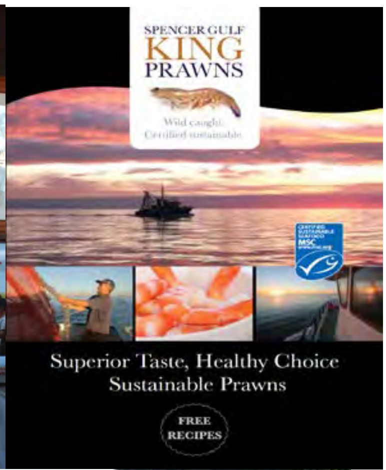
Optimising Prawn Quality and Value in Domestic Prawn Value Chains

Dr Janet Howieson, Professor Meredith Lawley, Craig Johns, Nathan Kimber

Project No. 2008.793/10



AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

January 2015.

This project was conducted by Dr Janet Howieson from the Centre of Excellence for Science, Seafood and Health, Curtin, University.

ISBN: 978-0-9925568-4-6

The Australian Seafood CRC is established and supported under the Australian Government's Cooperative Research Centres Program. Other investors in the CRC are the Fisheries Research and Development Corporation, Seafood CRC company members, and supporting participants.

Office Mark Oliphant Building, Laffer Drive, Bedford Park SA 5042
Postal Box 26, Mark Oliphant Building, Laffer Drive, Bedford Park SA 5042
Tollfree 1300 732 213 Phone 08 8201 7650 Facsimile 08 8201 7659
Website www.seafoodcrc.com ABN 51 126 074 048

Non-Technical Summary

Project No. 2008.793.1: *Optimising Prawn Quality and Value in Domestic Prawn Value Chains*

PRINCIPAL INVESTIGATOR: Dr Janet Howieson

ADDRESS: Centre of Excellence of Science, Seafood and Health
Curtin University
7 Parker Place
Bentley WA 6102
Telephone: 08 9266 2034 Fax: 08 9266 2508

PROJECT OBJECTIVES:
The objectives of the CRC Research project were:

1. To gain a better understanding of Australian prawn consumers in order that industry might identify and quantify the potential value of at least one new market opportunity for each target fishery.

2. To gain collective agreement by chain partners in each target fishery to co-invest in one positioning and promotional strategy and aligned supply chain innovations to meet a viable market opportunity.

3. To demonstrate an increase in profitability in at least one target fishery (quantified as increased price, reduced cost or increased volume into new markets) as a result of pursuing a repositioning and supply chain innovation strategy.

4. To identify and support industry leaders in each target fishery in order that they will empower other chain participants to exploit emerging market opportunities.

OUTCOMES ACHIEVED:

1. A commitment within the leadership and chain participants of three target prawn fisheries (Spencer Gulf and West Coast Prawn Fisherman's Association Inc. Moreton Bay Seafood Industry Association and Shark Bay Prawn Trawler Operators' Association Inc.) to build improved relationships and strategies through the value chain to facilitate a better market outcome for product.
2. Communication of end-user (consumer/chefs) survey results and results incorporated into specific fishery value chain improvement projects.
3. A change to market-driven culture and identification of generic industry issues which contributed significantly to the development of *CRC 2011/736: National Prawn Market Development Strategy* which led to the 'Love Australian Prawns' advertising campaign.

LIST OF OUTPUTS PRODUCED

1. Spencer Gulf and West Coast Prawn Fishermans Association Inc (SGWCPFA) leadership group formed, value chain improvement strategy agreed, developed (brochures, decals, posters), implemented and evaluated through a supermarket chain.
2. Shark Bay Prawn Trawler Operators' Association Inc. (SBPTOA) leadership group formed, value chain improvement strategy developed, implemented ('Shark Bay Wild' promotional material and various launch events) and evaluated through membership interviews.
3. Moreton Bay Seafood Industry Association (MBSIA) leadership group loosely formed, value chain improvement strategy developed (Moreton Bay Fresh prawns) implemented (logo, website, promotional material, business case), launched and evaluated at local food festival.
4. Results of prawn related consumer surveys summarised in a powerpoint presentations for general use by industry (Appendix 1).
5. *CRC 2011/736 National Prawn Market Development* developed, funded and strategy implemented.
6. *CRC 2011/746 Value Adding to the School Prawn Industry: Clarence River Case Study* developed, funded and undertaken by South Australian Institute (SARDI).
7. Results presented at three Australian Council of Prawn Fishers (ACPF Board meetings, two research planning and extension days and one stakeholder meeting organised by the principle investigator.
8. Three research and networking industry meetings held in Adelaide, Brisbane and Perth to present project results attended by over 200 prawn supply chain stakeholders.
9. A new, tested framework for agribusiness value chain analysis (VCA), including implementation and evaluation.

10 Preparation of two journal articles for submission to peer reviewed journals: one outlines a new theoretical framework for VCA (Appendix 10); and the other explores the key success factors for the development and implementation of value chain improvement strategies.

11 Successful submission by David Byrom of his Masters of Business by Research thesis: 'Optimising markets for Moreton Bay Fresh prawns through supply chain management'.

The aim of this project was to undertake a value chain analysis (VCA) on four Australian prawn fisheries: SGWCPFA, SBPTOA, CRFC, and MBSIA. Following the VCA to define some improvement strategies/projects, work would then be carried out with the individual fisheries to select, implement and evaluate one of the recommended improvement strategies.

The project design and methodology comprised a generic framework with the following stages undertaken for each fishery: Selection of participant chain and gain commitment to participate (Engaging the chain); Understanding the value chain; Secondary participatory consultation and development of agreed strategies; Implementation of agreed strategy; Evaluation of agreed strategy; and Extension and reporting.

In the case of the SGWCPFA, the VCA had already been undertaken during a previous CRC project *CRC 2009/786: Commercial Value Chain Analysis of the Spencer Gulf and West Coast Prawn Fisheries – Domestic Retail and Restaurants* and therefore this study focussed only on selection, implementation and evaluation of the improvement strategy for this fishery.

As part of Understanding the value chain in the early stages of the project, all the prawn consumer information that had been collected as part of the CRC and previous projects was collated. This data was then used as background to develop a new prawn consumer survey which included sections that filled the gaps in information identified by the collation of all the prawn consumer research. In addition, this survey included a fishery specific section with questions focussing on the products/perceptions of the case study fisheries.

In addition to the prawn consumer research, interviews were also carried out with chefs who use prawns in Brisbane, Sydney and Perth and with chain stakeholders, i.e. members of the test supply chains.
In the Secondary participatory consultation and Development of agreed strategies stages, all of the data collected in the surveys was collated and strategy development workshops were held with each fishery to collectively present, prioritise and further develop their specific repositioning/supply chain innovation strategy. In addition, these workshops were used to define industry champion groups/individuals to help promote the strategy selected.

Implementation of the agreed strategy was undertaken following cash and in kind contributions from three of the fisheries: SGWCPFA, SBPTOA and MBSIA. CRFC was not involved in this stage as they did not wish to commit to co-contribution. Therefore, as a cash contribution was mandatory in order to take the project forward to the implementation stage, they were supplied with the collated research information for future reference but no further project activity was undertaken on their behalf.

SGWCPFA implemented a strategy which focussed on the development of a range of point-of-sale resources to be trialled in 41 Drakes supermarkets. The resources included recipe booklets, posters, decals and in-store tastings. The impact of these resources and activities were tested during three different purchase periods at the test supermarkets. Evaluation of these activities was undertaken with data collated from sales, delicatessen manager, consumer and supply chain stakeholder surveys.

SBPTOA developed a detailed strategy around a premium brand which was named 'Shark Bay Wild'. A business plan with promotional material was developed and printed and a number of subsequent activities undertaken which included:

- a launch with WA Minister of Fisheries;
- a number of events featuring Shark Bay Wild prawns, such as ??? .

The effectiveness of the strategy was evaluated through supply chain stakeholder interviews.

MBSIA developed a strategy around the addition of prawns to the Moreton Bay Fresh brand and logo. This included identifying key retailers as chain partners, website updates and a launch at the Regional Flavours event in Brisbane in July 2013. The effectiveness of the strategy was evaluated through consumer interviews. The Extension and reporting stage of the project consisted of presentations at six ACPF Board and member meetings. In addition, In late 2014, a series of research and networking events were held in Adelaide, Brisbane and Perth in order to communicate the results of this and other ACPF projects. In total these events were attended by over 200 people and all stages of the prawn supply chain were represented.

The findings of this project resulted in two further CRC projects being funded: the first was *CRC 2011/736 National Prawn Market Development Strategy* which was implemented across Australia during 2013 and 2014; and the second was *CRC 2011/746: Value Adding to the School Prawn Industry: Clarence River Case Study*.

The project outcomes were also used to inform a whole-of-chain approach to a later funded project *CRC 2011/747: Maximising the Quality of Australian Wild-caught Prawns (Quality Assurance)*.

As a result of undertaking this project and the identification key success factor identified as a consequence of testing the VCA methodology on four different prawn fisheries, a revised framework for VCA in agribusiness has been developed and submitted for publication in a peer reviewed journal. The modifications were around ensuring that market information in this case gained from consumer and chef surveys, is used in strategy development and the addition of implementation and evaluation methodology to the VCA framework. The key success factor identified in this project was the existence of an industry leadership group/structure to manage the analysis and implementation: in circumstances where this group did not exist, for example,, little implementation activity was undertaken. Furthermore this study represents one of the few occasions when the recommended improvement strategies from a VCA analysis have been implemented and evaluated.

This project tested the VCA methodology on four different prawn fisheries and the key success factor identified was the existence of an industry leadership group/structure to manage the analysis and implementation: in circumstances where this group did not exist, little implementation activity was undertaken. As a result of this a revised framework for VCA in agribusiness has been developed and submitted for publication in a peer reviewed journal. The modifications were around ensuring that market information, in this case gained from consumer and chef surveys, is used in strategy development and the addition of implementation and evaluation methodology to the VCA framework.

This study also represents one of the few occasions when the recommended improvement strategies from a VCA analysis have been implemented and evaluated.

Table of Contents

List of Figures

List of Tables

1. Introduction

At the start of the project in 2010, it was noted that during the previous decade, the gross value of production (GVP) of the Australian wild capture prawn industry had declined from approximately $364 million in 1998/99 to $232 million in 2008/09 (Department of Agriculture, Fisheries and Food DAFF, 1999; 2009). Although some of this decline could be attributed to a lowered catch (27, 871t in 1998/99 down to 19, 956t in 2008'09) a gradual lowering of price has also been a significant factor. This price lowering has been particularly significant for certain fisheries and species. For example, the average price of Shark Bay tiger prawns and king prawns has reduced from $17.30 and $22.90 per kilogram respectively in 2000/01 to $11.00 and $11.85 per kilogram in 2008/09 (WA State of the Fisheries, 2000; 2008). This decline in value could be partly attributed to a decline in export markets due to strengthening of the Australian dollar and to competition from other products. As a result, there had been a greater reliance on the domestic market, which itself has been subject to decreasing prices due to competition from imported products, both whole and value added.

In response to this decline in value of the Australian wild capture prawn industry the Australian Council of Prawn Fisheries (ACPF) supported a Seafood CRC research initiative with the aim of identifying new market opportunities and undertaking market-driven quality and value innovations along the supply chain to improve returns on the domestic market. Such studies have historically begun by understanding the consumer in order to identify and exploit new market opportunities because understanding differences in consumer value (Porter 1976) and differentiating and deriving market benefits from product attributes valued by the consumer (White pers comm) are essential market development activities.

Once a new product and /or market opportunity has been identified then activities to support the promotion and repositioning of the chosen product and to facilitate effective supply into the identified market can be developed (Fearne 2008) and effective supply can be achieved by, for example, making adjustments through the chain based on understanding and improving information flow, product quality and flow, and value chain relationships (Fearne 2008, Gow 2007). Following the implementation of industry supported market and chain adjustments, economic evaluation should be completed.

Previous results from similar market driven and supply chain studies, had shown that in order to ensure both economic and non-economic benefits for the businesses and companies involved, the research, implementation and evaluation should be driven by industry leaders. Concomitant commitment from all chain participants was also a key success factor (Micheels and Gow, 2007).

Considerable information was already available about the Australian prawn consumer and this was used in the development of this project. Indeed the Seafood CRC had conducted two recent consumer studies, an Omnibus survey (CRC 2008/779) (sample: n= 2,643) and the Retail Transformation survey (CRC 2008/794) (sample: n = 1,815). Key findings from these studies in regards to prawn consumption included:
Omnibus (CRC 2008/779):

- Prawns make up approximately 6% of all seafood consumed by Australians and are eaten by approximately 73% of Australians (the most popular seafood choice)
- Discrete Choice Experiments (DCEs) revealed that in terms of their choices for prawns, consumers are strongly driven by the origin of the prawns, and are extremely parochial as they favour Australian prawns. Attributes of secondary importance, more or less equally, are the format of the prawns, the price, and the packaging method. Sustainability accreditation was not at all important
- Prawns are perceived to be good for a special occasion or a light meal and are a product that people would like to eat more of. Perceived weaknesses include that prawns are not easy to prepare, they are quite expensive, they have to be eaten immediately after purchase and they are not always a healthy choice.
- In terms of preferences for value adding, consumers prefer peeled prawns, tail on cutlets, fresh never frozen; they strongly reject crumbed prawns, frozen packaged prawns and are polarised regarding whole prawns. There is clearly a diversity of preferences among the entire market as some people strongly favour whole prawns, rejecting all forms of processing or packaging, while others are attracted by the convenience that peeling offers, while others still are primarily driven by freshness and willing to have fresh prawns in whatever format.

Retail transformation (CRC 2008/794):

- Prawns are ranked highly in terms of consumers' home cooking repertoire
- In terms of the proposed product ranges presented to respondents in this survey, prawns were the most popular in the Ready-to-eat range.
- In terms of all shellfish, Australian prawns (rather than imported prawns) have the best product and flavour appeal.

Hence, before the project started, there was already an understanding of the key barriers and drivers for the purchase of prawns, the positioning of prawns relative to other seafood products, and the consumer purchase process for prawns. It was hoped that this information could be potentially built upon to identify new market opportunities.

It was considered crucial to the success of the project that the results overcame the disconnect which had been noted between outcomes of Seafood CRC research and utilisation of this research by industry to change business practices/structures etc. potentially resulting in increased profitability. Hence the identification, engagement and commitment by industry champions and supply chain participants for each target prawn fishery was considered to be essential for the proposed research methodology described in this project. Furthermore the project had the potential to represent an innovation in public/private engagement for Seafood CRC research.

Through a consultative process, the ACPF identified three target fisheries for the project:

- The Spencer Gulf and West Coast Prawn Fisherman's Association (SGWCPFA) consists of 39 commercial fishery licence holders and it focuses on the production of king prawns. During the period 2000/01to 2005/2006 value and production in the fishery ranged from between $44.5 million (2,255 tonne) - $33.6 million (1,870 tonne pa). The landed value of production from the fishery has been negatively impacted in recent years by the availability of imported farmed prawns from throughout the Asia Pacific region. . A preliminary value chain analysis was conducted on the fishery (CRC 2009/786) and a series of strategies developed based on this work (Johns et al., 2010). At least one of these strategies was to be implemented as part of this project.

- The Shark Bay Prawn Trawler Operators' Association (SBPTOA) is located in a World Heritage Area and focuses on capture of king and tiger prawns. Total catch prawn catch is about 3,000 tonne with high inter-annual variability in catch and value (e.g. $25.2 million in 2001 down o $14.1 million in 2008). The value of the fishery has decreased in recent years due to loss of traditional export markets and competition in the domestic market. The catch is generally frozen on board and sorted for species and size and sold whole. The assessment for the world heritage listing of the area recognised the sustainable nature of the operation of the prawn industry as a significant factor in support of the listing.
- The Clarence River Fishermen's Co-operative (CRFC) has 130 professional fishing members supplying a range of prawns (king and school), finfish, ocean bugs, lobster, squid and clams. The CRFC is vertically integrated and includes a processing factory and two retail outlets. The CRFC had expressed interest in finding new markets for their king prawn (currently valued at $4-5 million per annum) and school prawn products (currently valued at $2-3 million per annum)as both have lost value and markets in the last few years.

Subsequent to the initial project being funded, Moreton Bay Seafood Industry Association (MBSIA) successfully applied (by variation) to be added as a fourth case study fishery.

1.1. Need

Given the general decline in GVP for the Australian wild capture prawn industry (from $364 million to $232 million in the last 15 years), and particularly the loss of traditional export markets, the industry needed to focus on optimising value in the domestic market. However it had become apparent that the current and established business models being pursued by many wild harvest prawn companies were not set up to optimise the domestic market opportunities. The change from an export focused to a domestic focused business requires companies to have a better understanding of the competitive landscape and of customer and distribution channel requirements (for both quality and service) in domestic markets in order to identify and exploit new market opportunities. However, it appeared that this knowledge was currently not available or, in the case of a number of completed CRC consumer surveys, not being well extended to the Australian prawn industry to facilitate changing business models to increase profitability.

The aim of the project was to work with committed prawn industry leaders to utilise current results from previous CRC and other consumer/market studies, identify gaps in knowledge and, if necessary, commission further research to identify new domestic market opportunities. It was hoped that as a result of the project, industry leaders would feel empowered to work with all chain participants resulting in the identification of supply chain innovations (in service and quality) and definition of what promotional strategies were required to meet the identified opportunity.

A further objective was that representatives of the target fisheries would agree collectively to co-invest to implement the required strategies. If this were the case, the participatory action nature of the research, with identification, commitment and active involvement of industry champions could represent an innovation in CRC research and potentially ensure commercially relevant outcomes.

1.2. Objectives

- CRC Research focused on a better understanding of Australian prawn consumers is utilised by industry to identify and quantify the potential value of at least one new market opportunity for each target fishery.

- In each target fishery, collective agreement by chain partners to co-invest in one positioning and promotional strategy and aligned supply chain innovations to meet a viable market opportunity.

- Demonstrated increase in profitability in at least one fishery (quantified as increased price, reduced cost or increased volume into new markets) as a result of pursuing a repositioning and supply chain innovation strategy.

- In each target fishery, to identify and support industry leaders that will empower other chain participants to exploit emerging market opportunities.

2. Methods

Overall coordination of the project was undertaken by Dr Janet Howieson, Senior Research Fellow at Curtin University.

A generic series of research activities undertaken for each are described below and the specific fishery details are recorded in the results. The generic activities were:

- Selection of participant chains and commitment to participate (engaging the chain)
- Understanding the value chain
- Secondary participatory consultation and development of agreed strategies
- Implementation
- Evaluation.
- Extension and reporting

2.1. Selection of Participant Chains and Commitment to Participate (Engaging the Chain)

In consultation with the ACPF, three wild capture prawn fisheries were chosen as case studies for this project: Spencer Gulf and West Coast Prawn Fisherman's Association (SGWCPFA), Shark Bay Prawn Trawler Operators' Association (SBPTOA) and Clarence River Fishermens Co-operative (CRFC). Representatives of these chains had indicated through the ACPF consultation process that they could see economic benefits in participating in the research project. Moreover these chains are variable in value, target species, product and degree of post-harvest, business models, and geography and therefore provided an opportunity to test the methodology in a variety of scenarios.

Subsequently Moreton Bay Seafood Industry Association (MBSIA) Board in understanding the potential benefits to their fishery, applied for funding and were approved for inclusion in the project as the fourth case study.

Separate activities were undertaken in each of the target fisheries dependent upon, on the current level of understanding of consumer and market needs and their cohesiveness as a group. In addition, business leaders/industry champions with the ability to drive the project and the social capital to ensure that the other stakeholders remained committed to the process were identified. These leaders were also charged with ensuring that the interventions were implemented, appropriate evaluation completed and that a process of continuous improvement would continue after the research component of the project was finished.

Where a specific need was identified, for example there were gaps in information, initial meetings were held to develop preliminary maps of the current harvest, processing, distribution and marketing channels of the selected chains. This phase also included consultation with chain stakeholders to gain general information about the fishery, for example its history and the families and communities involved, sustainable fisheries management practices and product characteristics: to define information and knowledge gaps concerning the consumer and target market(s) and to gain collaborative commitment to identify and capture a new market opportunity.

Prior to the project starting, each of the four target fisheries were at different stages in terms of their understanding of the value propositions available to them and the level of leadership and group cohesiveness. Therefore a number of meetings were set up with the fisheries and are summarised below:

- Two preliminary meetings with the SBPTOA and a site visit were undertaken by Professor Hamish Gow. All members committed to supporting the research and preliminary information about the product flow and general information about the fishery had already been gathered.

- David Anderson, Chair of CRFC also attended the second meeting with SBPTOA and site visit and reported the project background and methodology to the Clarence River Co-op Board. Endorsement for the project was subsequently forthcoming.

- Value chain analyses and a list of improvement strategies had already been identified for SGWCPFA in a separate project (CRC 2009/786). The

SGWCPFA management committee supported the implementation of one trial strategy identified through the initial study being progressed as part of this project. SGWCPFA committed $30,000 and in kind support to support the implementation of the strategy.

- MBSIA Trawl Committee and Board members met with Dr Howieson in October 2010, and subsequently applied successfully to ACPF for funding to be included in the project.

Stephen Murphy, ACPF Board member and Hervey Bay Trawl Operator, also attended the second SBPTOA meeting and reported back to his stakeholders as it was initially suggested that the East Coast Trawl could be included as a case study. However, given the extensive geographic spread and the variability in business and product types produced, it was proposed that a separate project be developed and undertaken for East Coast Trawl. This CRC project (2010/770) "Identification of the core leadership group and network structure of East Coast Trawl to develop, implement and evaluate strategic opportunities" was subsequently funded separately.

2.2. Understanding the Value Chain

2.2.1. Consumer Insights

The project included an analysis of customer and consumer perceptions and expectations of Australian prawns, current price points, market options and current branding and promotional strategies in order to inform the development of new domestic market opportunities for all four target fisheries and aligned repositioning strategies.

This market/consumer aspect of the project was coordinated and managed by Associate Professor Meredith Lawley, University of the Sunshine Coast and a number of activities were completed:

- Desktop research conducted looking at all the current information on consumption/marketing of prawns in Australia and all current marketing and branding strategies for Australian prawns in general and by individual fisheries. Information was collated from a number of studies that had already been conducted on prawn marketing and consumer preferences. These include the Omnibus survey (CRC communal project) and the CRC Retail Transformation project. In addition, the outcomes of branding initiatives such as an 'Australian', 'Passion for Prawns' 'Queensland Catch' etc. were summarised and the results from the outcomes of the Spencer Gulf value chain analysis (CRC project 2009/786) were also included. The results of the desktop survey was used to identify any knowledge gaps and informed later stages of the market/consumer research. A powerpoint summary of all the prawn consumer data was developed and can be seen in Appendix 1.

- Associate Professor Lawley and Professor Tiffany White worked with industry leaders to analyse the results of the completed CRC consumer studies to identify any gaps and/or formulate hypotheses about under-exploited market development opportunities. This data and analyses was then used as background to develop a further consumer survey to fill the identified gaps and to also gain fishery specific information on the case study fisheries' products such as Shark Bay king prawns, Spencer Gulf king prawns and Clarence River school prawns). This survey was completed with 900 consumers in, New South Wales, Queensland, South Australia, Victoria and Western Australia. Summary analyses of the data were prepared for each fishery and a generic summary was also developed. A separate consumer survey was conducted for MBSIA six months later as they had joined the study later. Results are disucsed in the next section.

- The collation of the consumer information provided data for each fishery to explore innovative repositioning opportunities and new distribution channels for the target fisheries. Using this research, the industry leadership group from each fishery was guided to define new market opportunities from inherent product traits that would create sufficient value to a consumer such that they would choose preferentially or pay a premium for the offer. The defined new market opportunities for each case study fishery are described in the results section.

2.2.2. Chef/Food Service Insights

Given their importance in the purchase of prawns, the decision was taken to conduct surveys with chefs involved in the preparing and cooking of prawns in restaurants. However as it had also been noted that there was a lack of knowledge generally regarding the process of decision making for seafood by chefs, a two part survey was developed. In the first part of the survey chefs in Brisbane, Sydney and Perth were asked questions related to their purchasing decisions, perceptions and preferences. The questionnaire is shown in Appendix 2 and the results discussed in relevant results section for each fishery.

The second part of the chef survey was specific to prawns from the specific case study fisheries. In this section, and based on the city and proximity to the target fisheries, questions were asked on specific prawn products as summarised below and described in more detail in the results section.

- Clarence River school prawns: Telephone and face to face interviews were undertaken with 21 chefs/foodservice staff based in Sydney and 17 chefs/food service staff based in Brisbane

- Shark Bay king prawns: A Perth producer event was organised and a mail survey was delivered to 29 chefs/food service staff to investigate their preferences in regards to farmed barramundi, sardines, Shark Bay king prawns and Saddle tail Snapper.

- Moreton Bay prawns: Face to face interviews with 17 chefs/food service staff based in Brisbane.

2.2.3. Prawn Sensory Insights

In order to better understand potential sensory differences between different prawn species, a preliminary sensory study was completed with 16 different prawns sourced from different fisheries in Australia. The study was undertaken at SARDI in October 2012 and the full details of the methods and results can be seen in Appendix 3.

The intended outcome of the study was to define attributes from the different species which could be used in promotional/repositioning activities. In summary this preliminary study did identify sensory differences both between species and within species, when sourced from different fishing areas. However, the study was considered flawed due to the overriding sensory impact of quality issues as there was considerable quality variation noticed between prawn samples. This work needs to be repeated, but with consistent, quality parameters set for the samples to be analysed. Following discussions with the program leader and with aligned sensory/flavour/quality projects in development it was decided not to pursue this further research as part of this particular study.

2.2.4. Prawn Value Chain Stakeholder Insights (Resource and Constraint Audit)

Following better understanding of the markets from chef and consumer survey results, the industry leadership group and/or the research team for each fishery 'walked the chain' and interviewed chain members from point of harvest to point of retail outlet to better understand chain behaviour and effectiveness. This process assisted in identifying the barriers and opportunities in the chain (e.g. infrastructure, product quality, product flow, information flow, relationships) which would either need to be overcome or be capitalised upon to capture the potential new market opportunities.

A generic questionnaire was developed for the chain member interviews (Appendix 4). The interviews were conducted either face to face or by telephone by various project researchers as identified in the results sections. Questionaries included general and fishery product specific questions. Questions were aimed at understanding purchase preferences and identifying possible strategies to overcome some of the issues related to the purchase of seafood generally and the target prawn product specifically. Other questions included: perceptions of what customers value the most, market opportunities, pricing, product form of preference, and comments on quality measurements and other standards. Results are discussed in the relevant results section for each fishery.

2.3. Secondary Participatory Consultation and Development of Agreed Strategies.

The combined results of the market/consumer research and the supply chain stakeholder interviews were used to identify potential market opportunity and/or service supply gaps for which new business strategies could be developed to capture the value of those gaps and potentially provide increased profitability.

Strategy development days were held with stakeholders in each of the four target fisheries. The agenda for each of these days was generic (see Appendix 5) and consisted of an initial presentation of the research results including the results from the consumer and food service surveys, and from the stakeholder interviews. A summary of the issues and opportunities identified by the researchers as a result of the stakeholder interviews was then presented.

A facilitated session was then undertaken to define an agreed positioning and promotional strategy (or improvement project) and aligned supply chain innovations for each fishery. SometimesAs an outcome of the workshops a defined activity and budget discussion document was developed for each fishery which detailed responsibilities and implementation schedules. Agreed parameters for chain performance evaluation were also defined within this document.

At this stage, further co-investment was invited from the fisheries to underpin implementation of the agreed strategy. In the case of SGWCPFA, the selection of the key strategy was the first stage of this project as the previous steps had been completed as part of CRC 2009/786 and the group had already committed $30,000 cash to support implementation of the strategy once selected.

2.4. Implementation of Selected Strategies

Implementation of the selected strategy as an outcome of the strategy development process was dependent on co-investment from the case study fishery. This is discussed in more detail in the results section.

2.5. Evaluation of Selected Strategies

Based on the chosen market development activity an evaluation of the implementation of the selected strategy was completed.

Four potential methods were selected for evaluation. The choice of the evaluation method was dependent on the case study fishery progress and process. The four methods are described briefly below with more specific detail in the results section.

a. Producer association evaluation

A generic survey was produced for evaluation by the producer association/project stakeholder committee (see Appendix 6).

b. Sales

Where possible/appropriate sales before and after the implementation were calculated.

c. Consumer evaluation

Consumer interviews were conducted. When the market development activity was consumer focussed.

d. Deli Manager evaluation

A Delicatessen manager survey for perceptions of point-of-sale marketing impact was developed.

2.6. Extension and Reporting.

In the development of the application for the project the following extension and reporting strategies were proposed. Specific details from each fishery are described in the results section.

- The development and implementation of communication strategies to extend the results of Seafood CRC consumer surveys etc to the prawn industry.

- A framework for the value chain methodology undertaken to be developed with examples of prawn case studies for presentation to CRC industry participants.

- Results of the implementation and evaluation trials to be promoted throughout the industry through ACPF, CRC and Research provider communication activities.

- Results to be presented at conferences and articles prepared for publication in peer reviewed journals.

- Complete CRC project reporting requirements.

3. RESULTS AND DISCUSSION

The results from each of the four target fisheries are presented separately below.

3.1. Spencer Gulf and West Coast Prawn Fisherman's Association (SGWCPFA) chain

A previous CRC project CRC 2009/786 Commercial Value Chain Analysis of the Spencer Gulf and West Coast Prawn Fisheries – Domestic Retail and Restaurants was undertaken by Craig Johns and Nathan Kimber from Rural Solutions SA. The results of this project were used as the basis for the SGWCPFA activity in the current project. Hence the first two sections of the generic methods developed for this project, 'Commitment to Participate' and 'Understanding the Value Chain' are described in detail as part of the CRC 2009/786 Final Report (Appendix 7).

Subsequent activity with this fishery is described below.

3.1.1. Secondary Participatory Consultation and Development of Agreed Strategies

Following the results of CRC 2009/786, a map of product flow from the Spencer Gulf and West Coast prawn industry value chain was produced. This details product flow and information flow from fishing vessel through to end consumer. (Figure 1).

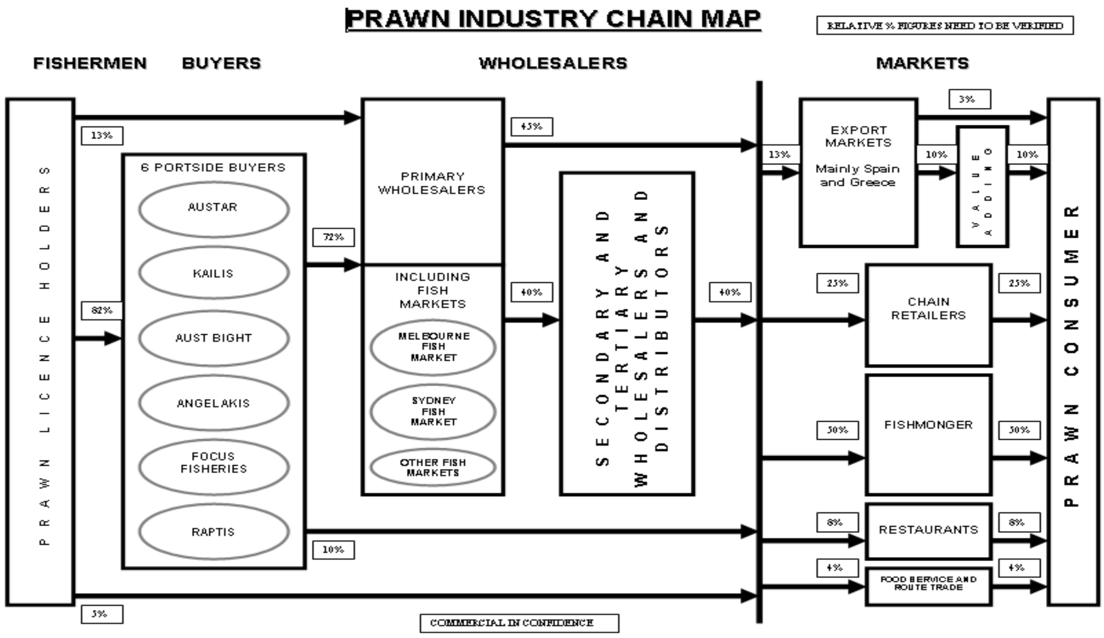


Figure 1 Spencer Gulf and West Coast prawn industry chain map

Subsequently a comprehensive analysis of product moving through the value chain to Drakes Foodmarkets and the Hilton Hotel, Adelaide was then completed.

