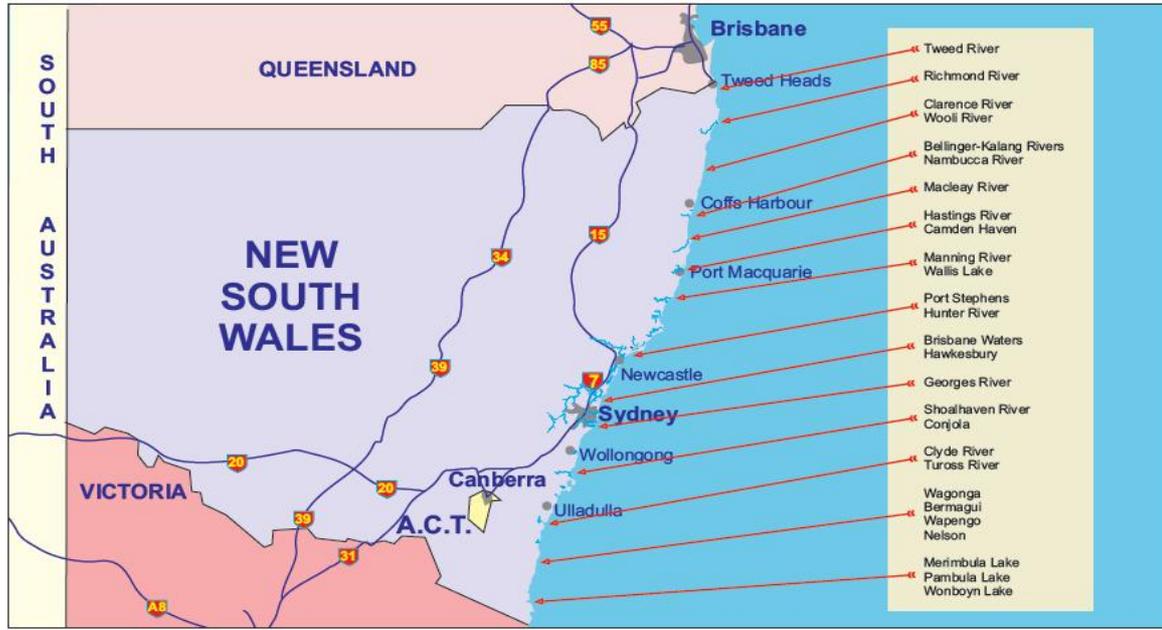
Industry sources suggest that depending on grower location, the cost of moving the oyster from the growing location to the consolidation point may be another 50% higher than the rates indicated.

3.2 NSW Oyster Production Sector

3.2.1 Production Regions

NSW oyster production extends from the QLD-NSW border to the southern border with VIC. The names and locations of the major production regions are presented in Figure 7.

Figure 7: New South Wales Oyster Production Regions.



Source: CDI Pinnacle Management.

3.2.2 Production Statistics

The NSW oyster industry produces approximately 41% of Australia's oyster production by volume and is the largest production state.

Almost 96% of the oysters produced in NSW are of the SRO variety, with Pacific oysters only permitted to be grown in Port Stephens and Hawkesbury River.

Table 12 provides a summary of the volumes of oysters grown in NSW from F1998 to F2008.

Table 12: NSW Oyster Production by Variety, F1998 to F2008

Year	Sydney Rock		Pacific		Other	
	Production (Dozen)	Value (\$M)	Production (Dozen)	Value (\$M)	Production (Dozen)	Value (\$M)
F1998	9,047,881	29.95	273,624	0.92	0	0
F1999	7,880,234	25.90	433,741	1.54	0	0
F2000	7,899,454	28.39	399,662	1.70	0	0

Year	Sydney Rock		Pacific		Other	
	Production (Dozen)	Value (\$M)	Production (Dozen)	Value (\$M)	Production (Dozen)	Value (\$M)
F2001	7,863,620	30.24	329,133	1.39	0	0
F2002	7,423,250	29.59	444,395	1.95	0	0
F2003	7,590,890	32.52	413,126	2.05	0	0
F2004	8,000,265	36.08	360,238	1.85	0	0
F2005	7,186,420	33.87	384,409	1.92	0	0.10
F2006	6,567,493	32.59	285,043	1.40	0	0.10
F2007	6,524,467	34.59	192,827	1.00	n/a	n/a

Source: NSW Department of Primary Industries.

Since F1998, oyster production has declined by 36% in response to a number of factors including:

- Predominately smaller growers leaving the industry for economic reasons;
- Wallis Lake growers leaving the industry in 1997 due to a hepatitis outbreak; and,
- Decimation of the Hawkesbury River industry in 1994 which was worth previously more than \$3 million per annum to growers.

3.3 South Australian Oyster Production Sector

3.3.1 Production Regions

The South Australian production region extends from Ceduna in the west to Kangaroo Island in the east, with seven principal production zones. The names and locations of the major production regions are presented in Figure 8.

Figure 8: South Australian Oyster Production Regions



Source: CDI Pinnacle Management.

3.3.2 Production Statistics

Oyster production statistics are currently compiled by an independent organisation contracted by PIRSA. PIRSA refused to provide detailed statistics beyond the total figures therefore a region by region breakup of production is unavailable. Industry sources strongly questioned the F2007 production figure of 7,720 tonnes which represented a 43% growth on the F2006 figures. The CRC Oyster Consortium (“Oyster Consortium”) estimated production in F2007 was around 5,376 tonnes which is supported by our discussions with industry.

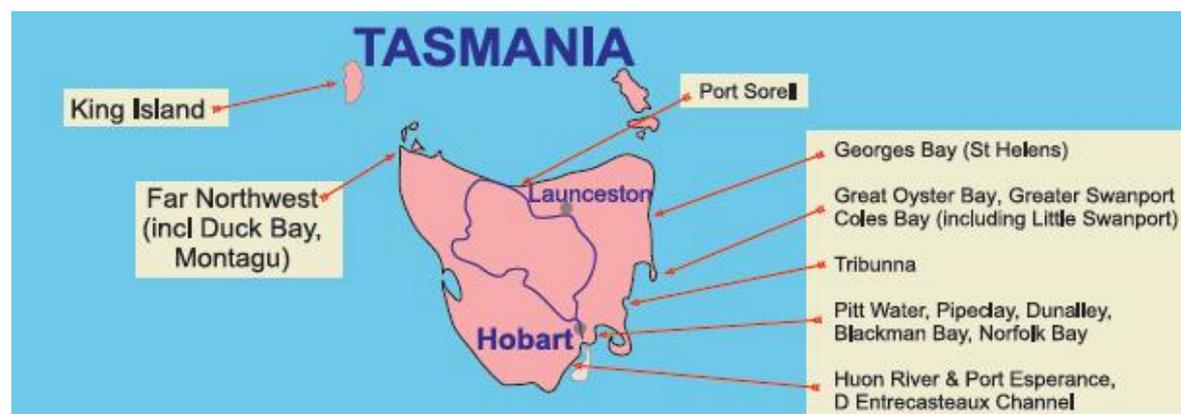
Therefore, for the three years to F2007, oyster production in SA is estimated at 6.042 million dozen (F2007), 6.064 million dozen (F2006) and 5.225 million dozen (F2005). Industry sources indicate that production in F2008 may be close to or slightly less than F2007.

3.4 Tasmanian Oyster Production Sector

3.4.1 Production Regions

The Tasmanian oyster production zone is focussed mainly on its east coast with smaller production zones in its north and on King Island. The names and locations of the major Tasmanian production regions are presented in Figure 9.

Figure 9: Tasmanian Oyster Production Regions



Source: CDI Pinnacle Management.

3.4.2 Production Statistics

In 2007 in their annual census of oyster production, the Tasmanian Department of Primary Industries and Water (TAS DPIW) estimated that 3,528,501 dozen oysters were marketed. This represents a modest increase of 5.0% over the four period 2004 to 2007. The Tasmanian oyster production statistics are summarised in Table 13.

Table 13: Tasmanian Oyster Production in Dozens, 2004 to 2007

Region	2004	2005	2006	2007
Blackman Bay	-	-	148,418	293,869
D' Entrecasteaux Channel	177,038	189,305	392,279	316,105
Far North West	-	-	-	314,209
Pipe Clay Lagoon	929,696	983,537	851,069	1,018,785
All Other Regions	2,253,911	2,064,599	2,100,754	1,585,533
TOTAL	3,360,645	3,237,441	3,492,520	3,528,501

Source: Tasmanian Department of Primary Industries & Water.

Due to confidentiality issues, regions which have fewer than five growers are not permitted to be reported separately.

Within Tasmania there are 73 growers producing oysters from 118 leases. The location and number of oyster leases per region in Tasmania is summarised below in Table 14

Table 14: Number of Oyster Leases Held per Region in Tasmania

Region	No. of Leases
Blackman Bay	9
D' Entrecasteaux Channel	30
Far North West	14
Georges Bay	11
Great Oyster Bay	13
Huon River and Port Esperance	3
King Island	1
Land Based	4
Norfolk Bay and Tasman Peninsula	11
Pipe Clay Lagoon	9
Pitt Water	11
Port Sorell	2
TOTAL	118

Source: Tasmanian Department of Primary Industries & Water.

Industry sources suggest that there are between 30 and 50 'serious' growers in Tasmania with their livelihood dependant on oyster production. The balance of growers may be regarded as hobbyists or semi-commercial in nature and typically produce in the range of 10,000 - 20,000 dozen per year.

Included in the number of oyster growers are a number of 'on-growers' who specialise in the production of oysters up to an average size of 40-55mm. These oysters are then sold to 'finishers' who hold the oysters for between two and six months in better quality fattening water for the production of finished oysters for human consumption.

In SA, on-growers exist in regions where the water quality is poorer and / or the grower needs to sell oysters for cash flow reasons.

3.5 Queensland Oyster Production Sector

3.5.1 Production Regions

Oyster production in QLD can be divided into two regions. The southern region is based on the production of SRO and extends from the NSW border up to just north of Bundaberg. The majority of production is located north of the Gold Coast and south of the Sunshine Coast.

The incidence of QX has restricted the area in which oysters can be located and totals 435ha on a total of 114 leases.

The small size of the QLD industry is largely due to the low average returns that are received and low production rates.

In the region north of Bundaberg, the Milky and Black Lipped Oysters are harvested directly from rocky foreshores and do not involve any culturing operations. The area that is harvested is around 50ha and is minor in terms of the total productive area, particularly given the very low productivity rates. The majority of these oysters find their way into the bottled market.

3.5.2 Production Statistics

By comparison, with the other three major oyster states, QLD is a small production state generating less than 1% of the total Australian production, as shown in Table 15.

Table 15: Queensland Oyster Production in Dozens, 2004 to 2007

Region	2004	2005	2006	2007
All Queensland	213,300	161,500	141,000	136,400

The decline in QLD's production has largely been reflective of the comparatively poor production rates from QLD leases, which in turn is due to the incidences of QX disease.

In F2007, 53% of the total oyster supply were of bottle sized oysters, with 15% bistro size, 12% plate and 20% others (QDPI&F, 2008).

3.6 Exports

In 2008, Australia exported a total of 477 tonnes of oysters from Australia. Pacific oysters comprised 473 tonnes, with three tonnes of SRO and one tonne of "other" varieties. These figures represent approximately 0.5% of total oyster production in Australia. Therefore, exports represent only a very small segment of the total Australian industry.

Although 24 countries imported oysters from Australia, three countries, Hong Kong, Singapore and Japan, accounted for 87.3% of the total. In 2008, Hong Kong imported 233 tonnes, Singapore 106 tonnes and Japan 73 tonnes. Individual consignment sizes are generally small, less than 500kg, although three consignments to Japan were in excess of 10 tonnes each, suggesting the product was sea freighted and presumably frozen.

The small consignment size suggests the ad hoc nature of oyster exports from Australia, and / or that they form part of larger seafood consignments.

Table 16 outlines the major destination countries for exports of Australian oysters.

Table 16: Australian Exports of Pacific Oysters, 2008

Country	Volume (Kg)	Country	Volume (Kg)
Hong Kong	232,784	China	1,671
Singapore	106,375	Netherlands	816
Japan	73,326	Jordan	524
Maldives	9,188	Turkey	405
Thailand	8,908	New Caledonia	396
Russia	8,772	Vanuatu	277
France	6,334	India	177
Indonesia	6,069	Sri Lanka	110
Brunei	5,280	Bangladesh	105
Malaysia	4,479	Polynesia	84
UAE	3,642	Qatar	40
Vietnam	2,928	Switzerland	16

Source: Australian Bureau of Statistics.

3.7 Imports

3.7.1 Australian Imports

The importation of live oysters into Australia is not permitted. However, New Zealand is permitted to export frozen ½ shell oysters but not full shell (unopened) frozen oysters.

NZ has a market share of approximately seven percent of the total volume of oyster production and therefore consumption in Australia.

Industry sources suggest that the majority of NZ oysters are sent to WA and QLD, where the New Zealand product is able to be more competitive due to freighting costs for the local product. Further, due to the long distances that need to be travelled in reaching these destinations, chilled Australian oysters are at a disadvantage to the frozen NZ product in terms of potential outturn quality.

Imported oysters are used by the full range of end users including chain retailers and fishmongers (predominately in QLD and WA) and restaurants (predominately Asian).

Table 17 demonstrates a number of important characteristics of the New Zealand oyster industry which are relevant to the Australian industry. These factors are:

- The unit value of NZ oysters is comparatively higher than the Australian product even considering the exchange rate. This supports the industry view that the size of NZ oysters imported into Australia are larger than the average Australian product. A few observers commented that the frozen NZ product is better suited to some culinary uses (eg Asian steaming) than the domestic product.

- In total the NZ industry is quite small compared with that of Australia.
- Australia is an important destination for the NZ product. Further, given the current oyster production capacity of the NZ industry, it poses little of a short term threat to Australian producers.

Table 17: New Zealand Exports of ½ Shell Frozen Oysters to Australia, 2006-2008

	2006		2007		2008 (Jan-Oct)	
	Kg	FOB \$NZ per kg	Kg	FOB \$NZ per kg	Kg	FOB \$NZ per kg
Australian Imports (Frozen ½ Shell)	1,083,024	\$7.22	1,139,636	\$7.36	737,118	\$10.20
Total NZ Exports (All Countries)	2,584,978	\$6.97	2,194,134	\$7.52	1,279,359	\$9.44
% Share of Total NZ Exports		43.4%		50.8%		62.2%

Source: New Zealand Seafood Industry Council

Industry sources indicate that they are able to land oysters into their own cool stores for \$5.80 per dozen for J2 sized oysters (equivalent to a Standard Pacific) and between \$6.20 and \$7.00 per dozen for a J1 sized oyster (equivalent to a Large Pacific). On this basis, imported NZ oysters are cheaper to source than the Australian product particularly in QLD and WA when freight is taken into consideration.

Nether Coles or Woolworths currently purchase imported New Zealand oysters. At least one major independent chain does use New Zealand oysters as part of their offering.

In comparison with its oyster industry, the NZ mussel industry is very large. In 2008 the export value of mussels from New Zealand was estimated at NZ\$204 million (approximately A\$160-\$170 million) or more than twice the estimated value of the Australian oyster industry. The production zones and some of the practices of mussel and oyster production are adaptable, and a number of industry observers are concerned that if the NZ mussel industry swings over to oyster production, the potential impact on Australian producers may be significant. The NZ waters producing oysters are generally very productive. While cost of production (COP) data from New Zealand is not available, the current prices paid and the short production lead times indicate that NZ may be able to provide product at a significant cost disadvantage to existing Australian growers.

Therefore, if the NZ mussel industry was to switch over to oyster production, NZ may become a significant competitor for Australia's domestic oyster industry.

3.7.2 New Zealand Exports

Estimates indicate that between 3.5 and 4.2 million dozen Pacific oysters are grown annually in New Zealand. Exports represent between 40-60% of total production.

Despite the comparatively small size of the NZ oyster industry compared to Australia, their export performance is far superior. Explanations for this include:

- Their strong commitment to developing export markets, particularly given the small domestic size of their industry.
- Oysters are intrinsically linked with green lipped mussel production which is an enormous industry by comparison with the oyster industry (even by Australian standards). Oysters and mussels are reportedly offered to export customers together.
- The predominantly frozen nature of oyster exports enables sea freighting of product which is more cost competitive than air freighted product from Australia, which is the traditional method.
- Perception, reportedly, that the NZ product is of a very high quality.

4 Oyster Supply Chain

4.1 Chain Party Descriptions

The Australian oyster supply chain can be broken into four segments. These segments are:

9. Oyster Producers and directly related marketing intermediaries.
10. Mid-Chain (including brokers, wholesalers, oyster openers, distributors and central markets).
11. End Users (including chain store retailers, fishmongers or independent retailers, restaurants, fish and chip operators and pubs and clubs).
12. Consumers.

Interviews were conducted with over 35 members of the first three segments to fully understand the various pathways by which oysters reach the fourth segment, consumers. This project's Terms of Reference did not seek to focus on the consumers view of oysters. Further, there has been previous research work undertaken by Ruello, the University of Tasmania and existing consultancy work being undertaken on behalf of the Oyster Consortium. Some of the results of Ruello and the University of Tasmania is replicated in Section 9 to provide context to a number of the recommendations presented in this report.

4.2 Oyster Supply Chain in 2009

The Australian oyster industry chain is highly fragmented with a high degree of competition evident at virtually every level of the supply chain. With the exception of growers, some 'close to grower' marketing companies and specialist oyster shuckers, oysters form an integral but relatively small component of the turnover of many seafood businesses.

In a number of instances, the chain commented that oysters are a 'service product'. That is, they are compelled to offer the product to their customers, however the margins they receive from their sale is low, particularly in comparison with other seafood products. Some chain members commented that if they had the choice they would not deal in oysters because:

- Margins are low.
- The product is comparatively difficult to handle.
- Quality and supply is often variable and is often the major source of complaints from end users.

- Sales volumes are comparatively low in relation to other products eg. fin fish and frozen seafood.

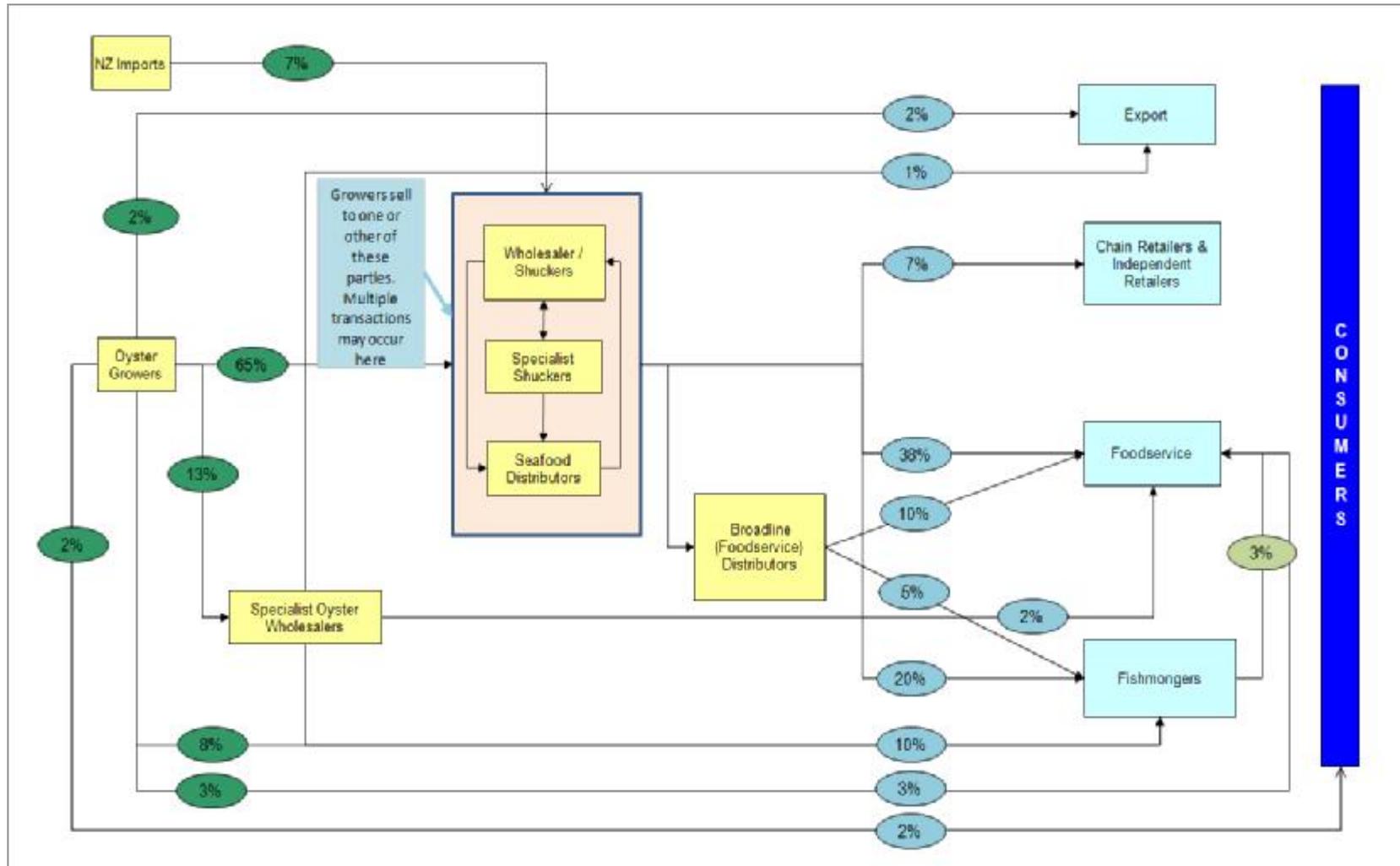
Our observations confirmed that the margins available to the mid-chain and end users were most often directly dependant on the number of links or steps in the chain. The margins are also influenced by the market segment in which they operate, particularly as it relates to income earning capacity of the suburb. For example, in Melbourne, the same sized and quality oysters in Prahran were observed at a price \$2.00-\$2.50 more than in Preston. We believe the difference in part is the ability of the retailer to charge a higher price based on the higher average level of disposable income in Prahran compared with Preston.

Our analysis highlighted that there is no distinct or major chain pathway in evidence from the growers to consumers. The shortest pathway involved three transactions (grower, wholesaler / opener, retail) whereas it is possible that up to eight transactions occur in getting the product to the consumer. In general, four or five transactions were common.

Figure 10 presents an outline of the Australian oyster supply chain including estimates on the relative volumes of oysters going along each chain pathway. The notable statistics from the analysis include:

- Foodservice, notably restaurants, are the largest end user segment completing approximately 53% of all oyster sales to consumers.
- Fishmongers are the second largest end user segment representing approximately 37% of oyster sales to consumers.
- The other two end user segments are comparatively small with chain and independent retailers selling approximately 7% of the oysters consumed in Australia, with around 3% of the total supply being exported.
- The mid-chain is highly complex with wholesalers, shuckers and distributors potentially being one or three businesses, with a number of chains demonstrating that there may be more than one or two wholesalers and distributors being responsible for getting oysters to the consumer.
- The wholesaler / shucker / distributor interface is the major primary transaction point for Australia growers, representing around 65% of all oysters consumed. Specialist oyster wholesalers represent a smaller but still very important 13% of chain volumes. The remaining 15% of Australian produced oyster volumes involves a variety of parties including direct sales to fishmongers (local and metropolitan), foodservice outlets (traditionally local), and direct to consumers or exporters.
- Oyster imports represent 7% of the total oyster supply into Australia.

Figure 10: Australian Oyster Supply Chain



Source: CDI Pinnacle Management

5 Oyster Production Sector

5.1 Grower Differentiation

Based on industry estimates there are currently 550 active oyster growers in Australia. Unlike the horticultural industry with over 120 different product types, these 550 growers predominately produce only two product types, Pacific and SRO. Growers are only able to differentiate their offering to others in the supply chain based on the following:

1. Consistency of product quality. Non-growers identify quality as:
 - o flesh appearance (bright sheen, colour, plump)
 - o meat fullness. Ideally shells should be more than 85% full.
 - o clean shell appearance.
2. Size consistency within a consignment. Non-growers commented that some growers were reknown for consistently under-sizing oysters or having too wide a variation in the size of oysters contained in a bag. Due to the small size of most shucking operations, the business owner is intimately aware of who is and isn't 'doing the right thing'. Growers who attempt to 'put one over' their customers will eventually lose their custom, or be offered lower prices to compensate for the increased losses, increased grading or lower sales value that the grower's customer can sell to their customers.
3. Supply consistency. Growers who are able to meet their customers needs to provide supply all year round are more 'attractive' to grower customers. Customers place a high degree of importance on supply consistency so that they do not have to constantly search for product and / or growers.
4. Low levels of deaths (if dealing with a live product). Ideally customers want 0% deaths but they generally appear to be accepting of a level of no more than 2%. Some customers have commented that in individual consignments, they have experienced losses of up to 20%. While some customers will tolerate this for one consignment, it is rare that they will 'back-up' after being 'bitten' twice.
5. Communication. Suppliers who willingly communicate information on the health and availability of oysters from their leases are very highly valued by customers. With adequate forward communication, customers are normally able to meet any shortfalls in supply or quality by getting supply from other growers. Some growers are concerned that they may lose a customer if they admit to a failure to supply. Customers are generally forgiving of an inability to supply, provided that it does not occur regularly and that they are given sufficient notice so that they don't leave their customers 'short'.

6. Honesty. Above all else customers value honesty in their relationships with growers. Growers that become known as not doing business honestly will in short course lose the attention of honest customers.
7. Relationships. By being honest communicators, growers go a long way to fostering good relationships with growers. By having a strong two-way relationship (somewhat like a marriage), growers and customers are better positioned to 'ride out' the inevitable peaks and troughs in a commercial relationship.

Other non-grower members of the supply chain complained of a range of poor business practices undertaken by a portion of oyster growers. Some of these practices include:

1. Delivering oysters of a different quality to what the customer was led to believe was going to be supplied.
2. Supplying a higher proportion of oysters that are towards the bottom of a size 'standard'.
3. Including a higher than commercially acceptable level of dead oysters.
4. Supplying oysters that are highly variable in terms of condition.
5. Stacking pallets that have bags of better quality oysters on top and poorer quality oysters on the bottom.
6. Bags with incorrect counts.

The vast majority of businesses owned by non-growers are hands-on operations. A number of non-growers commented that they don't understand why some growers think they are able 'to get away' with unethical (or dishonest) practices such as those described above.

Those growers who are unethical 'force' their customers to develop price based relationships with them and/or deal with them on an ad hoc or 'as needed' basis. This may generate a cycle of distrust between grower and buyer and may be the cause of 'the us and them' attitude so common in many grower / buyer relationships.

It is apparent from our discussions with non-growers that there is considerable variability in the business performance and acumen of growers. That said, our discussions also indicate that the same variability is apparent for the mid-chain and end user chain participants. Before holistic criticism of the business acumen / skills / professionalism can be levelled, particularly of the mid-chain, the grower sector needs to ensure it has 'its own house in order'.

5.2 Oyster Pricing at the Farmgate

5.2.1 Oyster Price Paid

Across the industry there is a generally accepted range of prices which is paid by growers customers for each size grade of oyster. The 'accepted' price range does not vary from week to week.

The price variation within a size range is reflective of variations in product quality and whether the average size is at the lower or top end of the size range. It is apparent that the larger growers and grower collectives are aware of the ranges in price, although it was reported that smaller growers are often ignorant of the 'going rate' and so may be at the 'mercy' of unscrupulous purchasers.

Small growers have variable quality, are irregular suppliers to a customer, and/or face the real prospect of being offered prices for their oysters below the standard 'going rate', where the customer views the sale as an opportunistic one (that is, they don't really need the oysters).

Table 18 provides an estimate of the ranges of prices paid to growers for oysters ex-farm.

Table 18: Estimated Price Ranges Ex-Farm Paid to Australian Oyster Growers

Grade	Price Paid (per doz)
<u>Pacific Oysters</u>	
Club	\$3.00-\$3.80
Bistro	\$4.40-\$5.00
Plate	\$5.50-\$6.00
Standard	\$6.00-\$6.70
Large	\$7.00-\$7.60
Jumbo	\$8.00-\$8.50
Extra Jumbo	POA
<u>Sydney Rock Oysters</u>	
Bottle	\$4.00-\$5.00
Bistro	\$5.50-\$6.50
Plate	\$6.50-\$8.00

Source: Various pers comm.

Another significant factor influencing prices paid to growers at the farm gate is the region of origin of the product. Some customers exhibited a distinct preference for oysters from various regions. Names such as St. Helens, Barilla Bay, Port Stephens, Wallis Lake and Coffin Bay are fast becoming icons in oyster marketing as symbols of high quality oysters. In many instances, these regional names are carried right through to restaurant menus or fishmonger labels.

As will be discussed in greater detail, regional brands give rise to two general issues:

1. Non-grower members of the supply chain attempting to 'pass off' oysters from other regions as being from the more iconic regions.
2. Oysters from those 'regional branded' sources needing to be able to consistently deliver on the 'promise of high quality' which the industry knows is not possible all of the time.

5.2.2 Oyster Price Discovery

There are a variety of mechanisms towards how 'price' is discovered for oysters. The various mechanisms include:

1. Prices agreed prior to consignment (or even harvest). By far, the majority of oysters are sold on this basis. Growers discuss their requirements with their customers up to a week in advance. Based on verbal descriptions of the product and the knowledge the customer has of the product from previous consignments, price is negotiated and agreed. Some re-negotiation may occur if the oysters do not meet the expectations of the customer.
2. Price agreed over an extended period. Where a grower is of a significant size and has a reputation for supplying consistent quality product, some mid-chain players are prepared to offer an agreed price for up to a season. These deals often relate to a significant portion or the whole crop of that one grower. Some mid-chain parties are comfortable 'locking in' that portion of their crop needs that they know will sell on a week by week basis. Growers who lock in prices across an extended timeframe may take a lower price than they may get on the 'open market', but they are willing to trade this off to be secure in the knowledge that they have an agreed price for a significant portion of their crop.
3. Grower Price List. A number of larger growers and / or suppliers of oysters who have a quality and/or supply 'edge' sell to their customers based on a fixed price list. That is, customers are only able to buy oysters from that grower if they are prepared to pay the price the grower wants.
4. Consignment basis. Where growers are selling to new customers or where the grower is small with no regular outlets, buyers may insist that the oysters are supplied on a 'consignment' basis. The grower is paid a price less a marketing charge, or simply paid a price based on what the buyer sells the oysters for or what they believe they can sell them for. Price and customer transparency is nearly never provided by the buyer.

5.2.3 Price and Customer Transparency

In virtually all of these transaction models, price and customer transparency is not offered by the growers customer. That is, the grower generally has no idea on the price that the buyer sells to his customer at, and in the vast majority of instances is provided with no information on who the oysters are sold to.

The lack of price and customer transparency is generally reflective of the entire seafood industry and large segments of the horticultural industry.

The premise behind the lack of disclosure, particularly of the customer information, is that the growers buyer is highly concerned that by providing transparency the grower will attempt to sell directly to his customer, thereby effectively 'cutting them out'. This philosophy is largely based on tradition and the concept of 'it was good enough back then, why should we change'.

In contrast, more 'advanced' chains tend to foster a higher level of collaboration between growers, customers and their customer's customer. The philosophy in these relationships is that by sharing information and communicating, growers are better prepared or have a higher degree of understanding of the 'business' of the chain and are better positioned to support its development. The converse is also true in that if the customer's customer has a better understanding of the business of growing, decisions and strategies can be put in place to benefit the whole chain.

In horticulture, the development of these more 'advanced chains' has generally only occurred where growers and their representatives are working with chain retailers.

In horticulture, produce is often supplied on consignment with the price that is paid to the grower calculated on:

1. A fixed percentage fee commonly referred to as a commission.
2. A price agreed between the grower and the wholesaler after the goods have been despatched, and most commonly after they have been sold to the wholesalers customer.
3. A combination of the above, commonly referred to as a 'quasi-merchant transaction'.

From a practical point of view, the wide spread adoption of these more advanced chains, where growers and others in the chain work in a more transparent price and communication system is a considerable way off. The reasons why CDIPM believe this to be the case include:

1. Oysters are only a small portion of a wider seafood offer where the transaction mechanisms are traditional.
2. Unlike horticulture, where the two major independent chains represent around 45% of all fruit and vegetable sales, only a comparatively small proportion of oysters go through these channels (around 7%). In horticulture, it can be argued that it was the chain retailers that drove increasing transparency across their chains.
3. A widespread end user customer base with a widespread mid-chain supply base makes the benefits associated with providing transparency harder to calculate.

4. Tradition. The mid-chain is very traditional and will continue to resist changes associated with providing transparency.
5. Legislation. The seafood industry has no legislated code of conduct in business trading or requirement to provide information on prices received and customers sold to (unlike the beef and sheep industries). Horticulture has recently introduced a 'Code of Conduct' which legislatively stipulates the duty of disclosure by the mid-chain. Strong anecdotal evidence suggests limited effective compliance with the code due to grower apathy, questionable breach provisions and tradition. We believe all of these reasons would be applicable to the oyster industry as well.

5.2.4 Payment Terms

Grower payment terms vary from seven days to, in some limited instances, up to 60 days or more. The general rule of thumb is payment is due 14 to 28 days after the week of delivery, although there is increasing evidence of terms of 28 – 45 days. The payment terms provided to oyster growers compare well with horticulture and general industry.

5.3 Individual Growers

The vast majority of oysters sold in Australia are still sold by individual growers, rather than as any form of collective such as a marketing group, co-operative or as an informal alliance of growers. This situation is particularly evident among NSW growers.

An individual grower may sell to any one of the mid-chain intermediaries and may go direct to end users such as independent retailers or fishmongers as well as restaurants. The level of trade direct with restaurants is generally restricted to where a grower is able to deliver the product themselves so is generally only local in nature. The grower may deliver live or ½ shell product.

Both the growers and fishmongers who deal directly with one another do so of a scale that enables them to deliver and receive whole pallet loads of oysters (32-36 bags) of one or occasionally two sizes. These growers are generally recognised as having skills superior to their counterparts in their ability to deliver on a consistent basis (size, grading, meat quality / appearance and fullness) across an extended period of the year.

Therefore, we consider there to be two types of individual growers:

1. Non-Networked growers
2. Networked growers.

The Non-networked growers represent that portion of the oyster growing industry who have no direct, ongoing alliances with a mid-chain or end user segment of the chain. They are often smaller growers and may offer an inferior quality product. As a consequence, the mid-chain (who in many instances do not value their business) offer prices on a 'take it or leave it' basis. This results in the smaller growers getting lower prices than larger growers who produce better quality product do. Because many of these growers can't supply regularly and/or offer product to customers on an ad-hoc basis, they are not part of the 'core supply program' of many mid-chain or end user participants. Due to their lack of market power, it would be expected that non-networked growers would receive lower average prices over time.

On the other hand, networked growers typically (but not necessarily) have larger volumes to sell, are able to supply product on a more consistent basis, both in terms of time and quality, are better communicators, and have a relationship with mid-chain and end-users that they value. Unless they are very large suppliers, networked growers generally have a relatively small customer base.

The mid-chain, who have obligations to their customers to supply product all year round, are increasingly not seeking to deal with non-networked growers in comparison with networked growers.

Over time it is expected that non-networked growers, particularly those who are smaller and if they do not have offer something 'unique' to offer, will increasingly be placed under financial pressure as the rest of the chain will not want to deal with them on a regular basis. Their dealings with customers will increasingly be of a 'spot' nature and so average returns will stagnate or decrease in the face of rising production costs.

This phenomena is consistent with how supply chains have been re-engineered in horticulture and in other agricultural commodities.

5.4 Marketing Groups

Until recently, there were three significant marketing groups operating within the Australian oyster industry. These were:

- Tasea. Tasea focussed on supplying brokers, wholesalers, openers and fishmongers with live oysters. The company performed little or no value adding to the product.
- Tasmanian Quality Foods (TQF). The focus of TQF was to supply oysters to end users and the mid-chain across the season, as well as to provide marketing strength, consistency of supply and grade standards / sizing. The company had processing facilities in Bankstown and Tasmania which split and froze oysters and undertook projects to value add oysters e.g. topped oysters.
- OYSA. OYSA had a similar focus to Tasea although it had a purchasing arm for farm inputs.

Both Tasea and TQF were placed into administration in 2008. The identified factors to why both of these organisations folded are numerous but appear to primarily resolve around why similar entities across agriculture have folded. These factors being:

- Lack of scale. Without scale, companies are not able to support their overhead costs which spells economic doom in capital intensive industries such as oysters.
- Grower support. Unfortunately, Australian agriculture is littered with examples of growers who commit to support majority grower owned collectives then do not support it with the supply of product. In some instances they become a direct competitor to the business that they were supposed to support. Without grower support, lack of scale becomes a major issue.
- Willingness to invest in capital and people. Many grower owned companies suffer from the lack of willingness of shareholders to invest in capital that has the capacity to either

lower overhead and operational costs or produce a better quality product. Further, these companies may not adequately reward key staff, particularly managers and marketers. The 'Catch-22' situation then arises that without adequate investment, the business is not able to generate adequate profitability which is then cited as the reason why the participants can't or shouldn't invest in capital and people.

- Poor financial management. This can be directly linked to the above issue, that is, not investing in skilled financial managers leads to poor financial management.

A number of the mid-chain interviewees commented that the demise of TQF and Tasea has been disadvantageous for them doing business in Tasmania. In the past, their Tasmanian oyster supply may have been supplied with a single contact, and the mid-chain now have to develop a new understanding of the Tasmanian oyster industry and deal with many more growers.

Further, other parties have suggested that with the loss of these two organisations there are a number of growers facing the prospect of having to market their oysters for the first time. These growers do not have marketing experience and are at a disadvantage with dealing with the mid-chain. The impact of this is that some growers in Tasmania are selling oysters at discounts to 'standard pricing' to the detriment of the whole industry as this starts to put an artificial floor in the market price.

Our investigations concluded that many mid-chain companies 'miss' the services offered by TQF and Tasea.

OYSA was the marketing arm of the SA Oyster Growers Association Inc was established in 1994 and folded in 2005. The primary purpose of OYSA was to buy farming equipment in bulk and to market their oysters through a single marketing body. The company had up to 60 grower shareholders and at one time represented the majority of oyster sales coming from SA. The reasons given for why OYSA folded are very similar to that of the two Tasmanian companies.

5.5 Corporate Growers

In the oyster industry there are currently two major corporate growers in operation. These are:

- Marine Culture
- Aqa-Oyster.

Marine Culture was established in 1989 and is a joint venture between private investors and the Indigenous Tasmanian Aboriginal Corporation. Marine Culture owns leases in Tasmania (3), SA (3) and NSW (1). The company produces around one million dozen Pacific oysters (approximately 6% of total Australian supply).

The company owns a number of sites which are focussed on the finishing of oysters due to the high water quality while the other sites are used for the growing of oysters up to a size of approximately 65mm or larger.

Marine Culture's ability to transfer oysters between multiple production sites permits it to tailor the use of the sites to their best purpose. It was not possible to evaluate the cost advantages that this multi-site model offers. By having finished oysters coming from a single site, Marine Culture

is able to deliver high volumes of quality oysters consistently. This was supported by Marine Culture's customers.

Marine Culture supply bagged oysters to customers in each of the major metropolitan markets. The company does not open or otherwise value add to oysters, preferring to leave that to the specialists who are closer to the supply source.

Due to its size, the company, supplies multiple companies in each state, however they do have a preferred list of customers. The price offered to customers is consistent so Marine Culture does not regard itself as a price taker.

Aqa-Oysters Limited is a division of Aqafood Ltd, which was established in 2004. Aqafood is a fully owned subsidiary of the Futuris Group who hold extensive investments in agriculture, the most notable, until recently, being AAA Pastoral Company.

The company owns production sites at Coffin Bay, Ceduna, Turner Aquaculture, Harbour Fresh, West Coast Oysters in Cowell and Streaky Bay, and Smoky Bay. They also own two farms in Tasmania, Tasmanian Pitt Water Oysters near Hobart and Lease 65 Moulting Bay Oysters at St Helens, on the north-east coast (source: www.aqafood.com.au).

Industry sources suggest they produce slightly less than Marine Culture and so represent between 5 and 6% of total industry productive capacity.

Another subsidiary of Aqafood, Seafood Logistics, is responsible for the marketing of oysters and other products to Australian and international customers. Seafood Logistics also operates a shucking operation in SA which supplies opened oysters to customers in SA and the eastern states.

Both of these companies are considered pioneers in the industry as they seek to integrate oyster production operations across multiple locations, and in one instance, they have invested further up the chain in processing. Their size and consistency make them attractive to the variety of mid-chain and end users that operate in the industry. Further marketing is completed in-house so external parties such as brokers or some wholesalers are not required by the company.

The challenge for companies such as Aqa-Oyster and Marine Culture is to be able to maintain the 'lean and mean' commercial approach that many growers have in a fully commercial environment, particularly when the production side of the industry is so 'hands-on'.

5.6 Smaller Grower Owned Groups/Informal Marketing Alliances

Beyond grower organisations such as OYSA, Tasea and TQF, and larger commercial aggregations such as Marine Culture and Aqa-Oyster, the vast majority of the growers sell their oysters independently of other growers.

An exception to this is Broken Bay Oysters which is a co-operative of nine growers located in the Hawkesbury region of NSW.

Beyond Broken Bay Oysters there appears to be limited evidence of grower controlled marketing organisations within the industry. For example, the Clyde River Marketing Group markets SRO oysters from around six growers. Camerons of Tasmania, while in themselves are large growers,



also market oysters on behalf of other growers in that state. The Tasmanian Oyster Company also a grower, markets oysters on behalf of around nine growers.

This report did not focus on identifying all of the smaller grower operated organisations so there may be others operating that we are unaware of. Their existence will become known in the Benchmarking report when completed in late 2009.

As for all agricultural industries, growers may discuss prices among themselves, particularly at a 'bay level', but this is generally done informally and with little organisation and no collective commercial focus.

There is evidence of non-grower led coordinated marketing where brokers and merchants operate with a collection of growers. Examples of these businesses include Oyster Bob Pty Ltd and Seafood Partners. James Calvert is an example of a grower who also acts as a broker for other growers. These business groups are discussed in further detail in Section 6.1.

6 Mid-Chain

6.1 Specialist Oyster Wholesalers

Specialist oyster wholesalers handle oysters exclusively or with only one or two additional products. They may be growers themselves acting on behalf of other growers, or a non-grower who has closer links to growers than traditional metropolitan based seafood wholesalers. The closeness of the relationship is due in part to the specialist wholesaler being wholly dependant on being supplied with oysters by growers.

Specialist oyster wholesalers tend to focus on sourcing oysters from multiple growers from a single state.

A grower will advise the wholesaler of the volumes, size and quality of the oysters that they have available. The wholesaler advises what price they are willing to pay based on their assessment of the orders they have, the prices his customers will pay, freight costs and an allowance for a margin. Conversely, the specialist wholesaler may also approach members of their grower network to supply oysters of a certain quality standard at a nominated price. The grower may then choose to fill or not fill the order.

A specialist wholesaler will typically market all of a grower's production, as opposed to a metropolitan wholesaler who will generally only take those sizes they require.

Examples of oyster brokers in Australia, include Bob Simmonds (Oyster Bob) and Tasmanian Prime Oysters.

The margin that a specialist wholesaler achieves varies from consignment to consignment and may vary within the same consignment for different sized product. Our observations concluded that on average a specialist wholesaler seeks a gross margin of between \$0.50 and \$0.80 per dozen.

The gross margin that a specialist wholesaler receives depends on:

1. The volume of product that a grower delivers;
2. The size, quality and consistency of supply volumes that the grower is able to deliver; and,
3. The negotiation skills of the two parties.

On occasion, specialist wholesalers may make a nil or even negative margin where a certain size or quality of oyster is oversupplied so getting a sale 'at any cost' is critical. On other occasions, to get the price for one size / grade they may be forced to discount another line. The skill of the specialist wholesaler is to match as closely as possible the demand from their customers with available grower supply.

Growers use the services of specialist oyster wholesalers for reasons that include:

- The grower recognises that they have no marketing skills and would be better served using the services of a professional marketer;
- The grower does not want to be involved in marketing as they want to focus on production matters; and / or,
- The belief that a broker who collectively markets significant volumes of oysters from many growers has a greater level of market strength or negotiating power with customers, resulting in a higher price for the product than what could have negotiated individually by a grower.

If we were to assume an average brokerage charge of \$0.60 per dozen and an average price of \$6.00 ex-farm., this equates to a charge percentage of around 10%. Gross margins of this magnitude compare well with that charged in horticulture where a broker who does not handle the product will charge between 3.0 and 4.5%, whereas a 'full service' wholesaler has an official charge out rate of between 12.5% and 15.0%, although the 'true' rate may be higher than this.

Specialist wholesalers generally undertake limited or no value adding of the bagged oysters, although they will generally consolidate oyster deliveries to obtain more favourable freight rates. None of the specialist wholesalers identified froze oysters. Some specialist wholesalers undertake a range of promotional activities that are used to increase the sales of oysters through 'their chain', generally at their cost.

6.2 Seafood Wholesalers

In addition to other seafood products, seafood wholesalers supply oysters (live or opened) to other mid-chain members of the supply chain (oyster shuckers / openers or distributors).

Primary seafood wholesalers source oysters direct from growers, brokers or other grower managed or owner alliances or businesses. Secondary (or tertiary) wholesalers source oysters from primary seafood wholesalers.