The CRC 2009/786 final report recommended nine potential improvement and intervention strategies that could be implemented by the SGWCPFA and project partners. These projects were:

Project 1: SO_2 alternatives
Project 2: Incentivise attributes that consumers' value
Project 3: National sizing standards
Project 4: Consumer driven industry value proposition
Project 5: Retail information flow
Project 6: Retail innovative packaging
Project 7: Restaurant innovative packaging
Project 8: Promotion and marketing
Project 9: Soft and broken opportunities.

As part of the current project and in order to prioritise the improvement and intervention strategies recommended in the 2009/786 report, a workshop was held with SGWCPFA, project partners, Seafood CRC and Rural Solutions SA in Port Lincoln on the 29 September 2011. During the workshop the 2009/786 improvement and intervention activities were discussed. To assist the discussion attention was drawn to a table from the 2009/786 report (Table 1) where the activities had been prioritised by the project partners.

Table 1 Assessing the priority of the suggested improvement projects

	SGWCPFA	**Drakes**	**Australian Bight**	**Hilton**	**Kinka-wooka**	**Average**
Industry wide projects						

Activity 1	5	5	5	5	5	**5**
Activity 2	3	2	4	2	2	**2.6**
Activity 3	5	5	5	4	5	**4.8**
Activity 4	5	2	2	2	4	**3**
Domestic retail						
Activity 5	5	5	5			**5**
Activity 6	3	5	5			**4.3**
Restaurants						
Activity 7	3			5	4	**4**
Activity 8	5			5	5	**5**
Activity 9	3			3	2	**2.7**

(Rating: 1 = Lowest priority to 5 = Highest priority)

Following further discussion, the result of the workshop was a commitment to develop a project that fitted with Activity 5: Improving the flow of information and knowledge of the consumer in the retail setting.

A project team was formed that consisted of Simon Clark (SGWCPFA), Terry Richardson (Aussea), Derry McGaffin (Drakes Supermarkets), Craig Johns and Nathan Kimber (Rural Solutions SA). The project team was supported by Janet Howieson (Curtin University) and Meredith Lawley (University of Sunshine Coast).

SGWCPFA committed $30,000 to support the implementation of the selected improvement strategy.

3.1.2. Implementation of Selected Strategies

The objective of the improvement strategy was to improve the flow of information and knowledge of the consumer in regards to SGWCPFA product in Drakes supermarkets throughout South Australia through targeted point-of-sale materials.

It was agreed that to have maximum penetration the point-of-sale materials needed to be tested in Drakes stores during three separate periods: Christmas, Easter and the winter.

<u>Development of Point of Sale Material and Activities</u>

Information Pamphlet and Recipe Cards

The project team, with the assistance of the Hilton Hotel, Adelaide and Momentum Designs developed a glossy booklet (Figure 2) that:

- Described the Spencer Gulf and West Coast Prawn Fisherman's Association and highlighted the fishery's environmental and social stewardship – incorporating the Marine Stewardship Council Accreditation (MSC) logo
- Highlighted catching and storing methods
- Highlighted freezing, thawing and preparation methods
- Provided consumers with four recipe ideas using prawns.

Figure 2 Front and back pages from the information booklet: 4,000 of these were distributed prior to Christmas 2011

Decal

The project team also designed decals (Figure 3) and posters that would sit on the delicatessen cabinets in Drakes supermarkets. Their design was to be consistent with the information booklet, using the ‘Spencer Gulf King’ logo and a message that read ‘Superior Taste, Healthy Choice Sustainable Prawns’ ‘Internationally recognised & certified as meeting ecologically sustainable criteria’.

Figure 3 The decal that was distributed and displayed at Drakes stores prior to Christmas 2011

In-store tastings

Further to the distribution of point- of- sale materials throughout Drakes supermarkets, it was agreed that a period of in-store cooking demonstrations and subsequent tastings would also be coordinated by the project team. Product for the tastings would be supplied by the project partners and Drakes would make their promotional staff available to facilitate the activity.

Marine Stewardship Council (MSC) logo

As SGWCPFA had just received MSC accreditation, the association was keen to understand whether the customer knew of and/or recognised the MSC logo present on the information booklets and posters.

Christmas Activity Implementation

Prior to Christmas 2011, 4,000 copies of the information booklet were printed and distributed to the 41 Drakes stores throughout South Australia. As well as the information booklet, the stores also received a decal (that could be attached to the delicatessen cabinet) with a message about SGWCPFA prawns and posters to be hung in-store.

The concept was to draw people's attention to the delicatessen cabinet with the posters and decal and then to make the booklets available to those browsing the delicatessen cabinet to promote the purchase of SGWCPFA prawns. The booklet would also be offered to those already purchasing prawns to promote repeat sales.

Easter Activity Implementation

Prior to Easter 2012, a further 2,000 copies of the information booklet were printed and distributed to the 41 Drakes stores throughout South Australia. As well as the information booklet, the stores also received another decal and more posters.

The concept and execution of the activity was similar to that of the pre-Christmas activity.

Winter Activity Implementation

New winter recipes were developed and replaced those previously described in the information booklet.

The winter activity took the form of in-store tasting sessions in three key Drakes stores in South Australia. Three, 3-4 hours sessions were conducted in each store throughout a week in July where consumers could taste value-added product and pick up an information booklet and new winter recipe cards.

The aim was to draw the customers' attention to the purchase of prawns by having them taste the product as they were conducting their regular shopping activities in the supermarket. Once the customer was engaged at the tasting station, a copy of the information booklet and new recipe cards were offered to them.

3.1.3. Evaluation of Selected Strategies

<u>Christmas Activity Evaluation</u>

The evaluation and results of the Christmas activity were taken in two forms: discussion regarding sales figures for the period with the head of delicatessen management in Drakes and the General Manager of Aussea, and a survey of the delicatessen manager in each of the Drakes stores. The deli manager survey was designed to evaluate their understanding of the impact of point-of- sale materials for SGWCPFA prawns.

The survey is shown in Appendix 8 of this report.

Distribution of point-of-sale materials and sales figures

Following the display of posters and decals, and distribution of the information booklets, Aussea and Drakes reported strong sales figures and these were up on pre-Christmas figures from the previous year and with only a slight increase in average price. It should be noted that this increase could be attributed to a number of key factors but one of which was believed by Drakes and Aussea staff to be the point-of-sale campaign.

Delicatessen manager's survey results

The response rate of the survey was 44%, with 18 out of 41 delicatessen managers completing the survey. 100% of those responding were females who had worked for Drakes in the position of delicatessen manager for a period ranging from between six months and 14 years.

The delicatessen managers rated each of the three point-of-sale materials and the results were as follows:

Table 2 Rating each of the Point-of-sale materials

	Frequency of response										
	Mean	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Information pamphlets/recipe cards	7.50	4		6	4	1	2		1		
Decal/sticker	7.50	2	1	8	4	2				1	
MSC logo	6.38			2	4		1			1	

(Rating: 1 = Poor to 10 = Excellent)
Source: University of the Sunshine Coast

As well as rating each of the point-of-sale materials the respondents were asked to provide comment on them. The comments received were as follows:

Table 3 Commentary on the point-of-sale materials

	Positive comments	**Suggested improvements**
Information pamphlet/recipe cards	• Good to be able to give customer more info about where the prawns were caught • Very helpful and full of great information • Need to have more of them. Helped sell the prawns • Handed out as much as possible • Most customers picked them up and took them	• Recipe cards are great – just don't make the ingredients too expensive • More recipes in the books • Recipe cards could have been bigger • The books should be bigger and with more recipes in them • Would've liked a stand to put them on

	• Recipe cards are always a good idea	
Decal/sticker	• Easy to move and apply • People were reading this – it was a good selling point • Good vibrant pictures on the stickers and kept simple • Gets customers' attention and interest • We have sold more since having the sticker up	• Quite large – it could've been smaller
MSC logo	• Clear and simple • We have sold more since having the MSC logo up	• Not really effective

The delicatessen managers were asked to rate the overall impact of the point-of-sale materials. The results were as follows:

Table 4 Overall impact of point-of-sale materials

	Frequency of response					
	Mean	**5**	**4**	**3**	**2**	**1**
Impact on attitude to SGWCPFA prawns	4.06	7	6	4	1	
Impact of point-of-sale on customers	4.06	6	7	5		
Impact on knowledge of SGWCPFA prawns	3.94	6	6	5	1	
Impact of point-of-sale on delicatessen staff	3.39	3	5	6	4	

(Rating: 1 = No impact to 5 = Significant impact)

The final question in the survey asked respondents to provide recommendations to improve the promotion of SGWCPFA prawns. The results were as follows:

- 4 respondents recommended no improvements
- 4 recommended improvements in line with demonstrations and tastings
- 4 recommended improvements through marketing and advertising
- 3 recommended improvements through better signage and packaging
- 2 recommended improvements through more or better quality recipe cards.

Easter Activity Evaluation

The evaluation and results of the Easter activity were taken in two forms: discussion regarding sales figures for the period with the head of delicatessen management in Drakes and the General Manager of Aussea; and a survey of customers in selected Drakes stores (Consumer Survey Instrument see Appendix 9). The customer survey was designed to evaluate the impact of point-of-sale materials for SGWCPFA prawns.

Distribution of point-of-sale materials and sales figures

Aussea and Drakes reported strong sales figures, up on pre-Easter figures from the previous year and with a slight increase in average price. It should be noted that this increase could be attributed to a number of key factors but one of which was believed by Drakes and Aussea staff to be the point-of-sale campaign.

Customer survey results

A total of 17 customers, who had just purchased SGWCPFA prawns, undertook the survey in-store. It should be noted that this is a very small sample size and that they were taken from only four stores out of a total of 41 (Hallett Cove = 5; Fulham Gardens = 5; Semaphore = 5; and Torrensville = 2) so results should be interpreted with caution.. Of the 17 respondents, 11 were female and 6 were male. The respondents ranged in age between 27 and 62 years.

Customers were asked the frequency with which they purchased prawns at Drakes. The results were as follows:

Table 5 Frequency of prawn purchases at Drakes

	Once/fortnight (%)	**Once/month (%)**	**Once every 2-6 months (%)**	**Less than once every 6 months (%)**
Purchase of prawns	5 (29.4)	6 (35.3)	3 (17.6)	3 (17.6)
Purchase of SGWCPFA prawns	3 (17.6)	4 (23.5)	5 (29.4)	5 (29.4)

It should be noted that customers do not always choose SGWCPFA prawns when purchasing prawns, however it did appear that those purchasing less frequently i.e. for special occasions, seem more likely to buy SGWCPFA prawns.

The customers rated each of the three point-of-sale materials and the results were as follows:

Table 6 Customers overall rating of the point-of-sale materials

	Frequency of response										
	Mean	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Information pamphlets / recipe cards	8.18	1	6	7	2		1				
Decal / sticker	6.06			1	3	9	4				
MSC logo	5.67				1		2				

(Rating: 1 = Poor to 10 = Excellent)

The customers were asked the likelihood that the point-of-sale materials will increase frequency of future prawn purchases. The results were as follows:

Table 7 Likelihood that the point-of-sale materials will increase frequency of future prawn purchases

	Frequency of response				
	Mean	**4**	**3**	**2**	**1**
Information pamphlets / recipe cards	3.76	13	4		
Decal / sticker	2.41		8	8	1
MSC logo	2.33		1	2	

(Rating: 1 = Highly unlikely to 4 = Highly likely)

The final question in the survey asked respondents to list reasons for increasing the number of purchase occasions of West Coast and Spencer Gulf Prawns and this could include the point-of-sale materials. The results were as follows:

- 4 respondents gave reasons in line with the availability of recipes and cooking information
- 3 gave reasons in line with more special occasions
- 2 gave reasons in line with influence of the information pamphlet
- 1 gave reasons in line with each of the following: price, source and sustainability

Winter Activity Evaluation

The evaluation and results of the winter activity were taken in two forms: discussion regarding sales figures for the period with the head of delicatessen management in Drakes and the General Manager of Aussea; and a survey of customers in selected Drakes stores. The customer survey was the same as used in the Easter evaluation.

Distribution of point-of-sale materials and sales figures

Drakes and Aussea provided sales figures for the period that the point-of-sale and tastings activities were undertaken through the Drakes stores. In the period 1 January to 1 August 2012 the sales of SGWCPFA prawns (whole prawns) through Drakes supermarkets increased by close to 60% compared with the same period for 2011. It should also be noted that in the same period in 2012, Drakes began offering value added product and if the value added product is added to the sales figures the percentage increase from 2011 is closer to 90%.

Customer survey results

To improve understanding of consumer reaction to the activities a total of 190 customers were surveyed at Drakes supermarkets, in line with the in-store tastings. Seventy four (39%) customers were surveyed at the Newton store; 59 (31%) at the Golden Grove store; and 57 (30%) at the Fulham store. Of the 190 respondents, 72% were female and 28% male.

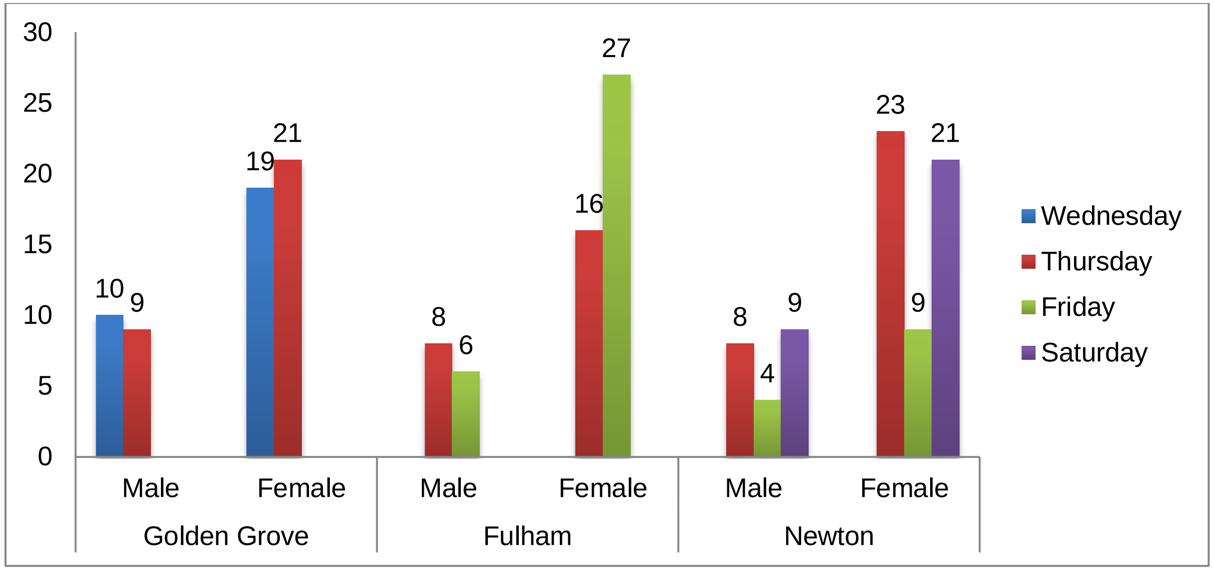


Figure 4 Frequency of store, day and gender

Customers were asked the frequency with which they purchased prawns in general, purchased SGWCPFA prawns and purchased prawns at Drakes. The results were as follows:

Table 8 Frequency of prawn purchases

	Frequency of purchase / (n)							
	Once/week (%)	**Once/fortnight (%)**	**Once/Month (%)**	**Once / 2-6 months (%)**	**Less than once / 6 months (%)**	**Once a year (%)**	**Never (%)**	**Not sure type of prawn**
Prawns in general (n=190)	2 (1)	43 (22.6)	65 (34.2)	41 (21.1)	13 (6.8)	17 (9)	10 (5.3)	0 (0)
SGWCPFA prawns (n=190)	1 (0.5)	11(5.8)	37 (19.5)	38 (20)	24 (12.6)	13 (6.8)	56 (29.5)	10 (5.3)
Prawns at Drakes (n=94)	1 (1.1)	9 (9.6)	14 (14.9)	15 (16)	6 (6.3)	9 (9.6)	39 (41.4)	1 (1.1)

Source: Curtin University

It is evident in Table 8, which shows purchasing frequency of prawns except SG praens and SG prawns only. It seems that customers do not always chose SGWCPFA prawns when purchasing prawns, however those purchasing less frequently i.e. for special occasions, seem more likely to buy these prawns. This is displayed again in Figure 5 below:

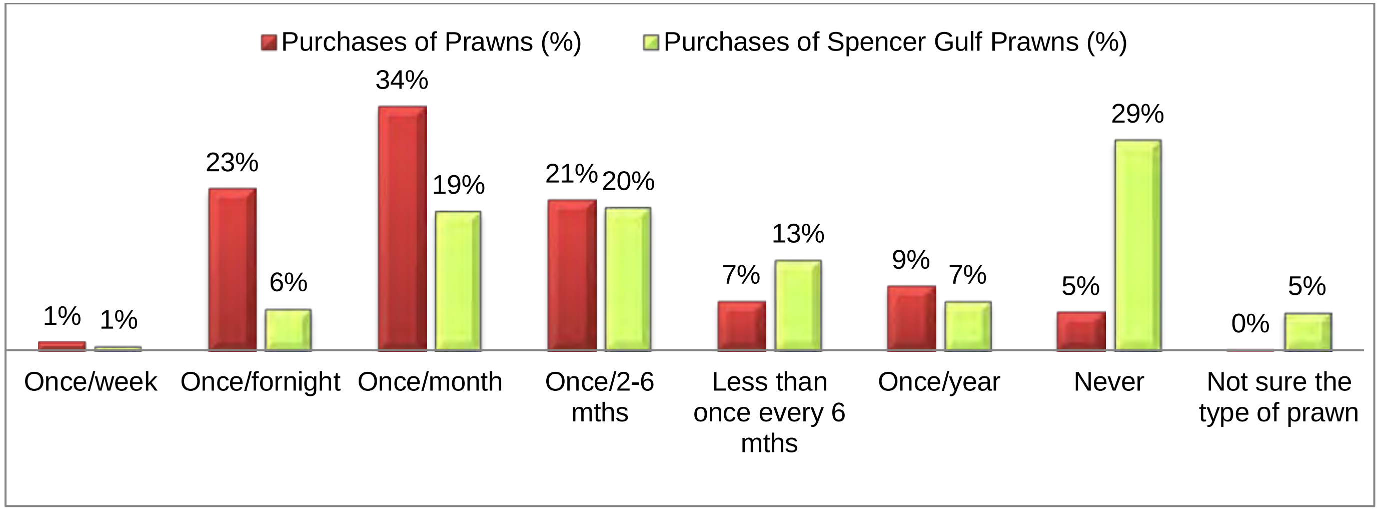


Figure 5 Frequency of prawn purchases at Drakes

As with the Easter survey, customers rated each of the three point-of-sale materials and the results were as follows:

Table 9 Customers overall rating of the point-of-sale materials

	Frequency of response				
	Mean	**4**	**3**	**2**	**1**
Information pamphlets/recipe cards	2.5	19	97	32	41
Tastings	3.5	106	76	5	3
MSC logo	1.5	2	37	48	73

(Rating: 1 = Poor or N/A to 4 = Very good)

The customers were asked the likelihood that the point-of-sale materials will increase frequency of future prawn purchases. The results were as follows:

Table 10 Likelihood that the point-of-sale materials will increase frequency of future prawn purchases

	Frequency of response				
	Mean	**4**	**3**	**2**	**1**
Information pamphlets / recipe cards	2.2	9	76	45	60
Tastings	2.9	66	67	20	37
MSC logo	1.8	2	26	65	67

(Rating: 1 = Highly unlikely to 4 = Highly likely)

The final question in the survey asked respondents to list reasons for increasing the number of purchase occasions of SGWCPFA Prawns which could include the point-of-sale materials. However, this time respondents were also asked the reasons why they would buy these prawns more often. The results were as follows:

- 40 respondents gave reasons in line with price (i.e. a reduction in price) as to what would make them purchase more often
- 34 respondents gave reasons in line with origin (i.e. knowing they were Australian / South Australian)
- 10 respondents gave reasons in line with sustainability and environmental stewardship.

The results of the reasons why respondents wouldn't increase their purchase occasions of West Coast and Spencer Gulf Prawns were:

- 40 respondents gave reasons in line with only purchasing prawns/seafood from a fishmonger rather than a supermarket
- 13 respondents gave reasons in line with only purchasing frozen and imported product
- 9 respondents gave reasons in line with price (i.e. they were too expensive)

Stakeholder Evaluation

Evaluation surveys were completed with seven key stakeholders in the SGWCPFA value chain. The respondents included four fishers, the executive officer for SGWCPFA, the predominant wholesaler and the supermarket manager with overall responsibility for all delicatessen activity in the supermarket chain.

Table 11 summarises the responses in regard to overall satisfaction of the project including the least and most useful aspects of the project and organisational changes (and outcomes) the project instigated.

Table 11: Results of Spencer Gulf evaluation

Role in chain	Overall satisfaction	Most useful aspect	Least useful	Changes within organisation	Result of project
Fisher (F1)	6			no	
Fisher (F2)(sales management)	5	Retail awareness	Boats do a good job	no	Improved profitability
Fisher (F3)(skipper. Management committee member)	8	Understanding the lack of knowledge of handling frozen goods in supermarkets	n/a	no	Improved relationships (IR)
Fisher (F4) (skipper. Management committee member)	8	What consumers want		Yes, asking buyers to pick up brochures and recipes and bunting	Improved sales volume (ISV)
E/O of SGWCPFA	8	Clarity in most effective point-of-sale given available resources. The mapping of the value chain		Yes, developed a promotional policy to guide future investment based on key factors including lessons learnt from this project and past activities	
Wholesaler (W) (supplier to the retailer)	8	Gaining a greater understanding of the retailers' perspective and operation and the ability to test ideas and concepts with a willing partner	Time commitm ent	Yes, we have looked at new product packaging more suited to the consumer and continue to develop new POS material	ISV, IR
Supermarket Rep (S) Drakes supermarkets fresh foods)	8	A better overall view of the supply chain, new point-of-sale material for customers	All relevant	Yes, more frequent promotions throughout the whole year, emphasis on local and sustainable harvest. Educating all staff giving them better information to pass onto customers.	ISV, IR

(Rating: 1 = Least satisfied to 10 = Most satisfied)

The respondents were also asked to rank the value of the various different activities undertaken during the value chain project and the results are summarised below.

Table 12 Ranking of value chain project activities

	Not aware of aspect	Slightly useful	Useful	Very useful	Extremely useful
Outcomes Value Chain Study and supply chain map			4*	3	
Consolidation of existing research and consumer survey to fill gaps			4	3	
Identification of improvement projects			5	1	
Development of and access to promotional material (posters/decal/brochure/recipe cards)			2	2	3
Christmas promotional activities in Drakes (poster, decal, brochure/recipe cards)			2	2	3
Easter promotional activities in Drakes (poster, decal, brochure/recipe cards)			2	4	1
Winter promotional activities in Drakes (in-store tastings)			2	4	1

*Numbers are responses for each category

Generally it can be said that whilst all respondents valued the activities highly, the down chain stakeholders (wholesaler, supermarket representative) gave the highest values.

3.1.4. Extension and Reporting

Results were presented at SGWCPFA management committee meetings over the course of the project and three meetings to summarise the results were also held with Drakes supermarket staff.

A draft peer reviewed journal article has been prepared on the results of the project particularly the implementation and evaluation stages. The article is titled Closing the loop with a VCA: Identifying, Implementing and Evaluating improvement projects in an Australian Prawn Fishery(see Appendix 10).

A research and networking event was held in Adelaide on the 11 November 2014 and attended by >60 prawn supply chain members. Results from the SGWCPFA section of this project were presented and developed resources distributed at that meeting. The South Australian Minister for Fisheries, Hon. Leon Bignell, presented at the event (see Figure 6) and also launched a new video developed to showcase the fishery.

Figure 6: Minster Bignell speaking at the Adelaide research and networking event, 11 November 2014.

3.2. Shark Bay Prawn Trawler Operators' Association chain

3.2.1. Commitment to Participate

Two preliminary meetings and a site visit were held in 2010 with Professor Hamish Gow, Massey University, and the Shark Bay Prawn Trawler Operators' Association (SBPTOA). All members committed to supporting the research project and preliminary information gather about the product flow and other general information was commenced.

3.2.2. Understanding the Value Chain

<u>Consumer Surveys</u>

An on line consumer survey was conducted (n = 900 consumers). Statistical evaluation of the data from the consumer survey was completed, with a final PowerPoint summary of the results developed (see Appendix 11). The information from this survey and previous CRC consumer surveys was used in the strategy development workshop with SGPTOA to develop the repositioning/supply chain innovation strategies. It is noteworthy that the results of this survey were also used as background information for the National Prawn Market Development Strategy (2011/736).

It was of particular note that, in the consumer survey only a fifth of respondents (19%) had heard of Shark Bay prawns. Of these 171 people, half thought that the following selling points were important:

- Approved for fishing in World Heritage Area
- No 1 exported King prawn
- Fully sustainable and regulated since 1962
- Largest prawn fishery in WA
- Fixed season closures
- Small number of licenses granted
- Bycatch reduction devices on all vessels.

Based on the survey results, consumers appear more aware of species than brands although they sometimes mention the supplier name instead of the brand and show a high interest in differentiating between Australian and imported product.

During the evaluation consumers were categorised into the following groups

- Health concern group: those respondents who showed an interest in finding out nutritional and quality aspects of the product
- Food quality group: those who stated that the taste of defrosted prawns is as good as prawns that have never been frozen and are worried about quality of fresh product. This group have a preference for prawns snap frozen at sea.
- Food related lifestyle/Prawn experts group: those who say that they can select, store and prepare prawns properly as well as differentiate between species
- Recipe seeker group: those who would increase purchase and try food if there would have more recipes or cooking demonstrations offered
- Status conscious group: those who believe that their choice of food gives them a certain image, ie they agreed strongly with the statement 'Eating prawns is an important part of my lifestyle'.

The different groups may respond to different marketing/promotional activities.

<u>Chef Surveys</u>

Surveys were completed with 50 chefs in Perth and Sydney in relation to the Shark Bay prawn product (see Appendix 12 for PowerPoint summary of Perth and Appendix 13 for summary of Sydney chef results).

Most of the participants were head chefs (62%), other positions included a mix of owners and managers. Most of the participants have restaurant businesses and a smaller number were associated with catering companies.

Perth results

The results from the Perth survey showed that the majority of chefs purchase seafood products from wholesalers while only a minor quantity of product is purchased directly from the producer. Therefore it is key that producers work closely and maintain close relationships with wholesalers.

The top 4 purchase factors were consistency of quality, confidence in origin, relationship with supplier and consistency of supply.

In terms of the most relevant sources of information, suppliers appear to the most used source, followed by word of mouth, food magazines, websites and then cook books.

When asked about Shark Bay prawns specifically 37% said they were currently using Shark Bay product in their premises. Positives about the product were local, fresh, good quality, firm texture, sustainable, good flavour. Negatives were inconsistent supply/availability, sand in tract, sometimes mushy flesh, getting them fresh, sometimes processed off-shore (double freezing). More information was requested on history, availability and where caught/how caught/how treated after catching/how processed. The preferred form (43%) was whole and raw and the preferred packaging 2kg cartons.

Sydney results

In Sydney, chefs buy the majority of their seafood product from wholesalers, with some purchases made directly from producer and only a very small fraction purchased at auction.

The most important factor that influences chefs in their purchase is the consistency of supply. This is followed by country of origin, confidence in origin of seafood product, consistent quality supply and relationship with supplier.

Chefs were also asked to rank in order their most important source of information. The results indicate that producer events are the most important source of information, followed by suppliers, word of mouth, cook books and food magazines.

Shark Bay king prawns were not currently included on the menus of any of the Sydney chefs interviewed. A small number of chefs said that they had used Shark Bay tiger prawns but they noted that the quality can be inconsistent, and that they are hard to get all year around.

In terms of improvements that the Shark Bay prawn suppliers could make, chefs would like there to be: a better and consistent price and supply: more demand created by informing the public about the product: information about sustainability; provision of a product history (harvest, processing details); and send samples.

The preferred product form is whole and raw prawns (43% respondents) in a 2 kg carton package.

Supply Chain Stakeholder Interviews

Thirty five interviews were completed with retailers, wholesalers, processors supermarkets and retailers about the Shark Bay products. This information has been compiled into a powerpoint presentation noting issues and opportunities and suggested strategies (see Appendix 14).

The most important factors to consider are price, consistency of quality and supply. Many of those interviewed believe that there is a need for more marketing but several cautioned that product branding will not necessarily increase market demand. It was felt that any marketing should focus on the WA wild harvest product to clearly differentiate it from other products in the market, including the aquaculture product. To this end, some options mentioned were to undertake sensory studies, report on good fisheries practices, quality parameters etc as these could be used in a logo, key message, branding, etc.

There were a few issues/areas of concern mentioned. One was that there is sometimes poor communication among supply chain partners and another is sustainability. A lack of understanding of the differences between prawn species, in particular recognition of Shark Bay prawns is also an issue and the supply chain stakeholders interviewed suggested some strategies to overcome this such as using chefs to show how to cook the product, use flyers and educational consumer campaign.

3.2.3. Secondary Participatory Consultation and Development of Agreed Strategies

The Shark Bay strategy development workshop was held on 8 to 11 July 2011. It was facilitated by Professor Tiffany White, University of Chicago (see Figure 7) and Professor Meredith Lawley, University of Sunshine Coast.

The outcomes of the workshop which included a defined strategy agreed by the participants were circulated to the SBPTOA members and are attached (see Appendix 15).

Figure 7: Professor Tiffany White facilitates the SBPTOA strategy development workshop.

In brief, the agreed strategy was to be based around a collaborative Shark Bay branding of U16-20 ’premium‘ king prawns into high end retail outlets such as speciality stores and fish mongers at a premium price. The SBPTOA agreed to co-invest in this strategy and planning meetings were conducted to look at packaging, messaging, promotional materials, product quality parameters and pilot distribution channels.

The group also agreed to investigate a similar Shark Bay seafood promotional campaign which had been undertaken with Eyre Peninsula seafood.

The SBPTOA also made a decision to set up a dedicated office in Fremantle as a base for operations including the implementation of the selected strategy.

3.2.4. Implementation of Selected Strategies

Following further discussion, SBPTOA agreed to commit $1,000 for each of their trawlers - a total of $18,000,- to the strategy implementation. They also decided to undertake the development of a new brand/logo along with instigating targeted photography and recipe development to support the brand.

Tenders to complete the work were developed and despatched and the successful tenderer provided a summary and scoping material. The stated aim of the brand strategy was “to gain a deeper understanding of the essence of what our seafood brand stands for: providing clean, healthy products from an unspoiled environment - products with provenance and quality that we're all proud to be associated with”. Implementation was to include design and production of brochure promoting the area’s unique qualities and point of difference from the region’s competitors. Also to develop a unified package design with the group and an accompanying design guide.

The “Shark Bay Wild” strategy was launched in 2013 along with some promotional material (se Appendix 16). The following key outcomes have been taken from the SBPTOA newsletter (June 2013) summarising the progress of the strategy implementation.

1 SHARK BAY WILD – the BRAND

- *Registered Shark Bay Wild and Shark Bay Wild Harvest Business Names with ASIC.*
- *Commenced process to secure Shark Bay Wild and Shark Bay Wild Harvest as a registered Trade Mark - commissioned Elliptic Legal and Patent Services (patent and Trade Marks Attorneys) to facilitate registration.*
-

2 BRANDING DESIGN AND DEVELOPEMNT

- *After calling for three submissions, commissioned the professional services of Leon Bird Photography.*
- *Leon Bird designed and created the Shark Bay Wild Logo and also put forward a concept on the style that would best represent our brand.*
- *Leon Bird site visit to Carnarvon to photograph the ‘environment’ and culture.*
- *Leon Bird subsequently undertook a further five photo shoots for Shark Bay Wild -*
- *Shark Bay Wild’s first Brochure produced using photos from our developing library.*

3 EVENTS

The following functions/events have occurred featuring Shark Bay Wild:

- *27 September 2012 – The Tastes of Shark Bay Wild (soft launch) with Minister Norman Moore MLC and Hon Ken Baston MLC, now Minister for Agriculture and Food.*
- *6 October 2012 – Telethon Dinner at Cable Beach Broome hosted by Rob Broadfield and Neil Perry.*
- *8 November 2012 –Featured in the Fresh Section, The West Australian.*
- *1 December 2012 - co- sponsored WA National Party High Flyers’ Luncheon with Hon Brendan Grylls MLA.*
- *5 December 2012 - Shark Bay Wild featured on Paul Murray’s 6PR radio program.*
- *12 December 2012 - Premier’s Media Christmas Party, where Deputy Premier Kim Hames cooked and promoted Shark Bay Wild prawns with Don Hancey.*
- *14 December 2012 - Shark Bay Wild (coral prawns) featured on Paul Murray’s 6PR radio program.*
- *23 March 2013 – Shark Bay Wild featured at Deputy Premier’s Birthday Party.*
- *1 May 2013 - co-sponsored ‘Yes Cambodia’ Charity Cocktail Party.*
- *13 May 2013- co-sponsored launch of the Don Hancey Signature Program.*
- *14 May 2013 – Sponsored Australia-Japan Society Welcome Autumn Party.*

- *16 May 2013 – Shark Bay Wild participated at the Fine Food and Wine Expo in Noosa, Queensland featuring release of the first Shark Bay Wild Brochure and its unique service desk.*
- *24 May 2013 - Shark Bay Wild co-sponsored Ord Valley Muster. (Photo of Shark Bay Wild 'Prawn Mountain' featured in The West Australian 25 May 2013.)*
- *2-3 June 2013 – Product tastings at the Avon Valley Food and Wine Festival (4 sessions with Don Hancey).*
- *3 June 2013 – Sponsored Shark Bay Wild RecFish West Family Fishing Fun Day (product tastings).*

The following next steps were summarised in the newsletter.