The services that a wholesaler may perform vary greatly and may include:

1. Selling live, whole bags of oysters to other mid-chain or end users; and/or,
2. Shucking oysters on behalf of end users; or
3. Delivering oysters (Distribution).

6.2.1 Wholesaler Margins

The margin that wholesalers are able to generate depends on a number of factors, which include:

- Size of the customer. Typically, the larger the customer the lower the margin, as there is strong competitive pressure from other wholesalers to secure that customer. Further, the wholesaler can accept a lower margin as the costs of servicing that customer with volume product is lower.
- Level of competition for the customer. For instance, end users located in the CBD of major metropolitan centres such as Sydney and Melbourne, may be better able to negotiate with wholesalers for business.
- Services provided. If a wholesaler is simply 'passing on' a live bagged oyster, the margin that they are able to charge is significantly less than if they are opening the oysters.
- Negotiation skill. Margins are impacted by the comparative skill of the wholesaler in negotiating the highest price they can with their customer and the lowest price possible with the grower.
- Specialist oyster or general seafood supplier. A number of mid-chain interviewees commented that the margin that they are able to achieve for oysters is much lower in comparison with frozen and fresh fish. In some instances, they will sell oysters as a 'loss leader'. A 'loss leader' product is one that is used to 'get into the door' of a customer. Loss leader products may have a small, zero or negative margin with other products being used to average out the margin. Other products that are commonly regarded as loss leaders in the mid-chain (where supplied) are oil and frozen chips.
- Length of chain. If a wholesaler is part of a long chain to the consumer (5-8 transactions), the ability of the chain to extract 'super' margins is significantly lower than if the wholesaler is part of a shorter chain.
- End user customer segment. A wholesaler may be able to extract a higher margin where the consumer has a higher propensity to pay for the oyster and the end-user is less driven by price. For example, in Melbourne, oysters sold in Prahran have a higher price point at retail than oysters sold in Preston.

Due to the combination of these factors, gross margins received by wholesalers vary widely, even on a consignment by consignment basis. The average margin across a year that a wholesaler seeks to achieve, according to our industry discussions, would be between \$0.50 and \$1.50 per dozen.

6.2.2 Costs of Handling and Processing Oysters

Shucking Oysters

Oyster shuckers are generally paid a fixed price per dozen that they open.

The cost of shucking oysters varies between \$0.75 and 1.10 per dozen, plus superannuation and other employment costs. The majority of shuckers are paid between \$0.75 and \$0.90 per dozen. The average rate is approximately \$0.10 per dozen cheaper in Melbourne compared with Sydney.

Shuckers will accept a lower piece rate if the employer can:

- supply regular and long volumes of oysters to be shucked
- provide good work conditions
- enable the shucker to open oysters continuously without distractions
- they are paid in cash.

Shuckers who travel between multiple sites are able to charge a higher rate.

The on-costs for oyster shuckers are 20-25% of the contract rate.

Packaging

The packaging costs paid by wholesalers varies considerably. The factors that influence these costs are:

- purchase volume
- type and quality of packaging used
- negotiating power of the wholesaler.

On average, a 10 dozen, waxed cardboard box will cost around \$0.70 per carton. A similar sized polystyrene box will cost between \$1.60 and \$2.00 per carton. Plastic liners and inter-row plastic liners cost approximately \$0.02 per box.

Increasingly, oysters are being supplied to retail customers on plastic trays that hold one dozen oysters. These plastic trays cost between \$0.15 and \$0.20 each, and are being used in preference to the polystyrene trays with a cling overwrap as they offer superior presentation ability.

6.3 Oyster Openers / Shuckers

The vast majority of metropolitan oyster openers shuck oysters as part of an overall package of services to customers. That is, they supply a variety of other seafood products in addition to oysters.

Examples of exceptions to this are Sydney City Oysters or Sam's Oysters (in Brisbane) who are specialist oyster openers.

In Sydney, the major oyster openers are either located in Pyrmont or in the inner bounds of the city (to be closer to the major customers).

We were not able to identify any oyster openers in Melbourne of any significant size that did not include other products or services within their offer.

In every city there was evidence of independent oyster shuckers, most often a single person, who opens oysters for one or increasingly a number of fishmongers on a contractual basis.

Wholesalers who open oysters on behalf of customers do not see opening as a significant profit centre, but rather as a service that is provided to secure the customer.

The typical on-cost that a wholesaler will charge, who is not a specialist oyster shucker, is in the region of \$0.20-\$0.75 per dozen, after opening costs. Some growers would argue that this is a significant margin for a product that is held for only a short time. However, what must be remembered is:

- The margin is only made on those oysters which are sold. It does not include losses from unsaleable or 'out of grade' oysters. One opener commented that they are willing to absorb losses in the range of 2-4%, and recent cases have occurred where losses of up to 10% have occurred.
- The margin that is added is a gross margin and does not include a provision for overhead costs.
- A medium sized business may open in the vicinity of 200,000 dozen oysters per year. When that figure is multiplied by the net margin, the net return could not be regarded as excessive.

6.4 Sydney Fish Market

The Sydney Fish Market ("SFM") is not viewed by anyone in the chain as a viable alternative for the marketing of oysters. Oyster buyers do not come to the SFM to buy oysters. If oysters are sold on the floor, industry sources suggest that they are often heavily discounted.

The three major reasons why the markets are not seen as traditional handlers of oysters are:

1. SFM does not offer an opening service, so the major end users will then need to coordinate others to open the oysters.
2. The volumes offered are traditionally small and inconsistent in quality.
3. Tradition.

None of the parties consulted as part of this study view SFM as an alternative marketing or sourcing channel in the future.

6.5 Distributors

Within the metropolitan city limits, the only wholesalers who do not offer distribution or logistics services as part of their package are operating within the major central wholesale markets.

Those who do not offer a distribution service rely on fishmongers to come to them to purchase their seafood needs.

The cost of transporting oysters from the wholesaler to end users (or other mid-chain companies) varies considerably and is dependant on a number of factors including:

- The average volume of oysters that a wholesaler can deliver in a day (if they are a stand alone oyster supplier);
- The volume of seafood and other products that a wholesaler can deliver in a day (if they are delivering multiple products);
- The distance between and number of deliveries that a distributor has to make in a day / week wit; and,
- Running costs of the vehicle, the original cost and length of ownership of the vehicle, and finance costs.

In Table 19 we calculated the average running costs for a vehicle that was solely used in the distribution of oysters and not used for any other seafood products. Our analysis was calculated on delivery of 90,000 dozen of oysters per year, the running costs of a 4x2 refrigerated vehicle costing \$45,000 to purchase, travelling 40,000km per year and selling the van after four years with a residual of 10% of the purchase price and an interest rate of 7.2% per annum.

Table 19: Projected Running Costs for a Metropolitan Specialist Oyster Distributor

Item	Assumption	Cost per Year	Cost per Dozen
Cost of Ownership (interest, depreciation)		\$13,132	
Repairs & Maintenance	6.9 cents per km	\$2,760	
Registration & Insurance		\$2,250	
Fuel	\$1.12 per km @ 13L / 100km	\$5,824	
Tolls		\$3,000	
Total Van Running Cost		\$26,966	\$0.30
+ Driver	\$48,000 per year inclusive of on-costs	\$48,000	
Total Van Operating Costs		\$74,966	\$0.83

Source: CDI Pinnacle Management, National Australia Bank, www.fleetnews.co.uk, Pers.comm.

Our observations suggest that seafood distributors typically retain vans for more than four years so the total average cost would be lower than in this example.

This analysis confirms that distribution costs for specialist oyster distributors are a significant component of the price that will be paid by their customers.

However, if a distributor is not a oyster specialist but rather a general seafood distributor who also distributes ancillary products eg. chips, oils, the effective cost per dozen oysters may decline by between 80 and 90% according to industry sources.

6.6 Mainline Food Service

Mainline food services differ significantly from seafood distributors. Mainline food services include companies such as PFD Foodservice, QFFS, Bidvest. These companies offer to customers not just seafood but a full range of frozen, chilled and fresh food products. For example a PFD catalogue offers a much wider range of product to customers than just seafood. Product categories by way of example, bakery, cleaning, fruit and vegetables, meat, past, smallgoods and snack foods.

Mainline food services businesses clientele include sectors such as schools, hospitals, restaurants, major catering services, nursing homes, takeaways, hotels, clubs and pubs, independent retailers etc.

Due to the volume of products that they offer, they have a significant cost advantage over seafood distributors whose average value for each delivery would be lower. That said, mainline food services traditionally have not been seen as providers of fresh seafood by end users. Certainly, when you examine the oyster offering of the mainline food service businesses, there is a strong focus on frozen oysters including NZ product. Certain states such as NSW appear to have a wider offer range including fresh product.

7 End Users

7.1 Chain Retailers

7.1.1 Supply Chain Structure

Both the two major chain store operators in Australia, Coles and Woolworths/Safeway, are supplied oysters by a series of accredited suppliers. Each supplier provides not just oysters but a full seafood offer that will include fresh and/or frozen seafood, and in a number of cases also a value added food offer (eg. fresh salmon in a tray with various seasonings or calamari tubes with seasoning).

Each approved supplier is allocated a region to which they have sole access, unless there are special circumstances.

For example, the number of approved suppliers in each state are: for Coles, QLD (2), NSW (3), VIC (2), SA (1), WA (1) and TAS (1); and for Woolworths/Safeway the numbers are similar.

CDIPM understand that there have been numerous past discussions amongst oyster growers, who want to go 'direct' to the chain stores thereby bypassing the 'middleman'. In reality, neither will permit this to occur as the added costs of doing business with an extra supplier, especially when seeking to reduce the number of suppliers, do not justify the investment, particularly given the relatively low importance that oysters have in terms of turnover.

Within each state the two chains prefer to make a standard offer of one species or another, with the exception of NSW. This offering generally reflects where the closest supply point is for a particular species. Table 20 summarises the species by state preference for each of the two major chains.

Table 20: Breakdown of Species Handled by Two Major Retail Chains by State.

State	Species Handled	
	Coles	Woolworths / Safeway
New South Wales	Pacific & SRO	Pacific & SRO
Victoria	Pacific	Pacific
South Australia	Pacific	Pacific
Tasmania	Pacific	Pacific
Queensland	SRO predominately, Pacific	SRO predominately, Pacific
Western Australia	Pacific	Pacific

Source: Woolworths / Safeway & Coles pers comm.

Each week each supplier is required to provide a supply and price offer to the seafood buying department in Sydney (Coles) or Melbourne (Woolworths/Safeway). The supply offer may vary from week to week, particularly for fresh fish due to availability. The national seafood buying department will/may negotiate on price with each of the suppliers. Once agreed the national office supplies the supply and price schedule for the coming week to each seafood department manager. The schedule will outline the 'purchase or buy-in' and recommended retail price including the margin.

All seafood orders are placed with the approved supplier directly by the seafood department manager. The approved supplier contacts each individual store every day, or less by prior arrangement, to gather orders.

The supplier delivers the order the next day direct to the store.

Seafood, unlike virtually all dry goods and significant percentages of the deli and fresh produce products, is not delivered directly to a distribution centre. For these other products, the goods are taken distributed to individual stores, so each store orders from the distribution centre. The benefits of having products distributed from a distribution centre are that:

- Costs can be removed from the chain due to the centralisation of transport.
- It makes it easier to go 'on advertisement' as supply volumes are better able to be managed.

7.1.2 Importance of Oysters at Store Level

Each seafood manager has a departmental budget for which they are responsible to the store manager for achieving. Oysters are regarded as a 'non-critical' line and so the manager has discretion on whether or not to stock them.

The comparatively low focus that oysters have in the eyes of a chain retailer store manager is demonstrated in Table 21. Just over 50% of this retailer's stores have stocked oysters in the last month.

Table 21: Percentage of Stores Stocking Oysters Across Australia in Leading Chain Retailer, March, 2009

Time Period	%
Within last 3 months	85.13
Within last month	54.47
Within the last week	43.42

Source: Confidential.

Further, this chain retailer stated that for the week ending the 6 March 2009, their second to fifth leading stores in Australia had average weekly sales of between 36 and 49 dozen. Their leading store, a new store opening where oysters had been placed on special (at \$10.00 per dozen), had achieved sales of 384 dozen. Again, for that same retailer, for the last two years oyster sales

revenue as a percentage of deli counter seafood sales (not including frozen in and fresh in stand alone cabinets) was between 1.5 and 2.0%.

These statistics show the low focus that oysters have in the eyes of the chain store operators and, more importantly, by their store managers. This is because they are a product that contributes little to overall turnover, except during the Christmas period where sales of up to 700 dozen have been achieved in some stores.

Factors identified by industry sources that contribute to the low sales turnover for oysters include:

1. Oysters not being stocked in all stores so even if the consumers wanted to buy oysters, they couldn't.
2. The quality of the oyster offer is marginal with a focus on smaller oysters. The chain retailers counter that due to their more expensive supply chain, they need to stock smaller oysters to be price competitive with fishmongers.
3. Chain store retailers not being seen by consumers as a destination or source for fresh seafood. While this perception is changing, as evidenced by the increased fresh seafood offer in a number of retail stores and increased per store turnover, the view is still in evidence.

7.1.3 Chain Store Margins and Costs

Each week each store manager is provided by head office with a 'recommended' margin on top of the delivered price that then forms the retail price offered to the consumer.

For one chain retailer the gross margin for oysters is 30%. A gross margin of 30% should not be confused with a 'mark-up' which at 30% gross margin equates to 42.9%. By way of example, refer to Table 22.

Table 22: Case Example of Gross Margin v's Mark Up for Oysters.

Item	Assumption / Formula	\$ or %
Purchase Price (delivered store)	\$9.20	
Margin	Assume % is 30%	30.0%
Mark-Up	$= ((\text{Margin} \times 100) / (100 - \text{Margin})) / 100$ \downarrow $= ((100 \times 30 / 100 - 30)) / 100 \rightarrow$	42.9%
Retail Price	$= \text{Purchase Price} \times (1 + \text{MarkUp}\%)$ \downarrow $= \$9.20 \times (1 + 0.429) \rightarrow$	\$13.15
Gross Margin	$= \text{Retail Price} - \text{Purchase Price}$ \downarrow $= \$13.15 - \$9.20 \rightarrow$	\$3.95

Source: CDI Pinnacle Management & Confidential.

According to some industry observers, the use of a margin of around 30% is why chain retailers are not competitive in the selling of oysters. As will be discussed in Section 7.2, the majority of fishmongers seek a fixed gross margin (say \$1.50-\$2.50 per dozen) rather than working on a percentage gross margin or mark up.

Therefore, to be price competitive, chain retailers typically have to sell a smaller oyster, which is what we evidenced during our investigations.

The costs associated with the operation of a seafood counter are not considered separately from the deli counter. One chain retailer commented that for the deli, labour costs represent approximately 21% of sales revenue with wrappings etc, representing 1.5%. Further, the view was that labour in seafood is a higher percentage of sales than the overall deli figure. Also, ice is a cost item in seafood that does not occur in the deli department.

Therefore, if we refer to Table 22 again, if oyster labour is 21% of total sales, the gross margin falls from \$3.95 to \$1.18 from which the following needs to be deducted:

- o other operational costs of the deli and seafood department;
- o overhead costs for the store; and,
- o overhead costs for the management side of the organisation.

In conclusion, chain store retailing of oysters are faced with:

1. Comparatively low margins
2. Comparatively small sales volumes, outside of Christmas,
3. A reputation of supplying smaller, and in some consumers eyes, inferior quality oysters.

7.1.4 Increasing the Sales of Oysters in Chain Retail

Both Coles and Woolworths would (of course) like to see an increase in oyster sales through their departments. That said, not surprisingly, both regard oysters as a minor line due to its contribution to turnover. As a result, it is unlikely that they will ever go 'on advertisement' with oysters as other products provide greater opportunities for revenue gains. Both chains also expressed a concern regarding the potential for the supply chain to adequately support the increased demand when product is placed 'on ad'.

For instance, Woolworths suggested that promoting oysters through their 'market days' which are held two or three times a year in each of their stores, may be a way to increase consumer awareness and sales of oysters. Individual store managers are also at liberty to undertake in store promotions, however, given the relatively low volume of oyster sales this is unlikely to occur on a broad scale.

A new concept developed by one chain retailer and currently on trial, involves the compilation and marketing of 'tasting plates' (see Figure 11). These plates currently comprise three oysters, a serving of smoked salmon, and peeled and unpeeled prawns. The concept of these tasting plates is to introduce consumers to a range of seafood products which they otherwise may not have chosen to purchase singly, and hopefully attracting new customers for these products.

Figure 11: Seafood Tasting Plate including Oysters, at Coles in Victoria



Source: CDI Pinnacle Management

Both chain operators are trialling and investing in new seafood displays and generally increasing the range of seafood offer. For example, Figure 12 shows a Coles Concept Store in Ivanhoe, VIC.

Figure 12: Seafood Counter at Coles store in Ivanhoe, Melbourne, Victoria



Source: CDI Pinnacle Management

Figure 13, Figure 14 and Figure 15, demonstrate the variety and increased seafood offerings at various Woolworths / Safeway stores in NSW and QLD. It must be noted that oysters did not feature in the offering in either pre-packaged chiller or frozen cabinets. In fact, despite visiting numerous chain retailer stores, oysters were not offered other than in the traditional chilled ½ shell form. This was despite numerous offerings in both the chilled, chilled value added and frozen cabinets of mussels.

Figure 13: Woolworths Chilled Value Added Offering.



Source: CDI Pinnacle Management

Figure 14: Woolworths / Safeway Frozen Offering



Source: CDI Pinnacle Management

Figure 15: Coles Value Added Seafood Offering in a Coles Victoria Store



Source: CDI Pinnacle Management

7.1.5 Barriers to Increasing Oyster Sales

Increasing the sales of oysters through chain retailer delis face a number of barriers including:

1. Obtaining deli manager and seafood management attention. Oysters represent such a small percentage of all seafood sales (and therefore deli and store sales) that getting the attention of the deli, and higher management, to significantly invest in increasing oyster sales is unlikely. Future investment in oyster sales by the chain retailer in isolation is, at best, unlikely. Further, the dollar spend required by industry to have a significant promotional impact is well beyond its current reach.

2. Competition for counter space from other seafood: The low sales volumes and low volumes, which result in a low total contribution to seafood sales, will continue to restrict the counter space that is available to oysters.
3. Existing supply chain structure: Oyster growers will not be able to supply oysters direct to chain store retailers without the services or involvement of one of the select number of category suppliers. Like the chain retailers, oysters are a low priority product for them.
4. Consumer view of chain retailers as not suppliers of premium seafood: Our discussions and observations confirm that chain retailers are placing an increasing focus on the seafood counter as a point of difference to one another and to fishmongers. However, at this stage consumers generally do not see chain retailers as a destination for seafood. It is obvious that this will change over time, particularly if fishmongers become less prevalent in shopping malls.
5. Inability to promote innovation: There have been a number of examples where suppliers have attempted to supply innovative new products (eg packaging and value adding). In the majority of instances they have failed. We believe this is primarily due to the lack of investment in product awareness building (eg. advertising and taste tasting). The lack of available dollar support to build new sales will continue to result in low sales for new products, ultimately resulting in their removal from the shelves.

7.1.6 Strategies Aimed at Increasing Oyster Sales

CDIPM believe that the development of chain retailer oyster sales will be a gradual process. Strategies that the oyster industry and individual or grower collectives may seek to pursue include:

1. Increased provision of promotional material.
2. Working closely with existing approved suppliers to develop low budget promotional campaigns. Also examining how value added products can include oysters, in particular in the chilled cabinet.
3. Greater levels of communication with Category Suppliers. Where there is knowledge of a flush of oysters coming onto the market, communicating this with category suppliers to attempt to place oysters 'on ad'. Any attempt to do this will require that the growers and oyster shuckers/openers are linked into any campaigns.
4. Explore strategies between growers, category suppliers and chain store seafood managers to explore how oysters may be offered in stand-alone chiller and frozen food cabinets.

7.2 Fishmongers / Independent Retailers

Fishmongers / Independent Retailers (Fishmongers) are the second largest single end user segment supplying consumers with oysters behind the food service sector. Although it is very difficult to obtain accurate data due to the complexity of the chain and lack of collected information, our estimates suggest 37% of oysters sold to consumers are supplied through a fishmonger.

CDIPM's research suggests that there are five 'types' of fishmongers operating in Australia:

1. Independent Fishmongers located in shopping centres or shopping malls.
2. Fishmongers who also supply a variety of cooked / hot seafood (takeaway format) who are either located in shopping centres or as stand-alone operations, whose core focus is cooked seafood with fresh seafood regarded as a sideline product.
3. Fishmongers who supply food products others than seafood (eg. red and white meat). There is limited evidence of these business types although the segment is growing.
4. High Street fishmongers who, while independent, are not located in shopping centres but as stand alone businesses generally along busy metropolitan roads.
5. Franchises. Typically they are located in MFS. They may be owned by a single operator e.g. De Costi's or by multiple operators under a franchisor. In either instance the stores are marketed under a common banner.

Melbourne has a highly developed group of "High Street" fishmongers who are located in one of the six major central markets. These six markets are located at Queen Victoria Markets (just outside the city centre), South Melbourne, Prahran, Preston, Camberwell and Moonee Ponds. These markets have been developed along the lines of a traditional wet market located in Europe or Asia although with strict food safety guidelines. Each market caters to the demographic of the region. For instance, Prahran on average supplies a high quality, more finished product to the generally wealthier consumers. By comparison, in lower socio-demographic Preston, the product is slightly lower in quality and price.

Each of these markets has between two and nine retailers, most often located side-by-side. Due to their co-location competition is intense, with prices generally observed to be \$1.00-\$2.00 per dozen cheaper for similar quality oysters than that supplied in fishmongers within MFS. The price differential may not be evidence of 'price gouging' (at least not entirely) as rents are generally lower in these markets and the volume of seafood sold is often greater than in shopping centres.

There appears to be a wide variation in the performance of individual fishmongers, with turnovers ranging from less than \$20k per week up to over \$90k and over. The disparity in income variations appears to be largely reflective of the skills of the business operator and of course the drawing power of the region in terms of potential customers.

An example of how a good fishmonger can attract customers can be evidenced approximately 10km south-east of the Brisbane city centre. A high quality, strongly customer focussed medium sized shopping centre has a fishmonger who generates an average turnover of over \$70,000 per week. This shopping centre is sandwiched between two of the largest shopping centres in Brisbane. Both shopping centres have small fishmongers who we believe would struggle to generate sales of more than \$30k per week each. The customer traffic in either of these centres would be multi-fold times more than the fishmonger operating in the smaller centre.

7.2.1 Importance of Oysters to Fishmongers

Chain retailers indicated oysters represent between 1.5–2.0% of sales turnover. Our discussions with fishmongers indicated oyster sales are far more important and represent between 4.0-7.5% of total turnover.

Combined with the fact that fishmongers have a higher turnover per store, fishmongers represent a very important segment in the selling of oysters.

The general observations made by fishmongers in relation to oysters were:

1. Essential line. Fishmongers believe they must stock oysters as part of having a 'complete offer range'.
2. Service line. Apart from those fishmongers who have very short supply chains (two or three links), the majority of retailers commented that they regard oysters as a service line as the profitability that they generate from oyster sales is low in comparison with fish.
3. Difficult line. Oysters are comparatively difficult to handle, particularly when opened.

7.2.2 Sources of Supply

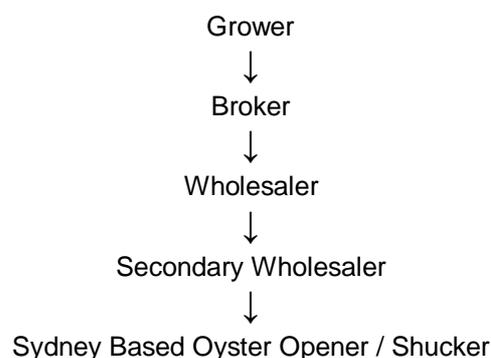
Fishmongers purchase oysters from a variety of mid-chain participants as well as directly from the growers. The factors that determine which 'chain' the fishmongers use is dependant on:

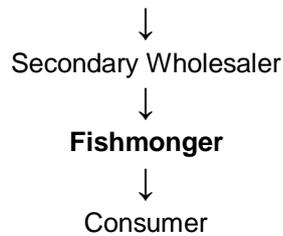
1. Whether or not the fishmonger opens their own oysters.
2. The store turnover.
3. Whether the store location is metropolitan or regional.

Large turnover stores that open their own oysters and are located in major metropolitan centres are more likely to purchase their oysters direct from a grower or broker.

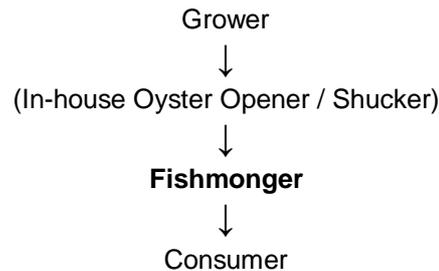
Conversely, stores located in regional areas which generally have a lower level of turnover and who don't have access to an oyster opener in that region, will tend to source oysters from a specialist opener or wholesaler / distributor.

We noted one supply chain that involved a total of seven transactions. This chain involved the following parties:





Conversely, a chain may be as short as:



7.2.3 Fishmonger Business Costs

Naturally, the major cost in operating a fishmonger shop is the cost of seafood. Seafood purchase costs generally represent between 60 and 75% of the total operating costs. The other two major cost centres are labour and rent. Depending on the location, rent may represent between 7.0-12.5% of total operational costs. Labour, the second largest cost centre, again varies considerably depending on the size of the business, whether or not the owner and direct family are active or inactive in the business, and the state where the business operates. Labour costs vary between 15-25% of total operating costs.

Other less important cost areas include electricity, packaging, ice, insurance and workers compensation.

7.2.4 Growth or Decline of Fishmongers

As one of the two principal end-user chain participants that supply oysters to consumers, there has been a number of discussions / debates over many years regarding the ongoing success of fishmongers. We make the following observations.

1. There is limited evidence of the failure of fishmongering businesses that are located in shopping centres. However, it is apparent that there is considerable variation in the level of profitability of fishmongers, with well run, high volume fishmongers appearing to be quite profitable.
2. There does appear to be a decline in the presence of High Street vendors, particularly those who continue to specialise in fresh seafood and / or who don't have other income streams e.g. restaurant supply. We believe this has largely been driven by the consumer's increasing desire to access a 'one stop shop' in shopping centres.
3. The trend for other 'protein retailers' e.g. red meat and chicken, to offer seafood as part of the range has not 'taken off'. This lack of growth appears to revolve around the need for

these retailers to establish two distinct supply chains, with the only synergies revolving around the actual retailing. It would appear from the stores viewed as part of this study that the seafood offer being made available is narrow and focuses more on frozen seafood products. Certainly no oysters were observed in any 'mixed protein retailers'.

4. Franchises. Sydney has a number of franchise operations. The industry view considers that the scope for expansion in franchises is limited due to the very specialised and limited supply of skilled fishmongers who also know how to manage a business profitably.

The majority of fishmongers expressed the view that in the face of increasing seafood prices, particularly fresh fish, the 'value proposition' in the eyes of the consumer for eating seafood is being placed under strain from other protein sources, particularly chicken. The majority of retailers commented about their inability to fully pass on price increases, particularly that which has applied to fresh seafood including oysters. There is real concern that continued price increases will drive some consumers away from eating seafood in preference to other food groups.

The current economic crisis appears to not have adversely affected the majority of fishmongers. This is possibly due to the fact that there appears to be a declining patronage of restaurants as more consumers are 'eating at home'. A number of retailers have commented that consumers are buying an increasing proportion of cheaper fish cuts. There was a mixed view regarding the movement in oyster sales, with some fishmongers commenting sales are at normal levels but others stating that they have seen a small drop off.

A major issue facing seafood retailers is the inability to attract quality staff, whether they are junior or senior hands. Seafood retailing is not seen, particularly by the younger generation, as a preferred career of choice, with many other retailing industries offering more 'appealing' work environments. Due to the small 'pool' of workers prepared to work in the sector they have to pay high rates of pay to keep them. Further complicating the labour issue is that seafood sales are strongly seasonal, with the number of employees potentially doubling for short periods. Therefore, the inability to provide longer term employment is seen negatively by potential workers.

Figure 16 demonstrates the high level of week day patronage in the seafood section of Queen Victoria Markets in Melbourne.

Figure 17 shows an example of value added oysters in a franchise retailer's business in Sydney. These oysters were prepared 'in-house'.

Figure 16: Seafood Quarter in Queen Victoria Markets, Central Melbourne (weekday.)



Source: CDI Pinnacle Management

Figure 17: Display of Oyster Mornay Oysters in Franchised Independent Retail Store, Eastern Sydney.



Source: CDI Pinnacle Management

7.3 Restaurants

7.3.1 Introduction

For the purposes of this report restaurants also include pubs and clubs and seafood buffets, and are the primary market segment for which oysters are sold to consumers. We estimate 53% of oysters may be sold through this channel.

In 2006, there were an estimated 37,699 restaurant, café and catering businesses in Australia generating total sales of approximately \$12.8 billion. These figures convert to an average sales turnover of \$340k.

Approximately 9.2% of restaurants in Australia are classified as seafood restaurants (source: Café & Restaurants Industry Survey, ABS 8655.0).

However, generally oysters form at least some part of the menu offering in most styles of restaurants, with the exception being the Middle Eastern and Indian sub-continent theme restaurants.

On average, restaurants reported a net profit of 4% of sales turnover. The survey concluded that there is a wide variation in the levels of profitability of individual restaurants with 34% of restaurants reporting a net profit of less than 1% of turnover.

This data confirms CDIPM's view that there is a comparatively small percentage of restaurants who are making good or exceptional profits, with the vast majority providing very low profit levels to business owners. We believe this is reflective of the very high level of competition and relatively low barriers to entry in the food service industry.

7.3.2 Perception of Oysters

Tablecloth & A La Carte Restaurants

Oysters are seen by the vast majority of these restaurants as an entrée line. The 'traditional' oyster entrée offering includes a 'oysters natural' with one or two other 'topped oysters'. The price at which they are offered varies enormously and is reflective in part with the 'market position' of the restaurant, in addition to the quality of the oyster offered and the other overhead costs that the restaurant incurs.

Oysters are rarely offered as the main 'protein' in a meal. The interviewees commented that this was because the 'protein' cost is too high in comparison with other protein sources. Further, consumers just don't view oysters as a main meal line.

Where restaurants offers seafood as a mixed protein line, for example, as seafood marinara or surf 'n 'turf, oysters tend to be used only sparingly if at all. The primary reasons for the low use of oysters in these meal types are:

- The high cost in comparison with alternatives. If they use two oysters at a 'purchase in' price of \$1.00 each, the oysters may contribute up to \$6.00 (assuming the three times multiple) to the end price of the meal.
- Mussels are seen as a viable alternative as they are cheaper, can be frozen, are generally larger (provide more visual plate fill) and are better suited to being handled. Further, mussels have less of a strong taste and so are not as likely to 'dominate' a meal.

When restaurateurs were questioned about how to increase the sales of oysters through their operations, the feedback was simple and uniform.

1. Lower the price.
2. Provide a more consistent product. A number of restaurants commented adversely that there was little consistency in the appearance of oysters. In general, they were referring to the fact that their suppliers often supplied product from different bays on a week to week basis depending on price and quality. Due to the variations in appearance of the oysters, this lack of consistency makes it difficult for the restaurateurs to generate 'repeat' sales. That is, a diner may have enjoyed the oysters last time they dined but this time the

quality is different which can be off-putting. Further, if the initial eating experience was poor, a diner will generally 'steer around' oysters on the next dining occasion.

3. Provide more information to restaurants on where the oysters are sourced from so that they can pass this onto customers when questioned.

Seafood Buffets

Together with prawns, oysters are regarded as a traditional 'staple' of both high end and low end seafood buffets,. Both high and low end buffets have a much higher food cost component to their operations (up to 60%) and are highly focussed on the food costs. Seafood buyers for buffets generally focus on purchasing a smaller and therefore cheaper oyster to lower the per unit cost of the product

While prepared to purchase small sized oysters, buffet buyers are still looking for oysters that have good condition and taste. These factors contribute to the strong demand for SRO in seafood buffets.

Traditionally, most buffets have offered at least two lines of oysters and on some occasions three (i.e. natural, kilpatrick and/or mornay). As the costs of oysters (and prawns) increase, seafood buffets are seeking to reduce the number of oyster lines to one (natural or kilpatrick) or two (natural, kilpatrick and / or mornay). According to some restaurateurs, ideally they would focus on a cooked line so that they could buy even smaller oysters and top them to 'fill them up'.

A number of restaurateurs commented that they are increasingly seeking to use alternative cheaper seafood products such as uncooked, chilli topped or cooked topped mussels as they are cheaper per unit to purchase, and more 'visually appealing' as they are larger. There is a general belief that a wider proportion of diners will eat mussels compared with oysters and so potentially attract a wider audience.

The oyster industry is strongly recommended to take note of the trend of seafood buffets to look towards reducing their oyster offering. Buffets offer one of the few market outlets for small oysters and if this market is lost producers of this product will have to develop different production strategies or be faced with receiving lower average prices. Furthermore, buffets are relatively high volume users of oysters and offer a concentrated customer base, if growers in partnership with the buffet suppliers are able to develop strategies to keep them front of mind for the food buyers.

A number of seafood buffets commented positively towards getting access to topped, oven ready oysters to reduce the preparation time in the kitchen. There appears to be no-one currently offering a product of this type.

Lower end seafood buffets commented that patronage in recent months has been strong or growing, with the higher end buffets having slowing sales, particularly where they are linked to asian tourism. Each 'group' commented this situation was directly related to the 'economic crisis' as diners seek lower priced meal alternatives.

Oyster Bars

Oyster bars were an emerging outlet for high quality, medium and large sized oysters. We say 'were' as a number of oyster bars commented that sales have slowed dramatically, in most instances, seemingly in response to the current 'economic crisis'. Oyster bars were only in evidence in Melbourne, Sydney and Adelaide, with fewer than seven outlets in Melbourne, the largest location for these bars.

Oyster bars seek to appeal to the connoisseur (or budding connoisseur) by supplying a range of freshly shucked oysters which have a strong linkage to regional or appellation branding. Oyster bars are highly demanding on their suppliers requiring them to guarantee region of origin and only the highest quality oysters (in terms of appearance, fullness and taste).

Oysters are generally sold on an 'each' basis with prices ranging from \$3.00 to \$4.50. Generally oysters are sold naturally but may include accompaniments. At least one major oyster bar in Melbourne can sell over 400 dozen oysters per week, particularly in summer.

All of the oyster bars contacted use a wholesaler to supply them with oysters. Due to the comparatively small volumes required, none of the bars contacted indicated that they would buy any significant quantities direct from growers in the future.

The general view is that there will not be a rapid growth in the number and size of oyster bars operating in Australia. Their development will be constrained to the inner regions of the capital cities. However, we believe they are important 'breeding' ground for future oyster consumers as the people who attend these bars are younger and generally affluent, who may or may not be existing oyster consumers.

At least one oyster bar was dissatisfied with the service they received from their existing suppliers, citing product quality variability as one of the major issues. His view was that his supplier was not as concerned about adhering to the exacting standards that he required and that he was not supplied with enough information regarding product origins.

Again, from an oyster growing perspective, remedying situations such as this are largely beyond their control, with the exception of making sure there is enough information available for the mid-chain to use in product traceability and regional product information.

7.3.3 Restaurant Business Costs

A leading Sydney restaurant (premium white tablecloth) provided the following costs of operation for the last 12 months as a percentage of turnover, shown in Table 23.

Table 23: Operational Cost Breakdown for a Leading Sydney Restaurant, 2008/09.

Item	%
Food and Beverage	32
Wages	46
Rent or Lease Costs including electricity, gas or rates	7
Overhead or Operating Costs including repairs, phone, printing, cleaning	10
EBITDA	5
TOTAL	100

Source: Confidential

A study completed in July 2008 by Restaurant & Catering Australia (the industry's peak body) requested information from restaurateurs regarding the operating costs and returns of their business. Table 24 provides a summary of the average costs, as a percentage of total cost, for the operation of a leading Sydney Restaurant

Table 24: Operational Cost Breakdown for a Leading Sydney Restaurant, 2008/09.

Item	%
Food	29.2
Beverage	27.5
Wages	35.3
Overhead or Operating Costs including lease or rent, electricity, gas, rates, repairs, phone, printing, cleaning	8.0
TOTAL	100

Source: Restaurant & Catering Australia, 2008.

The same study concluded that the average EBITDA (Earnings before Interest, Tax, Depreciation and Amortisation) for these businesses as a percentage of turnover was 8.77%. Of this figure, 33.3% of the businesses had an average EBITDA return of less than 5%. The report also concluded that these earning results may be skewed somewhat as poorer performing businesses were unlikely to have contributed to the study.

There was a general rule of thumb in the restaurant industry that suggests that costs of goods represent a third, labour a third and gross margin a third of the total cost of meal. A number of restaurateurs commented this 'model' is increasingly irrelevant as food costs now form a greater share of meal costs and labour a slightly increased share.

7.4 Fish & Chip Shops

Oysters are very rarely offered as fresh oysters in store. If fresh oysters are offered they are generally part of a very limited seafood offering. Sales of fresh oysters through traditional fish and chip shops are very limited and would be expected to continue to be so for the foreseeable future. The reasons for this are:

1. Fish and chip shops are not seen as a traditional supply source of fresh oysters.

2. Linked to (1) is the fact that if oyster sales are slow or low, the potential risk of having to throw oysters out is high, thereby decreasing profits.

3. Display space availability is generally at a premium in most fish and chip shops.

In QLD, frozen crumbed oysters are offered extensively as part of the 'menu' offering. This product is not offered as extensively in the other states from our observations.

The majority of fish and chip shops have a turnover ranging from around \$75k to \$500k per annum with a few exceptional stores being higher than this.

Profitability figures, while not officially available, are generally low due to the high level of competition within the take away food sector, not just fish and chip shops. Many fish and chip shops have also had to attempt to pass on the price increases that have occurred for fresh fish. The few shops surveyed commented that they were frequently unable to pass on the full increases, as they believed they would lose sales. The impact is that profitability is further eroded.

Southern interviewees commented disparagingly about the quality of frozen crumbed oysters. We have an alternative view that suggests that if consumers eat oysters in any form, this is good for the overall industry. Frozen, crumbed oysters could be viewed as one way that a consumer moves from being a non- to an occasional consumer.

8 Chain Margin Models

8.1 Introduction on Models

This section provides a total of eight chain margin or cost breakdown models that were developed in consultation with a range of restaurants, fishmongers, chain retailers, oyster shuckers, wholesalers and growers. Each model provides as much detail as was available on the costs and margins associated with the eight models. Each of these models were developed based on financials provided in early 2009.

The seven models that are presented include:

1. Unopened Standard Pacific Oyster (from SA) sold by a fishmonger in lower/middle income suburb in Western Sydney (see Table 25)
2. Small bistro SRO sold by a chain retailer in Sydney, NSW (see Table 26).
3. Standard Pacific Oyster (from SA) sold by a restaurant in high income North Shore, Sydney, NSW (see Table 27).
4. Plate Pacific Oyster (from SA) sold by a fishmonger located in a shopping centre in middle/upper class Ivanhoe, Melbourne, Vic (see Table 28)
5. Standard Pacific Oyster (from SA) sold by a fishmonger at Preston Market , Melbourne, Vic (see Table 29).
6. Standard Pacific Oyster (from SA) sold by a mid-tier restaurant in Richmond, inner Melbourne, Vic (see Table 30).
7. Small bistro SRO (from NSW) sold by a restaurant seafood buffet, in a lower/middle income suburb, Western Sydney, NSW (see Table 31).
8. Pacific Plate Oyster (from South Australia) sold by Hotel Restaurant in Middle Income Suburb, Brisbane supplied by a Mainline Food Distributor (see Table 32).

Table 25: Supply Chain Price Breakdown, Unopened Standard Pacific Oyster (from South Australia) sold by a Fishmonger in Lower / Middle Income Western Sydney Suburb

	Item	Assumption / Formula	Sub-Total \$ / dozen	\$ / dozen
Grower	Farmgate price			\$6.70
↓	Freight	\$8.15 per 25 dozen bag	\$0.33	
Wholesaler / Shucker	Wholesaler cost (landed Sydney)			\$7.03
	Oyster loss	2.00% of wholesaler cost	\$0.14	
	Shucking	\$0.95 (contract cost) + \$0.10 (superannuation) + \$0.05 (other on-costs)	\$1.10	
	Waxed cardboard carton	\$0.70 per 10 dozen	\$0.07	
↓	Plastic trays	\$0.17 per dozen	\$0.17	
	Plastic sheets / liners	\$0.03 per dozen	\$0.03	
	Margin (not including provision for overhead, delivery costs, other handling costs or other management costs)	\$1.00 per dozen	\$1.36	
		Sub-Total	\$2.87	
Retailer	Buy price to retailer			\$9.90
	Overhead costs	6% of total turnover costs, total sales 14k dozen per year	\$2.00	
↓	Margin	Difference between buy price of oysters + overhead costs	\$1.10	
		Sub-Total	\$3.10	
Consumer		Purchase Price		\$13.00

Source: CDI Pinnacle Management, pers comm.

Table 26: Supply Chain Price Breakdown, Small Bistro Sydney Rock Oyster sold by a Chain Retailer in Sydney, NSW

	Item	Assumption / Formula	Sub-Total \$ / dozen	\$ / dozen
Grower	Farmgate price			\$5.00
↓	Freight	\$7.50 per 65 dozen bag	\$0.11	
Wholesaler / Shucker	Wholesaler cost (landed Sydney)			\$5.11
	Oyster loss	2.00% of wholesaler cost	\$0.10	
	Shucking	\$0.85(contract cost) + \$0.08 (superannuation) + \$0.05 (other on-costs)	\$0.98	
↓	Waxed cardboard carton	\$0.70 per 10 dozen	\$0.07	
	Plastic sheets / liners	\$0.03 per dozen	\$0.03	
	Margin (not including provision for overhead, delivery costs, other handling costs or other management costs)	\$0.70 per dozen	\$0.70	
		Sub-Total	\$1.88	
Retailer	Buy price to retailer			\$6.99
↓	Margin (does not include any operating costs of seafood department, overhead costs or contribution to store overhead or overhead costs or contribution to company overhead. Labour calculated by one chain as 21% of sales or \$2.10 per dozen).	30.0% which equals a Mark Up of 42.9%.	\$3.00	
		Sub-Total	\$3.00	
Consumer		Purchase Price		\$9.99

Source: CDI Pinnacle Management, pers comm.

Table 27: Supply Chain Price Breakdown, Standard Pacific Oyster (from South Australia) sold by a Restaurant in High Income North Shore, Sydney

	Item	Assumption / Formula	Sub-Total \$ / dozen	\$ / dozen
Grower	Farmgate price			\$6.75
	↓ Freight	\$13.00 per 20 dozen bag	\$0.65	
Wholesaler/ Distributor	Wholesaler cost (landed Sydney)			\$7.40
	Oyster loss	2.00% of wholesaler cost	\$0.15	
	Grading, packing & cleaning	\$0.35 per dozen	\$0.35	
	Polystyrene carton	\$1.95 per 10 dozen	\$0.20	
	↓ Plastic sheets / liners	\$0.03 per dozen	\$0.05	
	Margin (not including provision for overhead, delivery costs, other handling costs or other management costs)	\$1.75 per dozen	\$1.75	
	Sub-Total		\$2.50	
Restaurant	Buy price to restaurant			\$9.90
	Shucking & other preparation		\$2.70	
	Garnish		\$0.20	
	Sub-Total		\$2.90	\$12.80
↓	Other labour (46% of end price)	\$18.40 per dozen	\$18.40	
	Rent (7% of end price)	\$2.80 per dozen	\$2.80	
	Overhead costs (10% of end price)	\$4.00 per dozen	\$4.00	
	Net margin (5% of end price)	\$2.00 per dozen	\$2.00	
Consumer	Meal Price			\$40.00

Source: CDI Pinnacle Management, pers comm.

Table 28: Supply Chain Price Breakdown, Plate Pacific Oyster (from South Australia) sold by a Fishmonger located in a Shopping Centre in Middle / Upper Class Ivanhoe, Melbourne

	Item	Assumption / Formula	Sub-Total \$ / dozen	\$ / dozen
Grower ↓	Farmgate price			\$6.00
	Freight	\$7.50 per 30 dozen bag	\$0.25	
Retailer (in-house shucking) ↓	Retailer cost (landed Melbourne)			\$6.25
	Oyster loss	2.00% of landed cost	\$0.13	
	Shucking	\$1.10(contract cost) + \$0.10 (superannuation) + \$0.05 (other on-costs)	\$1.25	
	Plastic trays	\$0.17 per dozen	\$0.17	
Consumer	Margin (not including provision for overhead, delivery costs, other handling costs or other management costs)	\$4.20 per dozen	\$4.20	
		Sub-Total	\$5.75	
		Purchase Price		\$12.00

Source: CDI Pinnacle Management, pers comm.