- *Explore quality assurance program for Shark Bay Wild.*
- *Update Shark Bay Wild website.*
- *Develop new brochure incorporating mixed species and producers.*
- *Develop a "Signage Manual" that will commit all producers as to where and how the Shark Bay Wild logo may be used in packaging and documentation.*
- *Continue to strengthen linkages with Don Hancey and Peter Manifis as the Ambassadors for Shark Bay Wild.*
- *Focus on the Restaurant and Retail Market and exclusive naming rights to Shark Bay Wild.*

3.2.5. Evaluation of Selected Strategies

A survey was undertaken with SBPTOA members in late 2013 to evaluate the project to date and the progress of implementing the agreed strategy. All nine members of the association participated.

The results of the survey are described below.

The participants rated their overall satisfaction with the project to date using '1' as 'Not at all satisfied' and '10' as 'very satisfied'. . All participants rated their overall satisfaction above average, giving a mean of 7.3.

Table 13 Results of SBPTOA member survey

Rating	No. Responses
6	2
7	3
8	3
9	1
Mean = 7.3	

(Rating: 1 = Not at all satisfied to 10 = Very satisfied)

The aspects of the project overall that the participants had found most useful are listed below:

- A professional and well thought out approach
- Increased awareness of Shark Bay Prawns (3 responses)

- Coming together of all companies (5 responses)
    - Under a parent/common brand
    - For a common objective/ marketing strategy.

When asked what was least useful about the project overall, five participants made comments. Four of the participants stated that there had been timing issues and made the following specific points:

- Time to implement a project like this
    - To complete
    - To get to the current stage
- Lack of timely responses from the operators on issues that require resolution moving forward

Participants rated how useful the outcomes of each specific activity of the project had been. The results are shown in Table 14 below.

Table 14 : Assessment of Different SBPTOA Project Activities

Specific aspect	**No. Responses (n = 9)**					
	Not aware of aspect	**Aspect slightly useful**	**Aspect useful**	**Aspect very useful**	**Aspect extremely useful**	**Did not respond**
Initial meeting with Prof Hamish Gow	2	2	2	2	-	1
Results of value chain members interviews	-	2	3	3	1	
Results of consumer survey	-	1	3	3	1	1
Results of interviews with chefs about Shark Bay prawns	-	1	2	4	2	
Workshop with Profs White and Lawley	1	1	1	4	2	
Chef event at Don Hancey's Kitchen	-	-	1	6	2	
Shark Bay Wild soft launch with Hon. Norman Moore	-	-	2	4	3	
Development of marketing plan and materials	-	-	3	4	2	

The Chef event at Don Hancey's kitchen and the Shark Bay Wild soft launch with the then WA Minister for Fisheries Norman Moore were rated the most useful aspects of the project thus far.

Four participants have made changes within their organisation as a result of the project. The changes which were made to the organisations they belong to were:

- Integrating Shark Bay Wild brand with our company specific Nor-west Seafoods/marking program.
- Commenced advertising and promoting Shark Bay Wild Prawns in the local market and creating a point of difference to promote our wild caught product
- Display and distribution of the Shark Bay Wild brochure at our office in Fremantle. Distribution of Shark Bay Wild brochure to some wholesale clients.

The four participants who had made changes within their organisations were asked what outcomes they had achieved as a result of the project (they were asked to choose from a list and could select multiple reasons).

The outcomes noted were as follows: :

- Improved relationships with other value chain members (4 responses)
- Improved sales volume (1 response)
- Increased awareness of Shark Bay wild-caught prawns (1 response)

Those participants who had not instigated changes within their organisations stated the following as reasons:

- Too early in the project (2 responses)
  - Won't make changes until more than half way through
- Lack of time (2 responses)

The participants were also asked about project progress communication, with responses being 7 from email from executive officer, 5 from management committee meeting and 2 direct from the researchers. When asked how they would prefer to find out about the project 6 said they would prefer email from executive office and 5 from management committee meetings.

In terms of participants' overall satisfaction with the project process (Rating: 1 = Not at all satisfied to 10 = Very satisfied), all participants rated the process as 'Satisfactory' (score of 5) or better. Specific results were Rating 5: 2 responses, 6: 2 responses, 7 and 8: 1 response, 9: 2 responses and 10: 1 response. The mean result was 7.2.

Comments from the participants regarding their satisfaction with the project overall included:

- Janet Howieson has an excellent understanding of what we are trying to achieve for SBPTOA.
- The project is very exciting and has fantastic potential to raise the profile and hopefully the market price of all Shark Bay products

- Looking forward to Shark Bay Wild!! And the Shark Bay products. Getting exposure and discussion in the market.
- I think we have not been able to fully support the project. However our involvement will increase with future engagements
- Process could be improved with more show of commitment from members both physically and financially
- Fast forward the whole process if at all possible

3.2.6. Reporting and Extension

The progress of the project, consumer and chef surveys and other results including the results of the SBPTOA member surveys were presented at six Shark Bay management committee meetings over the course of the project.

A research and networking event was held on the 15 September 2014 in Perth and the results were presented and resources distributed at this meeting. The WA Minister for Fisheries (Hon. Ken Baston) presented at the event (see Figure 8).

Figure 8 The Hon Ken Baston, Minister for Fisheries presents at the Perth Research and Networking event, September 15 2014.

Figure 9: Chefs Don Hancey and Pete Manifis and SBPTOA EO Phil Bruce at the Perth prawn research and networking event

An article in the September 2014 edition of Scoop magazine highlighted the Shark Bay Wild initiative and an advertisement featuring the new branding appeared in the magazine, with a reference to the website. Website hits increased after the advertisement with hits as following July: 140 (hits), Aug:139, Sept: 128, Oct: 145, Nov:277, Dec:395, Jan:260. Data collection is continuing.

The future planning for Shark Bay Wild is to develop a signature 3kg carton containing premium product and all suppliers named.

3.3. Clarence River Fishermens Co-operative

3.3.1. Commitment to Participate

David Anderson, Chair of the Clarence River Fishermens Co-Operative (CRFC) also attended the second Shark Bay meeting and site visit in July 2010 and reported the project background and methodology back to the CRFC Board. A preliminary meeting with the CRFC Board and commitment to take part in the project occurred in October 2010.

3.3.2. Understanding the Value Chain

<u>Chef Surveys</u>

Sydney chefs were interviewed about the CRFC prawn products and a summary of the results are available in Appendix 17.

CRFC school prawns were not on the menus developed by any of the chefs interviewed at the time of the survey but the perception of CRFC school prawns were: as a product with consistent excellent quality; good size; from clean waters; local; good quality, with a delicious taste, and a recognised brand. Further comments were that Clarence River prawns are sweet, good to Spanish fry and eat whole, freeze well, go well with beer. Some of the chefs noted a few problems such as: the inconsistency with size grading; distance from the fishing area to the city markets; labour intensive due to small size; inconsistent availability: not fresh; and not known by region.

The reasons given by the chefs for not having CRFC school prawns on the menu were that they were too small, the source is unreliable and there is no demand for the product. Half of the chefs interviewed said that they preferred a specific region or source for the prawns and they mentioned Clarence River and Hawkesbury as local regions.

The Sydney chefs interviewed suggested CRFC prawn suppliers/producers make some changes such as: improve their communication, supply product samples and product preparation information, provide information on availability, offer fresh consistent supply and price, provide consistent size grading, and consistent quality. Other suggestions included giving information on the history of the product, regional origin, sustainability and fisheries management. Chefs generally agreed that further information would influence purchasing

Two thirds of the Chefs prefer Clarence River prawns whole and raw packed in polyethylene box with size U150-U180 and a weight of 1 kg. The preferred form for the prawn (when stated) was either whole and raw (17%) or whole and cooked (17%). In terms of packaging the preference is for a carton in units of approximately 5 kg.

Supply Chain Stakeholder Interviews

Stakeholders in the CRFC supply chain were interviewed. An advantage of the product was that the Clarence River prawns are only one day old on arrival at key markets, such as Sydney Fish Market. However, the survey also identified a few issues with the CRFC prawns such as inconsistent grading, packaging, quality and supply, and 'metabisulphite' residues. In addition, in spite of the cheap price, consumers find the product is too small and therefore hard to peel, and one comment was that Clarence River prawns are of a lower quality due to being harvested in warmer water. Communication among supply chain stakeholders is minimal.

Suggested strategies to overcome the issues related to Clarence River prawns might include: an increase in the amount of information on differentiation between prawn species; the standardisation of grading systems: market research into packaging sizes expansion into the Asian market; and investigation of value added products.

3.3.3. Secondary Participatory Consultation and Development of Agreed Strategies

The first strategy development meeting was held at CRFC in June 2011 and the research results were presented. These were well received and as a consequence of the research results, particularly around value-adding, a new CRC project was developed, approved and undertaken. This new project, led by Karen McNaughton SARDI, (CRC 2011/746) was titled 'Value adding to the School Prawn Industry: Clarence River Case study. The final report can be obtained from the Seafood CRC or SARDI.

A further workshop to develop and prioritise repositioning strategies was planned for August 2011. However due to a major changeover in CRFC staff and Board members, this meeting was delayed. Therefore, on 26 October 2011 an information day was held to gain commitment from the new CRFC staff and Board, as well as commence the prawn extraction project (CRC 2011/746.). A later session for CRFC staff, Board members and down chain stakeholders was then scheduled for March 2012.
.
At the subsequent strategy development meeting held on 26 March 2012, several different possible strategies were suggested:

- Work with development and release of new CRFC logo: Benchmark recognition/status of CRFC labelling before release and assess impact after release. Assist with design of packaging/stab tags, etc., for example look at different designs/use of logo for different market segments. Assist with the identification of various distribution channels for trial and evaluation; Woolworths to be one test distribution channels. Develop product for in store tastings.
- Develop material for "Story of the schoolie" and "Romancing the Yamba prawn" including, for example comments/recipes from respected chefs already familiar with CRFC product including Aristos, Mike Whitney and Simon Bryant. Focus on links to national park etc.
- Focus on Asian consumer - different products and recipes. Development of information specific for this market
- Liaise with Master Fish Merchants Association (MFMA) for an event at Sydney Fish Market to showcase CRFC and products, recipe cards opportunity
- Website upgrade (lowest priority)

The workshop participants identified as the next steps in order:
- CRFC to formally commit to next stage of project
- Prof Lawley to visit CRFC and work with key staff to develop activities, protocols, time lines, evaluation etc for strategy
- CRFC to itemise budget expenditure thus far on logo development to enable calculation of in kind commitment.

3.3.4. Implementation of Selected Strategies

After considerable follow up communication from the research team, the CRFC strategy was not implemented due to a lack of cash and in kind commitment from CRFC. All strategy development material and research results were supplied to CRFC for future reference.

3.4. Moreton Bay Seafood Industry Association (MBSIA) chain

It is noteworthy that many of the project activities with the Moreton Bay Seafood Industry Association (MBSIA) were aligned with and undertaken in conjunction with two other research activities:

Seafood CRC 2010/777: Project leader Dr Vikki Schaffer. 'Identification of the core leadership group and network structure of Moreton Bay Trawl to develop, implement and evaluate core strategic opportunities'.

Master of Business by Research thesis: David Byrom 'Optimising markets for Moreton Bay prawns through supply chain management'.

3.4.1. Commitment to Participate

The Moreton Bay Trawl Development Council identified the need for marketing and supply chain research as an outcome of the CRC Harvest Strategy Project 2009/774. This was because, despite lower catches and increased local population, there had been a decline in the per kilo value of the Moreton Bay fresh wild-capture prawn. The MBSIA Board therefore agreed to endorse a research project (as a variation on CRC 2008.793.10) to identify new market opportunities and to undertake market-driven quality and value innovations along the supply chain to improve returns on the domestic market.

The decision for Moreton Bay to be included was driven by a small group of stakeholders from the MBSIA Board. Dr David Sterling, executive officer for the MBSIA was the primary point of contact.

3.4.2. Understanding the Value Chain

Consumer Surveys

As Moreton Bay joined the project later 353 Queensland prawn consumers were surveyed in a separate on-line survey coordinated by Associate Professor Meredith Lawley, University of the Sunshine Coast. The main aims were to understand generally about the current prawn purchasing behaviour (where, why, what) and then to answer specific questions about Moreton Bay prawns (knowledge and awareness, likes and dislikes) and subsequently to identify target markets. A powerpoint summary of the Moreton Bay consumer results is attached as Appendix 18.

In answering general prawn purchasing behaviour, the survey found that the majority of respondents ate prawns in the home (28% eating mostly out of home) and that fresh whole cooked prawns were the most popular. The most important factor in selecting prawns was Australian origin (>50% said very important), whereas being from Queensland or Moreton Bay was less important. It was noteworthy that 13% did not know where the prawns came from. The second most important factor in selecting prawns was fresh, never frozen. The majority of prawns (>60% were purchased from supermarkets). Respondees were asked about their awareness of selected Moreton Bay prawn species: when unaided 25.5% were aware of bay prawns, Moreton Bay 6%, School 6% and Greasy 1%. With aided awareness this increased to 61%, 38% and 3% for bay, school and greasy respectively. Over 20% did not know what prawn species they were purchasing, noting the comparative result in the larger, broader survey was 14%.

82.7% of respondents had heard of the name Moreton Bay prawns , but 37% did not know which species Moreton Bay prawns were, and 9.9% thought that Moreton Bay prawns was a species. Many consumers (48.3%) in fact do not know how often the prawns they bought were Moreton Bay prawns. The key factors in choosing Moreton Bay prawns were flavour/taste (13.2%), local (9.3%), fresh/freshness (8.6%). 43.2% of the responses mentioned tastiness, freshness, being local or a combination of the three. This suggests that these aspects are what consumers like most about Moreton Bay prawns. When asked how Moreton Bay prawns could be improved, 44.2% could not suggest how they could be improved, and a further 10.4% stated they could not be improved. However, making them cheaper (8.1%), improving their availability (6.5%) and advertising better (3.8% were the most frequent suggestions for improvement.

In summary the key findings of the consumer survey were that knowledge and awareness of Moreton Bay prawns was low, that local and fresh were critical purchase requirements and that the empty nesters were the key market to target.

Chef Survey

Following the face to face interviews conducted with 17 Brisbane chefs, it was found that the Moreton Bay school prawn product was not on the menus of any of the restaurants where the interviewed chefs worked.

In terms of positive feedback on the Moreton Bay school prawns, chefs said that they liked the fact that Moreton Bay school prawns are local, are very fresh, consistent in quality, have a great flavour, cook quickly, and provide local employment opportunities.

In terms of some of the negatives mentioned, participants noted that there was inconsistency in supply, there is variation in price, and some quality issues exist, including poor taste, soft shells and issues with size/grade inconsistencies.

As with previous prawn products, chefs would like Moreton Bay suppliers to educate them and provide more information about availability, quality, price, sustainability, seasonality, freshness, and history of the product.

The majority of chefs said that they are willing to pay more for fresh product. The amount they are prepared to pay per kilogram was dependent on the species.

A powerpoint summary of the Moreton Bay prawn chef and consumer results is attached as Appendix 18.

<u>Supply Chain Stakeholders Interviews</u>

The interviews with the supply chain stakeholders were conducted face-to-face by David Byrom, Meredith Lawley and Vikki Schaffer (as part of CRC 2010/777). Greater detail is provided in the David Byrom Masters thesis (Optimising markets for Moreton bay fresh prawns through supply chain management) with key findings summarised below. .

Wholesaler interviews

Brisbane wholesalers provided information about who they buy their product from and quantities. They sell their prawns mainly to other wholesalers and retail but also to a lesser extent to restaurants and supermarkets.

Information regarding fresh versus frozen product was also provided. The wholesalers interviewed stated a preference for frozen product and they noted that supermarkets don’t want fresh product. Other comments related to fresh versus frozen included:

- Moreton Bay boats should change to frozen production
- Consumers have become educated to buy frozen product
- Frozen product provides better quality and it is more manageable.

The wholesalers were asked to comment about what consumers’ value the most when buying prawns and the majority responded that it was quality and price.

Wholesalers generally agreed that there is potential for branding Moreton Bay prawns as they are an excellent product and they suggested branding names such as: ‘Moreton Bay’, ‘Moreton Bay-“local wild caught”’ although one wholesaler did comment that outside Brisbane nobody knows where Moreton Bay is. However, there are some concerns about the grading of the product on the Bay boats.

The wholesalers were asked what they considered to be the marketing opportunities Moreton Bay prawns and answers included expanding into the domestic Asian market, pet food, a freeze product, Australian origin labelling promotion, bait products, whole deep fried small prawns and the fresh market.

The biggest competitor was thought to be imported vannamei prawns.

Wholesalers also commented about the current trends in the prawn business. Comments included: the farmed prawn supply is consistent, good quality and at a set price; the wild capture prawn business is a dying industry; there is an oversupply of prawns worldwide; there are now big sales at Christmas and Easter; people are too lazy to peel prawns; production costs are increasing, overall price is down, and consumers want bigger prawns.

Wholesalers agreed that a quality/measurement standard should be implemented. Comments included: there is a need to improve grading and possibly packing: grading is an important factor: quality standards and specifications are already in place; Scarborough has a grading problem; grading depends on agreement between seller and buyer; and uniformity adds value.

Wholesalers don't currently see market recognition of Moreton Bay prawns. The local marketing can be a good plus factor and should be promoted. Greasys were identified as a particular species problem in Moreton Bay. Wholesalers suggested that these prawns should be marketed as Bay prawns not greasys, as the greasys have the perception of having a short shelf-life and being difficult to handle.

Wholesalers also see seasonality as a problem in terms of the availability of a fresh product as the Moreton Bay prawn main season is from February to August but the market demand is from August to Christmas. The peak for prawns in general is at Christmas and Easter and there is a slight increase for Mother's and Father's days and Chinese New Year and these could potentially be exploited.

Wholesalers were asked to comment on their understanding of consumer/food service/retailers perceptions (quality, supply chain, consistency of supply, etc.) of Moreton Bay prawns. Comments included:

- Consistency of supply: problems at Christmas, the closures in Moreton Bay have affected volume significantly
- Supply chain: retailer link with producer is missing: industry is fragmented and scattered; the product is fresh and needs to be distributed quickly; too many sellers; retailers are buying direct from the boats; trawlers selling direct to restaurants is totally unacceptable; there is no integrity or trust between the supplier and wholesaler
- Quality: use of Metasulphite extensively to compensate poor handling during supply chain.

Wholesalers were asked to suggest ideas and strategies to increase the size/value of the Moreton Bay prawn market:

- Processing: freezing on boat; use proper grading system; improved quality; educate Moreton Bay fishers; consistency of supply

- Marketing: advertising; lower prices; promotions; push the local aspect of the product demonstrations; promote Chinese New Year; Work with selected retailers to promote Moreton Bay prawns at the retail level
- Label: Australian
- Governmental: fuel subsidy.

Retailer interviews

Nine different retailers were interviewed.

The majority of retailers prefer frozen product. They find it easier logistically and say that the quality of the product is good. In addition they commented that the consumer is familiar with frozen prawn and supermarkets don't want fresh product.

Retailers identified the greasy prawns as the problematic species in Moreton Bay. These prawns were thought to be the sweetest prawn to eat but are too fiddly and small, and the size and mix of soft and broken product is not good. One commented that there is no market opportunity for Moreton Bay small prawn, another that it would be better to fish ocean king prawns. Retailers identified imported vannamei as the biggest competitor to local Morton Bay prawns.

The retailers believe that there is potential for branding Moreton Bay prawns and suggested branding them as 'local'. However, they commented that the Moreton Bay location as a place from which prawns are sourced is not known by many consumers so it would be more beneficial to brand the prawns as 'Queensland' prawns. Some suggested brand names were: 'Moreton Bay- 'local wild caught'', 'Local Fresh Moreton Bay prawns', 'Fresh Bay prawns', and 'Moreton Bay prawns'.

Some of the other opportunities and strategies that retailers think could help to increase the market for Moreton Bay prawns include: create a correct marketing, improve seafood industry image, promotion of seafood, improve grading, focus on Asian market and/or whole deep fried small prawns. Retailers would support funding of these strategies.

Current trends suggested by retailers included: more interest in local products: young people being too lazy to peel prawns; preference for bigger prawns; convenience shopping and online sales, fresh and frozen price is the same.

Most of the retailers think that quality measurement standards should be implemented. Another important issue is the improvement of grading.

Retailers were asked about their understanding of consumer perceptions of Moreton Bay prawns. Their responses are grouped and were as follows:

- Supply chain: fishers selling directly off the boat is a problem for retailers who have high fixed costs for premises: the chain has collapsed: now others have come in and are operating outside of rules and regulations: the whole chain has been dysfunctional for so long it will be hard to re-establish: fishers now selling product direct to the public has devalued their own product
- Quality: boats are having to cut costs to survive but that is killing quality; wild-caught trawler prawn is inconsistent in comparison to imported farmed; boats are now operating with only one crew so consistent grading is impossible.

3.4.3. Secondary Participatory Consultation and Development of Agreed Strategies

A strategy development workshop was held with Moreton Bay stakeholders in July 2012. The data presented and the list of suggested improvement projects is shown in Appendix 19.

Following the workshop, a strategy and aligned implementation plan was developed (see Appendix 20). The strategy developed was to align with the existing Moreton Bay Fresh initiative (featuring mullet) but to focus on Moreton Bay Fresh prawns. The implementation plan was divided into three different phases and teams responsible for the work were allocated as well as timelines:

- Phase 1 focused on branding and included activities such as the development of a logo, recipe cards, product information, posters, banners, etc.
- Phase 2 focused on implementation and evaluation and included activities such as confirmation participation with distributors, planning promotional events, etc.
- Phase 3 focused on reporting and evaluation.

3.4.4. Implementation of Selected Strategies

Development of Brand and Branded Material

MBSIA developed a licensing agreement/conditions in order that producers would be able to brand product under the ‘Moreton Bay Fresh’ brand (see Appendix 21). This opportunity was made available to all MBSIA members for minimal charge.

A specific Moreton Bay Fresh Prawn logo was developed and information cards and posters produced. Retailers were also invited to be part of the Moreton Bay Fresh initiative and a draft retailers kit was produced for comment (Appendix 22)

The MBSIA website was expanded to include the branding and more information about the Moreton Bay prawn fishery. A Facebook presence was also developed and this will be reported in more detail as part of 2010/777.

Regional Flavours Festival Stand

In order to better understand consumer knowledge and perceptions of MBSIA products and the aligned 'Moreton Bay Fresh' branding, MBSIA representatives organised a stand at the Regional Flavours Festival in Brisbane in July 2012 as it was anticipated that there would be a high volume of the target local population attending. There was local seafood: Popcorn prawns, and local mullet available for purchase. The money raised from the sale of the local product was intended to fund the next stage of the implementation/strategy development, although this had not occurred at the time of the writing of this report.

Photos of the event and stand can be seen in Figures 10 and 11.

Figure 10: MBSIA representatives at the Regional Flavours stand.

Figure 11: Moreton Bay stand at Regional Flavours Festival, Brisbane

3.4.5. Evaluation of Selected Strategies

Regional Flavours Festival Customer Survey Results

People who visited the Moreton Bay Fresh stand were asked by researchers if they were prepared to answer a few questions about the MBSIA products. Customers who agreed to participate were interviewed, using a specifically designed questionnaire' (see Appendix 23) by researchers working on the project.

A total of 249 consumers participated in the survey. The greatest number of participants were aged between 31-40 years old (25%), followed by those aged between 51-60 years old (20%). In the view of the interviewers this reflected the general demographic of the visitors to the festival.

The vast majority of the participants live in Queensland with only a small number of participants (5%) were visitors to Queensland. Of those from Queensland 85% lived in Brisbane

When participants were asked "Have you heard of "Moreton Bay Seafood Fresh" before 82% had not, ie only 18% knew of the brand.

Those who had definitely heard of Moreton Bay Seafood Fresh (n = 44), where then asked to say (unaided) their sources of information. The most frequently mentioned sources were Website/Internet (18%) and 'media' (18%) which included newspapers, television, radio etc : (see Figure 12 below). Word of mouth and restaurants/shops were both mentioned by just over 10% of participants.

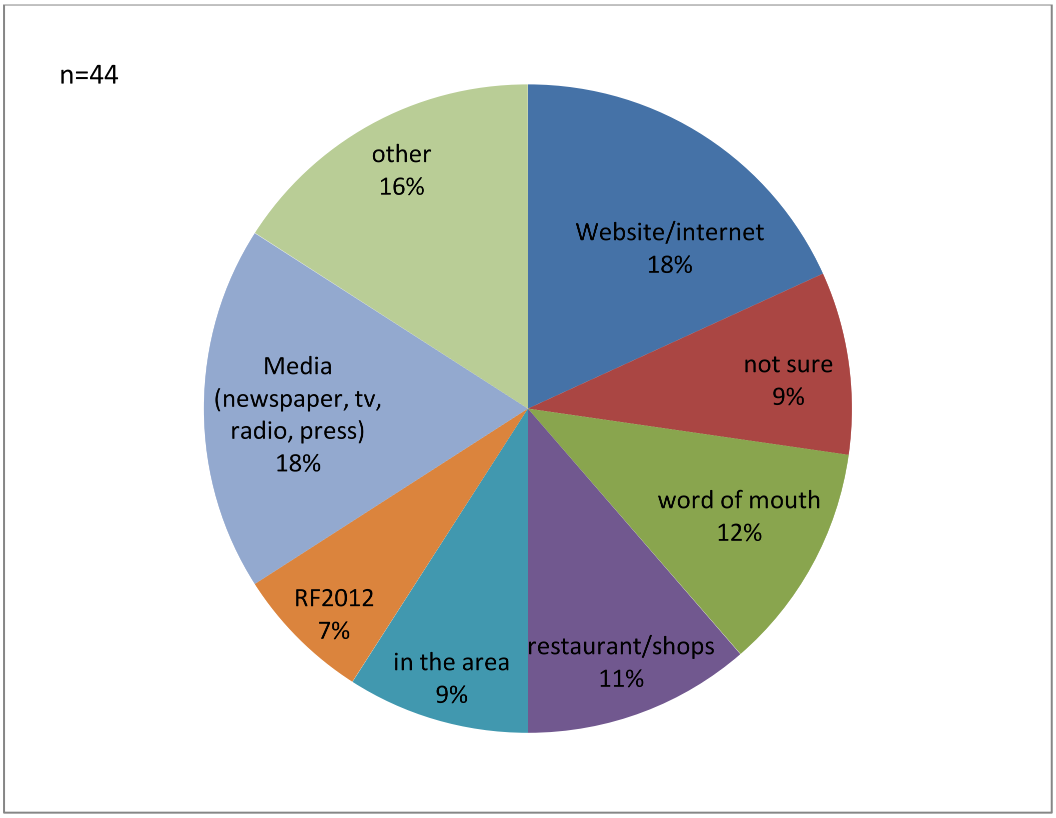


Figure 12 Responses to Where participants had heard of 'Moreton Bay Fresh Seafood'(n=44).

All 249 Participants were then asked to list spontaneously the first three words they think of when they hear 'Moreton Bay Fresh Seafood' and the responses are shown in Figure 13 below. A third of participants (34%) associated the word 'fresh' with the Moreton Bay Seafood Fresh brand. This was significantly higher than for any other word mentioned. The next most frequently mentioned specific word was 'seafood' (28%) with a notable drop then to 'fish' and 'prawn' both with around 16% of participants mentioning.

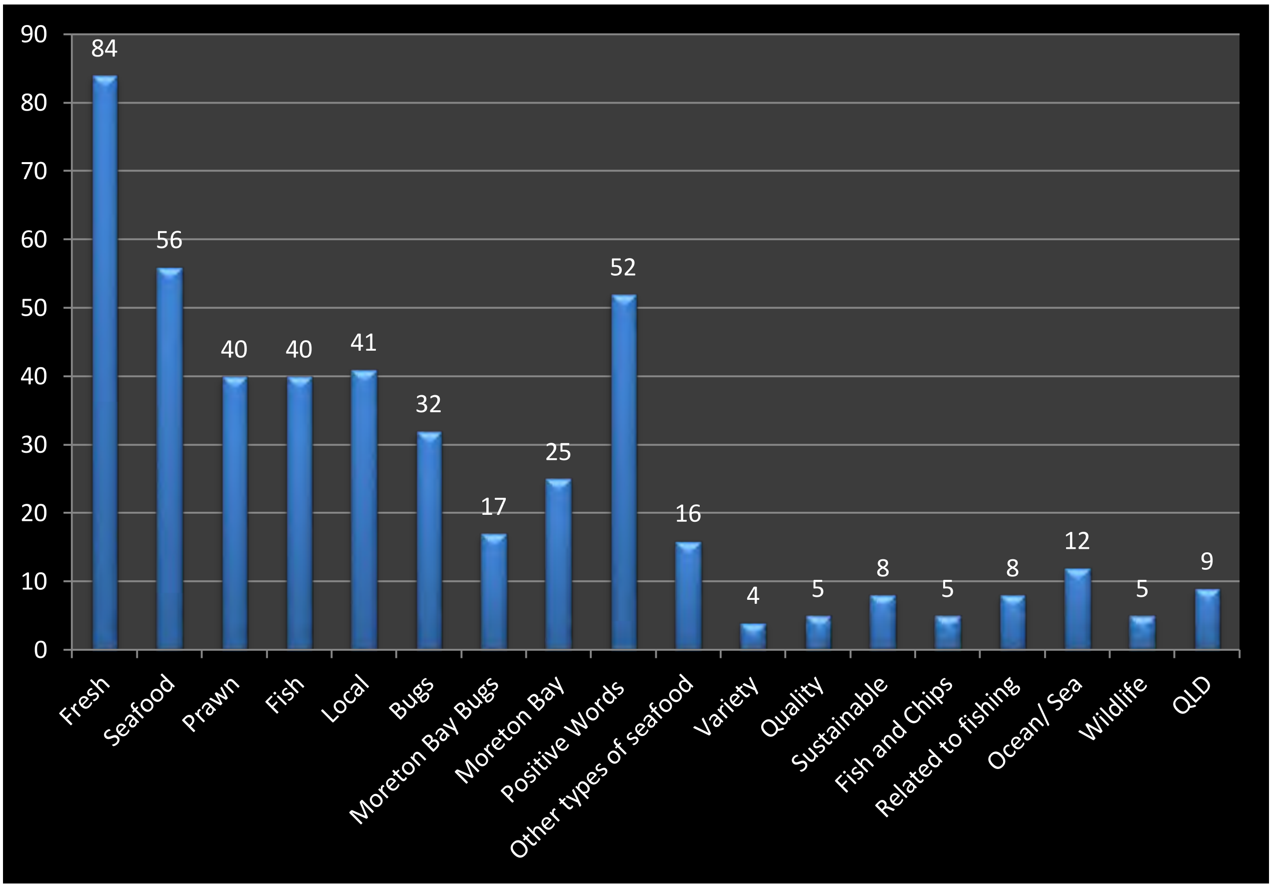


Figure 13 Words associated with 'Moreton Bay Fresh Seafood'

Table 15 below list the individual words which have been grouped together under the headings in bold related to similar topics.

Table 15: Participant word association with 'Moreton Bay Fresh Seafood' shown in groups of similar words

Local	**Other types of seafood**
Locally owned Local product Not imported Close proximity Local region Local seafood Caught/fished locally Local industry Made in Australia	Lobster Crab Whiting Flathead Red mullet Fresh oyster Shellfish Scallops Barra
Positive words	**Related to fishing**

Delicious Tasty Yum Would like to try	Fishing Nets Catch of the day Trawler Fisherman Dad (a fisher)
Sustainability	
No pollution Clean Blue water Beautiful for great produce Unpolluted	

Participants' awareness and perception of Moreton Bay Prawns

Just over half of those interviewed (53%) had not heard of Moreton Bay prawns before (Figure 14).