Table 29: Supply Chain Price Breakdown, Standard Pacific Oyster (from South Australia) sold by a Fishmonger at Preston Market , Melbourne

	Item	Assumption / Formula	Sub-Total \$ / dozen	\$ / dozen
Grower	Farmgate price			\$6.70
↓	Freight	\$8.15 per 25 dozen bag	\$0.33	
Wholesaler / Shucker	Wholesaler cost (landed Melbourne)			\$7.03
	Oyster loss	2.00% of wholesaler cost	\$0.14	
	Shucking	\$0.95 (contract cost) + \$0.10 (superannuation) + \$0.05 (other on-costs)	\$1.10	
	Waxed cardboard carton	\$0.07 per 10 dozen	\$0.07	
↓	Plastic trays	\$0.17 per dozen	\$0.17	
	Plastic sheets / liners	\$0.03 per dozen	\$0.03	
	Margin (not including provision for overhead, delivery costs, other handling costs or other management costs)	\$1.00 per dozen	\$1.36	
		Sub-Total	\$2.87	
Retailer	Buy price to retailer			\$9.90
	Overhead costs	6% of total turnover costs, total sales 14k dozen per year	\$2.00	
↓	Margin	Difference between buy price of oysters + overhead costs	\$0.96	
		Sub-Total	\$2.96	
Consumer		Purchase Price		\$12.86

Source: CDI Pinnacle Management, pers comm.

Table 30: Supply Chain Price Breakdown, Standard Pacific Oyster (from South Australia) sold by a Mid-Tier Restaurant, Richmond, Inner Melbourne.

	Item	Assumption / Formula	Sub-Total \$ / dozen	\$ / dozen
Grower	Farmgate price			\$6.70
	↓ Freight	\$8.15 per 25 dozen bag	\$0.33	
Wholesaler	Wholesaler cost (landed Melbourne)			\$7.03
	↓ Margin (not including provision for overhead, delivery costs, other handling costs or other management costs)		\$0.70	
Retailer / Own Shucker	Buy price to fishmonger			\$7.73
	↓ Oyster loss	2.00% of wholesaler cost	\$0.14	
Restaurant	Shucking	\$0.85 (contract cost) + \$0.08 (superannuation) + \$0.05 (other on-costs)	\$0.98	
	↓ Waxed cardboard carton	\$0.07 per 10 dozen	\$0.07	
	Plastic sheets / liners	\$0.03 per dozen	\$0.03	
	Margin (not including provision for overhead, other handling costs or other management costs). No delivery costs.	\$1.25 per dozen	\$1.50	
		Sub-Total	\$2.72	
	Buy price to restaurant			\$10.45
	Other food ingredients		\$0.75	
	Garnish		\$0.15	
		Sub-Total	\$0.90	\$11.35
	↓ Other labour (34% of end price)	\$9.52 per dozen	\$9.52	
Rent (8% of end price)	\$2.24 per dozen	\$2.24		
Overhead costs (11% of end price)	\$3.08 per dozen	\$3.08		
Net margin (6% of end price)	\$1.68 per dozen	\$1.68		
Variation		\$0.13		
	Sub-Total	\$16.65		
Consumer		Meal Price		\$28.00

Source: CDI Pinnacle Management, pers comm.

Table 31: Supply Chain Price Breakdown, Small Bistro SRO (from New South Wales) sold by Restaurant Seafood Buffet, Western Sydney, Lower / Middle Income Suburb.

	Item	Assumption / Formula	Sub-Total \$ / dozen	\$ / dozen
Grower	Farmgate price			\$5.00
↓	Freight	\$7.50 per 65 dozen bag	\$0.11	
Specialist Shucker	Specialist shucker cost (landed Sydney)			\$5.11
	Oyster loss	3.00% of wholesaler cost	\$0.15	
	Shucking	\$0.80 (contract cost) + \$0.07 (superannuation) + \$0.05 (other on-costs)	\$0.92	
↓	Waxed cardboard carton	\$0.70 per 10 dozen	\$0.07	
	Plastic sheets / liners	\$0.03 per dozen	\$0.03	
	Margin (not including provision for overhead, delivery costs, other handling costs or other management costs)	\$1.40 per dozen	\$1.65	
		Sub-Total	\$2.82	
Broadline Food Distributor	Buy price to retailer			\$7.93
↓	Margin (not including provision for overhead, delivery costs, other handling costs or other management costs)		\$1.32	
		Sub-Total	\$1.32	
Restaurant	Buy price to retailer			\$9.25
	Labour (22% of end price)	\$3.03 per dozen	\$3.03	
	Rent (4% of end price)	\$0.55 per dozen	\$0.55	
↓	Overhead costs (11.5% of end price)	\$2.52 per dozen	\$1.58	
	Net Margin (2.5% of end price)	\$1.68 per dozen	\$0.34	
		Sub-Total	\$5.50	
Consumer		Meal Price		\$14.75

Source: CDI Pinnacle Management, pers comm.

Table 32: Supply Chain Price Breakdown, Pacific Plate Oyster (from South Australia) sold by Hotel Restaurant in Middle Income Suburb, Brisbane supplied by a Mainline Food Distributor

	Item	Assumption / Formula	Sub-Total \$ / dozen	\$ / dozen
Grower	Farmgate Price			\$5.60
↓	Freight	\$11.00 per 25 dozen bag	\$0.44	
Wholesaler / Shucker	Specialist Shucker Cost (landed Sydney)			\$6.04
	Oyster Loss	3.00% of Wholesaler Cost	\$0.18	
	Shucking	\$0.80 (Contract Cost) + \$0.07 (Superannuation) + \$0.05 (Other On-Costs)	\$0.92	
↓	Waxed Cardboard Carton	\$0.70 per 10 dozen	\$0.07	
	Plastic Sheets / Liners	\$0.03 per dozen	\$0.03	
	Margin (not including provision for overhead, delivery costs, other handling costs or other management costs)	\$1.26 per dozen	\$1.26	
		Sub-Total	\$2.46	
Broadline Food Distributor	Buy Price from Wholesaler			\$8.50
	Margin (not including provision for overhead, delivery costs, other handling costs or other management costs)		\$0.72	
		Sub-Total	\$0.72	
Hotel	Buy Price from Mainline Distributor			\$9.22
	Labour (28% of end price)	\$5.32 per dozen	\$5.32	
	Rent (5% of end price)	\$0.95 per dozen	\$0.95	
	Overhead Costs (12% of end price)	\$2.28 per dozen	\$2.28	
	Net Margin (6.5% of end price)	\$1.24 per dozen	\$1.24	
		Sub-Total	\$9.79	
Consumer		"Meal Price"		\$19.00

Source: CDI Pinnacle Management, pers comm.

8.2 Key Observations

In examining the cost and supply chain models from Section 8.1 there are a number of key observations or learnings that can be identified. These key observations include:

1. From grower to consumer generally involves four to five transactions.
2. Gross margins post-farm gate are highly variable from chain to chain and is reflective of the position of the end user in terms of geographic and socio-demographic characteristics of that region and the business skills of the operator.
3. Particularly with the mid-chain, gross and net margins are not what CDIPM would consider to be excessive in a commercial environment. CDIPM believe this is reflective of the generally highly competitive business environment and sectors in which these businesses operate.

9 Consumers

Consumers were not directly consulted in this study. This was due to restricted project funding and the belief that other chain sectors warranted greater focus. However, there are a number of consumer studies that have been undertaken from which valuable lessons can be learnt. It is apparent from our discussions with end users that the drivers of consumer consumption of seafood and oysters appear to have changed marginally in recent years.

The information presented in this report should be compared closely with the current consumer research project that is being undertaken by the Oyster Consortium.

If consumer behaviour has changed little, valuable lessons can be drawn from the work done in other reports. This section will provide a summary of the research report outcomes from the following:

1. Retail Sale and Consumption of Seafood – Revised Edition, September 2002. The report was prepared for the Fisheries Research and Development Corporation by Ruello & Associates Pty Ltd.
2. Retail Sales of Consumption of Seafood – Melbourne, 2006. The report was prepared for the Fisheries Research and Development Corporation by Ruello & Associates Pty Ltd.
3. Oyster Consumption Study in Australia: The study reports the results of a 2003 survey. The report was prepared for the South Australian Oyster Research Council, Tasmanian Oyster Research Council, Institutional Grant Scheme by Yu Liu, Felicia Kow & Devinder Grewal, Faculty of Fisheries & Marine Environment, Australian Maritime College.

9.1 Oyster Consumption

9.1.1 Oyster Consumption

Ruello calculated that from 1991/92 to 2000/01 oyster consumption rose from 492 to 676 grams per person.

This study estimates that in F2007 total oyster consumption was approximately 17.2 million dozen (ignoring tinned oysters). If we assume the average weight of dozen oyster to be 0.70 kilograms (SRO and Pacific), and the Australian population to have been 21 million in 2007, this equates to a consumption level of 573 grams per person. If the average weight per dozen is 0.75 kilograms, the consumption rate increases to 610 grams. Without understanding the basis on which the Ruello calculations were made, it is reasonable to assume there has been no increase in average consumption since the Ruello study.

The 2003 Oyster Consumption Survey considered 696 consumers in five capital cities. Key findings from this study were:

- 70.7% of responses were oyster eaters with 29.3% being non-oyster eaters. The consultants concluded that the percentage of oyster eaters in the total population may be even less as the surveys were conducted in retail seafood outlets.
- 73% of oyster consumers prefer to eat oysters fresh and eat them 2-7 times per year.
- 55% of oysters are predominately eaten at home (as opposed to outside the home e.g. at restaurants). These figures do not take into consideration the frequency of purchase which CDIPM considers to be higher in food service outlets than in at home consumption.
- 15-19 year olds are the lowest consumers with only 24.7% of those surveyed eating oysters. The greatest proportion of oyster consumers are in the 40-59 year old bracket. The breakdown of oyster consumers by age group is summarised in Table 33.

Table 33: Percentage of Survey Respondents Who Are Oyster Consumers x Age Bracket, 2004

Age Group	% Yes Responses of Total
15-19	24.7%
20-39	71.9%
40-59	81.0%
.>60	68.1%

Source: Liu, Kow & Grewal, 2004.

9.1.2 Profile of Consumers Who Don't Eat Oysters

The major factors why consumers did not eat oysters were listed as:

- They disliked the slimy texture; and/or
- They were too salty; and/or
- They disliked the appearance.

Other factors listed by consumers to why they did not like oysters are summarised in Table 34.

Table 34: Factors Why Consumers Do Not Eat Oysters

Factor	%
Dislike the taste	44.4
Prefer other seafood	12.3
Other various minor factors	11.5
High price	6.6

Factor	%
Do not like seafood	6.2
I hesitate to try unfamiliar foods I have never tasted	6.2
Suspicious product	5.3
Poor quality and taste	5.3
Difficult to judge the quality and freshness	0.9
Unavailability	0.9
Not allowed as part of religion	0.4
TOTAL	100%

Source: Liu, Kow & Grewal, 2004.

9.1.3 Location for Oyster Consumption

87% of the top three sectors where oysters are purchased in decreasing order were restaurants, fishmongers and chain retailers and local supermarkets. Table 35 presents the results of the consumer survey of where they last purchased oysters.

Table 35: Locations where oysters were last purchased

Source Classification	%
Restaurant	39
Fishmongers	38
Chain retailers and local supermarkets	10
Farm gate	4
Fish and chips	3
Direct from wholesalers	3
Variety of other sources (eg. Catch own, telephone order)	3
TOTAL	100%

Source: Liu, Kow & Grewal, 2004.

These figures support the results from CDIPM's research.

9.1.4 Oyster Style Preferences

Table 36 presents the research findings into consumer preferences for how they eat oysters. Nearly three quarters of consumers still prefer to eat them fresh and whole with grilled (eg. Kilpatrick and mornay), the next most dominant at 16.9%.

Table 36: Consumer Preferences for How to Eat Oysters

Source Classification	%
Fresh	73.3
Grilled	16.9
Smoked	4.9
Fried	1.9
Pickled	1.5
Frozen	0.6
Others	0.9
TOTAL	100%

Source: Liu, Kow & Grewal, 2004.

The key lesson from these findings are that the “Keep It Simple Stupid - KISS” principle applies to how oysters are eaten.

Our end user observations, outside of the restaurant offerings, concluded that in only a few locations were oysters being offered any other way but fresh. There were a few fishmongers who were offering oysters in a uncooked kilpatrick or mornay style. The value adding was being done in-house (or near so).

High end restaurants appear to have no interest in sourcing oysters that are prepared ex-site as they are concerned about the maintenance of quality control.

However, middle tier and seafood buffet style restaurants did express some interest in looking at product samples of value added product. Apart from quality, the main issues that will determine their ongoing interest will be price and the continued availability of the product. One restaurant commented that by having value added oysters, it becomes another product or stock line that they will need to control, whereas if it is done in house all they need to manage is the flow of ½ shell oysters into the business.

None of the major food distributors operating in QLD or NSW offer value added oysters.

One restaurant offered ‘tasting plates’ which comprised oysters (uncooked), scallops, smoked salmon and ½ sandscrab. The owner was very happy with the sales of this menu item as he believed that if a diner didn’t want to eat one product they could give it to someone else at the table. Further, he said some diners were tempted to try a product that they may not otherwise have eaten as it comprised only a portion of the plate so the whole plate would not be wasted. This restaurant offered oysters by the ½ and full dozen and his comment was that some ‘uncertain’ consumers did not order the oysters due to the total cost and the fact that they did not wish to ‘waste’ an entrée if they did not enjoy the oysters.

The Liu et al (2004) survey also commented that some consumers indicated that they may be prepared to try oysters if they were sold as part of a ‘fishermen’s basket’, although whether they would try them if they were cooked / grilled / fried or fresh was untested.

9.1.5 When Do Consumers Eat Oysters?

The vast majority of consumers view oysters as a treat or special occasion product. Traditional oysters as an entrée are the dominant place where oysters are eaten at restaurants, followed by being consumed at home as part of the evening meal. The next most predominant location was as part of a celebration or special day.

Table 37 provides a summary of the survey results relating to where consumers eat oysters.

Table 37: When Do Consumers Eat Oysters

Source Classification	%
Dining out – entrée	32.3
At home – evening meal	25.1
Celebration / special day	16.7
At home – lunch	9.6
At home – breakfast	7.5
Dining out – main meal	4.1
Other	4.7
TOTAL	100.0%

Source: Liu, Kow & Grewal, 2004.

The uniqueness of the product is largely driven by the product being comparatively expensive. Therefore oysters as an expensive protein source are unlikely to be widely seen as the main ingredient in a meal (in a restaurant or the home). Further, their use in a medley of ingredients, such as seafood marinara, is restricted due to the unit cost of the product, particularly when the product volumes are so low.

9.1.6 Frequency of Oyster Consumption

The special occasion or uniqueness of the product is highlighted by the relatively small percentage of consumers who eat oysters more than eight times per year (the total was 33.9%).

The results illustrated in Table 38 highlight that 41.9% of consumers who do eat oysters, consume them less than four times per year.

Table 38: Number of Times Oysters Eaten Per Year

Source Classification	%
>10 times per year	18.0
8-10 times per year	15.9
5-7 times per year	24.2
2-4 times per year	34.8
Once per year	7.1
TOTAL	100.0%

Source: Liu, Kow & Grewal, 2004.

Following discussions with end users, our observations indicate that there are three divisions associated with oyster consumption. They are:

1. Non-consumers who will never eat them for the reasons listed in 9.1.2.
2. Occasional consumers who will eat oysters only if the oysters are cooked or have some topping applied that 'disguises' the appearance, texture or taste (or all three).
3. Dedicated consumers who will eat oysters raw, cooked or having some topping applied.

If the industry is going to increase the volume of oysters that are eaten, it would appear that strategies need to be developed that:

1. Make non-consumers into occasional consumers.
2. Make occasional consumers into dedicated consumers.
3. Get dedicated consumers into even more dedicated consumers.

In the opinion of those consulted by CDIPM it is highly unlikely that non-consumers can be converted straight into dedicated consumers.

9.2 Consumer Drivers to Seafood Consumption

Not surprisingly, consumers of seafood, have similar drivers to the majority of their food consumption. Consumers want meals that:

- Are convenient and provide quick and easy meal solutions.
- Have a high degree of eating quality.
- Provide value for money.

Interestingly, value isn't just about the lowest price. Value in the eyes of the consumer is the meal's ability to address the 'needs or wants' of consumers for convenience, quality and of course dollar spend.

Ruello (2002) identified that to increase seafood consumption consumers would benefit from accessing:

- More recipes (at the retail counter).
- A photo of the meal, not just the seafood.
- A story about where the oysters are harvested or formed.
- Instructions on how to handle, cook and store the product.
- Information on the nutritional benefits.

Our observations highlighted a distinct lack of this type of information being offered to oyster consumers.

It is not possible to anticipate whether or not oysters will ever be the main protein source in a main meal, be they eaten at a restaurant or at home, due to their cost.

If oysters are going to move beyond 'just' being an entrée, we believe this will require the oyster industry to establish linkages with other seafood and protein sources to provide 'meal solutions' to consumers.

Oysters are generally not regarded as an impulse buy, but rather are more likely purchased as part of an organised meal plan.

Consideration could be given to using a similar promotional strategy to that used by a number of horticultural industries who have used the services of food writers and other popular lifestyle programs to promote the consumption of oysters.

9.3 Investing in Value Adding

Industry discussions indicate that a number of attempts have been made by companies to supply value added oysters to fishmongers, direct to restaurants or chain store retailers with limited success. We believe the factors for why these business ventures have failed were due to:

1. Limited focus by the manufacturer or end user to promote the sales of value added oysters. Both segments may not invest adequately in promotional activities for the new product. The adage "if you don't make them know it's there, how can they buy it" certainly applies in this instance. This issue applies to the marketing of many new products. The investment in marketing is low because the product sales are low. The product sales are low because the consumer isn't aware of the product.
2. A perception by some consumers that the product may be old or otherwise deficient.
3. Poor presentation in some instances. The spend on new products, particularly packaging and design, is often low so the product may look unprofessional or unappealing. This results in poor sales.

The message is simple, that if anyone is going to invest into the value adding of oysters they must:

1. have put aside an adequate promotional or awareness building budget;
2. have explored all avenues possible to link / partner / joint venture with parties who are able to give them access to key customers and/or reduce transaction costs;
3. consider how they could utilise existing technologies or technology service providers to reduce or negate the start-up costs; and,
4. make sure they involve those supply chain parties necessary so that when the commercial adoption phase commences all parties are motivated to it succeed.

9.4 Oyster Promotion

Presently, the promotion of oysters to consumers is highly ad hoc with individual growers, small growers groups and other supply chain members undertaking a variety of activities which are getting new oyster consumers or existing consumers to eat more.

There are a number of national seafood bodies who undertake generic promotional activities which benefit the oyster industry.

Certainly the promotional spend by dollar of revenue would be considerably below that of other proteins sources such as red and white meat.

As a consequence of the lack of promotional investment spend, the oyster industry is losing ground in their ability to compete for the 'protein dollar spend' of consumers. Both growers and other supply chain members are naturally reluctant to invest funding in promotions as they argue, quite justifiably we believe, that others who don't contribute also get the benefit from the activities who do contribute. Section 11 provides more detail on a recommendation to the Oyster Consortium in relation to the investment of promotional funding in the oyster industry.

10 Oyster Supply Chains in 2015

10.1 Comparisons with the Horticultural Chain

The Australian horticultural industry is the closest approximation to how Australian oyster supply chains operate. The structure of the oyster supply chain presents stark similarities to the horticultural supply chains in existence ten or more years ago.

The similarities that exist between the two include:

- A very large number of producers.
- the environment plays a significant role in the quality and volume of production.
- The supply chain of which they are a part of is highly complex with multiple transactions between the grower and consumer.

The differences that exist include:

- In horticulture there are more than 120 products grown compared with the oyster industry where there are two.
- Growers are effectively price makers in the oyster industry with a generally understood price range for each size, whereas this is not the situation in the horticultural industry.

CDIPM have conducted many and wide ranging discussions with key parties in the seafood and oyster industry. Further, CDIPM has extensive experience in observing the development of other agri-food supply chains both in Australia and overseas. This consultation and experience suggests to CDIPM that the oyster supply chain will change both in terms of structure and potentially service delivery in key areas. Observations on how the oyster supply chain may look in 2015 and beyond is provided in the following section.

10.2 Key Observations of Today's Oyster Supply Chain

Sections 4 to 9 comprehensively details the financial and logistical flows of oysters along the Australian supply chain.

The general observations on the chain include:

- A large number of growers, many of who are small, act independently of one another in respect of marketing (and production).
- Constraints are apparent on grower profitability, although this is untested at this stage.
- There is a complex mid-chain that involves a large number of seafood wholesalers / specialist oyster wholesale / shucking / distribution, that supply a very broad range and large number of end user segments.
- Oysters are regarded by the mid-chain and some end user elements as an essential but comparatively unprofitable product which is often used as a loss leader.
- Generally, oysters are a component of a total seafood offer to end users.
- The mid chain sector is highly competitive due to the large number of comparatively small turnover firms. The number of businesses in the mid-chain that would be turning over more than \$10 million per annum is small in comparison to other business sectors.
- The end user sector, particularly as it relates to the food service (over 38,000 restaurants Australia wide) and to a lesser extent the independent retail sectors, is highly competitive. In percentage terms we estimate it is well less than 10% of firms who would have a turnover of more than \$10 million per annum. Due to the high competition within these sectors, these businesses are forced to seek the best deals they can from their suppliers. While larger margins are in evidence, generally these are where the chain length is short and the customer has a lower level of price consciousness, or there are other factors which lessen the competition to that individual business.
- Chain retailers represent a small component of total oyster sales, unlike the majority of chains retailing fresh agricultural products where they are the dominant player. There is little scope for oyster grower or grower collectives to direct supply product to chain retailers due to the total seafood offer that selected wholesalers (often referred to as category or approved suppliers) can offer.

10.3 End Users

1. Larger Market Share of Chain Retailers

CDIPM anticipates that over time the market share in seafood of large chain retailers such as Woolworths and Coles will increase, as they become better handlers, managers and marketers of seafood products. Both major chains have made significant investments in the seafood category in recent years and this ongoing. With an even greater share of the food consumption dollar being spent in larger shopping centres, where fishmongers are not in evidence, supermarkets will pay particular attention to 'filling the gap' in these locations.

For chain retailers to achieve growth in the seafood category they will need to address a number of core elements of their business model, including:

- Providing a wider range of meal solutions involving seafood than is currently offered.

- Getting access to trained and motivated staff.
- Improving management of the cool chain to reduce product losses.
- Minimising losses associated with the over-ordering of seafood.
- Convincing the consumer that they are a reliable and quality supplier of seafood, rather than just a handler of frozen imported fish.

2. Continuing Strong Presence of Fishmongers in Shopping Centres

Our observations concluded that well managed, professional fishmonger businesses are maintaining strong profits. CDIPM can see no reason why they won't continue to be profitable provided that they are able to:

- maintain access to quality management staff;
- access good service staff;
- access cost effective supplies of fish and other seafood particularly as it compares with other protein sources; and
- Compete for access to good retail sites.

We saw evidence of large individual fishmongers and fishmonger buying collectives who were undertaking direct business with oyster growers (and specialist oyster wholesalers). By 'going around' metropolitan wholesalers, they seek to keep the margin that the wholesaler would otherwise have made. While an outsider to this industry may consider this a logical business evolution, there are a number of reasons to suggest that this practice of going around the metropolitan wholesalers will 'take off'. These reasons are:

- A fishmonger needs a wide range of seafood products, not just fish, so a metropolitan wholesaler may use his ability to supply the full seafood offer as a 'bargaining chip' to force fishmongers to purchase oysters from them as well.
- The majority of fishmongers need their oysters opened and with the declining availability of professional openers, the fishmonger may have to purchase from, and have their oysters opened by, a wholesaler.

On this basis, while there may be some 'growth' in oyster sales direct from grower to fishmonger, in comparative terms this growth will be relatively small.

3. Limited Growth in Seafood Franchises

As discussed in (2), our conclusions are that fishmongers in shopping centres will continue to prosper. In Sydney there are a number of franchises (both owner operated and centrally owned and operated) but limited evidence of other franchises in other metropolitan centres. The general consensus on why seafood franchises have not previously prospered is that experienced seafood managers who are prepared to work rather than own their own businesses are comparatively few and far between. CDIPM sees no evidence that the

shortage of skilled fishmongers will abate in the short term and on this basis we see limited support for significant development of new franchises.

4. Decline of "High Street" Fishmongers.

Specialist fishmongers, like specialist greengrocers who operate outside of major shopping centres, will decline over time as a greater share of the consumer dollar is spent in shopping centres. Those that will survive will have derived icon status in their region. Alternatively they may offer a range of products other than seafood to entice potential customers into their stores.

5. Integrated Food Fresh Markets

Melbourne is the Australian city with the greatest incidence of integrated fresh food markets. The atmosphere and comparatively cheaper prices are particularly attractive to people of non-Anglo Saxon origin and older Anglo-Saxons. Melbourne and Adelaide have a greater 'food culture' than the other major metropolitan centres in Australia. The lack of multiple fresh food markets in other metropolitan markets is possibly due to the lack of this food culture and the 'history' associated with using these destinations to source produce. Whether or not these markets develop a greater presence in other centres is uncertain at this point in time.

6. Greater Integration of Seafood Offer at Retail

Independent fishmongers will increasingly seek to offer fresh, in association with cooked, seafood product. By doing this they have the ability to maximise the usage of their seafood, provide another cashflow source and provide another 'hook' to attract consumers to their store.

7. High / Mid Tier Restaurants

Due to the current economic crisis, many high and mid-tier restaurants are being faced with decreased turnover as consumers increasingly eat out less and eat at home more, or eat at lower cost restaurants. For instance, a leading North Shore restaurant in Sydney is receiving 40% less bookings than they did a year ago. While it can readily be argued that this is cyclical, the short and near term outlook for restaurants indicates that the numbers of these establishments will decline. Oysters will remain a key component of the vast majority of high / mid tier restaurants as consumers see an oyster entrée as being an integral component of a restaurant's offering.

8. Pubs / Clubs and Lower Tier Restaurants & Seafood Buffets

The impact of the current economic crisis has been far less severe than the top end of the dining out market. There appears limited likelihood that the numbers of businesses in this market segment will change significantly, although the normal turnover of businesses would be expected to continue.

10.4 Mid-Chain

CDIPM's observations in relation to how the mid-chain in the seafood sector may alter over the next five years include:

1. Increased Consolidation

Over time the mid-chain sector must consolidate as distributors and wholesalers 'fight' to access greater levels of the market share. Smaller wholesalers may come under increased financial pressure as stronger and larger wholesalers, who are able to offer wider ranges of product and increased customer service, gain more market share at their expense. Further, wholesalers who distribute and distributors who become wholesalers are likely to grow as each seeks to internalise operations and save costs as well as become more 'full service' providers to customers.

2. Independent Oyster Shuckers

Independent oyster openers will face increasing economic pressures as their competitors are able to provide 'full service' seafood offerings and potentially be able to do so by averaging overhead costs across a larger volume of product.

3. Specialist Oyster Wholesalers

There are only a few specialist oyster wholesalers in Australia. We see no evidence to suggest that oyster wholesalers will not continue to prosper, particularly those who have a large segment of their sales directly linked to end users (as opposed to seafood wholesalers).

If more frozen oysters are produced in Australia, we believe it is logical that specialist oyster wholesalers will need to have some commercial connection to this. A failure for these specialist wholesalers to become involved will result in them being excluded from a growing sector of the market.

It is apparent that a number of 'specialist' oyster wholesalers are adding other products to their customer offer. We believe this is driven in part to a need to generate high throughput levels as overhead costs increase e.g. wages and rents. Further, by being able to offer a wider range of products they have the opportunity to become more important in the eyes of their customers.

10.5 Growers

10.5.1 Grower Investment Down the Chain

Oyster growers and their grower organisational bodies will not be able to influence the structure of the supply chain beyond the farm gate, unless by investment. This lack of influence is borne by the fact that oysters form a comparatively small, albeit integral, part of the seafood offer of the vast majority of businesses operating in the mid-chain.

It is unlikely that an oyster production entity, unless of very large scale, would successfully be able to invest further up the chain. The factors contributing to this view are:

- Oysters are only part of a general seafood offer so a whole range of skills will be required by the business owners, which many currently don't possess.
- Existing players are unlikely to 'welcome' a new competitor and would be expected to take all commercial measures necessary to drive new competition out.

Supporting this view are a number of well documented examples, OYSA, TQF and Tasea, who have all failed due to a combination of a lack of skills, poor business practices, inadequate scale, limited product offer and uncompetitive business strategies.

10.5.2 Non-Grower Investment Up the Chain

Increasingly, in horticulture recently wholesalers are investing 'up the chain' in production enterprises as they seek to make sure they have access to product supply of the quality and volumes they require. Our conclusions are that wholesalers investing in oyster production in any significant way is unlikely to occur at least in the short term because:

- Oysters are only a component of their seafood supply business.
- The wholesaling sector is more traditional than in horticulture.
- Of the requirement for specialised skills.
- Of comparatively low economic returns.
- The very high number of end users, many of who are small businesses, do not incur the same economic penalty if an account is lost compared to horticulture. For example, if you are a category supplier to a Woolworths or Coles and you lose that account it may be very detrimental to your continued business success.

10.5.3 Other Consolidation Strategies

,While investment in oyster growing enterprises is unlikely, some mid-chain parties will seek to develop longer term supply relationships with selected growers. Those growers (or grower collectives) who are able to meet the requirements of mid-chain customers for product quality and consistency and be able to deliver larger volumes will benefit from longer term supplier agreements. Mid-chain customers will seek commercial benefit by dealing with fewer and fewer suppliers as the costs of transacting with businesses increase. These views are amply supported by what has occurred in the horticultural industry over the last ten years.

As a consequence, smaller growers, particularly those who have variable or poor quality product, will be constrained over time by the number of outlets that will be prepared to buy their product at any price. Similarly, end users will become more and more demanding in product quality and will not support mid-chain companies who do not address this need. This will then be fed down the chain to growers.

Factors external to oyster growers will be the determinants of the structure of the oyster (and seafood) supply chain. There is no value in attempting to influence the nature of the supply chain beyond the growing sector.

10.6 Aggregation in the Production Sector

As discussed previously, horticulture is an excellent case example of where we believe oysters and seafood will evolve to in terms of supply chain structures. CDIPM considers the lack of collective grower effort in marketing the oyster is among the lowest we've seen in any agricultural industry. The failures of organisations such as OYSA, TQF and Tasea should not be seen by

growers and industry organisations as a failure of the collective approach to marketing. Rather, these failures appear to be due to a combination of factors including:

1. A lack or variable grower support, with evidence that over time some (or many) growers become competitors against their own organisation.
2. Poor or outdated corporate structures.
3. A lack of selection of growers who are invited or excluded as members of these organisations.
4. A lack of investment in skills and/or poor remuneration packages for workers.
5. A lack of scale.
6. Poor investment decisions.

If we use horticulture as evidence of how grower collectives will market in the future, the models identified include:

1. Grower consolidators with a network of growers.
2. Shared corporate ownership with selected growers.
3. Co-operative business structures, although we stress that there are only a few horticultural co-operatives who have achieved longevity and is largely reflective of history (having been established many decades ago) and the ethnic makeup of the growers who support them.
4. Informal marketing alliances.

10.6.1 Grower Consolidation & Network Growers

In horticulture, there has been extensive development of the consolidation networks where a grower or non-grower markets their produce and that of a network of other growers who supply them. There are two different types of consolidation networks that have the potential to emerge in the oyster industry. These are:

1. **Grower Consolidators:** consolidators who grow oysters in their own right, but who also co-ordinate or direct other growers to supply them. Grower consolidators are the company who has the relationship with the wholesaler / fishmongers / shucker / exporter. It is rare for network growers to be aware of the relationships between the customer and the grower consolidator.
2. **Non-Grower Consolidators:** consolidators who do not grow their own oysters produce but who work closely with a limited number of oyster growers' suppliers to develop supply programs for wholesalers / fishmongers / shuckers / exporters. Growers may or may not actively participate in the relationship between the non-grower consolidator and the end user. In many instances the financial relationship between the grower and the consolidator is different from a grower / wholesaler relationship. Non-grower

consolidators are responsible for all activities associated with the relationship except for the growing, packaging, and in some instances, the movement of the oysters. In the oyster industry, companies such as Oyster Bob are examples of non-grower consolidators.

More details on the specific characteristics of Consolidation Networks and Network Growers is provided in Table 39.

Table 39: Characteristics of Consolidation Networks and Network Growers

CHARACTERISTICS OF CONSOLIDATORS	
§	They pack and market to each mid-chain or end users' specific requirements.
§	They have orders or contracts to fill <u>prior to harvesting</u> .
§	Their product is produced, packed, and warranted to comply with specifications agreed between the customer and consolidator
§	They market their own product and that of network growers, if a grower consolidator. Non-grower consolidators market product on behalf of the network growers.
§	There exists a variety of arrangements whereby oysters are supplied to the consolidator including product being sold to the consolidator, maximum / minimum pricing schemes, fees for service packaging and marketing and fees for service for marketing.
§	They receive advice, guidance, instructions, support and other information direct from the mid-chain and end users.
§	There is greater integration and knowledge exchange between the consolidator and their customers with the focus being to grow sales by working more closely together. Consolidators often invest funds into promotional and other sales building activities.
§	They may have a good knowledge of where product is ultimately sold.
§	They get information about the supply chain and how to improve it (direct from the mid chain and end users).
§	They are part of a <u>system</u> that supplies oysters to fit requirements of specific customers and they are directly involved in decisions about who they do business with and what must be delivered to satisfy consumer demands.
CHARACTERISTICS OF NETWORK GROWERS	
§	They operate as grower members of a network.
§	They are guided and directed by the consolidator.
§	They have orders or contracts to fill <u>prior to harvesting</u> (this may not cover all their production).
§	They produce part of a substantial volume that is marketed via the consolidator.
§	They market via a consolidator for most or all of their production.
§	They get advice, guidance, instructions, support, estimates and other information from the consolidator.
§	They may have a reasonable knowledge of where their product is ultimately sold.
§	They receive information about how their supply chain operates and how to improve it via a consolidator.
§	They feel they are part of a system that develops products to fit the requirements of specific customers.

Source: CDI Pinnacle Management, 2009

Consolidators will have to possess skills ranging from on-farm management, preparedness to adopt and invest in innovation, both within and beyond the farm gate, and an ability to interpret

and manage information across the chain. They will also have a willingness to invest in relationships across a variety of organisations in the chain. The need to develop such skills will preclude a large proportion of the producer population from achieving these positions in the supply chain. In most instances, producer consolidators and large growers will develop these skills independent of traditional industry organisations and will recruit suitably skilled personnel or use external consultants.

These consolidators will require growers who are part of these networks to have an entirely different set of skills. The growers will need to be able to work within a consolidation framework where they are able to deliver to the specified needs of the consolidators, and to a pre-agreed packaging format, volume and grade. In many instances a consolidator's ability to deliver to these pre-agreed standards will determine the price that they are paid.

Individual growers will continue to survive and prosper only if they are able to:

- Produce oysters in a cost efficient manner either due to their location (eg. by having good quality water) or the production processes employed;
- Produce oysters to the exact requirements of a specific buyer, whether they be a retailer, wholesaler or processor;
- Be increasingly quality focused. The low quality end of the market is becoming smaller and wholesalers in particular will wish to deal with only quality suppliers as their customers only have demand for such product; and,
- Have a marketable point of difference in terms of the product they produce.

Individual growers who do not address these needs will face challenges to their commercial survival as they will become increasingly irrelevant to the rest of the chain.

10.6.2 Emergence of Consolidator Networks

History has shown that horticultural producers do not have a natural tendency to work closely with one another unless they are in a co-operative or a similar commercial relationship, and many do not focus on marketing of fresh produce as the primary activity. So what will be the driver to the development of consolidation networks? Largely, consolidation networks will be pro-actively or subtly developed as the result of initiatives driven by the activities of motivated individuals or pro-active mid-chain companies.

Increasingly, the mid-chain and end users will seek to develop networks or consolidation models that can assist or work with them to deliver:

1. longer lines of consistent supply and quality of oysters.
 - supply volumes of oysters commensurate with the needs of their customers.
 - a reduction in the purchase cost of produce by removing some of the chain linkages (in some cases).
 - lower transaction costs (by reducing the number of suppliers who have to be dealt with).

- pro-active relationships with growers who will deliver to their specification rather than rely on others to transfer that information.
- pro-active relationships that will allow for the pursuit of innovation in the chain whether in relation to transactions, relationships or varieties.

Therefore, those parties who have the skills and drive to become consolidators will over time be supported by the supply chain as they become the 'problem solvers' for others in the supply chain.

In summary, CDIPM believes that over time the development of consolidator models such as those described above will become increasingly prevalent in the oyster (and seafood) industries.

10.6.3 Shared Corporate Ownership

There are few successful examples of successful corporate 'joint venture' models. Key aspects of these joint venture models include:

- A single corporate entity with 100% grower shareholding or possibly a small shareholding to other supply chain members.
- Single product or like product groupings e.g. citrus.
- A focus on providing a single marketing point (either in-house or by retaining external marketing expertise) for customers.
- A single brand/s identity.
- A shared or pooled return model.
- A shared ownership of infrastructure.

The horticultural industry contains many examples of failed shared ownership models. Some of the reasons why shared ownership models have failed include:

1. Poor partner selection. Not unlike all 'marriages', if there is not a strong level of 'compatibility' between partners in terms of unity of view on vision, direction and application of corporate governance, the relationship will fail.
2. A lack of capital. Without adequate capital businesses are doomed to failure. Without an ability to adequately invest in people and infrastructure and a mechanism to raise additional capital, many of the competitive advantages that they may have achieved by being together are lost.
3. A lack of Agreement on grading / packing standards. Different growers have different perceptions on product grading (even with the use of objective grade standard charts). Without a common view, disharmony frequently develops, often resulting in one or more growers 'going home' and doing their own thing.

4. A lack of grower commitment. Many growers are fearful of change. As a result some growers continue to do business as they have traditionally done while at the same time supporting the group venture. Not unlike Tasea, individual growers become their own competitors thereby ensuring failure.
5. A lack of corporate governance / management. By not 'establishing the rules' of the corporate relationship at the beginning, because of 'fear'growers will then seek to exploit the rules to their own benefit. Also, by not establishing a clear mechanism by which growers can enter or be asked to leave the organisation, potential issues will arise.
6. Inadequate sharing of the responsibility and workload. Our observations suggest that with many grower dominated organisations that a core group of growers do the majority of the work whilst the majority 'look on'. Whilst this may be fine for a period, those growers who are 'forced' to do the work whilst others do little, eventually get tired of this and exit the organisation, which in turn often causes a vacuum of 'willing hands'.

Therefore, if a group of oyster growers are looking to establish a shared corporate entity, they should firstly become very aware of addressing these issues. CDIPM would strongly recommend the engagement of independent consultants who are specialists in the establishment of agri-business groups. The consultants would identify the pitfalls (as discussed), manage the group development process (therefore sharing the load) and ensure the correct corporate governance and management processes are introduced.

10.6.4 Co-operatives

Co-operatives are established with similar philosophies to Shared Corporate Ownership Models (see Section 10.6.2). The single greatest difference with co-operatives relate to the corporate model and the entry and exit of members, taxation benefits provided by complying organisations under the Co-operatives Act, and the inflexibility associated with the introduction of new capital and non-grower members.

The authors believe there has not been a single co-operative established in the horticultural industry in at least the last 10 years.

There are a number of examples of proprietary limited or limited companies established that comply with the Co-operatives Act and therefore benefit from the taxation relief they can gain.

10.6.5 Informal Marketing Alliances

Informal marketing alliances are established when a group of growers come together to market their product through a single marketer, either with or without the use of a single unifying brand.

In horticulture the success of informal marketing alliances is mixed. The failure of informal marketing alliances are largely due to:

- Poor grower partner selection resulting in disputation.
- Poor grower partner selection resulting in some parties going around the group and supplying oysters on their behalf.

- A lack of scale resulting in limited group benefit compared to when growers were acting individually.
- A poor selection of marketers.

The benefits of having an informal alliance are the lack of costs required to establish such groups and the lack of 'commitment required' which make it attractive to growers. Again, failure rates will be high unless there is a strong focus on only attracting growers who are committed to the alliance and attraction of the right marketing partners if an external marketer is used.

10.7 The Role of Industry Organisations in Supply Chain Re-Engineering

CDIPM's view is that commercial forces will drive any changes in the seafood supply chain among the mid-chain and end users. Oyster growing organisations, particularly as oysters are only a small component of the seafood industry, should have no direct role in lobbying or artificially manipulating the structure of the supply chain.

However, CDIPM believe that an industry organisation could assume a role where it assists those motivated parties to become collectives (consolidators, shared corporate ownership models, co-operatives or marketing alliances) by identifying:

- suitably qualified parties who are able to provide mentoring support to parties who require assistance; and,
- sources of funding to assist these collectives to retain the expertise of external parties. However, as indicated earlier we stress that these potential collectives must be willing to invest and share risk by providing their own funding for at least a portion of the costs that are to be expended.

11 Recommendations for Developing a More Sustainable Industry

This study aims to provide detailed knowledge of the physical flow and estimated volumes moving along various oyster supply chains from grower to end user. Sections 4 to 10 seeks to provide the reader with a greater understanding of these areas.

The study also sought to identify, qualify and provide recommendations to the Oyster Consortium pertaining to strategies, projects and other activities that could or should be undertaken in order to improve the profitability and sustainability of the growing sector. These recommendations are however not just limited to potential improvements in the supply chain.

This section provides a series of 14 recommendations to the Oyster Consortium on areas that the consultants believe investment focus should and should not occur for the Australian oyster industry to become more sustainable.

None of the recommendations contain reference to production research areas such as genetics, farm production practices, on-farm government legislation or industry benchmarking as these areas were not the subject of this research project. A broader series of recommendations will be contained in a project entitled "Australian Edible Oyster Industry Business Plan" to be completed by CDIPM

CDIPM makes these recommendations after analysing the industry's supply chain, with some reference to production and market areas. The recommendations are made in light of its knowledge of the limited funding capacity of the Oyster Consortium. CDIPM fully expect that not all recommendations if accepted can be funded and so CDIPM have attempted to prioritise them in terms of potentially maximising the cost benefit from funds invested. The ranking of the recommendations is provided in Section 11.15.

A number of key industry observations CDIPM made in relation to oyster demand and marketing which directly influence the recommendations made include:

1. Oysters appear to be fast approaching a ceiling where the end price of product is becoming too expensive for a large proportion of the population to justify paying, particularly in relation to other protein sources. Therefore even at current price levels oysters will remain as an 'occasional spend' product.
2. With the end price of the product fast reaching ceiling levels the oyster supply chain must investigate ways that oysters can be produced and moved through the supply chain at lower cost.

3. However, since oysters represent a comparatively small component of the turnover of non-oyster specialist mid-chain and end user companies, the growing sector will have little or no power in direct influencing the structure of the supply chain beyond the farm gate.
4. Concurrently, investment by growers up the supply chain is fraught with difficulty due to the ability of these grower owned businesses to generate levels of turnover. Past failures are further evidence of the validity of this view.

The challenge therefore for the oyster industry is to investigate industry R&D and promotional and marketing strategies that have the ability to

1. increase oyster demand and / or
2. lower the cost of production of oysters or increase average return.

Traditionally, the focus of the oyster industry has been on strategies to lower the production cost of oysters and / or increase the return (from better quality oysters) through genetics research. CDIPM can not disagree that this should not continue to be a key focus of the Oyster Consortium.

Lack of funding to support all of the industry R&D and promotional and marketing projects that are put forward is a key issue facing the Oyster Consortium. Apart from the ‘inside farm gate’ projects which are a focus of the current funding of the Oyster Consortium this project provides a total of 14 recommendations for additional areas of investment / investigation. CDIPM have attempted to assist this prioritisation process at Section 11.5 by indicating which projects in our opinion deserve greater focus in comparison to others.

One of the key recommendations of this report relate to promotions funding in order to increase the levels of oyster consumption. We believe due to the lack of available funds to promote oysters in a stand-alone fashion will yield little benefit. However if oysters are promoted as part of a seafood offer greater consumer penetration is likely. That said, it will be critical for the oyster industry to introduce a mechanism by which it can contribute to these types of promotions.

11.1 Increasing Oyster Consumption & Promotional Levies

11.1.1 Increasing Oyster Consumption

In an ideal world, the oyster industry would have a national promotional levy with other members of the supply chain contributing to the pool, and with a range of promotional strategies employed to drive increased oyster consumption.

However, the reality is that this is an industry that has no dedicated promotional fund. Any promotions that are completed are done so by independent commercial enterprises, generally in isolation to each other.

Significant promotional expenditure on oysters by the post-farm gate is unlikely for a number of reasons:

1. Oysters form only a small part of a total seafood offer for most industry players.

2. The 'free rider principle'. The view by some is 'why invest in promotion when others who don't contribute are going to get the benefit'.
3. It is not an 'attractive' product to promote, although our view is that this is not necessarily the case.
4. The general view is that the best form of promotion is to 'get the product into consumers' mouths' which no single party is prepared to invest significant sums in due to the value of the raw material.

In terms of activities that may generate increased sales, the following views were expressed by those parties we consulted.