Those participants who had heard of Moreton Bay prawns were sub-divided into groups based on where they live. Over 90% of those interviewed who had heard of Moreton Bay prawns before lived in Brisbane.

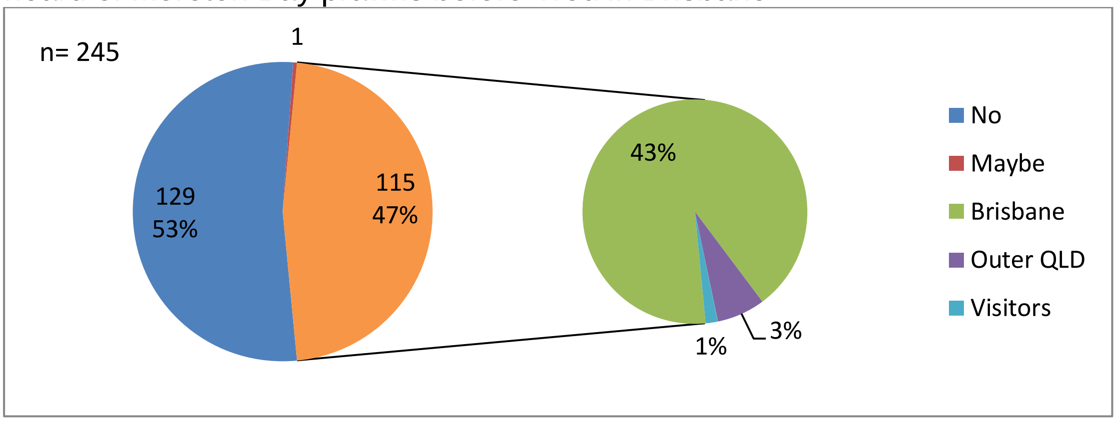


Figure 14 Number of participants who had heard of Moreton Bay prawns before

Those participants who had heard of Moreton Bay prawns before were asked what they thought Moreton Bay prawns (see Figure 15). Just under half of those who had heard of them described the prawns as being small and a few described them as 'small and sweet'. A fifth said that they know that the prawns are from Moreton Bay. Interestingly, a reasonable number of participants (14%) who had heard of Moreton Bay prawns before but did not know what they were.

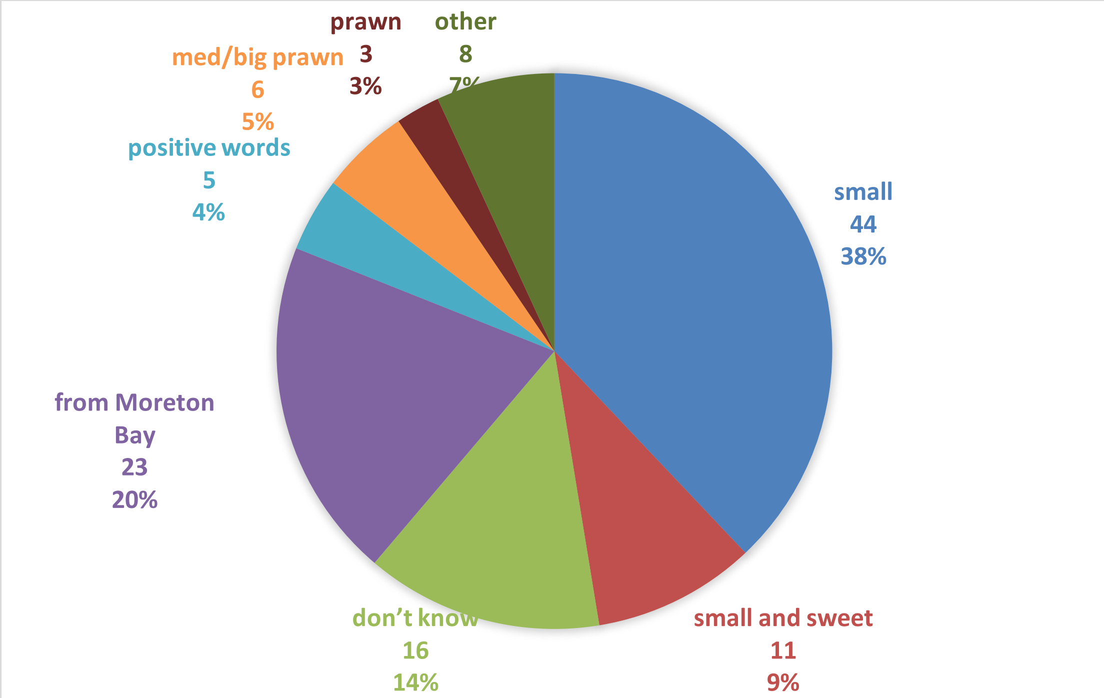


Figure 15 Participant perception of Moreton Bay prawns (n=115)

Of the participants (n=51) who have heard of Moreton Bay prawns before, 10% ate weekly, 4% fortnightly and 17% once a month. Just over 40% consumed them between 1-4 times a year, as shown in 6.

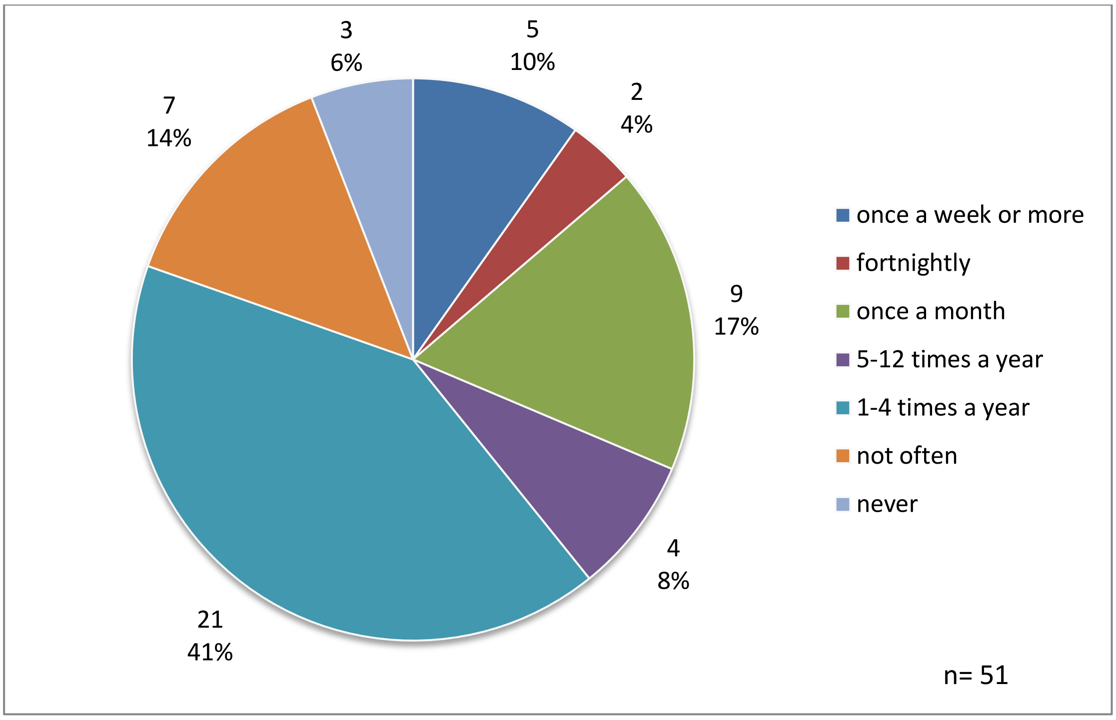


Figure 16 Frequency of consuming Moreton Bay prawns (n=51)

The majority of participants (60%) say that they eat Moreton Bay prawns cooked and peeled. A range of other preparation methods were described (Figure 17).

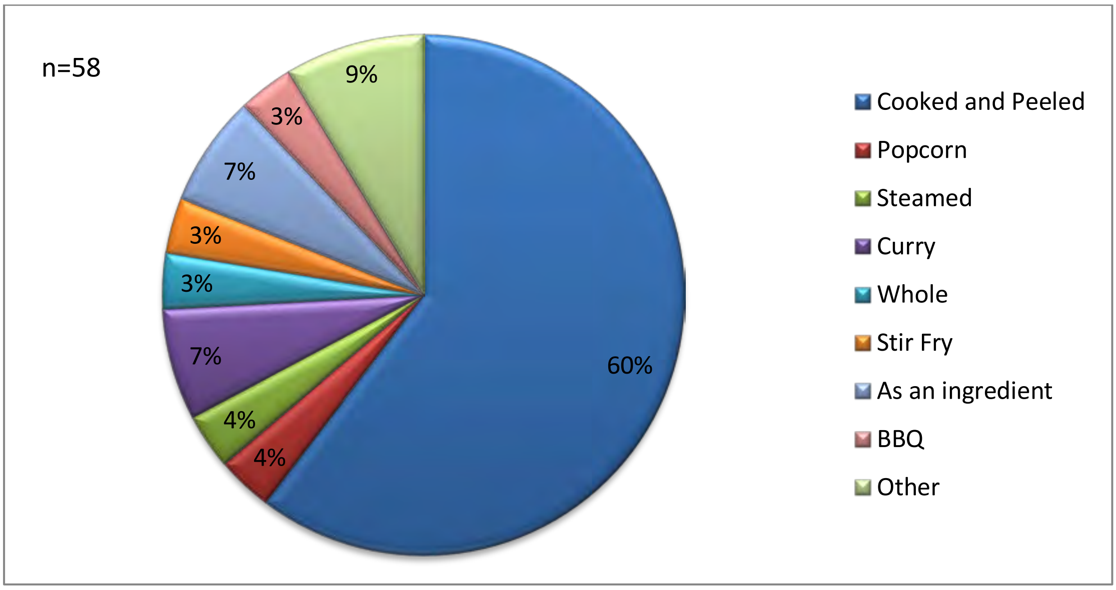


Figure 17 Ways in which participants normally eat Moreton Bay prawns (n=58)

Purchasing trends and habits

Participants were asked how often and where they purchased local/fresh seafood. Not all the participants responded to both questions on purchasing habits and so the sample size is slightly reduced: 241 compared with 249.

When asked how frequently they purchased local/fresh seafood, 76% of the participants said they purchased at least once per month. Of those who buy at least once a month, almost half (48%) are buying once per week (Figure 18).

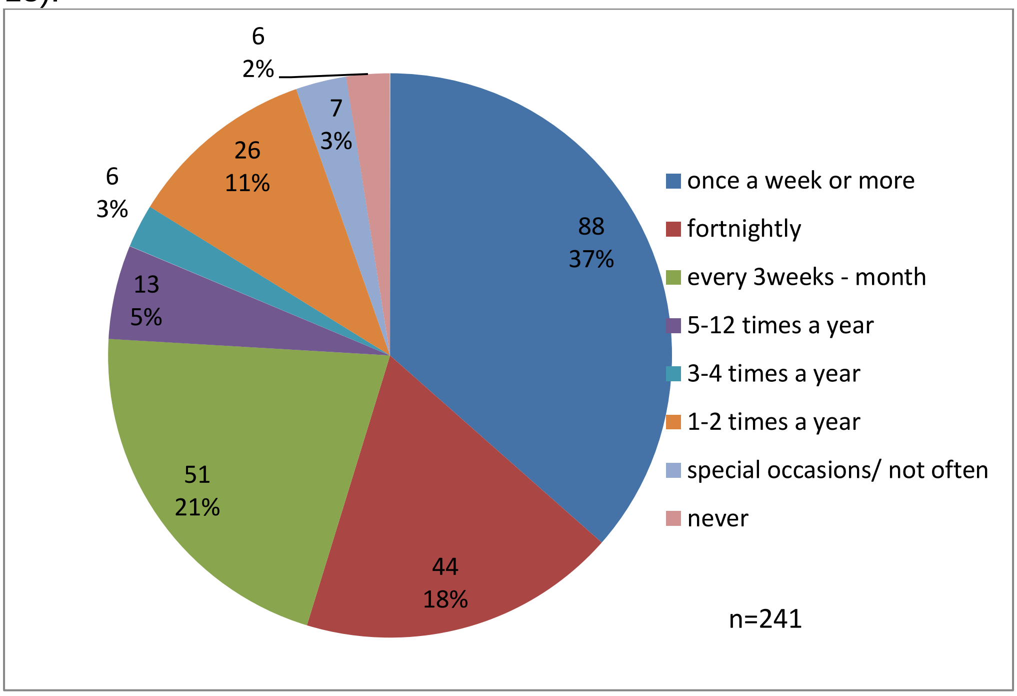


Figure 18 Frequency in which participants purchase local/fresh seafood

83% of participants only buy their local/fresh seafood from one of the 10 sources listed in Figure 19, with the other 17% purchasing seafood from more than one location.

38% of participants buy seafood from a fishmonger selling mostly uncooked seafood, with the following seafood retail shops mentioned:

- Sami's (5 responses)
- Wyannan (2 responses)
- Bob's
- Capalaba Bar
- Aussie Seafoods
- Grunski's
- Mt Omni
- Inala.

35% of participants buy their local/fresh seafood from a supermarket/ food store and the third most frequently mentioned category was 'Fish market or general market' with 23% buying seafood from these types of stores.

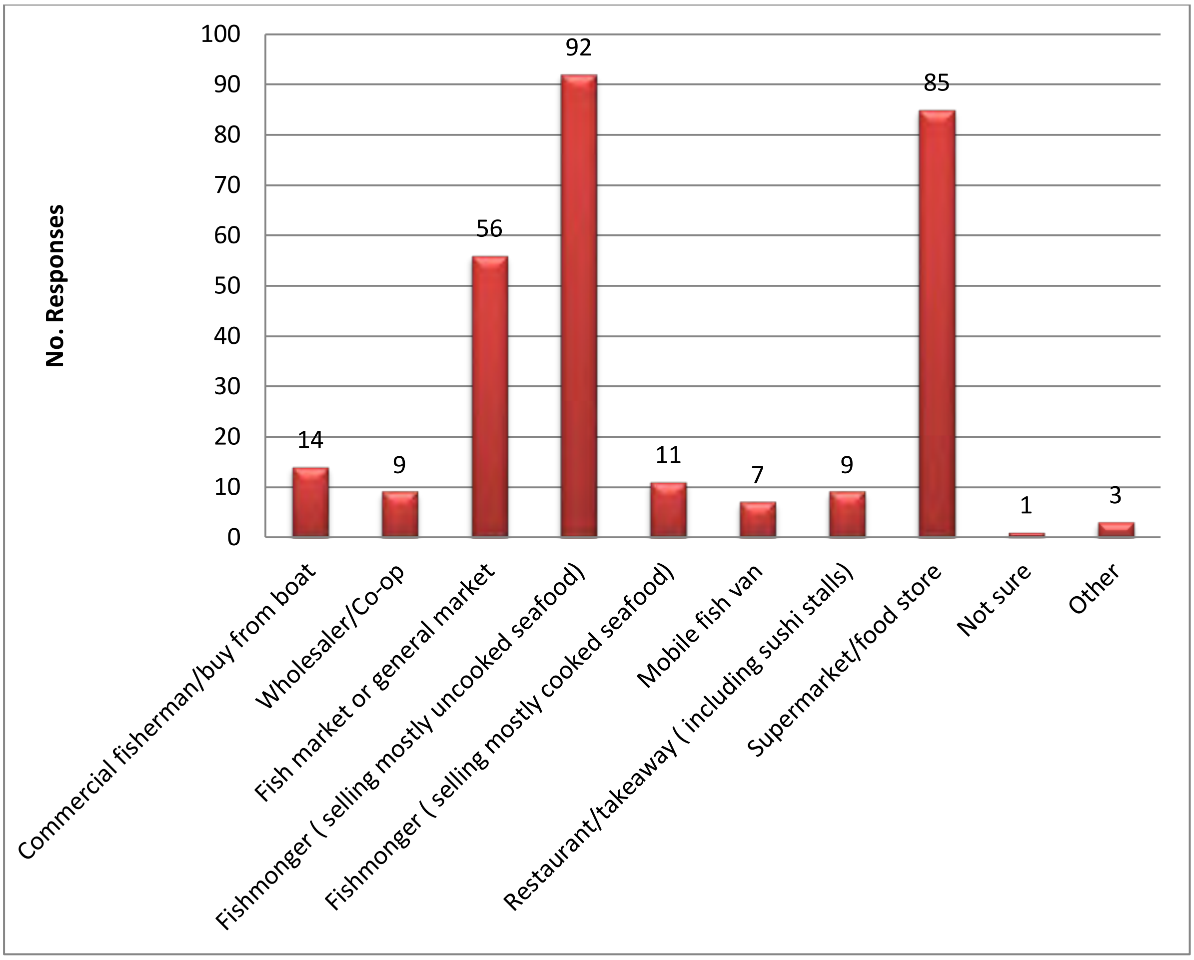


Figure 18 Where consumers purchase local/fresh seafood.(n=241)

Of the participants who bought from ‘Supermarket/food stores’, 85% mentioned a specific supermarket/ food store. The most frequently mentioned supermarket or store by these people was Woolworths (see Figure 23) with almost a half mentioning them specifically, twice as many as mentioned Coles. However, just over a quarter (26%) said that they buy their seafood from ‘various’ supermarkets including Coles, Woolworths and IGA.

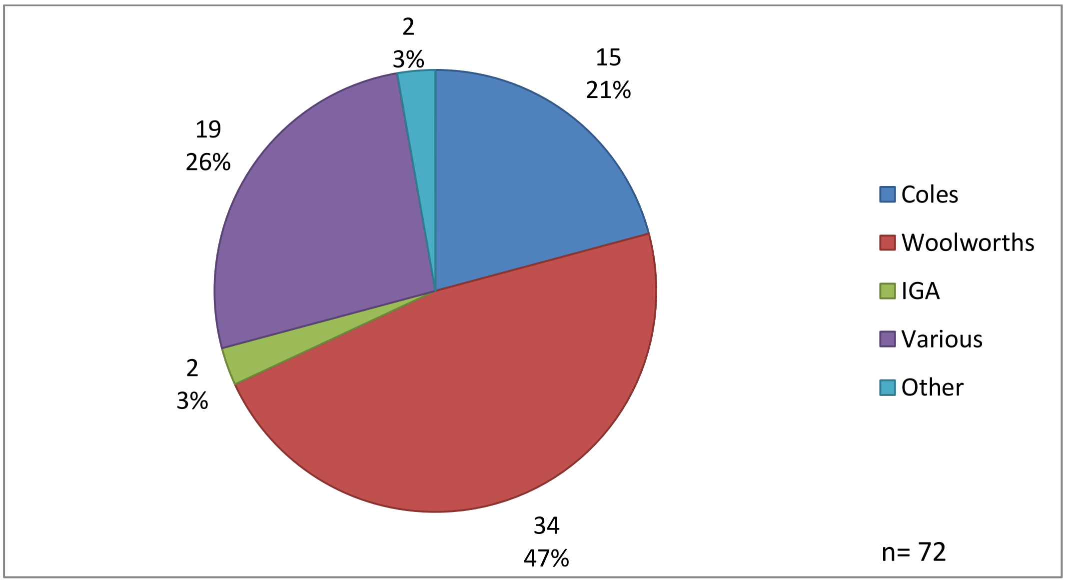


Figure 19 Specific supermarkets and food stores where participants purchase local/fresh seafood

At the end of the survey participants were given the opportunity to record any other comments they wished to make. These comments included:

- Really liked the mullet (4 responses)
- Prawns were tasty but too sharp (2 responses)
- Prawns were tasty but were unsure about eating it whole (2 responses).

<u>Moreton Bay Seafood Industry Association Follow-up Survey</u>

A follow up survey via email was sent to the people who completed the original survey with 5 questions on what they thought of the Moreton Bay Seafood they tried and if any of the information cards available at the stand were useful.

These questions included asking

a. What product they tried and what they rated it?
b. Had they taken the brochures re seafood retail stores stocking Moreton Bay product and the recipe cards, and if yes had they used them.
c. Had they scanned the QR codes on the recipe cards or posters.

Of the 249 survey participants, only 31 responded to the follow-up survey sent via email. Eighty percent of those responding were under the age of 24 and

63% were female, probably reflecting aspects of computer literacy and time of those responding.

When participants had visited the stand, they had been able to try one or both of the Moreton Bay seafoods: Popcorn prawns and/or mullet. Eighteen of them tried both products; 8 only tried the mullet and 4 only tried the popcorn prawns (Figure 21).

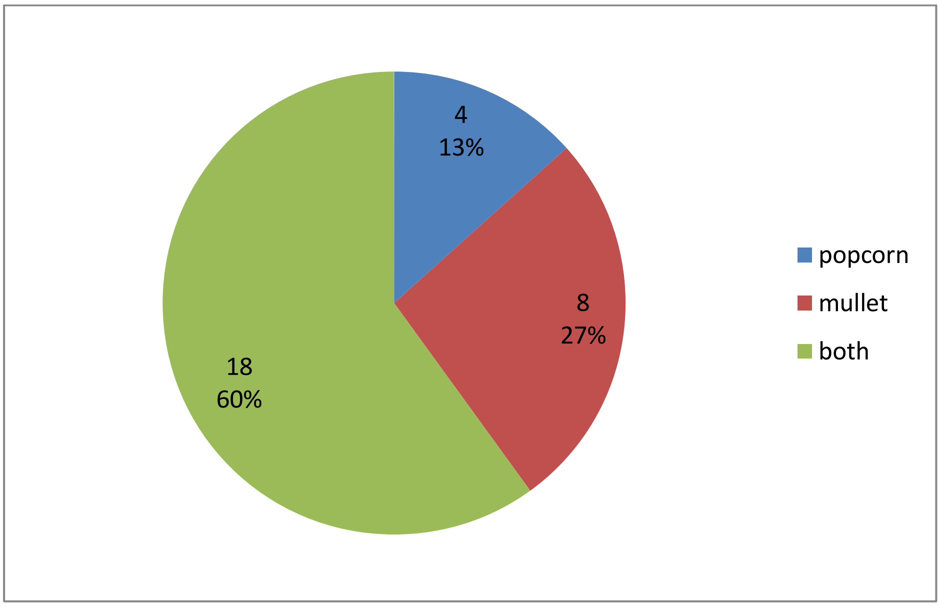


Figure 20 Particular Product tastings (n=31)

Participants were asked to rate the products on a scale from 1 to 5, with 1 meaning ‘Did not like’ and 5 meaning ‘Really liked’.

Twenty one participants rated the popcorn prawns with almost an equal number of participants that disliked and liked the prawns (Figure 22): 8 and 7 respectively. Some feedback given by the participants included:

- Was delicious
- Nice for a tasty treat, not a meal
- Really nice tasting.
- Threw it out
- Very crunchy and sharp which stuck to the gums and hurt.

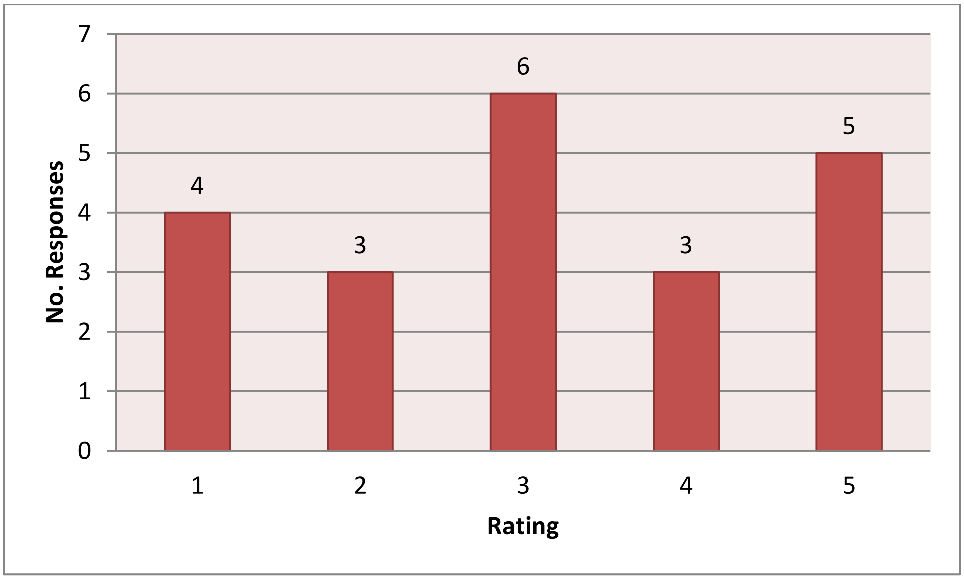


Figure 22 Popcorn prawn product ratings scores (n=21)

There were a total of 26 respondents who rated the acceptability of the mullet, with 77% (20 people) rating the product above average with a score of 4 or 5 (Figure 23).

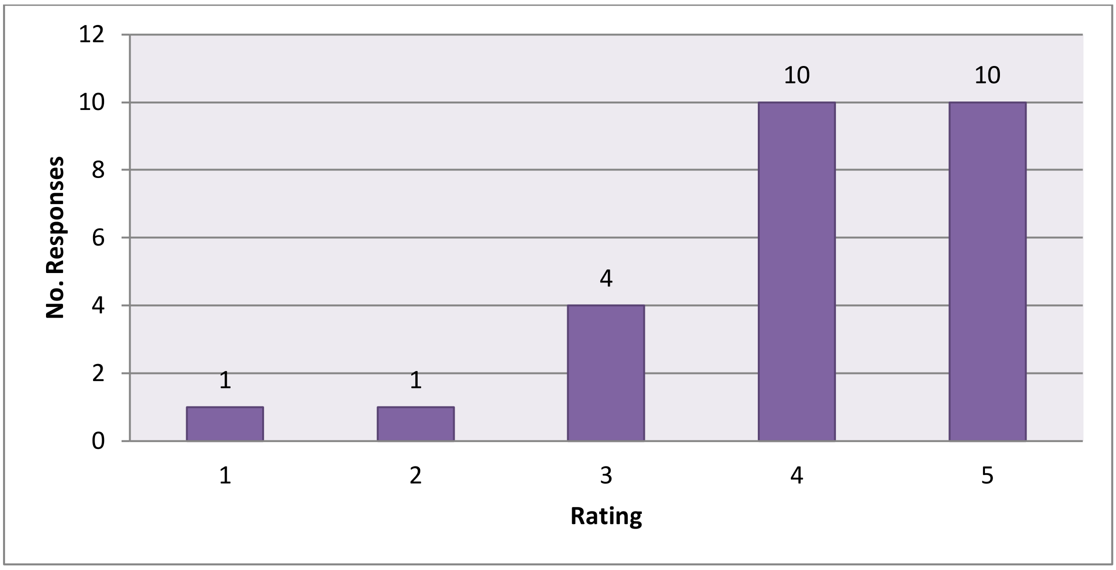


Figure 21 Mullet product rating scores

Participants would asked if they were to specifically choose to purchase Moreton Bay seafood again, would they make their purchase based on the specific product they had tried or would they just be looking for Moreton Bay Fresh branded products. There were 26 responses to the question, however the question was misinterpreted by 12 respondents and the answers received did not specifically answer the question.

Eight of the 14 participants who answered the question correctly would specifically look for the “Moreton Bay Fresh” brand and 6 said that they would look for the specific product if they were to purchase Moreton Bay seafood again.

There were 6 participants who answered the question with a 'No' and this is taken to mean that they would look for neither for the specific product nor the Moreton Bay brand. Three answered 'Yes' which suggests they would consider the specific product or Moreton Bay brand and 3 answered 'Unsure'.

Located at the Moreton Bay Seafood stand were flyers stating where to buy Moreton Bay Fresh seafood and recipe cards available for consumers to take home. From a total of 27 responses received in the email survey only 8 people took home either of the flyers or the recipe cards.

Participants were asked if they had used the recipe cards or visited any of the stores on the flyers and all responses were negative.

At the stand there was a QR Code on the posters which visitors to the stand could scan with their smart phones. None of the participants who completed the follow-up survey scanned the QR Code. The reasons they gave for this in the follow-up survey were:

- Did not have a suitable phone
- Could not see the QR code
- Did not know how to do it

1.4.6 Extension and Reporting

Results were presented at three MBSIA meetings over the course of the project.

A research and networking event was held on the 27 October 2011 at Gambaros Seafood Restaurant in Brisbane. Research results were presented and Moreton Bay Fresh resources displayed/distributed at that meeting. The Queensland Minister for Fisheries (Hon John McVeigh) presented at the event (see Figure 24).

Figure 24: Queensland Fisheries Minster Hon John McVeigh at the Brisbane prawn research and networking event

The MBSIA board have captured the interest of the Queensland State Development Authority, and the Authority have expressed interest in supporting the production of a strategic plan for the future development of the Moreton Bay seafood industry. The results of this project will be used in the development of the strategic plan.

Mr David Byrom completed and had approved a Master of Business by Research thesis associated with this project. The thesis was entitled 'Optimising of markets for Moreton Bay Fresh prawns though supply chain management'.

4. General Discussion

The results of **c**onsumer interviews, chef interviews and supply chain stakeholder interviews all had very similar themes across all fisheries:

- Little recognition of current brands, but with regional branding requested by most stakeholders.
- Lack of consistent prawn quality.
- Inconsistent size grading, residues of metabisulphite addition an issue.
- Lack of information about prawns generally, and numerous requests for such information to be developed and provided to down chain stakeholders.

On understanding the generic issues facing all the fisheries, it was decided to develop a project (CRC 2011/736) to develop a national prawn market development strategy, thereby enabling national/whole of industry management of many of the identified issues. This project was approved and implemented with the national prawn market development campaign to 'Love Australian Prawns' launched in November 2013.

With the national project in place, the target fisheries were able to focus on developing and implementing strategies that were specific to their regional fishery and products. Interestingly the prioritised improvement strategies for each fishery were quite similar, focussing on regional branding with aligned promotional material and commitment to providing a high quality, consistent product. Differences arose in the strategy implementation and more specifically to the end-user engagement strategies: Morton Bay Fresh through a local food festival, Shark Bay Wild focussing on wholesalers and linking with high profile food service events, and Spencer Gulf through a supermarket chain.

The research has endorsed the use of a VCA framework and research in agri-food chains in order to create improvements in their chains. Two of the fisheries succeeded in adopting the value chain process. Preliminary indications of improved profitability, as well as improved through chain relationships, and information flow, emerged in the process of conducting the VCA. However the research also endorsed previous studies that suggested that creating value chains is a process not suitable to all businesses/groups as there is a difficult and highly relational approach that needs to be adopted (Collins 2010).

The results highlight the importance of the first step in the framework, ie ' Commitment to participate (or Engaging the Chain)". Where this step was successful, the fishery fully engaged in the process and made gains through the value chain. In other cases where the fishery struggled at "engaging the chain", the end outcome proved to be ultimately unsuccessful. One of the key findings of this research therefore is the critical importance of relationships within the chain and how the chain needs to engage to improve both information and product flows. Further research is needed on how relationships can be fostered and improved within the chain to gain further value. More specifically, research on relationships at the start of the value chain process is needed to identify how chains can work more efficiently and effectively together.

The case results indicate that formalised structures may assist in the overall implementation of the value chain analysis in agri-food chains. With SGWCPGA and SBPTOA a formalised structure based around a specific industry association with a fulltime executive officer proved to be a solid basis for starting the VCA process. Leadership groups/committees with market driven representation were also formed. Conversely, MBSIA although having a formalised structure in place, struggled to organise a leadership group. CRFC had a co-operative as its formalised structure and this provided the basis for the process, however the management team did not support the process, probably because they were not the group that endorsed involvement in the project in the first place, and it was ultimately unsuccessful. In addition, the fisheries that were more focussed on one species and offer a frozen product seemed were successful at implementing the VCA. The reasoning for this may include financial stability, as a greater volume of a single species of prawns allows for specialisation of fishing.

The findings of this project have led to an amended VCA framework as shown in Figure 25 and the preparation of a draft peer reviewed journal article to explain the new framework (Appendix 23). In changing the framework, ‘Commitment to participate/Engaging the chain’ is an ongoing process through the whole of the VCA process and is therefore part of each stage. In addition, a ‘Stop/go’ point has been inserted after the initial engagement of the chain. This was added in recognition of the results that revealed a relational approach was crucial to the overall success of the value chain process. This study therefore recommends that if a relational approach is not present in the initial stages and the environment is such that a relational approach cannot be fostered, the process should not continue until such relationships are built.

In this study we sought to extend the research into VCA by addressing the key research gaps around implementation of improvement projects identified previously in VCA analyses (Bernet et al. 2005; Taylor 2005). Specifically we proposed to answer the research question of whether the VCA analysis can really provide significant benefits and profitable solutions following implementation of the recommended improvement activity.

While each industry, value chain analysis results and resulting recommended improvement strategies will be quite different, this study of the prawn industry was able to highlight the additional insights that can be obtained by implementation of VCA recommendations, and an understanding of the benefits that can be obtained from VCA analysis can emerge following evaluation.

In this case, the initial VCA and implementation of the prioritised improvement project, various different methods of evaluation were used. This included a combination of comparing product sales figures and surveys of consumers, deli staff and key project stakeholders. These measures were used to determine the private sector profitability of the changes implemented and the perceptions and impact the project has had on the different stakeholders involved in the value chain analysis process. However results were preliminary and more research is recommended into evaluation methodology.

Some of the results of the evaluations, particularly around point of sale material/activities (eg effectiveness/uptake of posters, recipe cards, pamphlets, QR codes etc) can also be used to plan future market development activities.

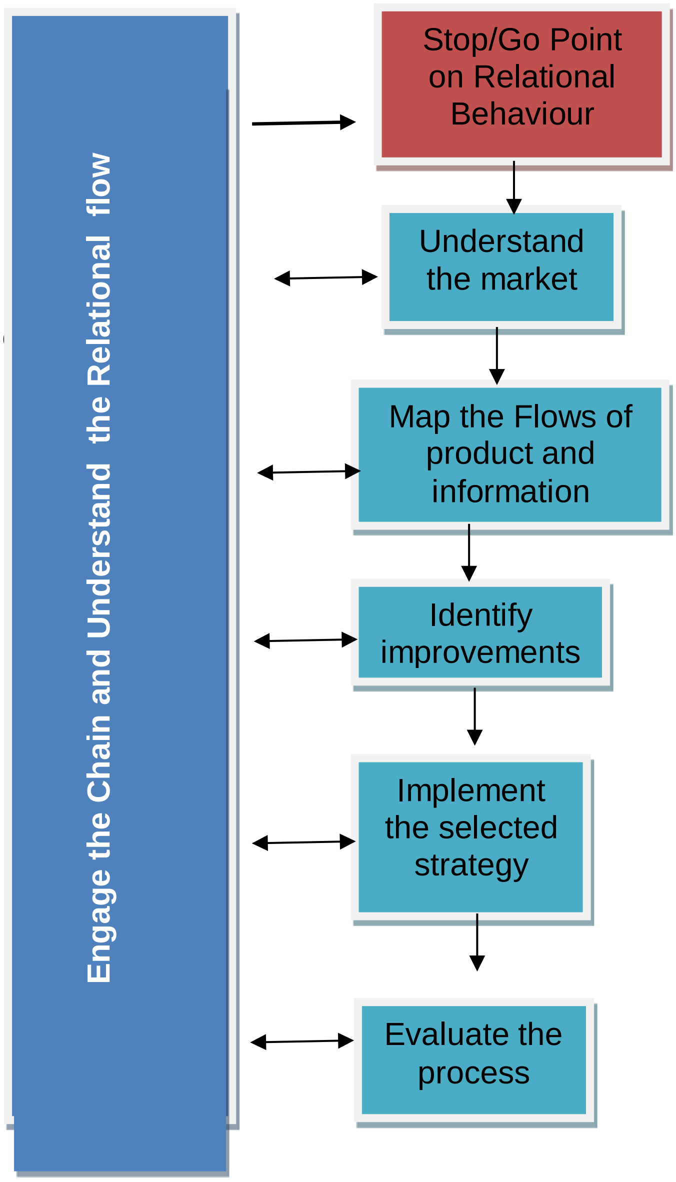


Figure 22 Amended theoretical framework for Value chain analysis

5. Benefits and Adoption

The project has defined and tested a modified VCA approach and framework that can be applied to other agri-business chains. There was successful or partially successful implementation of VCA improvement strategies, co-funded by the relevant industry partner, in three of the four case study fisheries. Hence there is now “Shark Bay Wild” prawns, “Moreton Bay Fresh” prawns and Spencer Gulf prawns all with aligned promotional material and activities. Market driven leadership groups have been formed and there is preliminary commitment to continue collaborative activities under these brands.

The project has significantly added to the understanding of end-user (chefs and consumer) perceptions and drivers for seafood generally and prawns specifically and this information has been collated into user friendly (powerpoint) formats for future application/use. The chef results have been published Lawley, M. and Howieson J. (2014) What Chefs Want When Buying Australian Seafood *Journal of Food Products Marketing*

Based on the research results from this project, a project to develop a national prawn market development strategy was approved and implemented and as a result the Love Australian Prawns campaign was launched in November 2013.

6. Further Development

Further development will be dependent on continued investment (resources and cash contribution) in the recommended strategies by the relevant industry associations.

It is noteworthy that the generic outcomes of the stakeholder consultation assisted in the development of a whole of chain project to develop a national series of quality parameters for the Australian wild capture prawn industry. The project CRC 2011/747: Maximising the quality of Australian wild-caught prawns (Quality Assurance) is ongoing.

7. Planned Outcomes

Public Benefit Outcomes

- A market driven Australian prawn industry, better engaged with meeting end-users needs and requirements.

Private Benefit Outcomes

- Love Australian Prawns Brand development and campaign.
- Shark bay Wild brand and activities
- Moreton Bay Fresh Brand, business plan and activities.
- Collaborative effort between Drakes Supermarkets and Spencer Gulf in promoting Spencer Gulf prawns.

Linkages with CRC Milestone Outcomes

Output 2.7 - Removal or reduction of barriers to seafood consumption

☐ Milestone 2.7.1 - Barriers to and drivers of seafood consumption identified in at least two new domestic or overseas consumer groups annually

☐ Milestone 2.7.2 - Individually tailored approaches to overcoming barriers trialled and evaluated in at least two new domestic or overseas consumer groups

8. Conclusion

In conclusion, this research has endorsed the Value Chain framework as a guide for agribusiness chains to follow to create further value. In conducting this framework, the need for good relationships within the chain is crucial to the overall success of the value chain and further research is encouraged into this sector. It was also found that engaging the chain is an ongoing process and not an initial stage as previously indicated in the literature. Finally, the chain must be "ready" to engage in the process and more research needs to be conducted on how to be value chain 'ready'.

Appendix 1: Summary of Seafood CRC Prawn Consumer Research

Optimising quality and value in domestic prawn value chains

Consumer Survey Results

Associate Professor Meredith Lawley
Dr Janet Howieson

March 2012

University of the Sunshine Coast

Research Question and Objectives

Research Question

- What domestic market opportunities exist for each of the three target fisheries?

Research Objectives

- Identification of current and potential market/consumer segments to target for each fishery
- Detailed understanding of consumer perceptions and drivers of prawn consumption in Australia

Method

Online survey

- 931 prawn consumers
- June 2011 via online consumer panel
- Minimum quotas for WA, NSW and SA

Respondents screened for

- 18 years or older
- consumed prawns in preceding 6 months
- either the main or joint grocery shopper
  (69.7% main shopper, 30.3% share shopping duties)
- industry affiliation
- recent participation in market research

Profile of Respondents

(n=931)

Gender

- 46.6% Male
- 53.4% Female

Age Groups

- 7.1% → 18-24
- 16.6% → 25-34
- 21.2% → 35-44
- 22.9% → 45-54
- 22.7% → 55-65
- 9.6% → over 65

Place of birth

- 75.4% born in Australia
- Of those born outside Australia
  - 42.1% - born in the UK
  - 9.2% - born in New Zealand

Education

- Over 50% had a qualification after secondary school
  - 27.5% were technically trained
  - 23% had a tertiary qualification

Profile of Respondents

(n=931)

Household composition

- 43.7% adult only households
  - 29.2% couples with no children
  - 12.9% lived alone

Employment status

- 38.9% full time work
- 17.9% part time work
- 16.2% retired

Household annual income

- 16% annual household income between $105,000 and $200,000
- 13.6% preferred not to answer the question

Consumption of Prawns over past 12 months

(significant differences between NSW WA and SA only are highlighted ie other states not considered)

Frequency of prawn consumption in past 12 months

61.4% (571) of respondents eat prawns **at least** once a month.

No significant differences in consumption between states.

n=931	n	%
More than once per week	50	5.4
Once a week	90	9.7
Once a fortnight	179	19.2
Once a month	252*	27.1
Once every 2 months (6 times a year)	154	16.5
Once every 3 or 4 months (3 or 4 times a year)	149	16.0
Once every 6 months (twice a year)	51	5.5
Once a year	6	0.6

Prawn purchase and consumption

	n	%
Eat them that day	578	62.1
Keep in fridge and eat within 2 days	290	31.1
Keep them in fridge longer than 2 days	14	1.5
Freeze them	49	5.3

- Prawns consumed within 2 days of purchase (and rarely kept more than 2 days)
- NSW tend not to freeze, SA and WA more likely to freeze

Time of year prawns are purchased

Though 63.7% (593) of respondents do not have a tendency to buy prawns at a specific time of the year, 30.9% (288) respondents tend to buy prawns during the summer. ***(No difference between states.)***

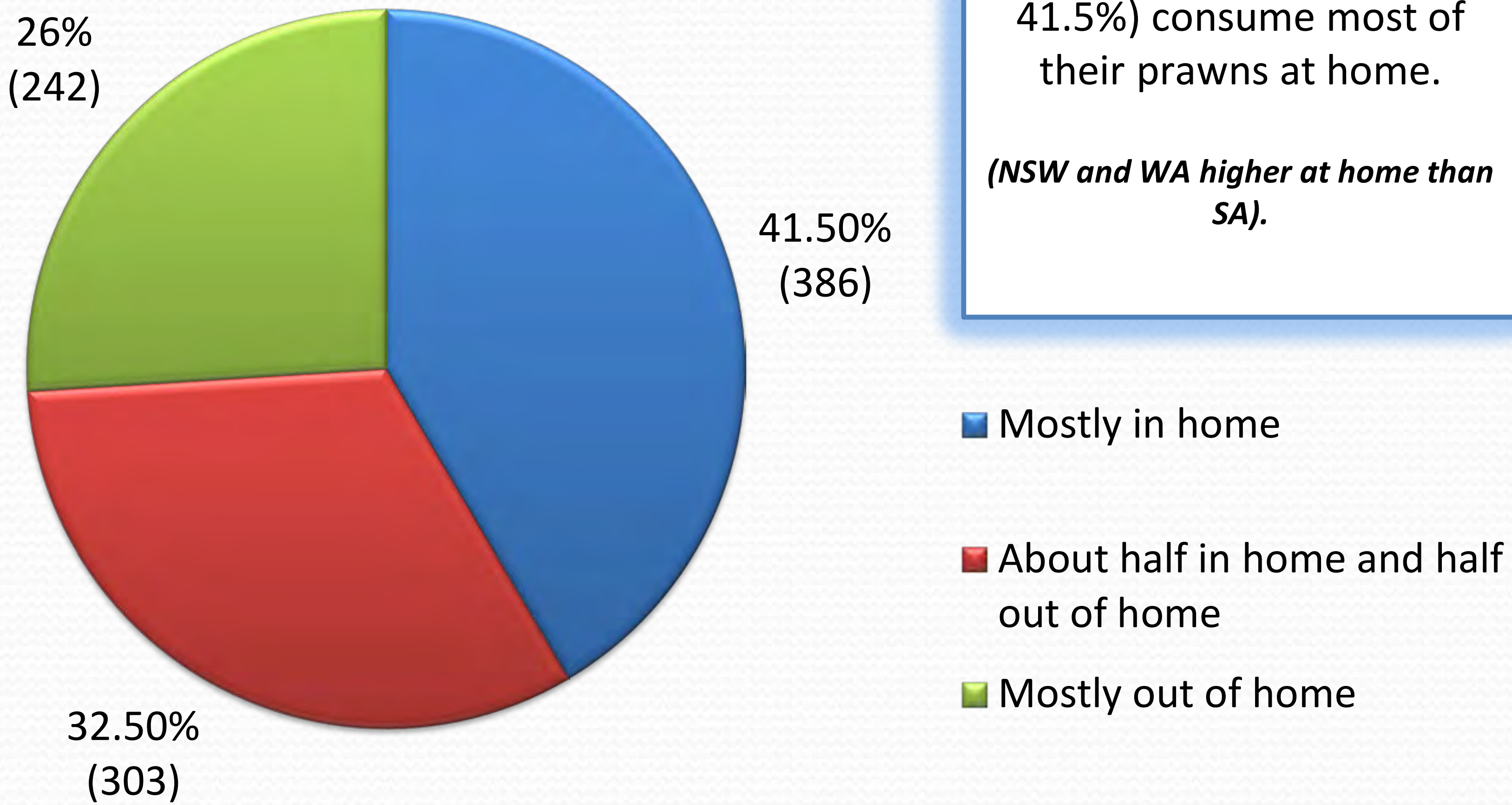
n=931	n	%
I do not tend to buy prawns at a certain time of year	593	63.7
Summer	288	30.9
Winter	25	2.7
Autumn	13	1.4
Spring	12	1.3

Proportion of prawn consumption in own home vs out of own home

(eg in a restaurant or at a friend's or relative's home)

Most respondents (386, 41.5%) consume most of their prawns at home.

(NSW and WA higher at home than SA).



Eating more or fewer prawns compared to last year (n=931)

60.4% (562) eating about the same as 12 months ago

21.7% (202) eating more prawns than 12 months ago

12.7% (118) eating less prawns than 12 months ago

5.3% (49) don't know or are unsure

Most respondents (562, 60.4%) are eating about the same quantity of prawns as they were 12 months previously. ***(no difference between states)***

Reasons for eating more prawns than last year

Primarily respondents ate more prawns because they *liked* or *loved* them (21, 10.6%).

9.5% (19) of respondents ate more prawns because they considered them *value for money*.

(n=199)	n	%
Like/Love	21	10.6
Value for money	19	9.5
Like/Love more	15	7.5
Cheaper	14	7.0
Family/Friend influence	13	6.5
Availability	11	5.5
Increased recipe repertoire	10	5.0
Wealthier	10	5.0
Diet change	9	4.5
Available fresh	7	3.5
Good for health	7	3.5
Other	63	31.7

Reasons for eating fewer prawns than last year

(n=116)	n	%
Too expensive	45	38.8
Reduced budget	12	10.3
Can't afford	10	8.6
Change of living circumstance	4	3.4
Don't know	5	4.3
Other	40	34.5

Most commonly respondents reduced their prawn consumption because they found prawns *too expensive* (45, 38.8%), notably over 50% of the responses for eating less prawns referred to cost or budget (67, 57.7%).

Consumption of Prawns at home

Factors important in selecting prawns for home consumption

(n=931) 7 point scale: 1=not important, 7=very important)	mean
Australian	5.61
Of the highest quality even though they might cost more	5.17
A relatively low price	5.06
The type of prawn species that I want	4.79
Fresh never frozen ***(slightly more imp in NSW*)***	4.76
Caught using sustainable practices	4.53
From the specific region in Australia that I want (e.g. Coffin Bay)	3.84
Recommended by the retailer ***(less important for NSW)***	3.75
A particular brand	3.46

The most important factor in selecting prawns is that they are Australian with 41% (390) of respondents stating that this was *very important*.

Where do consumers prefer to buy prawns for home consumption?

(n=931)	n	%
Fishmonger (selling mostly uncooked seafood)	261	28.0
Supermarket / food store	254	27.3
Fish market or general market ***(more WA)***	207	22.2
Restaurant / takeaway (including sushi stalls) ***(more pop SA)***	61	6.6
Wholesaler / Co-op ***(more popular in WA & NSW)***	50	5.4
Commercial fisherman ***(more popular NSW)***	39	4.2
Fishmonger (selling mostly cooked seafood)	32	3.4
Mobile fish van	12	1.3
Delicatessen	11	1.2
Convenience store	4	.4

50.2% of respondents prefer to buy prawns from a source specialising in seafood, i.e. from a *fishmonger that sells mostly uncooked seafood* (261, 28.0%) or a *fish market or general market* (207, 22.2%).

Only 254 (27.3%) prefer to buy prawns from a *supermarket or food store*.

Where do consumers buy prawns for home consumption

(n=931)

However the most frequent purchase point for most respondents (200, 21.5%) is a *supermarket or food store.*

Only 15% (140) of respondents nominated a *fishmonger (selling mostly uncooked seafood)* and only 9.9% (92) of respondents nominated a *fish market or general market* as their most frequent source.

(7 point scale: 1=never, 7=often/frequently)	mean
Supermarket / food store* ***(higher WA)***	4.39
Fishmonger (selling mostly uncooked seafood)* ***(higher NSW)***	3.88
Fish market or general market****(higher NSW)***	3.56
Restaurant / takeaway (including sushi stalls)	3.46
Fishmonger (selling mostly cooked seafood)	2.62
Wholesaler / Co-op* ***(higher NSW)***	2.53
Commercial fishermen	2.14
Delicatessen	2.02
Gift from non-household member	2.01
Mobile fish van	1.75
Caught by household member	1.70
Convenience store	1.56
Other (n=76)	3.57

How often do consumers buy various forms of prawns?

n=931 (7 point scale: 1=never, 7=often/frequently)	mean
Fresh whole raw* *(less freq SA, more freq NSW)*	3.98
Fresh whole cooked* *(more freq NSW, less freq WA)*	3.96
Fresh peeled raw	3.22
Fresh peeled cooked	3.19
Frozen whole raw* *(more freq WA)*	2.99
Frozen peeled raw	2.92
Thawed for your convenience – whole cooked	2.90
Frozen whole cooked	2.87
Thawed for your convenience – whole raw	2.84
Frozen peeled cooked	2.78
Snap frozen at sea – whole raw	2.76
Thawed for your convenience – peeled cooked	2.66
Thawed for your convenience – peeled raw	2.63
Frozen packaged / ready to cook (e.g. crumbed prawns)	2.53
Vacuum packed	2.14
Pre-prepared meal chilled	2.14
Pre-prepared meal freezer	2.10
Dried / Salted	1.61
Other (n=34)	3.35

Fresh whole raw prawns and fresh whole cooked prawns are almost equally the most popular forms of prawns purchased.

Why do consumers buy prawns in this form

Convenience is the predominant reason for purchasing all forms of prawn apart from:

- Fresh whole raw - Freshness
- Snap frozen at sea: whole raw - Freshness
- Dried / Salted - To suit need/For a specific recipe
- Other - Eating out

To suit a need such as for a specific recipe is the second most frequent response, exceptions to this are:

- Snap frozen at sea: whole raw – Convenience
- Frozen packaged / ready to cook (e.g. crumbed prawns) – A quick meal
- Vacuum packed – Freshness
- Pre-prepared meal (chilled or frozen), Dried/Salted, and Other – Don’t buy or n/a

Top reasons for buying various forms of prawns

n=931	1st reason	2nd reason	3rd reason
Fresh whole raw	Freshness	To suit need	Convenience
Fresh whole cooked	Convenience	To suit need	Ready to eat
Fresh peeled raw	Convenience	To suit need	Freshness
Fresh peeled cooked	Convenience	To suit need	Ready to eat
Frozen whole raw	Convenience	To suit need	Home cooking
Frozen peeled raw	Convenience	To suit need	Home cooking
Thawed for your convenience – whole cooked	Convenience	To suit need	Home cooking
Frozen whole cooked	Convenience	To suit need	As a standby
Thawed for your convenience – whole raw	Convenience	To suit need	Home cooking
Frozen peeled cooked	Convenience	To suit need	As a standby
Snap frozen at sea – whole raw	Freshness	Convenience	To suit need
Thawed for your convenience – peeled cooked	Convenience	To suit need	Home cooking
Thawed for your convenience – peeled raw	Convenience	To suit need	Home cooking
Frozen packaged / ready to cook (e.g. crumbed prawns)	Convenience	A quick meal	To suit need
Vacuum packed	Convenience	Freshness	Don't buy
Pre-prepared meal chilled	Convenience	Don't buy	n/a
Pre-prepared meal freezer	Convenience	n/a	Don't buy
Dried / Salted	To suit need	Don't buy	n/a
Other (n=34)	Eating out	n/a	To suit need

Preferred quantity or pack size

Peeled prawns

- When purchasing frozen or fresh peeled prawns most consumers prefer to buy a quantity or pack size of 500g - 1kg.
- When buying prawns that have been peeled for convenience most consumers prefer to buy a quantity or pack size of 200g - 500g.

Whole prawns

- With the exception of whole raw thawed for your convenience prawns most consumers prefer to buy a quantity or pack size of 500g - 1kg.
- Most consumers prefer to buy a quantity or pack size of 200g - 500g when buying whole raw thawed for you convenience prawns

Species of prawn purchased in the last year

Tiger prawns are the most frequently purchased species of prawn with 709 (76.2%) of respondents having purchased them within the last 12 months.

Species (n=931)	n	%
Tiger* *(higher NSW, lower SA)*	709	76.2
King	653	70.1
Banana* *(higher NSW, lower SA)*	371	39.8
School* *(higher NSW)*	151	16.2
Vannamei	144	15.5
Bay *(higher NSW)*	87	9.3
Coral	87	9.3
Endeavour* *(higher WA)*	62	6.7
Royal Red* *(higher NSW)*	49	5.3
Redspot	22	2.4

Price prepared to pay per kilo for each species

Species	Price	% (n)
Tiger (n=709)	$20.00	16.5 (117)
King (n=653)	$25.00	18.2 (119)
Banana (n=371)	$20.00	17.5 (65)
School (n=151)	$12.00	17.9 (27)
Vannamei (n=144)	$10.00	19.4 (28)
Bay (n=87)	$20.00	27.6 (24)
Coral (n=87)	$20.00	21.8 (19)
Endeavour (n=62)	$20.00	16.1 (10)
Royal Red (n=49)	$20.00	22.4 (11)
Redspot (n=22)	$20 - $25.00	27.2 (6)

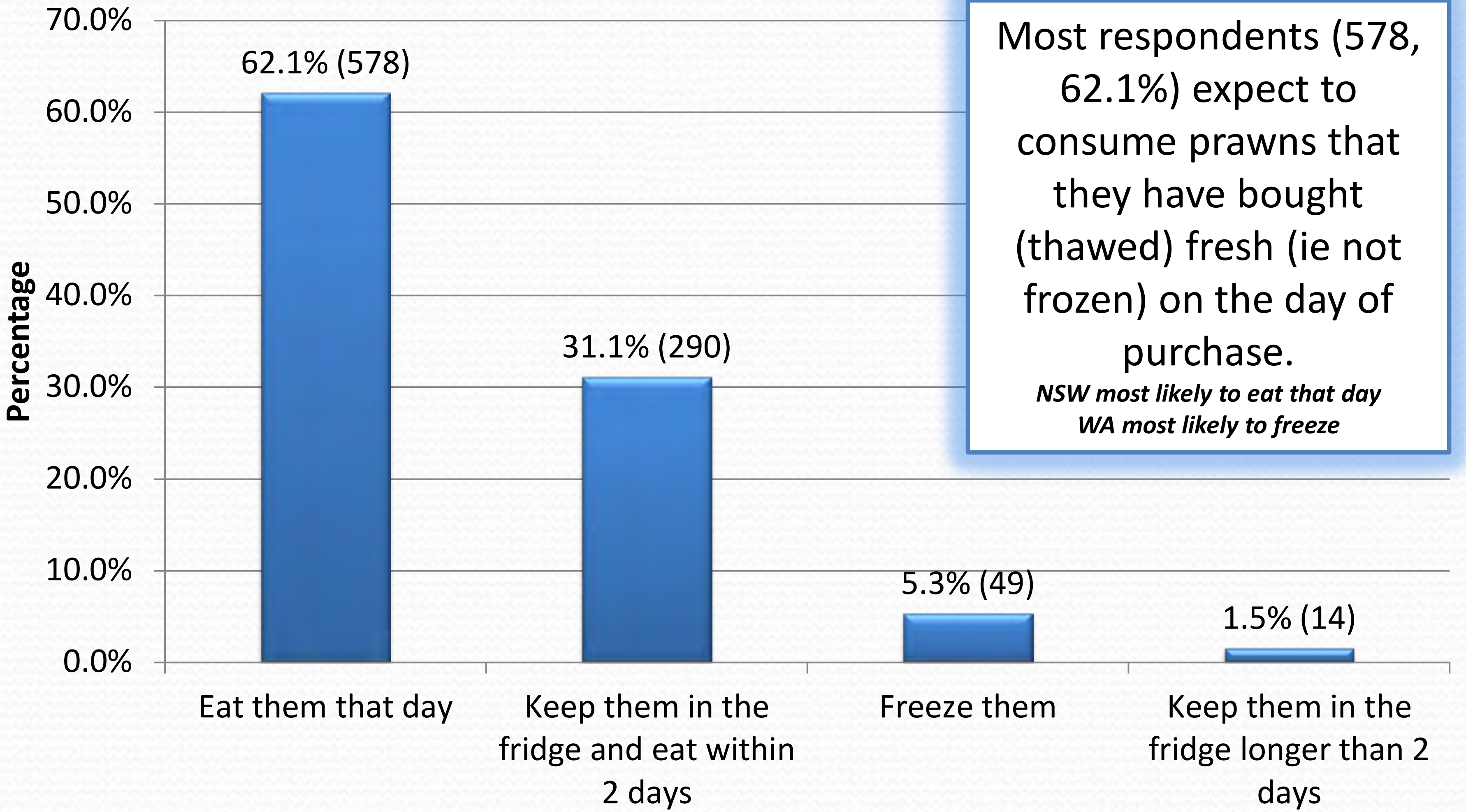
Most respondents expect to pay more for King prawns than for any other species.

Redspot prawns are expected to have the second highest price.

Most respondents expect to pay the same price for Tiger, Banana, Bay, Coral, Endeavour and Royal Red prawns.

Vannamei prawns are expected to be about half the price of most other species of prawn.

What consumers normally do with fresh (not frozen) prawns (n=931)

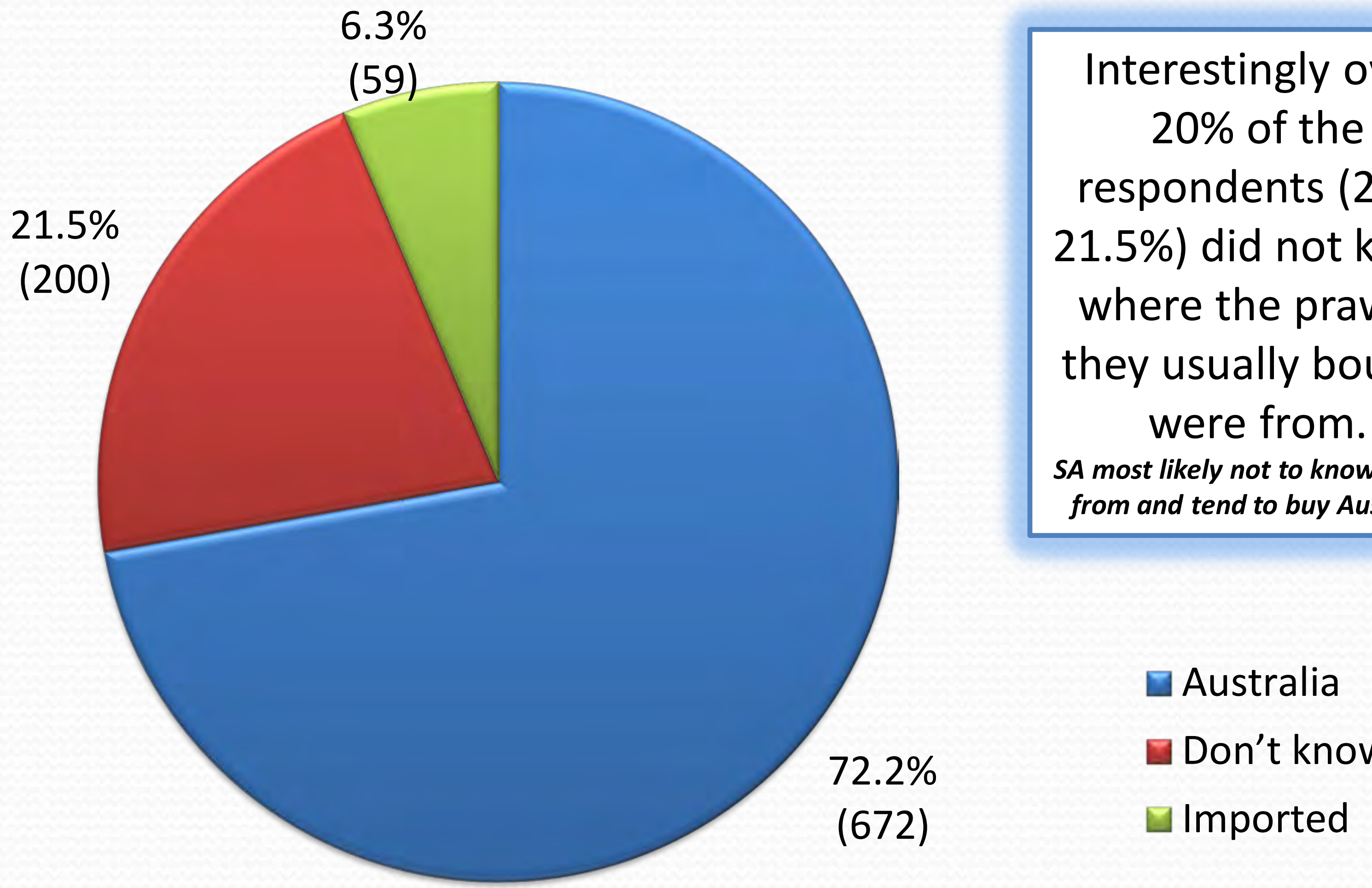


Most respondents (578, 62.1%) expect to consume prawns that they have bought (thawed) fresh (ie not frozen) on the day of purchase.

NSW most likely to eat that day
WA most likely to freeze

Where are the purchased prawns from?

(n=931)



Interestingly over 20% of the respondents (200, 21.5%) did not know where the prawns they usually bought were from.

SA most likely not to know where from and tend to buy Aust less

How often do consumers prepare prawns by the following methods?

n=931 (7 point scale: 1=never, 7=often/frequently)	mean
Straight (as bought)	4.78
Ingredient – stir fry, rice, noodles or dumpling dish	4.10
Barbecued	3.85
Pan fried	3.79
Ingredient – salad	3.56
Ingredient – other	3.29
Grilled	3.11
Ingredient – casserole or curry	3.09
Ingredient – sandwich / crackers	2.62
Deep fried, bought out of home	2.54
Coated and deep fried at home	2.47
Pizza topping	2.47
Ingredient – mornay	2.38
Ingredient – soup	2.24
Raw (incl. sushi)	2.15
Steamed	2.04
Poached	1.94
Microwaved	1.58

Predominantly the respondents (312, 33.5%) purchase prawns to consume straight (as bought).

Do consumers usually use a recipe when preparing a prawn meal?

No 74.4% (n=693)

Yes 25.6% (n=238)

- From where do consumers source their recipes? (n=227)
  - Cookbooks 48% (109)
  - Internet 26.9% (61)
  - Magazines 7.9% (18)
  - Supermarket books/leaflets/recipe cards 4.4% (10)
  - Family 2.6% (6)
  - Other 10.1% (23)

92 (40.5%) respondents who nominated a recipe source cited more than one source.

Importance of various information sources for providing recipes and general information about food.

Cook books are considered to be the most important source of information.

Interestingly though word of mouth and the internet are the second and third most important sources of this information, social media such as Facebook and Twitter are considered to be the least important.

(n=931) (7 point scale: 1=not important, 7=very important)	mean
Cook books	4.41
Word of mouth* *(lower NSW)*	4.02
Internet/websites	3.89
Food magazines	3.71
TV shows	3.48
Social media (eg facebook/twitter)	1.98

Most frequent information source of each type of information resource

Word of Mouth	• over 40% of respondents nominated ***friends***
Food Magazines	• 27.3% (94) respondents nominated more than one source • most respondents gain/use information from more than one food magazine
Cookbooks	• 40.5% (195) respondents nominated more than one cookbook • the ***Women's Weekly cookbooks*** were the most nominated cook book (75, 15.6%)
TV Shows	• 41.9% (126) of respondents nominated ***Masterchef*** as the most frequently used TV show • 29.6% (89) respondents nominated more than one TV show
Internet/websites	• ***Taste.com*** is the most frequently used internet website (77, 19.7%) • 23% (90) respondents nominated more than one source
Social Media	• 56% (42) of respondents nominated ***Facebook*** as the most frequently used form of social media to find information/recipes

Important factors when selecting prawns

Clean/fresh are the most important factors when selecting prawns.