1. Sell through product demonstrations. Generate increased demand by getting more product into consumers mouths.
2. Promotional brochures and leaflets combined with an end user database. Develop, professionally prepared promotional brochures or leaflets (available for download) that provide information on the areas where oysters are sourced, 'telling a story' about oyster farming, and providing nutritional information and recipes. It is apparent that this sort of information is currently available, however it tends to be parochial or regional in nature. Most importantly, the existence of this information or where to source it is not readily known by those who are best positioned to use it, which are the end users. An industry organisation could be advised to compile a database of end users and communicate with that database either by facsimile or email to advise of the existence of this promotional information.
3. Mass media. Utilise billboards, bus or tram sides as a less expensive form of advertising compared with television or radio. (The relative costs were not evaluated by CDIPM.)
4. Use of food and magazine writers. A number of horticultural sectors have identified a group of food and magazine writers who they have offered an 'experience the product' weekend. The growers or industry body have paid for these writers to travel to a region, gain a great understanding of the product, and 'get the feel' for the producer's life in general. The food and travel writers a great time but with the focus on the product they wish to promote. In each instance, the benefit that the sector has received in terms of exposure has far outweighed the cost of the activity.
5. Put oysters 'on ad'. As discussed previously, in terms of sales, the benefits of putting product on ad (chain retailer newsletter and television promotions) are significant. For instance, a newly opened Coles store in WA which put oysters on ad at \$10.00 a dozen sold 378 dozen oysters for that week, which was nearly 10 times more than any other store across Australia. Chain retailers are unlikely to place oysters 'on ad due to the competition from other products for advertising space and the low total gain in sales (as opposed to the potential percentage gain).
6. Offer oysters in a form other than natural: The vast majority of 'occasional consumers' are thought to be those who eat grilled or otherwise topped oysters at restaurants. Some interviewees commented that if non-consumers and occasional consumers were offered

oysters that had been prepared or topped for eating at home, the result would be increased sales.

11.1.2 Promotional Levies

There are a wide variety of potential strategies that could be employed to increase the volume of oysters that are sold. However, without access to dedicated funds as an industry they cannot be implemented.

We understand there have been discussions, among segments of the growing industry on establishing a promotional levy, based either on sales or production (per dozen). Proponents point out that if the industry is worth \$70 million farm gate that a levy of 1% would result in a collection of \$700,000 per year.

A voluntary national levy is unlikely to be successful as growers will invoke the 'free rider principle' argument being 'why should they contribute when no-one else will contribute and they get the benefit'.

A national levy by elimination would need to be compulsory. The process that needs to be followed to establish a national levy through the Department of Agriculture, Forestry and Fisheries ("DAFF") is complex and time consuming, with no guarantee that DAFF will support the introduction of the levy without demonstrable industry support.

A national promotional levy will not make it compulsory for other members of the supply chain to contribute to the industry. Any contributions from non-grower participants will only be voluntary and therefore should not be expected to be significant.

For industry to continue to promote the increased consumption of oysters, CDIPM's view is that this will only be achieved through the development of a national industry levy. Based on the horticultural industry's experience, a voluntary industry levy will not be successful in raising adequate funds. The Oyster Consortium is therefore recommended to commence canvassing growers in relation to their potential support for a national levy and at the same time investigate the steps / processes necessary for Federal government approval to introduce such a levy. If it is apparent that industry support may exist and the procedures from DAFF suggest it is possible to achieve the Oyster Consortium should be charged with establishing a business case with the assistance of relevant seafood promotional agencies for presentation to a wider grower audience.

11.2 Supply Chain Re-Engineering

Recommendations for how we believe the Oyster Consortium should assist oyster growers to be better prepared for the changes that the CDIPM project will apply to the oyster supply chain, is contained in Section 10.1

11.3 Storage and Handling Practices

Storage and handling practices were not seen as a critical area of concern (or failure) by members of the supply chain post farm-gate. No doubt there are failures and parties who do not do 'the right thing' but it is ignorance rather than a lack of knowledge that is causing these failures.

The relatively high storage temperatures for oysters compared with other seafood generally results in the oysters being stored at below the target temperatures.

CDIPM considers that the growing sector must not be complacent and should wherever possible ensure that the information on the correct storage and handling practices for oysters are available and prominently displayed. Areas where this information should be provided include:

1. On packed oysters e.g. bags and cartons.
2. On industry and grower websites.
3. In any industry or corporate promotional material.
4. In downloadable leaflets from an industry website.

It is recommended that the Oyster Consortium should compile and promote the adoption of this information through its own website and that of the state based organisations where they exist.

11.4 Food Safety & Quality

A number of mid-chain respondents, particularly those involved in the opening of oysters on behalf of others (eg. some wholesalers and specialist oyster shuckers), commented that there were other businesses opening oysters who did not have the necessary food safety quality standard certifications. The respondents argued that this had placed them commercially at risk as they had been required to invest significant capital to be compliant and attain these certifications.

This study was not able to test the voracity of these assertions. If food safety standards are not being met by some in the industry, the potential impact of consumers suffering adverse reactions from eating oysters handled incorrectly should not be ignored by the industry.

CDIPM considers that industry organisations have no role as the 'safety and quality police'. However, an industry organisation does have a role to ensure that information on food safety and quality standards is made known to all in the industry. There is also a role for an industry organisation to ensure that the relevant authorities are informed of suspected breaches.

It is recommended that the Oyster Consortium should compile and promote the adoption of this information through its own website and that of the state based organisations where they exist.

Information on the relevant government organisations to contact when food safety and quality breaches are suspected could be included on an industry website.

11.5 Product Description / Grade Standards / Size Standards

11.5.1 Product Descriptor / Grade Standards

There is no common, universally understood and accepted product descriptor and grade standard language in the oyster industry.

We understand from industry sources that many growers in the past have resisted attempts to introduce size and quality standards to the industry. The argument being that each production region produces oysters of a different type and appearance. CDIPM would argue that issues such as size and quality of appearance (as opposed to colour) are able to be objectively measured and applied to a grade and quality standard. Our experience shows that the resistance to the introduction of these standards is reflective of growers not being willing to embrace change, rather than for any other commercial reason.

In horticulture, almost all products, particularly fruit, have a set of grade descriptor languages which the majority of the chain understand and refer to. The benefits to the oyster industry in having a single grade and quality standard are:

1. It provides a commonality of language. When growers and buyers communicate through the use of a standard, although the two parties may be in different geographical areas from one another, they are able to speak in 'common terms'.
2. Oyster shuckers are able to reference a standard and pack product in a uniform way.
3. It introduces accountability. Mid-chain and end users are made accountable for false or misleading product gradings that they have for sale. It also introduces accountability to growers, in that if product is packed 'out of spec' the rest of the chain are able to refer to the guide to back them up when raising the issue with the grower.
4. Dispute resolution. Without an objective measure the ability to resolve disputes in respect of sizing and quality is made more difficult.

There have been a number of commercially developed product descriptor / grade standard languages. CDIPM have not evaluated the merits of these product descriptor / grade standard languages or any others in existence. Three of these are referenced in Figure 18,

Figure 19 and Figure 20.

Figure 18: OYSA Ltd Quality Assurance Chart

OYSA Limited - Quality Assurance (QA) - Visual Test

A

- No gut
- Complete fat coverage



B

- Gut just visible
- High fat coverage



C

- Gut visible
- Fat present



Oysters within the criteria below this line are considered unacceptable for sale.

D

- Extensive gut exposure
- Watery sack



- Full gut exposure
- Glassy, watery in appearance



OYSA Limited Quality Assurance (QA) Testing

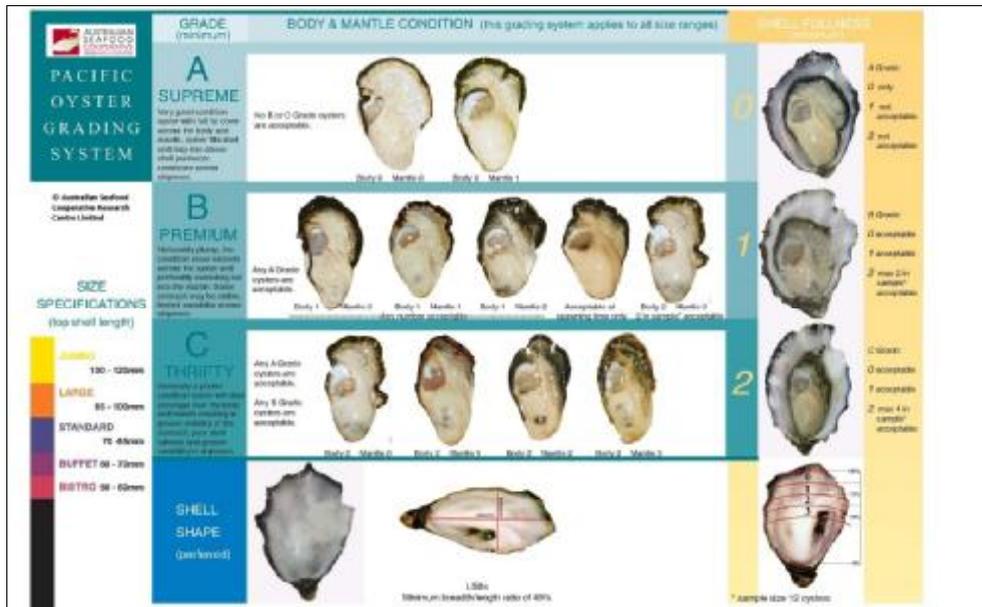
Product supplied to OYSA Limited must undergo several tests on the following characteristics:

- Shell size
- Shell condition
- Oyster condition
- Meat weight

The photographs are used to assist in the visual test of the oysters condition.

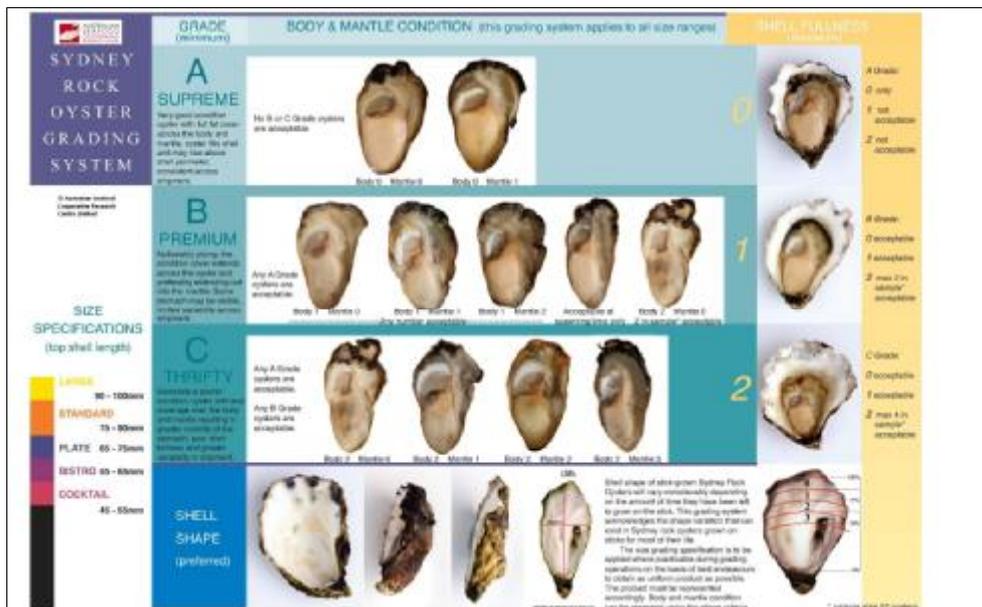
The measurement criteria for all tests are detailed in OYSA's Quality Assurance (QA) Testing Procedures Circular issued periodically by the company.

Figure 19: Pacific Oyster Product Descriptor / Grade Standard Chart (originally developed by Tasea)



Source: CRC Seafood Consortium

Figure 20: Sydney Rock Oyster Product Descriptor / Grade Standard Chart (originally developed by Tasea)



Source: CRC Seafood Consortium

Within horticulture, the adoption of grade and quality standards, has in the most part been 'voluntary'. The most successful examples have occurred where the adoption of standards have been done in conjunction with other members of the supply chain, recognising the fact that ultimately someone has to make a decision in regards what standards will apply. CDIPM see little benefit in attempting to introduce a mandatory system, mainly due to the fact of who will police its enforcement in any event. CDIPM would further recommend that any standard introduced should not involve the development of a whole new 'language' as that will cause great confusion and frustration. CDIPM would be recommending to industry that they look at the standards that have

been introduced by the likes of OYSA and Tasea. Most importantly, a wide cross section of growers should be involved in its development, working from an existing base and so not starting with the proverbial 'blank piece of paper'.

Once a set of standards have been introduced the industry must be prepared to invest enough time and money in promoting its adoption across the remainder of the oyster supply chain.

CDIPM consider that the introduction of a grade and quality standards is one of the key recommendations from this study. CDIPM view the Oyster Consortium as an ideal mechanism to establish and commence these standards. Please refer to the section text for a more detailed explanation of the reasons and methodologies CDIPM recommend for the introduction of the grade and quality standards.

11.5.2 Size Bracket Creep

Our interviews highlighted the existence of 'size bracket creep' at the top end of the supply chain. For example, a wholesaler may indicate to a customer that the Tasmania Pacific oysters are Large, when they are Standards. By doing this, this wholesaler may be able to extract an additional \$0.50-\$1.00 per dozen from a customer. By not being informed buyers may be supplied with a smaller oyster than what they would have been supplied by another supplier. Arguably, the buyer should be responsible for ensuring they are informed in industry terminology in size grade standards.

Similarly to Section 11.4, CDIPM do not see an industry organisation as being the 'size standard enforcement police'. Further, as there are no gazetted size standards currently in place there is nothing that can be enforced.

However, one benefit of a product descriptor / grade standard language would be an ability to identify how widespread the incidence of 'size bracket creep' is in the industry.

11.6 Chain Communication

While the industry generally acknowledges the price paid for oysters of a certain quality, and standard is fixed, it is apparent there is limited understanding across the supply chain of what these prices are.

As a result, growers (particularly those who are ill-informed) with little connection to the rest of the supply chain are effectively negotiating or trading 'in the dark'.

CDIPM believes that growers as a whole would benefit from being able to access up to date pricing information for oysters based on a farm gate price. There are a number of well-connected 'grower orientated' marketers / wholesalers who would have access to current pricing information.

CDIPM recommends to the Oyster Consortium that a regular survey of 'grower orientated' marketers / wholesalers be undertaken, with the pricing results made available via an industry website, possibly even to members only.

This pricing information would have enhanced value if it is then linked to a target grade or quality standard. This is discussed further in Section 11.5.

While not all growers would be expected to access this information, by better informing growers they are able to negotiate with customers being 'secure' in the knowledge that the base they are operating from is realistic. The potential impact is that the industry would not have growers who are 'underselling' their oysters and giving them enhanced profitability. It is also putting a floor in the market as the lowest price is often used by the mid-chain as the pricing mechanism.

11.7 Product Formats

The oyster industry is very traditional in how oysters are handled across the supply chain from growers to consumers. Bags (hessian or hemp) are the traditional way that oysters are packaged by suppliers and provided to the openers. The openers then place the oysters either individually in waxed cardboard or polystyrene cartons with liners, or alternatively place them into pre-formed one dozen (or half dozen) plastic trays and into the cardboard or waxed cartons.

Our investigations suggest that there are limited alternatives or any industry drive to move away from despatching bagged oysters from the farm. Bagged oysters fit well into the handling systems on farm, are low cost and comparatively easy to keep cool provided that the product is of the correct temperature at bagging (as hot oysters do not cool easily in bulk bags).

Some companies complained that the inability to obtain oysters in smaller product lots, that is less than 10 dozen, is an issue for them as sales may dictate that these oysters are not sold for a number of days. Our observations highlighted that, in fact, smaller product lots were generally available.

Oysters are increasingly displayed in either black or blue pre-formed plastic trays. The benefit to the retailer is that there is less handling involved. Due to the variable size of when stacked on top of one another, the appearance of the display was less attractive. That said, by having a deeper slot or groove so that the oysters do not sit as high above the tray, it would give the appearance of a smaller oyster and be less acceptable to retailers.

CDIPM considers that there is limited scope or drive to develop alternative product formats for the delivery of oysters along the chain. This view is supported by our international scan where similar product formats are used in the delivery of oysters as those used in Australia.

11.8 Value Adding Opportunities

11.8.1 Potential Value Adding Alternatives

Heat Sealed Plastic Wrap Trays

In a number of stores in VIC, Coles have tested the use of a heat sealed plastic wrap on top of a black plastic tray. The package was not a finished product in that it did not have any point of sale pricing, bar coding or use by dates, as would be expected in a similar product in the meat department.

CDIPM's view is that a professionally presented product such as these may gain traction with a consumer, despite some views that 'if a product is packaged it is second rate'. We would stress that the packaging would need to be professional in appearance.

The benefits to a chain retailer, or any retailer, would be:

- It enables better stock rotation so there are less product losses and less cost in moving oysters in and out of the seafood cabinet.
- It reduces moisture loss and therefore enhances the appearance.
- It enhances product traceability.

The costs of presenting a product in this way will be greater as the cost of materials, specialised handling equipment and possibly reduced processing throughput may all contribute to a higher price into the retailer.

The challenge with a product of this type is to ensure that the cool chain is maintained.

CDIPM believe that a whole of chain approach needs to be taken in the preparation of value added products such as these. If funds permit, and depending if further research work is required, it may be advantageous for industry to partner with a category supplier to Coles and Woolworths to further investigate the commercial viability of value adding the product in this way.

Bagged Live Oysters

One contributor commented that live oysters supplied in bags, possibly in a similar format to the new Kinkawooka mussel pouches, may be another strategy in how oysters are presented to consumers.

These mussels are currently being sold through both chain retail and fishmongers and are regarded highly by both consumers and end users alike.

Retail Ready Topped Oysters

As previously there would appear to be an opportunity to provide ready topped oysters through a number of channels, with lower end food service being possibly the best opportunity.

However, to be successful however, the suppliers must be willing to back up the product with adequate merchandising and product development support and be able to ensure continuous supply of the product. Both aspects were identified as reasons why similar products have failed in the past.

Frozen Oysters – ½ Shell or Otherwise Processed

Oysters are not present in any form in the frozen cabinet of chain or independent retailer operations. Not surprisingly, the frozen cabinet is dominated by frozen fish, calamari, highly processed seafood (such as surimi and seafood bites) and mussels. Both the major chains expressed some reservation about offering of oysters in the frozen cabinet, particularly at the price point that oysters would need to be sold at.

It will only be possible to get oysters into the frozen seafood cabinet if a positive and committed business case can be developed and demonstrated to the chain store buyers.

This business case can only be developed by commercial parties, but our recommendation would be that it should not be done in conjunction with parties who already have an exposure in the frozen food cabinet. The retail sector is littered with examples of single product businesses who have failed to gain traction.

Two suggestions that new value adders should consider when introducing new value added products include:

1. Sharing of capital infrastructure. For a new product the product developer should investigate ways that the product can be processed using existing technology so that in the event of failure the capital risk is minimised.
2. Ensure adequate funds to promote product awareness. As discussed previously, the product developer must ensure they have the necessary commitment and funds to support the consumer awareness strategies.

11.8.2 Factors to Consider in Developing New Value Adding Opportunities.

As discussed in Section 3.1.5, there have been numerous attempts by grower owned companies and others to develop and offer for sale value added oysters, but to date without success. Further, as previously discussed CDIPM considers that the failure of the products to be a commercial success has been due to the lack of attention paid to product promotion and merchandising support.

As discussed, oysters are a small product in the eyes of many end users so any new products need to have a significant investment made to make sure the product is known to end users as being available.

Another contributing factor to the failure of value added products is that the 'value adder' has often expended considerable sums in product development and capital to produce the product. CDIPM believes a lower risk strategy would be to work with a food processor who has skills in the product area and collaboratively develop the product using their expertise and existing equipment.

Ideally, products offered to end users should be 'bundled'. Bundling refers to where a 'family of products' are supplied to the end user. End users are increasingly supporting those companies who offer more than one product in their range, as the costs of doing business with them is less than for a single product offer.

Further, we suggest that in the initial stages, value added oysters may be best marketed to mid- and lower- tier restaurants and seafood buffets so a linkage with an established food distributor/s (such as Bidvest or PFD) would be a low risk strategy. Once a baseline volume of sales is achieved the development of other market segments can then be progressed.

CDIPM believe that without the development of value added products, a segment of consumer market, namely 'non-consumers', is unlikely to be tapped into as this group is unlikely to ever consume the natural oyster (for reasons such as appearance, texture or smell). Further, other consumers may be able to access a wider offering of oyster products resulting in greater consumption.

The role of industry in development of this aspect is not clearly defined, however we believe that there is adequate evidence that a properly constructed and commercial approach involving the correct supply chain partners may be successful over time. That is, it is essential where a individual or company is looking to introduce a new value added product that they firstly clearly understand who are the players in the supply chain which they are looking to penetrate. It may be critical that some or all of these supply chain partners be involved in the project from start-up in order to achieve 'buy in' by them. A failure to involve the right supply chain partners will generally result in the project being unsuccessful.

CDIPM's investigations suggest that there has been considerable expenditure over many years into the development of a range of value added products. We are of the belief that the technology exists for the production of all of the value added products discussed in this report. If the technology does not exist, there is ample evidence to suggest that it is available from overseas companies involved in value adding.

CDIPM considers it inappropriate to invest additional funds into value adding research and development. Ideally, an industry organisation would be best positioned to identify the sources of previous value adding product development and research and to make this information available to commercial parties as required.

CDIPM also recommends that any individual or company looking to invest in new value added products should engage the services of a product development or supply chain consultant to assist them to identify an appropriate product entry strategy and technological requirements.

11.9 New Customer Segments

11.9.1 Independent Chain Retailers

Generally, smaller independent chain retailers such as IGA do not stock fresh seafood products. This is in response to the consumer perception that they are not credible sources of seafood.

CDIPM held discussions with two independent chain retailers and both commented that they see a limited future for fresh oysters within their market segment, however, they are more positive towards a frozen offering.

However, both parties commented that further investigations with respect to the business case would be required. They both stated that the offering would need to be supplied as part of a central warehousing or delivery system as they would be unwilling to deal directly with a single supplier.

11.9.2 Mainline Food Distributors

Each of the major mainline food distributors offer a range of fresh (in some states) and frozen ½ shell oysters, in varying sizes. There appears to be limited offerings beyond these traditional products, which is surprising given that the customers of these distributors are often 'fast food service outlets'. CDIPM considers there is scope to increase sales through these segments through suitability motivated commercial parties.

Beyond distributing this report, CDIPM believes that an industry organisation should only invest in these markets where the supply chain partners are clearly defined and support and committed involvement has been received from them.

Purely research based projects that simply aim to service these markets CDIPM believes have little prospect of success without commercial supply chain partner involvement.