Taste/flavour are also important factors.

n=931 (7 point scale: 1=not important, 7=very important)	mean
Clean, fresh	6.34
Taste/Flavour	6.30
Quality / Appearance	6.22
Meaty, fleshy	6.04
Price	6.02
Firm Texture	5.86
Colour	5.80
Australian	5.75
Readily available where I shop	5.73
Size	5.63
Easy to peel	5.48
Easy to handle	5.41
Easy to cook with	5.37
From local region	5.09
Suited to a particular recipe	4.60
Soft Texture	4.28

Consumption of Prawns out of home

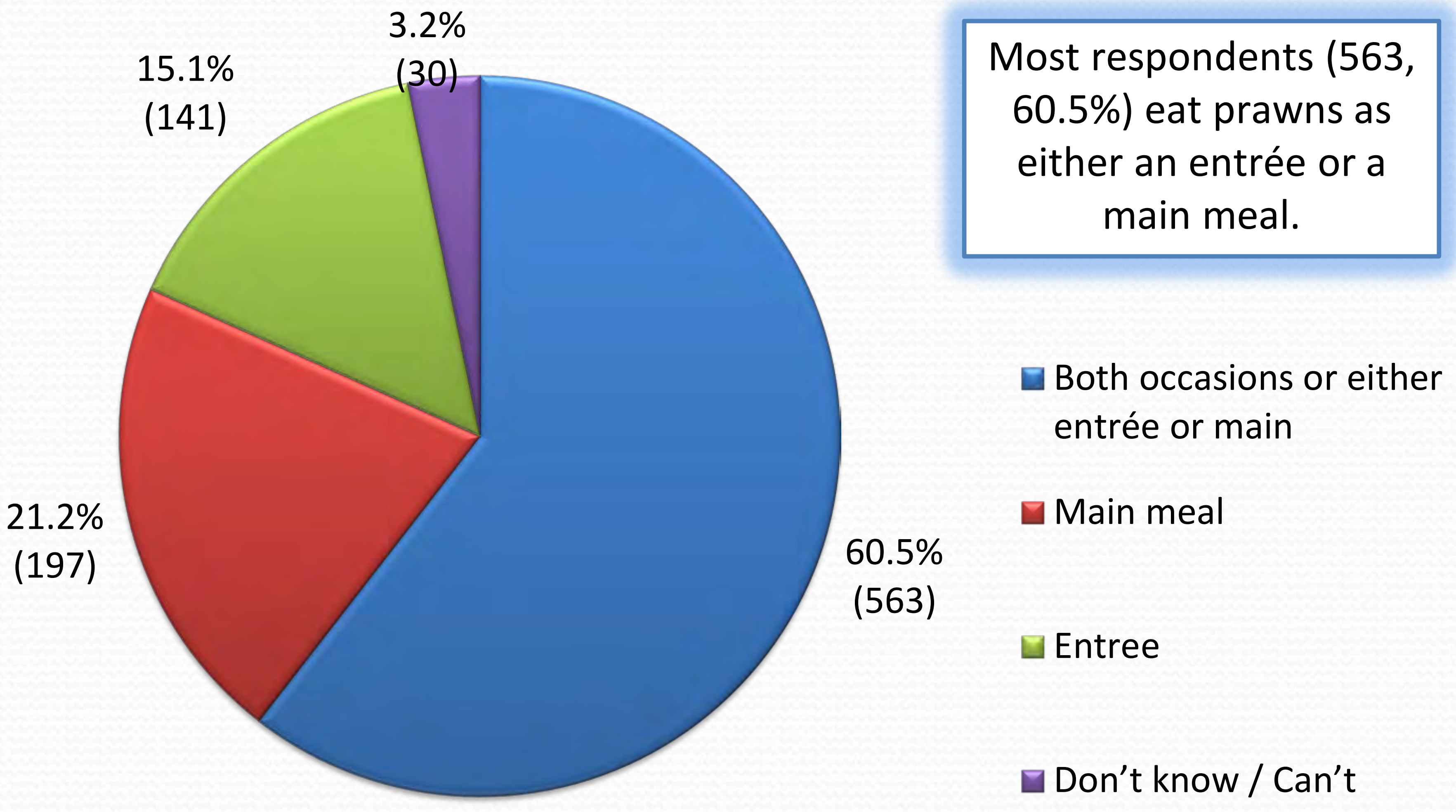
Usual place to purchase/eat prawns out of home

(n=931) multiple responses possible	n	%
Restaurant	713	76.6
Friend's / Relative's house* *(higher NSW)*	310	33.3
Fish and chip shop *(higher NSW)*	272	29.2
Hotel* *(higher SA)*	209	22.4
Fast food/ take away (inc. sushi stall)* *(higher NSW)*	177	19.0
Food court	140	15.0
Club* *(higher NSW)*	112	12.0
Function centre	70	7.5
Don't know	38	4.1
Coffee lounge / café	34	3.7
Other	34	3.7
Sandwich / Milk bar / Deli	26	2.8
Work / work cafeteria	20	2.1

Over 75% of the respondents (713, 76.6%) usually eat prawns at a restaurant.

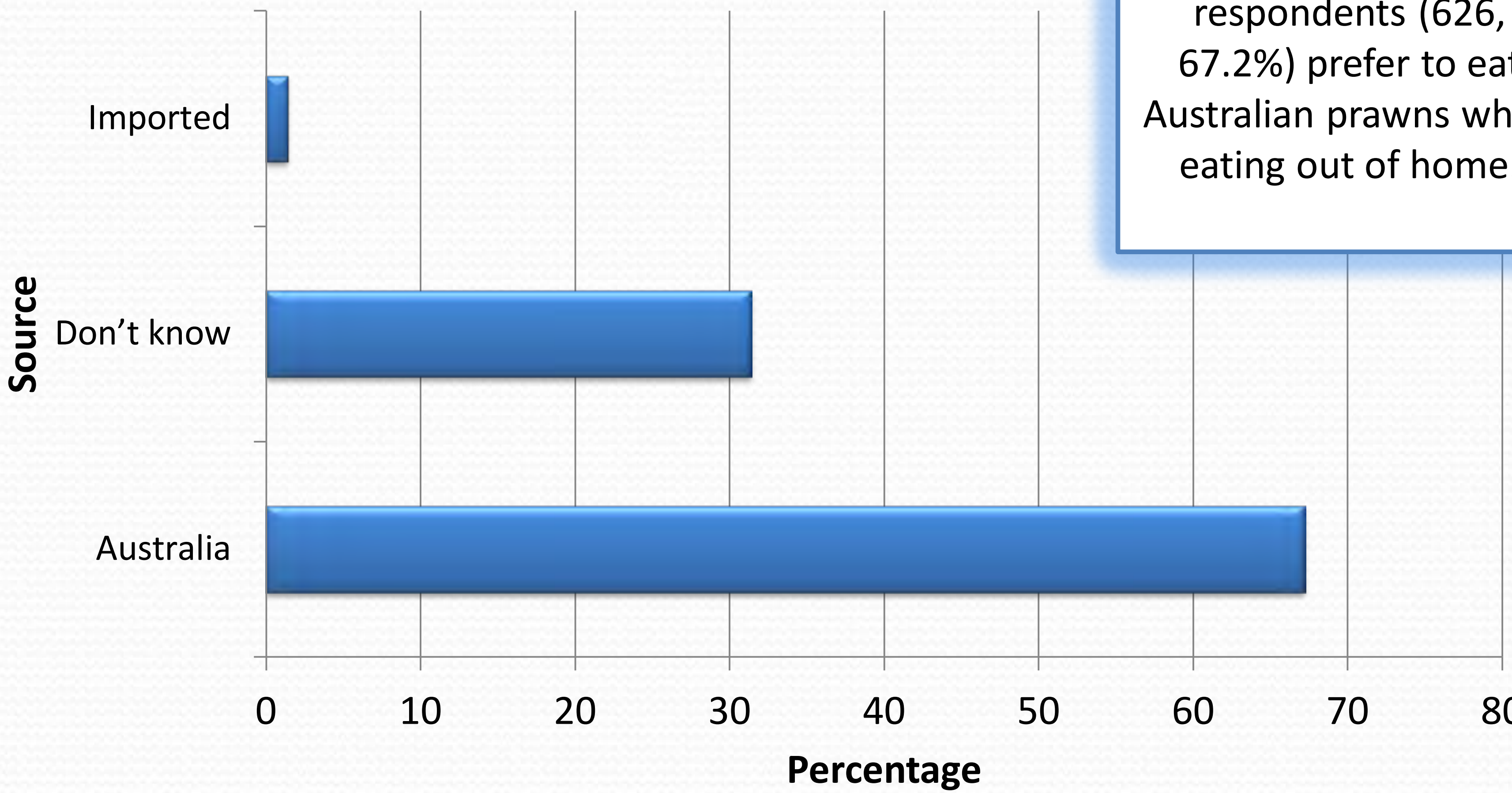
One third of the respondents (310, 33.3%) also eat prawns at a friend or relative's house.

Do you usually eat prawns for an entrée or a main meal?



Most respondents (563, 60.5%) eat prawns as either an entrée or a main meal.

Preference for Australian or imported prawns?



Over two thirds of the respondents (626, 67.2%) prefer to eat Australian prawns when eating out of home.

Do you know which region the prawns were from?

When eating out of home 55.7% (341) of respondents do not know which region of Australia the prawns they are consuming are from.

n= 612 (Only those who responded 'Australia' in previous question were asked)	n	%
No / Don't know	341	55.7
Other	43	7.0
Qld	34	5.6
SA	33	5.4
Australian	26	4.2
WA	24	3.9
Yes	20	3.3
Exmouth	15	2.5
NSW	10	1.6
Local	10	1.6
Sometimes	10	1.6
Spencer Gulf	9	1.5
Shark Bay	9	1.5
Tasmania	7	1.1
Port Lincoln	6	1.0
Crystal Bay	6	1.0
Gulf of Carpentaria	5	0.8
Coffin Bay	4	0.7

What brands of prawns have you purchased in the last 12 months – please list as many as possible?

As can be seen from the top five responses which are listed in the table below most respondents confused species with brand names.

Crystal Bay was the most nominated brand but it only accounted for 2.49% of the responses.

n=931	Frequency 1st response (%)	Frequency 2nd response (%)	Frequency 3rd response (%)	Frequency 4th response (%)	Total (n)	Total (%)
Tiger	111 (11.9)	58 (6.2)	20 (2.1)	6 (0.6)	195	13.90
King	77 (8.3)	47 (5.0)	28 (3.0)	6 (0.6)	158	11.26
Banana	37 (4.0)	43 (4.6)	26 (2.8)	6 (0.6)	112	7.98
Crystal Bay	28 (3.0)	3 (0.3)	2 (0.2)	2 (0.2)	35	2.49
Vannamei	21 (2.3)	5 (0.5)	6 (0.6)	1 (0.1)	33	2.35

Should restaurants/cafés include country of origin information on their menus? n=931

79.1% (737) of respondents agreed that country of origin information should be available on restaurant/café menus.

47.8% (445) strongly agreed

Familiarity with Source Areas

- All areas *NOT KNOWN* more frequently than *KNOWN*
- Even when known, level of familiarity was low

Area	Known (n = 931)	Familiarity (7pt scale)
Shark Bay	220	3.72
Clarence River	120	3.56
Yamba	155	3.58
Spencer Gulf	208	3.98

Significant differences based on consumption frequency

Regular consumers eat at least once a month; Occasional consumers less frequently

- Regular consumers more likely to eat at home
- Occasional consumers more likely to eat out of home
- Regular consumers eating more than 12 months ago
- Occasional consumers eating less than 12 months ago (cost of eating out??)
- Brand more important to regular consumers
- Regular consumers rated TV shows and social media more highly
- Occasional consumers supported COOL more strongly than regular

A final few points…

Household composition	• Those living alone less likely to eat prawns at home compared to couples
Income	• Lower income more likely to eat at home • Higher income prefer buying from fishmongers • Higher income restaurants; lower income hotels

Appendix 2: Chef Survey Questionnaire

CONFIDENTIAL QUESTIONNAIRE

Thank you for being involved in the study being conducted by the Centre of Excellence for Science Seafood & Health CESSH (CESSH) in association with the Seafood CRC to better understand WA Seafood perceptions and requirements by the food service sector. This questionnaire will take approximately 15 minutes to complete. Please answer all questions to the best of your knowledge.

Please return your completed questionnaire as soon as possible, via the reply paid envelope provided or in person at the chef event on 2nd May (details attached).

If you have any queries please contact the CESSH Senior Research Fellow Dr Janet Howieson by phone on **08 9266 2034**, by fax on **9266 2508** or via email at **j.howieson@curtin.edu.au**

Thank you again for your help. It is very much appreciated.

Dr Janet Howieson
Centre of Excellence, Science Seafood & Health (CESSH)
7 Parker Place, Technology Park 6102

Please return by 30th April 2011

Participant Consent – Please read and sign

All personal details will remain confidential and used ONLY for this study.

I (print your first and surname) have read the summary of this research project and any questions I have asked have been answered to my satisfaction. I agree to participate in this activity, realising that I may withdraw at any time without reason and without prejudice. I understand that all information provided is treated as strictly confidential and will not be released by the investigator unless required by law. I agree that data gathered for this project may be published provided my name or other identifying information are not used.

Signature:

The Human Research Ethics Committee at Curtin University requires that all participants are informed that, if they have any complaint regarding the manner, in which a research project is conducted, it may be given to the Project Director (Telephone 9266 2115) or, alternatively to the Secretary, Human Research Ethics Committee, Office of Research and Development, Curtin University of Technology, PO Box U1987, Perth, WA 6845 (Telephone 08 9266 2784)

Curtin University

AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

CESSH CENTRE OF EXCELLENCE SCIENCE SEAFOOD HEALTH

Part A: General questions

Q1 **What is your name?**

Q2 **What is the name of your restaurant?**

Q3 **What is your email address?**

Q4 **What is your contact phone number?**

Q5 **What is your position in your establishment?**

Q6 **What type of establishment is it?**

Q7 **How do you procure your seafood (species separately)?**

Type of seafood	From auction	Direct from producers	From wholesaler	Do not use
Finfish	%	%	%	
Crustaceans/molluscs	%	%	%	
Shellfish	%	%	%	
Calamari/squid	%	%	%	

Q8 **How many different wholesalers do you procure seafood from?**

Q9 **How important are the following criteria to your purchase decision for each species...**
(Tick one per line)

a) Country of origin (ie Australian vs imported)

	Not at all important	Little importance	Important	Very important
Barramundi				
Prawns				
Sardines				
Saddle tail snapper				

Curtin University

AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

CESSH CENTRE OF EXCELLENCE SCIENCE SEAFOOD HEALTH

b) State/region of origin

	Not at all important	Little importance	Important	Very important
Barramundi				
Prawns				
Sardines				
Saddle tail snapper				

Q10 **In general how important is each of the following in your seafood purchase decisions?** *(Tick one per line)*

	Not at all important	Little importance	Important	Very important
Sustainability				
Confidence in knowledge of origin of seafood products				
Knowing the story of the fishery behind the product you are supplied				
Price				
Shelf-life				
Relationship with supplier				
Branding				
Packaging size/form				
Consistency of quality				
Customer requests				
Supply of background information				
Consistency of supply				

Q11 **Do you think it should be mandatory to include County of origin labelling on menus?**

- Yes
- No
- Don't care

Q12 **Who do you trust to provide you with information on the issue of sustainability?**

Q13 **How important are each of the following sources of information that you may use to get information about food and the latest food trends from?**
(Tick one per line)

	Not at all important	Little importance	Important	Very important
Word of Mouth				
Suppliers				
Cook books				
Producers' events				
Trade journals				
Which ones?				
Food magazines				
Which ones?				
Trade shows				
Which ones?				
TV shows				
Which ones?				
Websites				
Which ones?				
Other (please specify)				

Q14 **Is your menu available online?**

Yes ☐ Where?

No ☐ If no, we would really appreciate a printed copy when you return your questionnaire.

Part B: Questions about barramundi

Q15 **Do you consistently stock barramundi** Yes ☐ No ☐

If no, why not?

Q16 **What type of barramundi do you stock?**

%	Wild caught In Australia		
%	Imported wild caught		
%	Imported farmed		
%	Salt water farmed	From which state?	
%	Brackish water farmed	From which state?	
%	Fresh water farmed	From which state?	

Q17 **What problems do you have/ have you had with Barramundi, if any?**

Q18 **What is one thing that your supplier could do to help you with Barramundi?**

Q19 **Indicate whether you agree or disagree with the following statement:** *(Tick one)*

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I prefer to buy farmed barramundi to wild caught barramundi.	☐	☐	☐	☐	☐

Q20 **If you were speaking to a Barramundi farmer, what would you ask or want to know?**

Q21 **Are you more interested in buying whole or filleted barramundi?**

Whole fish ☐

Fillet ☐

Questions 22-24 relate to whole farmed barramundi.

Q22 **What is the ideal weight for a whole barramundi fish to be used in your establishment?**

Less than 800 g ☐

800 g - 1.2 kg ☐

1.2 kg - 2 kg ☐

More than 2 kg ☐

Q23 **What type of packaging would you prefer the whole fish to come in?**

Crates with liner ☐

Plastic bag and in box ☐

Polyethylene box ☐

Other (please specify):

Q24 **How much are you willing to pay per kg of Australian farmed whole fish of good quality?**

$ /kg

Questions 25-30 relate to farmed barramundi fillets.

Q25 **Would you prefer the fillet to come fresh or frozen?**

Fresh chilled ☐ Frozen ☐

Q26 **Would you prefer the skin on or off the fillet?**

Skin on ☐ Skin off ☐

Q27 **What do you think is a reasonable portion size/serving size for a Farmed Barramundi Fillet?**

120 g ☐ 150 g ☐ 180 g ☐ 200 g ☐

Q28 **What type of packaging would you prefer the fillets to come in?**

Vacuum packed ☐

MAP plastic tray ☐ *(MAP = Modified Atmosphere Packaging)*

Plain fillets ☐

Other (please specify):

Q29 **How many fillets would you like to come in each package?**

Q30 **Approximately how much are you willing to pay per kg for Australian farmed Barramundi fillets?**

$ /kg

Part C: Questions about sardines

Q31 **Are sardines currently on your menu?** Yes ☐ No ☐

If no, why not?

Q32 **What are your perceptions of sardines?**

Positives:

Problems:

Curtin University

AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

CESSH CENTRE OF EXCELLENCE SCIENCE SEAFOOD HEALTH

Q33 **What is one thing that your supplier could do to help you buy more sardines?**

Q34 **Would further information influence your purchase of sardines?** Yes ☐ No ☐
If yes, what sort of information?

Q35 **In what form would you prefer the sardines to come?**

- Whole ☐
- Headed and gutted ☐
- Butterfly fillets ☐

Q36 **How would you prefer the sardines to come?**

- Fresh chilled ☐
- Frozen ☐
- Extended shelf life (8 days) ☐

Q37 **What form of packaging would you prefer fresh/frozen whole sardines to come in?**

- Vacuum packed ☐
- MAP plastic tray ☐
- Polyethylene box ☐
- Other (please specify):

Q38 **What is the ideal size for a whole sardine to be used in your establishment?**

10 cm ☐ 15 cm ☐ 18 cm ☐ 20 cm ☐

Q39 **What is your preferred volume of sardines per package?**

1 kg ☐ 2 kg ☐ 5 kg ☐ 10 kg ☐

Q40 How much are you willing to pay for the following?

1 kg of fresh whole sardines	$ /kg
1 kg of frozen whole sardines	$ /kg
1 kg of fresh sardines that have been headed and gutted	$ /kg
1 kg of sardine butterfly fillets	$ /kg
1 kg of crumbed sardine butterfly fillets	$ /kg
A 120 g can of imported sardines canned in organic olive oil	$ /kg
A120 g can of Australian sardines canned in organic olive oil	$ /kg

Part B: Questions about Shark Bay king prawns

Q41 Are Shark Bay king prawns currently on your menu? Yes ☐ No ☐

If no, why not?

Q42 What are your perceptions of Shark Bay king prawns?

Positives:

Problems:

Q43 What is one thing that your supplier could do to help you buy more Shark Bay king prawns?

Q44 **Would the story of the fishery behind the Shark bay king prawns you are supplied/ buy influence your purchasing decision?**

Yes ☐ No ☐

Q45 **Would further information influence your purchase of Shark Bay king prawns?**

Yes ☐ No ☐

If yes, what sort of information?

Q46 **In what form would you prefer the prawns to come?**

Whole and raw ☐
Whole and cooked ☐
Raw and peeled ☐
Cooked and peeled ☐

Q47 **What form of packaging would you prefer prawns to come in?**

Vacuum packed ☐
Carton ☐
Polyethylene box ☐
Other (please specify):

Q48 **What is the ideal size for a whole king prawn to be used in your establishment?**

U10 ☐ 15 ☐ 10-16 ☐ 16-20 ☐ Over 20 ☐

Q49 **What is your preferred volume of king prawns per package?**

1 kg ☐ 2 kg ☐ 5 kg ☐ 10 kg ☐

Q50 **How much are you willing to pay for 1 kg of raw, frozen Australian king prawns?**

$ /kg

Part E: Questions about saddletail snapper

Q51 **Do you consistently sell saddletail snapper?** Yes ☐ No ☐

If no, why not?

____

____

Q52 **What is one thing that your supplier could do to help you buy more saddletail snapper?**

____

____

Q53 **Would further information influence your purchase of saddletail snapper?**

Yes ☐ No ☐

If yes, what sort of information?

____

____

Q54 **Are you more interested in buying whole or filleted saddletail snapper?**

Whole ☐ Filleted ☐

Questions 55-58 relate to whole saddletail snapper

Q55 **How much are you willing to pay per kg of Australian snapper of good quality?**

$ /kg

Q56 **What is the ideal weight for a whole saddletail snapper fish (to be sold whole) to be used in your establishment?**

Less than 800 g ☐

800 g - 1.2 kg ☐

1.2 - 2 kg ☐

More than 2kg ☐

Q57 **What is the ideal weight for a whole saddletail snapper fish (to be sold as fillets) to be used in your establishment?**

- Less than 800 g ☐
- 800 g - 1.2 kg ☐
- 1.2 - 2 kg ☐
- More than 2kg ☐

Q58 **What type of packaging would you prefer the fish to come in?**

- Crates with liner ☐
- Plastic bag and in box ☐
- Polyethylene box ☐
- Other (please specify):

Questions 59-64 relate to saddletail snapper fillets

Q59 **Would you prefer the fillet to come fresh or frozen?**

Fresh ☐ Frozen ☐

Q60 **Would you prefer the skin on or off the fillet?**

Skin on ☐ Skin off ☐

Q61 **What do you think is a reasonable portion size/serving size for a farmed saddletail snapper fillet?**

120g ☐ 150g ☐ 180g ☐ 200g ☐

Q62 **What type of packaging would you prefer the fillets to come in?**

- Vacuum packed ☐
- MAP Plastic tray ☐
- Plain fillets ☐

Q63 **How many fillets would you like to come in each package?**

1 ☐ 5 ☐ 10 ☐ 20 ☐

Q64 **Approximately how much are you willing to pay per kg for saddletail snapper fillets?**

$ /kg

Thank you for your time and cooperation in completing this survey.

Curtin University

AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

CESSH CENTRE OF EXCELLENCE SCIENCE SEAFOOD HEALTH

Appendix 3: Sensory perception of prawns from different regions and species

Report

Sensory perception of prawns from different regions and species

Prepared for:
Janet Howieson
Curtin University

By:
Briony Liebich
Sensory Technologist
briony.liebich@sa.gov.au

South Australian Research & Development Institute

APRIL 2011

SARDI

SOUTH AUSTRALIAN RESEARCH AND DEVELOPMENT INSTITUTE

Government of South Australia
Primary Industries and Resources SA

Aim

The aim of this trial was to conduct a preliminary sensory evaluation to characterise the sensory attributes of cooked commercially available prawns from a broad range of species and sources of prawns. This report presents results that form part of a larger Seafood CRC project being conducted by Curtin University to support the Australian prawn industry to be able to understand the main differences between different prawn species and regions.

Sensory evaluation was carried out by SARDI's sensory panel with experience in assessing seafood. All prawn samples were presented whole and cooked without any seasonings.

Introduction

SARDI's trained external sensory panel were used to carry out all evaluations. All panellists have over 100 hours experience working as a group for trials involving numerous discrimination and tasks such as descriptive analysis and difference testing.

This report summarises only the preliminary sensory evaluation of the prawns as obtained by SARDI in April 2011.

Method

1. Sample Preparation – Cooking Prawns

There were fourteen different prawn samples sourced from commercial distributors. Prawns were delivered as frozen raw samples (except Vannemai prawns) and were stored in a freezer (-18°C) until two days before sensory assessment. SARDI was unaware of specific details such as specific size, harvest date or cool chain distribution channels and the samples were identified by the descriptions shown in Table 1.

Table 1 Prawn treatments evaluated for an informal sensory assessment

Prawn Species	Description	Sensory Code
Endeavour	Exmouth Gulf WA	Endeavour
Coral	Shark bay WA	Coral
Banana	QLD	Banana
Black tiger	NSW, farmed	Black tiger
King	Yamba NSW	King Yamba
King	Spencer Gulf SA	King Spencer Gulf
King	Shark Bay 1 WA	King Shark Bay 1
King	Shark Bay 2 WA	King Shark Bay 2
King	East Coast Trawl, Hervey Bay QLD	King EC Trawl
School	Clarence River - Estuary NSW	School CR Estuary
School	Hawkesbury 1 - Small NSW	School Hawkesbury Small
School	Hawkesbury 2 - Large NSW	School Hawkesbury Large
Vannemai [1]	Imported Supplier 1, farmed	Vannemai 1
Vannemai [1]	Imported Supplier 2, farmed	Vannemai 2

[1] Delivered cooked

The prawns were prepared by thawing each type in a fridge overnight in coded shallow trays lined with absorbent paper. Each batch of prawns were cooked the following day in a pot of boiling salted water until approximately half of the prawns in the pot rose to the surface of the water. Upon removal from the cooking pot, the prawns were immersed in an ice water bath for one minute and drained. Then prawns were stored whole in sealed containers lined with absorbent paper to prevent drying out and losing aroma intensity.

2. Sensory Evaluation – Informal Assessment

This preliminary tasting was performed to provide broad sensory descriptions of cooked commercially available prawns from a broad range of species and sources of prawns. Another objective was to screen the various prawns to check if further characterisation by sensory profiling is warranted.

A panel of 7-9 experienced assessors evaluated all prawns using a consistent approach in blind tasting conditions. Panellists were not informed of the species or source prior to tasting. There were two tasting sessions held over consecutive days with eight prawn samples evaluated in the first session and six prawns evaluated in the second session. Panellists were asked to write detailed tasting notes for each sample commenting on appearance, aroma, taste and texture characteristics. In addition, panellists were asked to make a final comment for each sample that would help distinguish it from the other samples.

All prawn samples were cooked the day prior to tasting. Prawns were presented whole and unpeeled at room temperature each labelled with three-digit random codes on a tray lined with absorbent paper. For larger prawns, two were presented and for smaller prawns at least six were presented per person. Tasting took place in a round table format under white lighting and all panellists had access to palate cleansers such as celery, cracker biscuits and water. Once samples were tasted by individuals a group discussion was held to share notes and reach a consensus description for each prawn type. An off-odour or off-flavour was recorded only if it was perceived at a detectable level by a minimum of two assessors.

An example of the presentation tray for the first session is shown in Figure 1.

Figure 1 Sample presentation example of prawns for informal sensory assessment

Results: Prawn Trial

Sensory Evaluation – Informal Assessment

Prawns, in general, are considered to have a mild but distinctive flavour with a texture that is described as tender and delicate (Erickson *et al*., 2007). In this trial, commonly used aroma and flavour attributes included cooked prawn, seawater/brine, canned sweet corn, boiled/mashed potato, milky, batter (e.g. uncooked cake mix), sulphurous (e.g. boiled egg), sweetness and savoury/umami (e.g. vegetal stock).

The overall sensory characteristics for each of the prawns are summarised in Table 2. Detailed tasting notes for each prawn are summarised in the following tables.

Please note this report is limited in the ability to accurately interpret the tasting notes provided due to the nature of the assessment with assessors providing their own comments and evaluating samples once only.

Table 2 Summary of informal tasting notes for a broad range of species and sources of prawns tasted by 7-9 trained assessors

Prawn Type	Appearance & Approximate Length	Overall impression
Endeavour	Medium pink-orange, some black in heads, 10-13cm	Very mild prawn flavour, slightly metallic, soft/mushy texture
Coral	Very pale pink, white in parts, 8-11cm	Mild sweet prawn flavour, moderately firm and crisp texture
Banana	Pale pink-orange, some yellow near legs, 13-16cm	Mild sweet prawn and brine flavour, slightly metallic, firm and crisp texture
Black tiger	Deep orange-red, black stripes, 10-13cm	Mild prawn flavour, sweetness, moderately firm and crisp texture
King Yamba	Deep pink-orange, some black near legs, 16-18cm	Mild sweet prawn and brine flavour, slightly metallic, firm and crisp texture
King Spencer Gulf	Medium orange, yellow near legs, some had black marks, 10-13cm	Moderate fresh prawn and sweet flavours, firm and meaty with some juiciness
King Shark Bay 1	Pale pink-orange, some black spots in heads, 10-13cm	Mild sweet prawn and corn flavour, slightly metallic, pasty/soft texture with fine fibres
King Shark Bay 2	Medium orange, some yellow near legs, 10-13cm	Fresh and natural prawn and sweet flavours, slightly metallic, firm and meaty texture
King EC Trawl	Medium pink-orange, some black spots in head, 16-18cm	Neutral prawn flavour, lacking freshness, firm and slightly chewy texture
School CR Estuary	Very pale pink, orange spots, 6-10cm	Fresh, natural prawn flavour, small and soft with a juicy texture
School Hawkesbury Small	Pale pink, orange spots, 6-10cm	Mild sweet prawn flavour, lacking freshness in finish, small and soft juicy texture
School Hawkesbury Large	Pale pink, orange spots, 8-10cm	Mild sweet prawn and savoury fishy flavours, small and soft juicy texture
Vannemai 1	Bright orange-red, some spots, 9-11cm	Fresh sweet prawn and brine flavour, firm, crisp and meaty texture
Vannemai 2	Bright orange-red, some spots, 10-13cm	Neutral prawn, little seafood flavour, firm, crisp and meaty texture

Detailed tasting notes for a broad range of species and sources of prawns tasted by 7-9 trained assessors, brackets denote the number of assessors that used the term

Prawn Type		Endeavour	Coral
APPEARANCE	Shell Colour & Intensity	Medium pink-orange, some black in heads, 10-13cm length	Very pale pink, white in parts, 8-11cm length
	Shell Surface	Quite glossy, slightly rough	Dull sheen, slightly rough
	Shell Hardness	Soft and thin	Quite firm
AROMA – unpeeled	Any noticeable smells	Mild cooked prawn, brine, cake batter, vegetal	Moderate cooked prawn, fresh sea, batter, boiled potato, milk, canned corn
PHYSICAL	Peelability *easy – difficult*	Quite difficult, some meat adheres to shell	Moderately easy
AROMA – peeled	Any noticeable smells	Mild cooked prawn, sulphur/eggy, popcorn	Mild cooked prawn, milky seafood chowder, iodine, canned corn, batter, boiled potato
	Off-odour	Nil	Nil
TEXTURE	Firmness to touch (peeled)	Soft to touch	Moderately firm to touch
	Translucence	Opaque	Opaque
	Juiciness *dry - juicy*	Low juiciness, slight dryness	Low-medium juiciness
	Chewiness (after 10 chews)	Not very chewy, easily breaks down	Not very chewy, easily breaks down
	Fibrous/Stringy	Not very fibrous	Finely fibrous
	Other…	Mushy (5), powdery (2), pasty (2), crisp (1)	Crisp (2), squeaky (2), springy (1), mushy (1)
FLAVOUR	Sweet	Low – Medium	Medium
	Salty	Low	Low
	Sour	Nil	Nil
	Savoury/Umami	Low – Medium	Low
	Bitter	Nil	Nil
	Metallic	Slight (7)	Slight (2)
	Other…	Canned corn, boiled potato, batter	Cooked prawn, fresh seawater, canned corn, milky
FINISH	Any lingering perceptions	Metallic after-taste	Mild sweetness
	Off-flavour	Slight metallic	Nil
	Overall impression	Very mild prawn flavour, slightly metallic, soft/mushy texture	Mild sweet prawn flavour, moderately firm and crisp texture

Detailed tasting notes for a broad range of species and sources of prawns tasted by 7-9 trained assessors, brackets denote the number of assessors that used the term

Prawn Type		Banana	Black tiger
APPEARANCE	Shell Colour & Intensity	Pale pink-orange, some yellow near legs, 13-16cm length	Deep orange-red, black stripes, 10-13cm length
	Shell Surface	High glossy, smooth	Semi-glossy, slightly rough
	Shell Hardness	Moderately firm	Moderately firm yet flexible shell
AROMA – unpeeled	Any noticeable smells	Mild cooked prawn, fresh sea, sulphur, canned corn, cheesy, fishy	Boiled potato, batter, canned corn, cooked prawn, seawater, buttery
PHYSICAL	Peelability *easy – difficult*	Quite easy	Quite difficult, thin shell breaks easily
AROMA – peeled	Any noticeable smells	Mild cooked prawn, seawater, boiled potato, canned corn, batter, iodine	Mild cooked prawn, potato, canned corn, stale seawater, vegetal, fishy
	Off-odour	Slight ammonia (3)	Nil
TEXTURE	Firmness to touch (peeled)	Quite firm, slightly spongy	Moderately firm, slightly springy
	Translucence	Opaque, some translucency	Opaque
	Juiciness *dry - juicy*	Medium juiciness	Medium juiciness, some dryness
	Chewiness (after 10 chews)	Slightly chewy, firm to bite	Slightly chewy, firm to bite
	Fibrous/Stringy	A little fibrous	Slightly stringy, large fibres
	Other…	Crisp (3), slimy (1), grainy (1), springy (1)	Crisp (2), springy (1), rubbery (1), floury (1)
FLAVOUR	Sweet	Low – Medium	Low – Medium
	Salty	Low – Medium	Low
	Sour	Nil	Nil
	Savoury/Umami	Low – Medium	Low
	Bitter	Nil	Nil
	Metallic	Slight (3)	Nil
	Other…	Cooked prawn, brine, canned corn, milky	Cooked prawn, canned corn, seawater, brine, stock, bland, watery
FINISH	Any lingering perceptions	Metallic after-taste	A little stale
	Off-flavour	Nil	Nil
	Overall impression	Mild sweet prawn and brine flavour, slightly metallic, firm and crisp texture	Neutral prawn flavour, not as fresh as some, firm and springy texture, lacking moisture

Detailed tasting notes for a broad range of species and sources of prawns tasted by 7-9 trained assessors, brackets denote the number of assessors that used the term

Prawn Type		King – Yamba	King – Spencer Gulf
APPEARANCE	Shell Colour & Intensity	Deep pink-orange, some black near legs, 16-18cm length	Medium orange, yellow near legs, some had black marks, 10-13cm length
	Shell Surface	High glossy, smooth	High glossy, smooth
	Shell Hardness	Quite hard, thick shell	Quite hard
AROMA – unpeeled	Any noticeable smells	Mild cooked prawn, fresh sea, seaweed, fresh corn, fishy	Mild cooked prawn, boiled potato, fresh sea, milky, canned corn, batter
PHYSICAL	Peelability *easy – difficult*	Quite easy	Moderately easy, some meat sticks to shell
AROMA – peeled	Any noticeable smells	Mild cooked prawn, seawater, fresh corn, sulphur, brine, seaweed, fishy	Medium cooked prawn, milky, boiled potato, canned corn, brine, iodine, eggy, batter
	Off-odour	Slight ammonia (3)	Nil
TEXTURE	Firmness to touch (peeled)	Quite firm, slightly spongy	Slightly soft, some spongy/elastic
	Translucence	Opaque, some translucency	Opaque, some translucency
	Juiciness *dry - juicy*	Medium juiciness	Medium juiciness
	Chewiness (after 10 chews)	Slightly chewy, firm to bite	Slightly chewy, firm to bite
	Fibrous/Stringy	A little fibrous	Quite fibrous/stringy
	Other…	Crisp (3), slimy (1), grainy (1), springy (1)	Slimy (3), soft (1), meaty (1), crisp (1), rubbery (1)
FLAVOUR	Sweet	Low – Medium	Medium
	Salty	Low – Medium	Low – Medium
	Sour	Nil	Nil
	Savoury/Umami	Low – Medium	Low
	Bitter	Nil	Nil
	Metallic	Slight (3)	Nil
	Other…	Cooked prawn, brine, canned corn, milky	Cooked prawn, brine, canned corn, milky, boiled potato, eggy, cheesy/savoury, bland
FINISH	Any lingering perceptions	Metallic after-taste	Fresh prawn flavour
	Off-flavour	Nil	Nil
	Overall impression	Mild sweet prawn and brine flavour, slightly metallic, firm and crisp texture	Moderate fresh prawn and sweet flavours, firm and meaty with some juiciness

Detailed tasting notes for a broad range of species and sources of prawns tasted by 7-9 trained assessors, brackets denote the number of assessors that used the term

Prawn Type		King – Shark Bay 1	King – Shark Bay 2
APPEARANCE	Shell Colour & Intensity	Pale pink-orange, some black spots in heads, 10-13cm length	Medium orange, some yellow near legs, 10-13cm length
	Shell Surface	Semi-glossy, smooth	High glossy, smooth
	Shell Hardness	Moderately firm, slightly springy	Moderately firm
AROMA – unpeeled	Any noticeable smells	Mild cooked prawn, canned corn, fresh sea, batter, fishy	Fresh sea, sulphur, canned corn, boiled potato, cooked prawn
PHYSICAL	Peelability *easy – difficult*	Quite easy, some meat sticks to shells	Quite easy, shells break into small pieces
AROMA – peeled	Any noticeable smells	Medium cooked prawn, fresh corn, seaweed, iodine, seawater, raw potato, fried onion, eggy	Medium fresh sea, mild cooked prawn, eggy/sulphur, seaweed, canned corn, milky
	Off-odour	Slight ammonia (3)	Nil
TEXTURE	Firmness to touch (peeled)	Quite firm, slightly spongy	Quite firm, slightly springy
	Translucence	Opaque	Opaque
	Juiciness *dry - juicy*	Low juiciness, some dryness	Low – Medium Juiciness
	Chewiness (after 10 chews)	Not very chewy, breaks down easily	Slightly chewy, firm to bite
	Fibrous/Stringy	A little fibrous	Moderately fibrous
	Other…	Crisp (2), powdery (3), floury (3)	Crisp (3), plump (3), meaty (3), floury (2)
FLAVOUR	Sweet	Low – Medium	Medium
	Salty	Low	Low – Medium
	Sour	Nil	Nil
	Savoury/Umami	Low – Medium	Low
	Bitter	Nil	Nil
	Metallic	Slight (3)	Slight (2)
	Other…	Cooked prawn, canned corn, brine, milky, stock, seaweed, fishy, eggy, neutral	Cooked prawn, canned corn, brine, white pepper, eggy, bland
FINISH	Any lingering perceptions	Metallic after-taste	Metallic after-taste
	Off-flavour	Nil	Nil
	Overall impression	Mild sweet prawn and corn flavour, slightly metallic, pasty/soft texture with fine fibres	Fresh and natural prawn and sweet flavours, slightly metallic, firm and meaty texture

Detailed tasting notes for a broad range of species and sources of prawns tasted by 7-9 trained assessors, brackets denote the number of assessors that used the term

Prawn Type		King – EC Trawl	School – Clarence River Estuary
APPEARANCE	Shell Colour & Intensity	Medium pink-orange, some black spots in head, 16-18cm length	Very pale pink, orange spots, 6-10cm length
	Shell Surface	High glossy, smooth	Semi-glossy, slightly rough, some smooth
	Shell Hardness	Soft and thin	Moderately soft
AROMA – unpeeled	Any noticeable smells	Cooked prawn, fresh sea, seaweed, iodine, canned corn, stale, fishy	Cooked prawn, fresh sea, seaweed, milky, canned corn, stock, iodine
PHYSICAL	Peelability *easy – difficult*	Quite easy, some shells not cleanly removed	Difficult, meat sticks in fragile shells
AROMA – peeled	Any noticeable smells	Mild cooked prawn, seawater, seaweed, canned corn, stale, milky, eggy	Mild cooked prawn, seawater, canned corn, batter, boiled potato, canned fish, milky, sulphur
	Off-odour	Nil	Nil
TEXTURE	Firmness to touch (peeled)	Soft to touch, firmer to bite	Soft to touch
	Translucence	Opaque	Opaque
	Juiciness *dry - juicy*	Low – Medium juiciness	Low – Medium juiciness
	Chewiness (after 10 chews)	Slightly chewy, firm to bite	Soft and slightly chewy
	Fibrous/Stringy	A little fibrous	Not very fibrous (note very small size)
	Other…	Crisp (2), slimy (2), gelatinous (1), powdery (1), springy (1)	Mushy (2), rubbery (1), meaty (1), slimy (1), squeaky (1)
FLAVOUR	Sweet	Low – Medium	Low – Medium
	Salty	Low	Low
	Sour	Nil	Nil
	Savoury/Umami	Low	Low – Medium
	Bitter	Nil	Nil
	Metallic	Slight (3)	Nil
	Other…	Cooked prawn, brine, corn, milky	Cooked prawn, brine, canned corn, neutral, celery, batter, boiled potato
FINISH	Any lingering perceptions	A little stale	Fresh prawn flavour
	Off-flavour	Nil	Nil
	Overall impression	Neutral prawn flavour, lacking freshness, firm and slightly chewy texture	Fresh, natural prawn flavour, small and soft with a juicy texture

Detailed tasting notes for a broad range of species and sources of prawns tasted by 7-9 trained assessors, brackets denote the number of assessors that used the term

Prawn Type		School – Hawkesbury Small	School – Hawkesbury Large
APPEARANCE	Shell Colour & Intensity	Pale pink, orange spots, 6-10cm length	Pale pink, orange spots, 8-12cm length
	Shell Surface	Semi-glossy, smooth	Dull gloss, slightly rough
	Shell Hardness	Soft and thin	Soft and thin
AROMA – unpeeled	Any noticeable smells	Cooked prawn, fresh sea, mashed potato, batter, canned corn, eggy, fishy	Cooked prawn, seawater, batter, canned corn, stock, boiled potato
PHYSICAL	Peelability *easy – difficult*	Difficult, meat sticks in fragile shells	Difficult, meat sticks in fragile shells
AROMA – peeled	Any noticeable smells	Cooked prawn, seawater, boiled potato, canned corn, batter, vegetal, cheesy	Cooked prawn, seawater, boiled potato, canned corn, batter, milky, iodine, sulphur
	Off-odour	Nil	Nil
TEXTURE	Firmness to touch (peeled)	Soft	Soft
	Translucence	Opaque, some translucency	Opaque
	Juiciness *dry - juicy*	Medium juiciness	Medium juiciness
	Chewiness (after 10 chews)	Not very chewy, break down easily due to small size	Not very chewy, break down easily due to small size
	Fibrous/Stringy	Not fibrous	Not fibrous
	Other…	Mushy (2), soft (1), pasty (2), springy (1)	Mushy (1), soft (1), pasty (2), gritty (1)
FLAVOUR	Sweet	Medium	Medium
	Salty	Nil	Low
	Sour	Nil	Nil
	Savoury/Umami	Low – Medium	Low – Medium
	Bitter	Nil	Nil
	Metallic	Slight (2)	Nil
	Other…	Cooked prawn, boiled potato, stock, warm milk, canned corn, watery, stale	Cooked prawn, seawater, canned corn, savoury, milky, iodine
FINISH	Any lingering perceptions	Metallic after-taste	Mild sweetness
	Off-flavour	Slight ammonia (4)	Nil
	Overall impression	Mild sweet prawn flavour, lacking freshness in finish, small and soft juicy texture	Mild sweet prawn and savoury fishy flavours, small and soft juicy texture

Detailed tasting notes for a broad range of species and sources of prawns tasted by 7-9 trained assessors, brackets denote the number of assessors that used the term

Prawn Type		Vannemai 1	Vannemai 2
APPEARANCE	Shell Colour & Intensity	Bright orange-red, some spots, 9-11cm length	Bright orange-red, some spots, 10-13cm length
	Shell Surface	Semi-glossy, smooth	Semi-glossy, smooth
	Shell Hardness	Moderately firm, flexible	Moderately firm, flexible
AROMA – unpeeled	Any noticeable smells	Mild cooked prawn, fresh sea, batter	Pancake batter, mashed potato, canned corn, fresh sea
PHYSICAL	Peelability *easy – difficult*	Quite easy	Quite easy
AROMA – peeled	Any noticeable smells	Mild cooked prawn, fresh sea, raw and cooked potato, canned tuna, creamed corn, vegetal, batter	Low cooked prawn, batter, seawater, fishy, canned corn
	Off-odour	Nil	Nil
TEXTURE	Firmness to touch (peeled)	Quite firm, slightly springy	Quite firm, slightly springy
	Translucence	Opaque	Opaque
	Juiciness *dry - juicy*	Low – Medium juiciness, some dryness	Low – Medium juiciness, some dryness
	Chewiness (after 10 chews)	A little chewy, firm to bite	A little chewy, firm to bite
	Fibrous/Stringy	A little fibrous	A little fibrous
	Other…	Crisp (3), squeaky (2), meaty (3)	Crisp (3), squeaky (2), meaty (2)
FLAVOUR	Sweet	Low – Medium	Low – Medium
	Salty	Low	Low
	Sour	Nil	Nil
	Savoury/Umami	Low	Low
	Bitter	Nil	Nil
	Metallic	Nil	Nil
	Other…	Cooked prawn, brine, savoury, celery, fishy, batter, canned corn	Low cooked prawn, seawater, savoury, watery
FINISH	Any lingering perceptions	Sweetness lingers	Neutral finish
	Off-flavour	Nil	Nil
	Overall impression	Fresh sweet prawn and brine flavour, firm, crisp and meaty texture	Neutral prawn, little seafood flavour, firm, crisp and meaty texture

Discussion

The prawns in this trial showed a diverse range of sensory characteristics that were of good overall quality. Commercially available prawn species could be distinguished relatively well based on appearance alone. The cooked black tiger prawn features were shell darkness and black stripes, coral prawns, on the other hand, were noted for their pale pink and white shell. All school prawns of various size and source appeared pale pink and were mottled orange. In the king prawns, all shared an orange coloured shell and some differences were observed in colour intensity, yellowing, and glossiness. The king prawns from Shark Bay region 1 and the east coast trawl showed paler pink colourings, those from Shark Bay region 2 and Spencer Gulf had yellow markings, and prawns from Yamba were deeper coloured and more glossy with some black markings.

Notable differences in aroma and flavour properties were in the intensity and degree of freshness of cooked prawn, seawater and basic taste characteristics like sweetness and savoury/umami. Some were perceived as ‘milky’, ‘boiled potato’ with an aroma reminiscent of ‘cake batter’, like Spencer Gulf king prawns, while others had stronger ‘seaweed’, ‘iodine’ and ‘fishy’ odours like king prawns from east coast trawl. When terms with negative impressions were used such as ‘stale’, ‘bland’, ‘metallic’, and ‘ammonia’, it was difficult to reach complete panel agreement as to the extent of the aroma/flavour perception. Sometimes only 1-2 assessors used a term like ‘stale’ and the only prawns that didn’t seem as fresh as the others were the black tiger and east coast trawl prawns.

It should be noted that although each batch of different prawns were cooked using the same procedure, there may have been slight differences due to prawn size or cooking time that could influence how prawn texture was perceived. In general, the larger prawns were firmer, more crisp and fibrous than the smaller prawns. Note also that this report is limited in the ability to accurately interpret the tasting notes provided due to the informal nature of the assessment.

Follow up work that builds on the information in this report could be further panel training and discussion to more effectively define prawn attributes and quantify sensory differences among prawns. In this trial, many of the same attributes were used to describe different prawns and the subtle intensity differences of these could be further characterised using methods like descriptive analysis. Such flavour and texture profiles would enable sales and marketing personnel to be able to communicate prawn attributes, and the utilisation of these properties with other ingredients and dishes, in a meaningful way to potential customers.

Understandably, prawns of the same species from different sources showed similar sensory properties and it would be of interest to industry to know if consumers can detect differences between them. This would be achieved by directly comparing two prawn types using a consumer panel to indicate whether prawns are perceivably different in overall flavour and texture properties.

Further consumer testing could be carried out to understand more about consumer attitudes and perceptions of different prawns as well as how prawns are selected and purchased for a variety of culinary purposes. One way to achieve this is by conducting a usage and attitude study that incorporates images of different prawns with related consumer questions.

The benefits of such sensory trials for the prawn industry include:

- Having a better understanding of commercially available prawn species from different sources
- Knowing more about the sensory perception of cooked prawns as these properties related directly to consumer acceptance and marketing of prawns

- Development of standardised prawn preparation and evaluation procedures with clearly defined attributes
- Providing tools for training seafood industry staff and consumers to recognise key product characteristics

For further information, please contact SARDI's Sensory Technologist.

References

Erickson, M.C., M.A. Bulgarelli, A.V.A. Resurreccion, R.A. Vendetti, and K.A. Gates, Sensory differentiation of shrimp using a trained descriptive analysis panel, LWT- Food Science Technology 40 (2007)1774–1783

Appendix 4: Prawn Value Chain Stakeholder Interview Questions

Prawn Survey:

1. Summary of product produced: marketer

2. Summary of supply chain (from harvest to retail)

4. Quality Measurements/Standards.

5. Issues and Opportunities for this Business

6. Issues and Opportunities for prawn industry as a whole

7. Issues, opportunities, possible outcomes for this project “prawn value chain

8. Reaction to Cluster Approach

9. Value Chain Analysis (in respect of your prawn supply chain)

a. Material Flow

a. Comments on Maximising efficiency

b. Comments on Minimising waste

c. Comments on Value adding

b. Information Flow

a. Comments on perceived consumer/buyer important attributes

b. Comments of Effectiveness of information Flows between chain partners

c. Relationships

a. Comments on strategic alignment with other chain partners (suppliers and down chain distributors etc)

b. Comments on Trust, commitment and collaboration

c. Comments on sharing innovation between the chain partners.

10. Any other Comments

Appendix 5: Generic Agenda for Strategy Development Workshops

CRC2008/793: Improving quality and value in the domestic prawn value chain.

Strategy Development Workshop

Date:
Time:
Location:

Agenda

1. **Introduction**

2. **Results of General Prawn Consumer Research**

3. **Results of Fishery Specific research**

    3.1 Value chain interviews with buyers, distributors, retailers etc.
    3.2 Consumer research
    3.3 Interviews with chefs
    3.4 Sensory/quality results

4. **Introduction to Promotional Strategy Development**

5. **Strategy Development and Prioritisation facilitation**

6. **Wrap up and next steps**

7. **Close**

Appendix 6: Producer Association Survey

SHARK BAY VCA PRE IMPLEMENTATION SURVEY

ASSOCIATION MEMBERS

1. **Name**
2. **Position**

A. VALUE CHAIN RESEARCH RESULTS AND PRE LAUNCH ACTIVITIES

Overall how satisfied are you with the project to date ('Value Chain Analysis for the Shark Bay Prawn Fishery)? Please rate the satisfaction on a scale of 1 being not satisfied/unhappy to 10 being very happy/satisfied?

1 2 3 4 5 6 7 8 9 10

Q2. What have you found most useful about the overall project?

Q3. What have you found least useful about the overall project?

Q4. Thinking about specific aspects of the project, how useful has the outcome of each aspect been?

	Not aware of aspect	Slightly useful	Useful	Very useful	Extremely useful
Initial meeting with Prof Hamish Gow					
Results of value chain members interviews					
Results of Consumer survey					
Results of Interviews with chefs about Shark Bay Prawns					
Workshop with Tiffany and Meredith					
Chef event at Don Hanceys kitchen					
Shark bay wild soft launch with Norman Moore					
Development of marketing plan and materials					

Q5. As a result of the project thus far have you made any changes within your organisation (e.g. changes to your marketing strategies/activities, different down chain relationships)?

Yes ☐ **Go to Q6** No ☐ **Go to Q8**

Q6. Briefly describe the changes you made?

Q7. What were the outcomes of the changes you made as a result of the project? Go to Q9.

- Improved sales volume ☐
- Improved sales price ☐
- Improved profitability ☐
- Improved relationships with other value chain members ☐
- New business/enterprise implemented ☐
- Other (please state) ☐

Q8. Why didn't you make any changes?

VCA PROJECT PROCESS

Q11. Overall how satisfied are you with the process (communication/meetings) for the project? Please rate your level of satisfaction on a scale of 1 (not satisfied/unhappy) to 10 (very happy/satisfied)?

1 2 3 4 5 6 7 8 9 10

Q9. How did you find out about the progress of the project?

- Email from executive officer ☐
- Management Committee meeting ☐
- Direct from Researchers ☐
- Other (please state) ☐

Q10. How would you have preferred to find out about the progress of the project?

- Email from executive officer ☐
- Management Committee meeting ☐
- Researchers ☐
- Other (please state) ☐

Q12. Any other comments, eg about how the process could be improved ?

Appendix 7: CRC 2009/786: Final Report

Commercial Value Chain Analysis of the Spencer Gulf and West Coast Prawn Fisheries – Domestic Retail and Restaurants

Craig Johns, Nathan Kimber & Karen Hollamby

Project No. 2009/786

Title: Commercial value chain analysis of the Spencer Gulf and West Coast prawn fisheries – domestic retail and restaurants

Authors: Mr Craig Johns & Nathan Kimber
Rural Solutions SA
PO Box 1671
Adelaide SA 5001
Telephone: +61 8 8389 8814 Fax: +61 8 8389 8899
Email: Craig.Johns@sa.gov.au
Web: www.ruralsolutions.sa.gov.au

Ms Karen Hollamby
Spencer Gulf and West Coast Prawn Fishermen's Association
PO Box 8
Port Lincoln SA 5606
Telephone: +61 8 8682 4600 Fax: +61 8 8682 6253
Email: eo@prawnassociation.com.au

Date: May 2010

Publisher:

ISBN:

AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

Australian Government
Fisheries Research and Development Corporation

The Australian Seafood CRC is established and supported under the Australian Government's Cooperative Research Centres Programme. Other investors in the CRC are the Fisheries Research and Development Corporation, Seafood CRC company members and supporting participants

TABLE OF CONTENTS

NON TECHNICAL SUMMARY

Project No. 2009/786:	Commercial value chain analysis of the Spencer Gulf and West Coast Prawn Fisheries – domestic retail and restaurants

Principal Investigator: Mr Craig Johns
Rural Solutions SA
PO Box 1671
Adelaide SA 5001
Telephone: +61 8 8389 8814
Fax: +61 8 8389 8899
Email: Craig.Johns@sa.gov.au
Web: www.ruralsolutions.sa.gov.au

Objectives:

1. Identify costed intervention and improvement activity directly impacting the industry and the businesses within it.

Value Chain Analysis – Domestic Retail (Drake Food Markets)

Drake's buy approximately 18-20 tonnes of Spencer Gulf and West Coast prawns throughout the course of a fishing season and stock these prawns in some capacity all year round. Drake's Food Markets (Drake's) purchase the majority of their prawns through Australian Bight Seafood (Australian Bight), one of the 7 major portside buyers.

Prawns are caught, graded and sorted and in the case of product going through to Drake's cooked, then frozen in 5kg or 10kg cartons. All of this processing happens on board the fishing vessels.

Australian Bight has storage facilities in Port Lincoln, where product remains until it is transported to Drake's central storage and freezing facility. From there prawns are distributed to individual stores where they are held, until they are placed on display in the store's deli cabinet to defrost and be sold.

Value Chain Analysis – Restaurants (Hilton Hotel)

The Hilton Hotel purchase Spencer Gulf and West Coast fishery prawns from a number of wholesalers, who are supplied from the portside buyers in the fishery.

Prawns are caught, graded, boxed (5 Kg) and frozen raw for the Hilton Hotel on board the vessels. The Hilton purchases prawns from both Adelaide and Port Lincoln based wholesalers. Prawns will usually reach the Hilton within 3 – 5 days of ordering from Port Lincoln and within 24 hours of ordering from Adelaide.

Once the prawns reach the Hilton they are used in a number of areas; Buffet, the Brasserie Restaurant and in special occasion banquets. When the prawns are needed within the Hilton, they are thawed in the fridge for 2 days before being cooked and placed on the Buffet or peeled and de-veined ready for use in the Brasserie.

Improvement and Intervention Activity

Nine potential improvement projects were identified throughout the value chain analysis. Projects 1-4 were identified as activities that the industry as a whole had to address; Projects 5 and 6 were identified as activities that the domestic retail chain had to address; and Projects 7-9 were identified as activities that the restaurant chain had to address:

- Project 1: SO2
- Project 2: Incentivise attributes that consumers value
- Project 3: National sizing standards
- Project 4: Consumer driven industry value proposition
- Project 5: Retail information flow
- Project 6: Retail innovative packaging
- Project 7: Restaurant innovative packaging
- Project 8: Promotion and marketing
- Project 9: Soft and broken opportunties

These projects are detailed in section 6 of this report.

To assist in summarising the priorities we assigned a score (out of 5, with 5 being the highest priority) from each of the stakeholders to the improvement projects detailed in section 6. Where a stakeholder did not have a vested interest in a project we left the score blank. The scoring system was as follows:

Table 1: Assessing the priority of the suggested improvement projects

	SGWCPFA	**Drakes**	**Aust Bight**	**Hilton**	**Kinka-wooka**	**Avg.**
Industry wide projects						
Project 1	5	5	5	5	5	**5**
Project 2	3	2	4	2	2	**2.6**
Project 3	5	5	5	4	5	**4.8**
Project 4	5	2	2	2	4	**3**
Domestic retail						
Project 5	5	5	5			**5**
Project 6	3	5	5			**4.3**
Restaurants						
Project 7	3			5	4	**4**
Project 8	5			5	5	**5**
Project 9	3			3	2	**2.7**

ACKNOWLEDGMENTS

The authors would like to acknowledge the contributions made by the various organisations listed below. Without their openness and generosity of time and effort these findings would not have been possible.

- Spencer Gulf and West Coast Prawn Fishermen's Association
- Primary Industries and Resources South Australia
- Drake Food Markets
- Hilton Hotel
- Australian Bight Seafood
- Kinkawooka Shellfish
- Ehrenberg Bass Institute
- South Australian Research and Development Institute
- Professor Andrew Fearne, Adelaide Thinker in Residence Program
- Australian Council of Prawn Fisheries

1. BACKGROUND

The Spencer Gulf prawn fishery is one of the largest and most important fisheries in South Australia in terms of value of production. During the period 2000/01 – 2005/2006 value and production in the fishery ranged between $44.5M (2,255 tonnes) - $33.6M (1,870 tonnes). The landed value of production from the fishery has been detrimentally impacted in recent years by the availability of imported farmed prawns from throughout the Asia Pacific region.

The Spencer Gulf prawn fishery consists of 39 commercial fishery licence holders that utilise both single and double rig trawl gear on board. Endorsed and registered vessels catch King Prawns (previously referred to as Western King Prawns), *Melicertus latisulcatus* in the waters of Spencer Gulf in South Australia. The fishery operates out of the ports adjacent Spencer Gulf with the majority of vessels 'tied up' in Port Lincoln and Wallaroo.

Over the past decade there has been a strong partnership between PIRSA Fisheries, SARDI Aquatic Sciences and the commercial industry Association, Spencer Gulf and West Coast Prawn Fishermen's Association Inc (SGWCPFA) to develop management arrangements that have secured the future sustainability of the fishery and stabilised prawn production between fishing seasons. The current management arrangements for the fishery are outlined in the Management Plan for the South Australian Spencer Gulf Prawn Fishery (the Management Plan).

By developing a successful co-management model and putting in place a Management Plan for a period of 5 years the industry has begun to focus their energies on post harvest activities. The SGWCPFA has recently started to invest more resources in market development to address issues that have arisen from the importation of low value farmed prawns from the Asia Pacific Region. The availability of imported farmed prawns as a competitor/substitute in the domestic and export markets has significantly reduced the demand for, and therefore value of, wild caught prawns from the Spencer Gulf prawn fishery.

In 2004 the SGWCPFA developed a Promotions Sub-committee who was responsible for developing an Annual Marketing and Promotions Plan. A list of strategies were developed and prioritised and the marketing budget divided accordingly.

In 2007 the SGWCPFA developed a proposal to market product taken from the Spencer Gulf region, branded as Lincoln Wild Kings. 30 of the 38 stakeholders in the SGWCPFA supported the proposal and under the guidance of John Sussman and Sam Gordon (through their company BlueHarvest) a pilot marketing program was developed, that supported both the fishermen and existing prawn buyers. Originally the pilot program planned to sell 100-200 tonnes of the 2008 catch branded as Lincoln Wild Kings, however BlueHarvest did not have access to product and were unable to achieve this goal.

In June 2008 the first of the Lincoln Wild King branded prawns went on sale. The momentum behind launching the Lincoln Wild Kings brand was slow but a number of major milestones were achieved. Milestones included the development of point of sale and promotional materials (ie posters, recipe cards, website), production specifications, advertising and articles in publications, representation at foodservice/tradeshows, and field visits and training program delivered to some chain retailers.

Although the Lincoln Wild Kings marketing program has achieved some substantial milestones the research and theory behind its development is questionable. The marketing program that BlueHarvest enacted did not generate support from the end-market consumers, largely because the Lincoln Wild Kings branding did not receive full support from buyers.

Through the Andrew Fearne, Adelaide Thinker in Residence Program it was identified that the Spencer Gulf prawn fishery would take significant benefit from a detailed assessment of their current value chain to develop a strategy to improve the value of the fishery. An assessment of the current value chain is seen as an appropriate step in understanding the status of the fishery before marketing strategies and improvement projects can be put in place.

2. NEED

By developing a successful co-management model and putting in place a Management Plan for a period of 5 years the Spencer Gulf and West Coast Prawn Fisheries have began to focus their energies on post harvest activities.

The SGWCPFA has recently started to invest more resources in market development to address issues that have arisen from the importation of low value farmed prawns from the Asia Pacific Region. The availability of imported farmed prawns as a competitor/substitute in the domestic and export markets has significantly reduced the demand for, and therefore value of, wild caught prawns from the Spencer Gulf and West Coast prawn fisheries.

The Spencer Gulf fishery has the opportunity to use this value chain assessment to develop strategies to improve the value of the fishery. The assessment of the current value chains was seen as an appropriate step in understanding the status of the fishery before marketing strategies and improvement projects can be put in place.

The Value Chain Analysis (VCA) can provide the SGWCPFA with a better understanding of the issues and opportunities in the current value chain from the consumer back to the fishermen.

The detailed VCA with Drakes (retail) and Hiltons (restaurant) have provided insights in addition to the interviews previously undertaken with fishers and buyers to assess the efficiency and effectiveness of activities along the chain.

The VCA will now allow the SGWCPFA to better direct future and additional R&D funding into areas that hold the most commercial opportunities for the industry.

3. OBJECTIVES

1. Identify costed intervention and improvement activity directly impacting the industry and the businesses within it.

Throughout the entirety of the project the SGWCPFA and other stakeholders, including the Seafood CRC have been aware that the success of the project is determinant on the adoption of the results of the value chain analysis to develop intervention and improvement activity.

Stage 3 of the project will involve the costing and implementation of the improvement activity that has been detailed in section 6 of this report.

The SGWCPFA and the chain stakeholders were visited by the authors of this report to test the results that came from the value chain analysis. They were also provided with an opportunity to comment on and consider the authors list of potential intervention and improvement projects.

4. METHODS

A traditional value chain analysis (VCA) using Andrew Fearne's techniques would start off focusing on a very specific chain, linking a producer through each step in an existing chain to the final consumer for a particular product line. Once the chain has been selected then an effort is made to establish what consumers' value in that target market and the chain is mapped and analysed in relation to product flow, information flow and relationships. The VCA then acts as a diagnostic tool to identify collaborative improvement projects that can be implemented to benefit the whole chain.

The basis of this prawn project is to extend that idea to see if there is an opportunity to use this approach for the wider benefit of an industry as opposed to just a particular chain of companies.

Rural Solutions SA have taken the theory and process of a traditional VCA and broken it up into a three staged approach. This allows for maximum consultation and uptake of information by the client. This also provides the client with a number of opportunities to advise the service provider to 'progress' or to 'not progress' with the next stage or sub stage of the project. The stages of the project can broadly be described as follows:

Stage 1: Scope and Approval of the Project and Industry Snapshot
Stage 2: Comprehensive Value Chain Analysis/s
Stage 3: Scope and Implement Improvement Projects

4.1 Stage 1:

Stage 1 involved project scoping and Industry wide mapping. Rural Solutions SA was able to utilise its trusted intermediate role to conduct interviews with fishermen and key partners in the chain to investigate existing markets, industry chain partners, product flow & size and key issues and opportunities. It also provided an opportunity to introduce chain partners to the benefits of collaboration and assess their willingness to be involved in future stages. One outcome of these interviews was the ability to represent product flow in a simplified industry chain map. These interviews also allowed us to identify the target markets (domestic retail – Drake Foodmarkets and restaurants – Hilton Hotel chain) with the most potential for the industry which lead us into the next stage of the project.

4.2 Stage 2:

a. Commission new consumer research and review the existing consumer research available for the target markets – domestic retail and restaurants:
    - Review the report prepared by Marine Innovation South Australia and the University of South Australia, Ehernberg-Bass Institute for Marketing Science, titled, 'Buying behaviour of Australian seafood consumers and drivers of prawn consumption'.