11.10 Truth in Labelling

A number of industry sources commented about the incidence of misleading or false labelling of oysters stating they are supplied from what is known as iconic regions. This was thought to occur at nearly all levels of the mid-chain and end user segments. Some of these iconic regions include St. Helens, Barilla Bay, Port Stephens, Wallis Lake and Coffin Bay. False labelling of region of origin has the following impacts:

- It creates a false expectation in the eyes of the buyer who may then not be satisfied.
- In some instances the buyer may be supplied with an inferior product.
- Depending on the product quality, it may tarnish the name of the region.
- It permits certain members of the chain to achieve margins which they otherwise would not be entitled to.

During the course of this project the very high proportion of St. Helens and Coffin Bay oysters that were on offer did not seem to align with the volumes of oysters being supplied from those regions at that time.

While CDIPM identifies truth in labelling as an issue, the ability of growers and their representative bodies to enforce a regulatory system that is operational and cost effective is highly unlikely. This is particularly the case where a significant proportion of the oysters are blended so the true region of origin is not able to be identified.

Industry should support (not necessarily financially) any attempts by growers, the mid-chain and end users that seeks to guarantee that the regions of origin are in fact truthful.

CDIPM recommend that the industry be ‘put on notice’ through a media release as well as including information on a website stating the obligations of the rest of the chain to provide ‘truth in labelling’. Beyond this we see little benefit to be gained by an industry organisation taking a more pro-active role in respect of ‘truth in labelling’.

11.11 Labour Availability

The Australian oyster industry appears to be faced with a critical shortage of farm workers who are prepared to work on leases. Oyster farming is viewed as a ‘lifestyle industry’ by many as the wages paid are comparatively low in relation to other employment sectors, so it is only those people who enjoy the industry who are attracted to it. CDIPM were not able to ascertain the ‘depth’ of this problem as farm meetings were not an integral part of this study.

Certainly there appears to be a significant shortage of oyster shuckers, particularly during the peak Christmas period, where many mid-chain companies get growers to open oysters in their own facilities. A shortage of oyster shuckers enables the mid-chain to seek higher contract or hourly rates of pay which drives up the price of oysters for end users.

Shuckers were traditionally of Mediterranean descent however a number of interviewees commented that Asians were now entering the void created as older shuckers leave the industry. This increased ‘competition’ in the market place may have the effect of keeping contract rates at or near current levels.

The use of High Pressure Processing (HPP) has been attempted in SA with what we believe was very mixed success as the product quality from the operation was comparatively poor. Our limited scan of international oyster processing indicates that there appears no alternative technological solution to the shucking of oysters.

CDIPM considers that oyster growers and their industry organisations need to be kept informed of issues that the mid-chain identify in recruiting oyster shuckers. They should offer their support for any initiatives that may be identified to address these shortages.

11.12 Traceability

When despatching oysters from their farms, growers are required to identify their bags (or boxes) with a growers name, lease number, harvest date and description of the product. However, it is apparent that many wholesalers blend oysters from a variety of leases and/or apply limited attention to the importance of being able to trace the product when it leaves their premises, despite legislative requirements that it should be done.

The inability to trace product has two impacts. Firstly, if a customer complains about the quality of the product the vast majority of wholesalers are not able to identify which grower supplied the inferior product. Being unable to identify the grower results in 'penalties' not being able to be enforced on that grower, assuming that the 'quality' issue was not caused post farm gate.

Secondly, in the event of a more serious health problem causing by eating oysters, the supplier will not most likely not be able to trace the origin of the product.

The potential impacts of a second 'Wallis Lake' episode are potentially very serious for the industry and they should not be treated lightly.

It is highly unlikely that the mid-chain are going to be prepared to introduce full traceability back to the grower as it will add to their costs. Conversely, large unified end users such as retail chains will continue to drive traceability down their chains. With the relatively small market share that retail chains have in the seafood industry, the adoption of an industry wide traceability system is unlikely to be driven by either end users or the mid-chain.

Growers and grower representative bodies should carefully assess the cost and benefit of seeking to enforce full traceability from grower to consumer, as the current supply chain, particularly in the mid-chain will make its enforcement very difficult to achieve.

CDIPM believes that the introduction of traceability mechanisms will only occur if done with the backing of government legislation. This will most likely only occur if an unfavourable food safety incident occurs.

11.13 Freezing Research

A significant percentage of the oysters that are harvested in the third quarter of a financial year are shucked and blast frozen by wholesalers and fishmongers, in preparation for the Christmas rush where they find it difficult (or impossible) to shuck enough oysters to meet demand.

Those parties who shuck and freeze oysters advocate that the consumer is not able to tell the difference between a frozen or fresh oyster. These same parties also contended that while the shelf life is slightly shorter, because of the high demand period it doesn't matter if consumers can't identify the difference. Our discussions indicated that the maximum period that oysters were frozen for was around 4-5 months.

Growers who are supporters of freezing advocate that by harvesting oysters when they are in their optimum condition and freezing them, the consumer is able to be supplied with a better

quality oyster. Further, the grower is able to remove the oysters in a shorter period and not be 'forced' to hold them over the spawning period, re-fatten them and then harvest. By enabling a shorter turn around period, oyster growers are able to increase the harvestable yield from a lease, thereby generating greater profits.

The financial modelling required to test the views of the freezing advocates is as yet untested but it will be the subject of investigations when the industry benchmarking project is commenced.

What is also not readily understood are the assertions that product quality is not diminished when the product is frozen. Further, also what is unknown is what process represents best practice in the freezing of oysters and what is economically the most practical freezing method.

CDIPM understands that a recently funded Oyster Consortium project entitled "Quality, Shelf-Life and Value Adding of Oysters" will at least in part address the issue associated with the identification of best practice freezing processes, as well as test the impact that the current blast freezing technology has on product quality.

CDIPM would strongly recommend that either as part of this project or through a subsequent project, an economic feasibility study be conducted around the cost / benefit of each of the identified freezing technologies. Particular attention should be applied to this work due to the likely impacts of scalability and/or throughput and site location, as it would be expected that many current freezers of oysters will not 'switch' to frozen product sourced elsewhere unless there is a distinct cost and/or quality advantage.

For example, a feasibility study identified that there were commercial and quality benefits in processing oysters in Tasmania by a grower owned company. The study also needed to take into consideration the likely take-up by others in the chain and note that different cool chain handling systems would need to be introduced to maintain the integrity of the frozen product.

CDIPM would also caution that if a 'new freezing venture' was established with grower support or commercial involvement, that at least in the initial stages, the proponents should seek to utilise existing technology or service providers who can 'contract' freeze the oysters. By not spending capital to invest in new facilities, the business venture is less at risk of failure if it is concluded that the facilities are uneconomic or inappropriate to support the demand.

In summary, in respect of freezing CDIPM make two core recommendations:

- 1. Complete a detailed analysis of the financial benefits and costs of harvesting oysters at the optimum period of time, and compare the results with the current industry practices.**
- 2. For those techniques that deliver superior product outcomes as a result of the joint Adelaide University / SARDI study, a business case should be developed that investigates:**
 - **the costs of utilising the technology;**
 - **the most efficient location/s for the technology;**
 - **the hypothesis of the ownership model/s; and,**

- **the opportunities to use similar technologies from other industries in a collaborative or shared services model.**

11.14 Exporting

A number of other reports identify Australia as having significant export opportunities for oysters. Our export performance to date, where only about 0.5% of all oysters produced are exported, is dismal.

The vast majority of Australian product consignments are of chilled oysters, whereas the major oyster consumers around the world are attuned to the consumption of frozen oysters.

Other factors that are limiting Australia's export performance of oysters and the level of control that growers have on those factors are:

1. Oyster price: Australian growers are relatively well paid in comparison to oyster growers from other countries. For example, one interviewee commented that Chilean oysters were being landed into Japan at a cost of US\$5.00 per dozen and into the USA at US\$6.50 per dozen, whereas the minimum price that the Australian industry could support would be around US\$8.00 per dozen.
2. A lack of export focus. The vast majority of growers see export as a segment only worthy of consideration when the domestic price is not strong. There appears to be a distinct lack of an export culture, which is unfortunately common among horticultural and seafood industries.
3. Commitment. Combined with (2) there is a low commitment to developing business relationships with overseas trading partners. Australia's traditional approach is one of a 'trading mentality solely based on price'. Australia needs to show long term commitment to the development of export markets and working with importers to develop supply chains based on something more than price.
4. A long supply chain. In many exporting countries, it is the grower who is the exporter which results in a short supply chain and a greater ability to be cost competitive.
5. High freight and exporting charges. Australia's location makes it isolated from many traditional oyster consumption markets. With the current focus on air freighting of oysters, we are regarded as a very high commodity country. The development of markets who are willing to accept frozen oysters and enable sea freighting to occur at a much lower cost would be seen to be preferable. A number of interviewees commented about the very high cost, particularly when compared with consignment value of the AQIS exporting charges. These parties commented somewhat angrily that AQIS are hindering the development of export markets due to their cost structures.
6. An ability to produce long lines of uniform quality product. Due to the structure of the industry with many small growers, exporters commented that they find it very difficult to be able to offer exporters a 'single line' of oysters that are consistent in terms of product quality and appearance.

CDIPM did not conduct any in depth analysis of the market potential for Australian oysters, although a number of interviewees commented that, even at higher prices, it does exist. However, the industry needs to review and act on the current weaknesses of the industry.

CDIPM believe it will be up to commercial enterprises to develop new market opportunities. The role of industry organisations is important in working with legislative authorities to ‘smooth the way’ for exporters to export, and to support the necessary R&D activities (previously discussed) for the industry to be able to provide customers with the product they are seeking.

11.15 Prioritising the Recommendations

Table 40 provides a summary of CDIPM's view with respect to the recommendations made for industry action from sections 11.1 to 11.14. The prioritisation of these recommendations was done on the basis of CDIPM's assessment of the 'likely' cost and benefit of implementing the recommendation. Further, the commercial practicability for the full recommendation to be adopted was also considered.

Table 40: CDIPM Prioritisation of Industry Recommendations

Recommendations	Section	1	2	3	4	5
		Lowest Highest				
Increasing Oyster Consumption & Promotional Levies	11.1					
Supply Chain Re-engineering	11.2					
Storage and Handling Practices	11.3					
Food Safety & Quality	11.4					
Product Description / Grade Standards / Size Standards	11.5					
Chain Communication	11.6					
Product Formats	11.7					
Value Adding Opportunities	11.8					
New Customer Segments	11.9					
Truth in Labelling	11.10					
Labour Availability	11.11					
Traceability	11.12					
Freezing Research	11.13					
Exporting	11.14					

Source: CDI Pinnacle Management

Section 0 provides a core recommendation to the Oyster Consortium about the implementation of a mechanism for these and other project and industry development activities to be undertaken.

11.16 National Industry Organisation Formation – Core Recommendation

The Oyster Consortium is regarded as the Australian oyster industry's de-facto industry body.

In reality the Oyster Consortium does not provide all oyster growers with the ability to provide input into the direction of its industry, despite the undoubted best intentions of the Oyster Consortium members.

Further, beyond the life of the Seafood CRC there are currently no mechanisms in place for the Oyster Consortium to conduct additional R&D activities.

Without a truly commercial industry body to provide the access to funding mechanisms to generate revenue to undertake project activities, it is the opinion of CDIPM that the industry will not be able to adequately invest in the necessary industry projects that would enable the oyster production sector to grow and achieve greater sustainability.

Although untested at a grower level, the projects completed, currently underway and proposed could and should be used as case examples on the merits of industry R&D spending.

Further, while not the current role of Oyster Consortium, the oyster industry lacks its own identity and, more importantly, a voice to be able to communicate with industry regulators and government organisations. CDIPM considers that a key role for a national industry organisation is the ability to be seen as an industry voice that has the ability to lobby federal and state government authorities on national and state issues.

With the assistance of external consultants, the Oyster Consortium are about to commence a five year strategic planning process. CDIPM believes that a key objective in this process should be investigations into what models and funding mechanisms could be adopted to develop a national industry organisation. CDIPM further suggest that this strategic planning process should test industry support for the development of a national industry organisation.

BIBLIOGRAPHY

- Australian Bureau of Statistics (ABS) 2003, *Cafes and Restaurants Australia*, Cat. No. 8655.0, Author, Canberra.
- Australian Oyster Industry n.d., *Oyster Cultivation Methods*, Australian Oyster Industry, Australia.
- Australian Oysters Consortium 2008, Market Directions Workshop, Learning issues, and insights drawn from a *CRC sponsored workshop of Industry Growers* held in Brisbane, 7 August 2008.
- Australian Seafood Cooperative Research Centre (CRC) n.d., *Oyster Consortium: Strategic map of projects*, Australian Seafood CRC, Adelaide.
- Australian Seafood Industries (ASI) 2006, 'Thoroughbred Oysters', *Newsletter of Australian Seafood Industries Pty Ltd*, Vol. 2, Issue 1, March 2006, Australian Seafood Industries, Australia.
- Aquaculture New Zealand 2008, *New Zealand Aquaculture Farm Facts*, 1st edn, Aquaculture New Zealand, New Zealand.
- Bulley, M 2008, [Letter to the Director of Seafood Experience Australia], NSW Farmers Association, NSW.
- Cameron of Tasmania 2008, '*Cameron of Tasmania Cultured Shellfish*', viewed 16 December 2008, <http://www.cameronsoysters.com/>
- Chicken of the Sea 2009, *Oyster Processing*, viewed 11 January 2009, http://www.chickenofthesea.com/oyster_process.aspx
- Danenberg, N & Remaud, H 2008, 'What is oyster marketing?', *Presentation to Oyster Consortium Brisbane*, 7 August 2008, University of SA, SA.
- Department of Primary Industries and Fisheries (DPIF) 2001, *Oyster Production in QLD*, viewed 5 March 2009, <http://www2.dpi.qld.gov.au/fishweb/2699.html>
- Department of Primary Industries and Fisheries (DPIF) 2008, *Report to farmers: Aquaculture production survey Queensland 2006-07*, DPIF, Brisbane.
- Department of Primary Industries & Water (DPIW) 2003, 'Shellfish', *Tasmanian Rural & Marine Industry Profiles*, December 2003, DPIW, Hobart.
- Econsearch 2008, *The Economic Impact of Aquaculture on the South Australian State and Regional Economies, 2006/07*, Econsearch Pty Ltd, Marryatville.

- Ferlin 1985, 'The Marketing of Products from Aquaculture', *Seminar on socio-economic aspects of aquaculture development in the Mediterranean countries*, 14-24 November 1985, Fisheries and Aquaculture Department, viewed 30 December 2008, <http://www.fao.org/docrep/field/007/af004e/AF004E04.htm>
- Fisheries and Aquaculture Chile c. 2007, '*National Aquaculture Sector Overview Chile*', Fisheries and Aquaculture Chile, Chile.
- Fisheries and Aquaculture Department 2006, '*Yearbooks of Fishery Statistics Summary tables*', viewed 3 January 2009, <ftp://ftp.fao.org/fi/stat/summary/default.htm>
- Fisheries Research and Development Corporation (FRDC) 2002, *Retail Sale and Consumption of Seafood – Revised Edition*, FRDC, Canberra.
- Fisheries Research and Development Corporation (FRDC) 2004, *Milestone Progress Report, FRDC Project Number: 2007/235, Milestone Number: 7, Running of Good Food & Wine Brisbane*, FRDC, Canberra.
- Fisheries Research and Development Corporation (FRDC) 2006, *Retail Sale and Consumption of Seafood – Melbourne*, FRDC, Canberra.
- Fiske, E. 2008, *Global warming threatens seaweed and oyster production*, FIS Australia, viewed 3 January 2009, <http://fis.com/fis/worldnews/worldnews.asp?l=e&ndb=1&id=30469>
- Globefish 2002, 'Seafood Market France', *Eurofish Magazine*, November-December 2002, viewed 3 January 2009, <http://www.globefish.org/dynamisk.php4?id=1093>
- Greg Lutz, C, Sambidi, P & Wes Harrison, R 2008, *Oyster Profile*, Louisiana State University Agriculture Centre, Louisiana.
- JEMCO n.d., '*JEMCO Oysters: Naturally grown in New Zealand: The world's premier oyster growing environment*', viewed 3 January 2009, <http://www.oystersnz.com/>
- Kiwi Oysters n.d., '*New Zealand Pacific Oysters*', Dansfield Park, viewed 3 January 2009, <http://www.kiwioysters.com/DandH-Marketing/leftnav.htm>
- Liu, Y, Kow, F & Grewal, D 2004, *Oyster Consumption Study in Australia: Results of a 2003 Survey*, Faculty of Fisheries and Marine Environment, Australian Maritime College (AMC), Australia.
- Liu, Y, Kow, F, Grewal, D & FitzGerald, D 2005, 'Consumer purchase behaviour for oysters: an empirical study in some state capital cities of Australia', *International Journal of Consumer Studies*, vol. 30, pp. 85-94.
- Miossec, L & Gouletquer, I 2007, 'The Pacific Cupped Oyster *Crassostrea gigas*', Presented at the 5th *International Conference on Marine Bioinvasions*, 21-24 May 2007, Cambridge, USA.
- Mississippi State University c. 2008, '*Economics of Oyster Postharvest Processing Systems*', viewed 19 December 2008, <http://222.msstate.edu/dept/crec/owmr.html>

- NSW Department of Primary Industries 2006, *Sustainable Aquaculture Strategy*, New South Wales Oyster Industry, New South Wales.
- NSW Department of Primary Industries (DPI) 2007, *R&D Strategic Plan 2007-2012*, NSW Aquaculture Research and Advisory Committee, New South Wales.
- NSW Farmers Association 2008, *2008 Oyster AGM Report*, NSW Farmers Association, New South Wales.
- O'Sullivan, G 2003, '*FISH INFOnetwork Market Report on Oysters*', Eurofish, viewed 3 January 2009, <http://www.eurofish.dk/indexSub.php?id=1745>
- O'Sullivan, G 2004, '*Oysters – December 2004: European oyster sales remain highly seasonal*', Globefish, viewed 3 January 2009, <http://www.globefish.org/index.php?id=2322>
- O'Sullivan, G 2005, '*Oysters – December 2005*', Globefish, viewed 19 December 2008, <http://www.globefish.org/index.php?id=2669>
- O'Sullivan, G 2007, '*FISH INFOnetwork Market Report on Oysters*', Eurofish, viewed 3 January 2009, <http://www.eurofish.dk/indexSub.php?id=3425>
- O'Sullivan, G 2007, '*Oysters – February 2007*', Globefish, viewed 19 December 2008, <http://www.globefish.org/index.php?id=3578>
- O'Sullivan, G 2007, '*Oysters – August 2007*', Globefish, viewed 19 December 2008, <http://www.globefish.org/index.php?id=4265>
- Othniel Oysters Ltd n.d., '*Oysters*', viewed 3 January 2009, <http://www.othniel.com/oysters.html>
- Palmer, R & Palmer, D 2008, '*Long live the seafood retailer*', Australian Food News, viewed 21 December 2008, <http://www.ausfoodnews.com.au/2008/07/07/long-live-the-seafood-retailer.html>
- PFD Food Services n.d., *PFD Food Services Index*, PFD Food Services Pty Ltd, Victoria.
- Planet Natural 2006, '*Oyster Shell Lime*', viewed 22 December 2008, <http://www.planetnatural.com/site/oyster-shell-lime.html>
- Primary Industries and Resources SA n.d., *Oysters*, Government of South Australia, South Australia.
- Primary Industries and Resources SA 2003, Pacific oyster aquaculture in South Australia, *Fact Sheet*, FS No: 26/01, Adelaide.
- Primary Industries and Resources SA 2003, SAOGA – oyster farming, *Fact Sheet*, FS No: 33/03, Adelaide.
- Ranninger, N 2008, Mussel and Oyster Market Up Date, Presented at the *ISA Conference*, 15 May 2008.

- Restaurant & Catering Australia 2007, *Restaurant & Catering Australia 2007 Submission to the Australian Fair Pay Commission*, Australian Fair Pay Commission (AFPC), Australia.
- Restaurant & Catering Australia 2008, *Industry Benchmarking Report, July 2008*, Restaurant & Catering Australia, NSW.
- Restaurant & Catering Australia 2008, *Restaurant Industry Snapshot, Issue 3*, Restaurant & Catering Australia, NSW.
- Ruello & Associates 2002, *Report on Coffs Coast Oyster Industry Development Plan*, Ruello & Associates Pty Ltd, Sydney.
- Ruello & Associates 2006, 'Grading of Sydney Rock Oysters', *Report for the Department of Primary Industries, NSW Fisheries; Department of State and Regional Development; Sydney Rock Oyster Industry*, Ruello & Associates Pty Ltd, Sydney.
- Rossmore Oysters 2009, 'Ordering Oysters in 2009?', viewed 3 January 2009, <http://www.oysters.co.uk/>
- Sabatini, P 2004, *Bivalves Commodity Update May 2004*, Globefish, Food and Agriculture Organization of the United Nations, Fishery Industries Division, Rome.
- Seafood Business 2003, 'Oysters: Advances in post-harvest treatments spur changes in industry's marketing approach', *Buyers Guide 2004 – November 2003*, viewed 3 January 2009, http://www.seafoodbusiness.com/archives/11_2003/shellfish_oysters.htm
- Shirasu, K n.d., 'Roles of oyster aquaculture in food supply and protection of environment', *Oyster Research Institute News, No. 19*, Oita Marine Technology Centre, Nissui.
- Smith, B (ed.) 2007, 'Aqua Culture Newsletter from B.I.M.', *AquaCulture Newsletter*, no.59, Bord Iascaigh Mhara (BIM), Ireland.
- The Age* 2008, 'Open Season', 14 October, <http://www.theage.com.au/articles/2008/10/13/1223749889415.html?page=fullpage#contentSwap2>
- The Fish Site 2008, 'Oyster Market – 2008', viewed 3 January 2009, <http://www.thefishsite.com/articles/440/oyster-market-2008>
- The New Zealand Seafood Industry Council Ltd c. 2008, 'Pacific Oyster', viewed 3 January 2009, <http://www.seafood.co.nz/n1236,242.html>
- Thornham Oysters 2009, 'Welcome to Thornham Oysters', viewed 3 January 2009, <http://www.thornhamoysters.co.uk/index.asp>
- Wakida-Kusunoki, Armando, T & MacKenzie, C 1997, *The oyster industry of eastern Mexico*, Marine Fisheries Review, United States of America.

Wassilieff, M 2007, 'Aquaculture', *Te Ara – the Encyclopedia of New Zealand*, updated 21 September 2007, viewed 3 January 2009,
<http://www.TeAra.govt.nz/EarthSeaAndSky/HarvestingTheSea/Aquaculture/en>

WikiAnswers n.d., '*What product can be produced from oyster shell?*', viewed 22 December 2008,
http://wiki.answers.com/Q/What_product_can_be_produced_from-oyster_shell

William Angliss Institute 2009, '*Start the year with an appreciation of oysters...*', William Angliss Institute of TAFE, Melbourne.

Wiseman, S 2008, *Aquaculture Production Report 2006-07*, NSW Department of Primary Industries (DPI), New South Wales.