- Review the report prepared by the University of South Australia, Ehernberg-Bass Institute for Marketing Science, titled, ‘Barriers and drivers of the South Australian food service sectors purchase of seafood’.
- Review the report prepared by the University of South Australia, Ehernberg-Bass Institute for Marketing Science, titled, ‘What influences consumer choice in a restaurant context’.
- Report commissioned through the University of South Australia, Ehernberg-Bass Institute for Marketing Science, titled, ‘What would influence prawn consumption in a restaurant context’.

b. Conduct interviews with key stakeholders in each of the chains, to establish product flow, information flow and the relationships that exist between the links in the chain

Drakes Foodmarkets:

- Interview with Mr Bob Soang, General Manager, Drake Food Markets
- Interview with Mr Derry McGaffin, Deli Manager, Drake Food Markets
- Interview with Mr Terry Richardson, General Manager, Australian Bight Seafood
- Interview with Barry Evans, Licence Holder, Spencer Gulf Prawn Fishery
- Interview with Shaun Evans, Skipper, Spencer Gulf Prawn Fishery

Restaurants:

- Informal interview with Simon Bryant, former Executive Chef, Hilton Hotel, Adelaide and Dennis Leslie, incumbent Executive Chef, Hilton Hotel, Adelaide. Andrew Puglisi, Licence Holder, Spencer Gulf Prawn Fishery was also in attendance
- Interview with Dennis Leslie, Executive Chef, Hilton Hotel, Adelaide
- Interview with Mark Dixon, Meat and Seafood purchaser, Hilton Hotel, Adelaide
- Interview with Andrew Puglisi, Spencer Gulf Licence Holder and Managing Director Kinkawooka Shellfish

c. Analysis of the interview results:
   - Summary of the product flow through the chain
   - Summary of the information flow through the chain
   - Summary of the relationships in the chain

d. Identify intervention and improvement activities
   - Industry wide
   - Domestic retail
   - Restaurants

4.3 Stage 3:

Stage 3 then becomes the implementation of these projects. Collaborative co-investment is encouraged and project partners are selected based on their relevance to the project activities and intended outcomes. If private industry is directly involved then a first mover advantage might need to be negotiated to justify their investment but the generic lessons and consumer insights would need to be shared with the wider industry to justify government and industry association investment.

5. RESULTS / DISCUSSION

5.1 Stage 1 - Industry snapshot and mapping the product flow:

On 19 June 2008 a workshop was held with the Management Committee of the Spencer Gulf and West Coast Prawn Fishermen's Association (SGWCPFA). At the workshop PIRSA Fisheries (Will Zacharin, Executive Director) and Rural Solutions SA (Craig Johns, Value Chains Consultant & Daniel Casement, Seafood Consultant) provided the committee with an introduction to the theory of value chain analysis and how it could be adapted to provide commercial benefits to an industry such as the Spencer Gulf and West Coast Prawn Fisheries.

At the workshop, PIRSA Fisheries introduced the SGWCPFA to the opportunity available through the 'Thinker in Residence' program which would provide access to value chain expert, Professor Andrew Fearne.

The key outcome of the workshop was an agreement for Rural Solutions SA to undertake a snapshot of the industry and begin to scope a value chain project. To enable this to happen the SGWCPFA Management Committee undertook to provide their time and expertise as well as encouraging other licence holders in the fisheries to do the same.

The industry snapshot is captured in section 1 'Background' of this report.

<u>Mapping the product flow:</u>
Throughout November and December 2008 Craig Johns and Nathan Kimber interviewed 37 of the 42 licence holders in the Spencer Gulf and West Coast Prawn Fisheries. Licence holders were asked a number of questions about their individual business operations with a focus on where product was flowing once it had left their fishing vessel, issues and opportunities for the fishery and potential target markets.

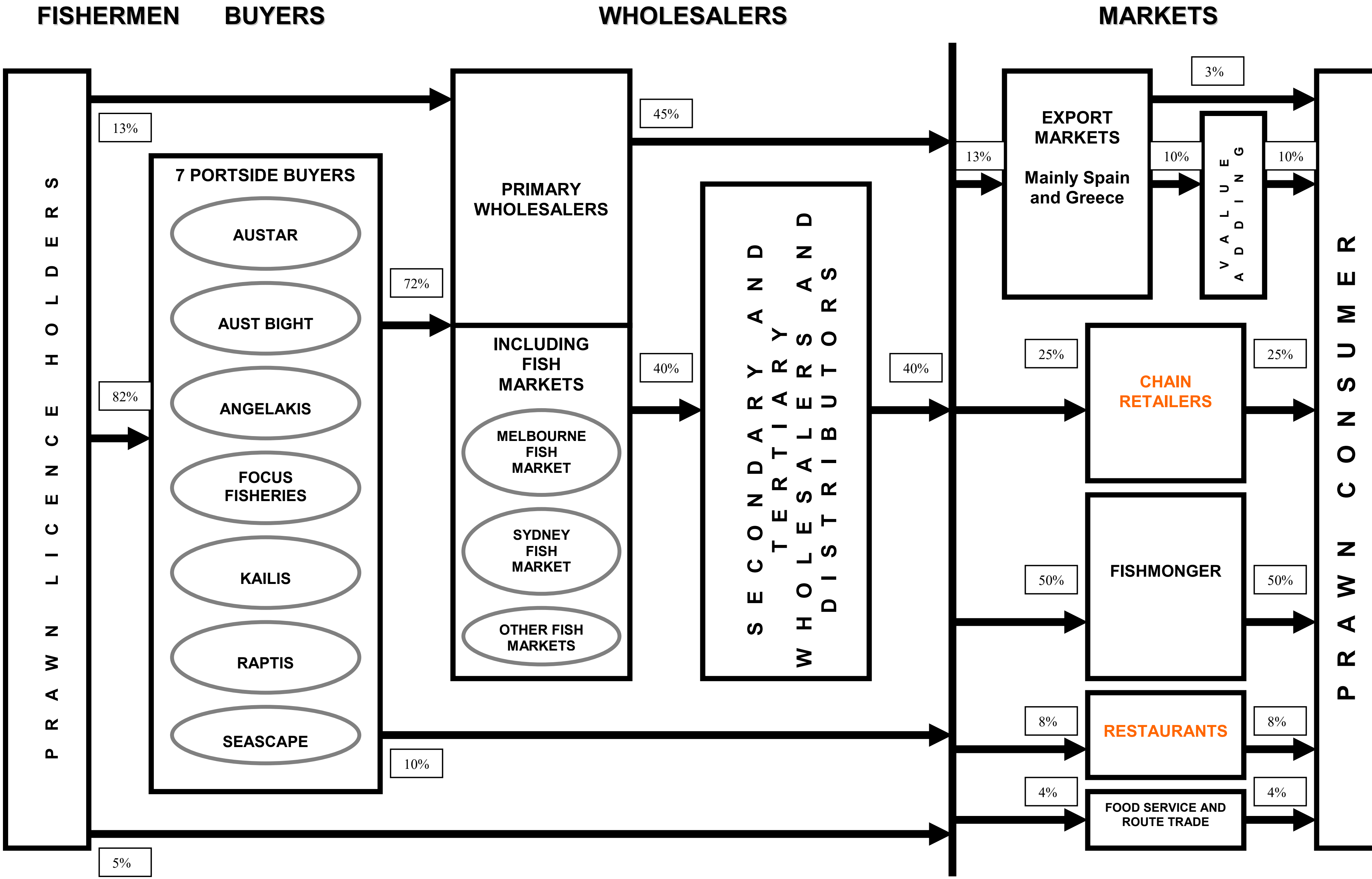
The results of the interviews varied from operators who dealt with product right through to the market place and end consumers to operators who sold their entire catch to a single portside buyer and were then unaware of where it went.

Throughout December 2008 and January 2009 Rural Solutions SA interviewed 6 of the 7 key portside buyers (Kailis, Raptis, Angelakis, Australian Bight Seafood, Austar, and Focus Fisheries). The buyers were able to provide a more comprehensive picture of the industry, its product flow, position in the market and opportunities for improvement.

The major outcome of Stage 1 of the project was to produce a detailed map of product flow for the entire industry from fishing vessel through to end consumer and select 2 end markets that held the most potential for the industry in the future; domestic chain retail and domestic restaurants.

PRAWN INDUSTRY CHAIN MAP

COMMERCIAL IN CONFIDENCE



5.2 Value Chain Analysis – Domestic Retail

Product Flow:
Throughout stage 1 of the project we were able to establish that approximately 25% of the prawns caught in the Spencer Gulf and West Coast Prawn Fisheries were being sold through traditional chain retailers.

Both the SGWCPFA and the major portside buyers were of the opinion that this percentage had increased significantly in recent years and would continue to increase. The majority of product reaching the chain retailers was moving through a key portside buyer and often a primary wholesaler.

A significant percentage of the product being sold through chain retailers was in the size grades 10-15s (10-15 prawns per pound) and 16-20s (16-20 prawns per pound). These two size grades equate for the majority of catch taken in the fishery.

The SGWCPFA agreed that the chain retailing market, given its recent growth and its ability to take large quantities of supply offered significant opportunity for improving the value of the fishery. It was also agreed that chain retailers had a significant amount to learn about the way prawns were handled and presented to consumers.

The Drake Food Markets chain is a family owned South Australian retailing company that prides itself on the use of local products.

Drake's buy approximately 18-20 tonnes of South Australia's Spencer Gulf and West Coast prawns throughout the course of a fishing season and stock these prawns in some capacity all year round. Almost all (apart from about 500kg – 1 tonne) are cooked and all are in the 10-15s or 16-20s size grades. Drake's have increased their purchase of Spencer Gulf and West Coast prawns by approximately 50% over the last 3 years.

Drake's purchase the majority of their prawns through Australian Bight Seafood, one of the 7 major portside buyers. Australian Bight Seafood currently has 8 boats supplying their factory.

Prawns are caught, graded and sorted and in the case of product going through to Drake's cooked, then frozen in 5kg or 10kg cartons. All of this processing happens on board the fishing vessels.

Australian Bight has storage facilities in both Port Lincoln and Adelaide, where product remains until it is transported to Drake's central storage and freezing facility. From there prawns are distributed to individual stores where they are held, until they are placed on display in the store's deli cabinet to defrost and be sold.

Information Flow:
The flow of information along the chain is very sound. The Deli Manager at Drake's is in constant communication with the General Manager of Australian

Bight to understand when prawns will be available (fishing strategy); what prawns will be available (size grades); and in what quantities.

Communication leading in to key sales periods e.g. Christmas and Easter is very important. Australian Bight and Drake's begin discussions about product contracts as early as September for Christmas and February for Easter.

Communication between Australian Bight Seafood and the licence holders and specifically the skippers of the boats supplying them is very sound. Australian Bight Seafood is made aware of the coming fishing strategy as soon as that information has been agreed to by the SGWCPFA and Primary Industries South Australia.

Communication throughout the fishing periods is very sound. Australian Bight is in constant discussion with skippers to get an understanding of what product and how much of it is being caught. Likewise, Australian Bight provides the skippers with information on how much product should be cooked, how it should be packaged etc.

Communication and information flow to the end consumer is improving but still requires some work. There is a definite opportunity to increase the information flow from fishermen right through to the end consumer and visa versa.

Product is labelled as 'SA Gulf Prawns' and the Deli Managers seem to have a basic understanding of what this labelling means. Conveying this message to the consumer is lacking, as is information on how to store, prepare, and cook prawns.

<u>Relationships</u>
The relationships that exist in the chain are simple in nature and very effective. As the information flow suggests, the relationship between the Deli Manager at Drakes and the General Manager of Australian Bight Seafood is excellent. Communication channels are always open and information flow is honest.

The strength of the relationship is evidenced by the one supplier model that exists going through to Drake's. Consistency of supply and quality of supply is of the highest importance to Drake's, more so than price. Price still needs to remain competitive but the relationship is built on more than just that.

The relationship between Australian Bight Seafood and the licence holders and skippers that supply them is also excellent. Communications channels are open and effective, especially throughout fishing periods.

5.3 Value Chain Analysis – Restaurants

Product Flow:

Throughout stage 1 of the project we were able to establish that approximately 8% of the prawns caught in the Spencer Gulf and West Coast prawn fisheries were being sold through restaurants.

The SGWCPFA and the portside buyers advised that restaurants, particularly the higher-end restaurants, using the larger size grades of prawns U10s ('under' or less than 10 prawns per pound), U8s ('under' 8 prawns per pound) and U6s ('under' 6 prawns per pound) offered a better margin.

The SGWCPFA agreed that the restaurants offered significant opportunity for improving the value of the fishery. The outstanding quality attributes of the king prawn caught in their fisheries lent itself to being a menu feature, rather than a commodity product.

The Hilton Hotel, Adelaide and the Brasserie restaurant is located in the middle of Adelaide's city centre. It caters to both locals and travellers and prides itself on a theme of using local South Australian produce with a story to tell.

The product flow of prawns from the Spencer Gulf and West Coast fisheries to the consumer's plate at the Brasserie is through a comparatively short and well organised chain. The world class management of the fishery ensures the prawns are available and are of sufficient size while the well equipped fishing vessels make sure the prawns are caught in an effective and efficient manner.

All the grading, packing and freezing of the prawns is done on the boat and the primary quality attributes of whole prawns, consistent size, good colour and being free from defects is then further checked by the port side buyer.

In general, there are very few consumer complaints and the Hilton has no issues at all with the quality of the product they are being delivered which might explain why size is the only attribute currently being rewarded through a tiered payment system between buyers and fishermen.

The Hilton buys some cooked prawns but the majority are purchased raw which means they have been dipped in a sodium metabisulphite solution on the boat to avoid black spot and reduce their micro load. Some of the risks of this practice are further discussed in the potential improvement project #1.

Once the prawns get to the restaurant they can be used in a number of areas including the Buffet, entrees in the Brasserie and special occasion banquets. The Hilton is usually aware of its events well in advance so forecasting isn't much of an issue and due to the close nature of the supply base, delivery can be made within a day of ordering from an Adelaide based wholesaler or 3-5 days coming from Port Lincoln

When the prawns are needed within the Hilton, they are thawed in the fridge for 2 days before being cooked and placed on the Buffet or peeled and de-veined ready for use in the Brasserie.

The Hilton's preference is to do the value adding themselves, so they can control the process and alter their recipes as they see fit. Consequently, as long as the base quality is good, their next biggest requirement is making sure the packaging suits their needs. Even though the industry standard is 10Kg boxes the Hilton will now only order 5kg cartons and in their opinion, most other smaller restaurants would probably prefer the product in 2-3 Kg cartons for ease of storage, handling and thawing.

<u>Information flow</u>

Information flow in this chain is mainly of a transactional nature. The consistent quality of the product, lack of complaints and little need for value adding has led to a standard procedure for supply.

The area of information flow that could be improved is selling the story of the fishery to the end consumer. The Hilton prides itself on its theme of sourcing local ingredients with a story to tell so we believe that story could be better communicated between the fishery / buyers to the Hilton so they can better highlight it to their consumers for the benefit of the whole of the chain.

<u>Relationships</u>

The relationship between the Hilton and their suppliers is the weakest area in this chain which probably stems from how comfortable the Hilton is with the quality of the prawns across the whole industry. Essentially they don't feel obliged to stick with one supplier when there is very little differentiating one from another. Like all industries facing this type of circumstance, it tends to come down to a commodity price spiral which is not an ideal situation for the fishermen.

6. BENEFITS AND ADOPTION

6.1 Industry wide improvement projects

The improvement projects detailed below have been discussed and considered by the SGWCPFA and the chain partners. In section 7 these projects have been further prioritised.

The activities focus on projects that require collaboration at either a chain or at an industry level. While we have discussed specific improvements possible within individual companies, this has mostly been confidential in nature and doesn't require the industry / company collaboration and joint investment that will be the focus of the next stage of the project.

Potential Improvement project # 1; Appropriate use of SO2; and investigate alternative preservatives

Issue:
The use of sodium metabisulphite (SO2) in the processing of green prawns poses some risk to the industry. There is a growing trend towards both the compulsory declaration of the use of SO2 in the packaging of foods and more importantly a movement by retailers (e.g. Wholefoods, USA) to completely eradicate product lines that contain SO2.

Our research suggests that consumers are largely unaware of the use of SO2 in the processing of prawns. Due to the sensitive nature of this issue and our reluctance to draw attention to it, we did not test this with end consumers but it is fair to assume that this knowledge would detract from the positive image of a natural wild caught sustainable prawn and ultimately affect its value in the marketplace.

In addition, there are also members of the community (particularly asthma sufferers) that are particularly sensitive to SO2 bringing about the risk of a potential medical reaction to it.

Finally, apart from its implications at the consumer level, SO2 poses a potential occupational health and safety risk for those (e.g. deck hands) that handle the product and are in the vicinity of the product being used onboard the fishing vessel. Product that is reprocessed may also require an additional SO2 treatment to maintain quality (reducing likelihood of black spot through the thaw – freezing process).

What can be done to solve the issue:
A number of the risks detailed above can be mitigated by improving standard operating procedures on the fishing vessel. At the last meeting of the ACPF it was suggested that a training DVD be prepared for fishermen and processors on the safe and appropriate use of SO2.

When considering what the final consumer values in the product, it could be argued that the presence of a preservative of this nature in prawns should be eradicated rather than just controlled. For this reason, we believe there is a requirement to research a suitable replacement for sodium meta bisulphite for the benefit of the whole national prawn industry.

By eradicating SO2 in raw prawns the Australian prawn industry would establish a point of difference in some markets, opening up new opportunities e.g. pre-packaged products for the retail sector. Better compliance with food safety guidelines would compliment the environmental stewardship that the industry is seeking.

There is also a possibility that the likes of Wholefoods, USA with their ban on products containing SO2 and a preference for MSC certified seafood will influence retailers in Australia to eventually follow suit. If this was to happen it makes sense to look for an alternative now rather than leave it until the last minute.

Recommended next steps:

1. The ACPF drive the development of a training DVD, prepared for fishermen and processors on the safe and appropriate use of SO2. The learning's from the DVD to be incorporated in to a set of standard operating procedures.
2. A review of the literature investigating alternatives to SO2 in the seafood industry, specifically research conducted by Steve Slattery and Richard Musgrove. The results need to be produced in a format which assessed effectiveness (colour, flavour, cost etc.) of each alternative compared to SO2.

Who needs to involved:

- The Australian Council of Prawn Fisheries
- The Seafood CRC
- Fisheries Research and Development Corporation

Timeframe:

Development of a SO2 training DVD should be a priority of the ACPF and the Seafood CRC. A realistic distribution timeframe might be the start of the new calendar year.

The review of the literature investigating alternatives to SO2 should also be a priority of the ACPF and FRDC. The review period should be 3 months beginning in October 2010 with a report in the findings being handed to the ACPF at their first meeting in 2011.

Potential Improvement project # 2; Incentivise attributes consumers value

Issue:
Product quality issues in the Spencer Gulf and West Coast Prawn Fisheries are rare. Most operators seem to have individual processing standards in place on their boats to ensure quality attributes like size (grading), physical appearance (colour, shell constitution) etc. Further to this most operators will conduct quality assessments on board for each grade of prawn after each shot.

Once prawns reach the portside buyers further quality assessments are conducted. The results of which may affect payment to the operator, but only in the sense that payment will be reduced for product that isn't to the standards expected.

What can be done to solve the issue:
There is potential to investigate operators receiving incentives for prawns that exceed standards or meet specific attribute standards for differentiated product streams. Many people would argue that the market will pay a premium for product that consistently meets agreed customer specifications.

Any improvement project to investigate more value added consumer products would place a greater importance on product quality standards. Specific key performance indicators (KPI's) could be put in place to reward fishermen who are able to provide product capable of receiving a premium in the market place.

Recommended next steps:

1. The first step in developing a successful quality scheme is to understand what the customer / consumer is willing to pay for. This will be further understood through the Retail Transformation Project and the value chain work that is occurring in the Shark Bay, Clarence River and Hervey Bay fisheries.

Who needs to involved:

- The Australian Council of Prawn Fisheries
- Spencer Gulf and West Coast, Shark Bay, Clarence River and Hervey Bay prawn fisheries

Timeframe:
The results of the Retail Transformation project will be made available to the ACPF for further consideration.

Potential Improvement project # 3; National sizing standards

Issue:
Historically the industry has always talked and labelled product in terms of prawns per pound. It has been widely considered for some time that it might be more appropriate to talk in prawns per Kg. Regardless the consumer doesn't have a good understanding of how this translates in to how a prawn is labelled e.g. large or extra large.

There is evidence of confusion in the market place and a level of frustration from the fishermen to suggest there might be merit in looking at how consumers would want to classify prawn sizes and then how these classifications can be standardised right back to how the fishermen is rewarded for them.

What can be done to solve the issue:
We are not really in a position to suggest a set of common size standards that would be applicable right along the value chain and across Australia but an early suggestion could look something like;

- 'Gigantic' equates to U6 and * prawns per Kg
- 'Jumbo' equates to U8 and * prawns per Kg
- 'X Large' equates to U10 and * prawns per Kg
- 'Large' equates to 10 to 15's and * prawns per Kg
- 'Medium' equates to 16 to 20's and * prawns per Kg
- 'Cocktail' equates to 20 to 30's and * prawns per Kg

Recommended next steps:

1. This issue needs to be taken up by the ACPF and should be placed on the agenda for consideration at their next board meeting.

Who needs to involved:

- The Australian Council of Prawn Fisheries

Timeframe:
This issue needs to be considered as a priority by the ACPF and should be placed on their next board meeting agenda.

Potential Improvement project # 4; Consumer driven industry wide value proposition

Issue:
The industry only has a set amount of product to sell. There is no opportunity to significantly increase the amount of prawns caught so that makes it all the more important to maximise the value of the prawns that are available.

Apart from differentiating the product to get away from the price spiral usually associated with multiple players all selling the same product maybe there are other approaches that can be used. One wholesaler told us that they wouldn't mind paying more for the product as long as they knew their competition wasn't getting it any cheaper.

What can be done to solve the issue:
Investigate whether there are any models (nationally or overseas) where a primary industry can work better together for everyone's benefit (perhaps this can be centred on a quality system and a value proposition which includes MSC, generic promotion, point of sale material etc.)

This concept would require a lot of work and would need to be sensitive to not devaluing existing value propositions or making it too confusing in the market place. A first step might be to work with existing chains to see how a broader value proposition might work.

Recommended next steps:

1. Review Hamish Gow's 7 step method to identify a value proposition appropriate to the industry with a view to creating a new business model.

Who needs to involved:

- Hamish Gow
- The SGWCPFA

Timeframe:
The SGWCPFA needs to be presented with Hamish Gow's 7 step method to developing a successful value proposition as a priority.

6.2 Improvement projects - domestic retail

Potential Improvement project # 5; Retail information flow

Issue:
Although some of the relationships along the researched chain are not long standing they seem to be relatively strong. There is a definite willingness to develop and extend these relationships for the shared benefit of the entire chain.

Even though the relationship between retailer and buyer appears strong and key people at both ends advised that the communication is excellent the information flow between these links remains transactional in nature.

What can be done to solve the issue:
There is a definite opportunity to increase the information flow from fishermen right through to the end consumer and visa versa. An idea might include the adoption of a Lenard's chicken like sales point to sell a story and highlight the product attributes that will affect purchasing behaviour. This could also provide the consumers with practical information about how to defrost and use the prawns, including recipe suggestions.

Training of senior deli managers on the handling of the prawns within the retail environment as well as training them to promote the product and transfer relevant knowledge to the end consumer. This is also an opportunity to get some direct feedback from the deli managers back to the buyers (and even the skippers) on what the consumers are saying about the product and how it might be improved. This could also lead to wider promotions and in store taste testing if the business case was strong enough.

Recommended next steps:

1. Present the project to the SGWCPFA Management Committee before engaging Australia Bight and Drakes to develop a Communication / Information Flow strategy

Who needs to involved:

- The SGWCPFA
- Australia Bight Seafood
- Drakes
- Rural Solutions SA

Timeframe:
The project is presented to the SGWCPFA at their next management meeting in August with a view to bringing Australia Bight and Drakes to the table in early September to develop a Communication / Information Flow strategy

Potential Improvement project # 6; Retail innovative packaging

Issue:
The retailer suspects that there are a significant number of prawn consumers that purchase thawed prawns only to refreeze them in their own freezers at home.

The informed customer at Drakes is requesting one-time frozen prawns, which Drakes are fulfilling by re-packaging bulk prawns from 5 and 10kg boxes into 1kg frozen packs, which are simply wrapped in paper. This is not only providing the customer with a product that can be safely stored in their own freezers but is also relieving some of the point of sales stress for Drakes at busy periods like Easter and Xmas.

The opportunity is obviously to provide more convenient and freezer friendly packaging. It would be a matter for the chain in question to establish at what point to implement this packaging to create optimal value. It may not be possible, cost-effective etc to do this on board individual fishing vessels but 1kg or 2.5Kg, pre-packaged, one-time frozen prawns could provide significant marketing opportunities.

The major risk of adopting a project of this nature would be providing the consumer with the knowledge that prawns are indeed frozen and are not fresh. It seems that this isn’t widely understood and the consumer research in the restaurant report showed that knowing prawns were frozen decreased the chances of consumers purchasing the product. There is a risk that by alerting consumers to this their perception of the value of the product might decrease. Any progress in this area would need to be linked to the improvement project #5 dealing with improved consumer information.

The drivers for this work will need to come out of further consumer research like that being done in the retail transformation project but already there are some ideas that have been raised by the retailer.

What can be done to solve the issue:
A number of new product lines and packaging techniques were discussed with both the buyer and the retailer, these included cooked and peeled, modified atmosphere packaging (MAP), vacuum, tray and pouch ideas.

One alternative to small frozen packs is modified atmosphere packaging (MAP). This technology can extend shelf life while still offering convenience and visual appeal to the end consumer. Drakes are buying their own MAP packer to trial on a range of products and are open to partnering with other interested parties to explore the opportunities with seafood.

Further consumer research, like that proposed in the Retail Transformation Project is needed within the sector. A focus on which attributes of the prawn are considered most important is required:

- Packaging; loose prepacked, frozen, thawed or fresh, cooked or raw, size of packs, types of packaging, frozen carton, tray, pouch, MAP, vacuum packed, whole or peeled and branding on the package
- Physical product attributes; size, colour, taste, texture
- Other product and industry attributes; origin, environmental story, traceability, health benefits

Consumer research is also needed to establish the targeted consumer e.g. families, ethnic groups etc. in the retail sector and for what occasions they are purchasing prawns e.g. Xmas, Easter, weekend special occasions, nightly meal, snacks etc

Recommended next steps:

1. The SGWCPFA through the ACPF needs to be abreast of the results of the Retail Transformation project
2. The SGWCPFA and Drakes need to engage with the specialist from the UK that is being funded through the Seafood CRC to work with prawn companies to develop new product lines

Who needs to involved:

- The SGWCPFA
- Australia Bight
- Drakes
- The Seafood CRC

Timeframe:

The expert from the UK will be in Australia for 3 months beginning on 9 August.

The results of the Retail Transformation project will be made available to the ACPF for further consideration.

6.3 Improvement projects – restaurants

Potential Improvement project # 7; Restaurant innovative packaging

Issue:
Restaurants require the packaging of prawns to be convenient for their needs. Even large restaurants like the Hilton which are using prawns in a number of different ways don't want to deal with a 10Kg box. It is too heavy to lift, it doesn't fit in their fridges easily, it takes too long to defrost and if they do attempt to break up the 10Kg while it is frozen it results in product damage and loss.

For the Hilton a 5kg is optimal and now they won't even consider purchasing in a 10Kg pack. Smaller restaurants may even require smaller packs again to best fulfil their needs (maybe 2-3Kg).

What can be done to solve the issue:
To address the issue we need to work out what benefit the restaurants get from smaller packs, what they are willing to pay for that benefit, and whether it is cost effective for the buyer or the fishermen to pack into those smaller boxes. For example, can 3Kg packs be done on the boat during smaller catches and what is the economics for repacking into 1-2 Kg packs on shore for either the food service or retailer markets.

The alternative is to put partitions in the 10Kg cartons. It doesn't solve all the issues, like fridge space, but if you are breaking up a pack at least it will minimise damage to the prawns. This might be seen as a cost effective compromise.

Amcor have also developed new technology in laminated cartons, which are currently being trialled in other sectors for either food service or retail packs. It will be important to be abreast of the outcomes of these trials.

Recommended next steps:

1. The SGWCPFA and the Hilton need to engage with the specialist from the UK that is being funded through the Seafood CRC to work with prawn companies to develop new product lines

Who needs to involved:

- The SGWCPFA
- Hilton Chain
- Seafood CRC

Timeframe:
The expert from the UK will be in Australia for 3 months beginning on 9 August.

Potential Improvement project # 8; Promotion and Marketing

Issue:
A promotion and marketing strategy needs to be developed utilising the findings of this project. The strategy should be structured with detailed activities and timelines that focus on the values of the end consumer. The industry's history of outstanding environmental stewardship and in particular the progress made to secure Marine Stewardship Council certification needs to be a focus of a promotion and marketing strategy.

What can be done to solve the issue:
There is an opportunity to build on the promotional strategy that developed the Lincoln Wild Kings value proposition by meeting with key chefs across Australia to help promote the industry and market the positive attributes of the product. SGWCPFA are participants in a regional brand 'Taste Australia's Seafood Frontier', developed by the Eyre Regional Development Board (ERDB). Through this membership, the SGWCPFA have direct access to key chefs. For example Manu Feildel, Neil Perry, Tony Carroll, Lucas van Agjen, Pete Evans etc. (Other invitees could even extend outside of the restaurant channels to include people like Roger Drake and his seafood management team.)

Further to this, an invitation should be extended to the incumbent executive chef of the Hilton Brasserie, Mr Dennis Leslie and the Hilton national purchasing manager, Clare Petty to attend the chef's tour of the Eyre Peninsula. Whilst there, the SGWCPFA should sell to Mr Leslie and Ms Petty the story of 'gulf prawns' (as they are detailed on the menu) and push to have 'gulf prawns' on the menu as a feature dish rather than as an accompaniment as it is now.

We also have the opportunity to follow up with Clare Petty if we believe the Hilton chain holds particular commercial and promotional benefits for the Spencer Gulf and West Coast Prawn industry. Most chefs within the Hilton chain have autonomy over their menus but where overlaps do occur there is potential to work through the national buyer who has the opportunity to introduce the product to other chefs within the Hilton chain both nationally and internationally.

Recommended next steps:

1. The SGWCPFA and the Eyre Regional Development Board to host the Hilton Hotel and its Chefs in Port Lincoln for a tour of the southern Eyre Peninsula

Who needs to involved:

- The SGWCPFA
- Eyre Regional Development Board
- Hilton Chain
- Rural Solutions SA

Timeframe:

A tour by the Hilton Hotel of southern Eyre Peninsula has been discussed and will take place in September or October 2010.

Potential Improvement project # 9; Soft and broken opportunities

Issue:
Product that is classified as soft and broken range in size and quality, and make up approximately 5% or less of prawn catches. These prawns generally have a drop head (where the membrane that attaches the head to the body has snapped / broken); pieces of the head / shell or tail are missing, or have been crushed during the harvesting process. When peeled there is little obvious difference between most soft and broken prawns and that of ‘quality’. However, disregarding size, soft and broken prawns receive minimal value within the market place.

What can be done to solve the issue:
Work on a way to add value to soft and broken prawns to attract better prices. As it represents only a small component of the catch and sizes cannot be guaranteed any strategy would need to involve the entire fleet to see any real benefits.

There is a need to better understand the current market for this product and identify why end consumers value it. Then we could assess the different options for doing some form of value adding as a whole industry.

If value adding on any grade of prawn involves a ‘peeling’ step then we would need to look at the waste component including prawn heads, shells and any water used during the process. Consideration would need to be given on how the waste and the cost of removing it could be minimised or perhaps even be value added further by other industries.

Recommended next steps:

1. The SGWCPFA and the Hilton need to engage with the specialist from the UK that is being funded through the Seafood CRC to work with prawn companies to develop new product lines

Who needs to involved:

- The SGWCPFA
- The Seafood CRC

Timeframe:
The SGWCPFA needs to discuss this issue at the next meeting of the Management Committee in August and develop a way forward

7. FURTHER DEVELOPMENT

As discussed the authors consulted with the chain partners to establish a prioritised list of improvement projects detailed in section 6. Meetings were held in Port Lincoln and Adelaide.

Projects 1-4 were identified as activities that the industry as a whole had to address; Projects 5 and 6 were identified as activities that the domestic retail chain had to address; and Projects 7-9 were identified as activities that the restaurant chain had to address:

- Project 1: SO2
- Project 2: Incentivise attributes that consumers value
- Project 3: National sizing standards
- Project 4: Consumer driven industry value proposition
- Project 5: Retail information flow
- Project 6: Retail innovative packaging
- Project 7: Restaurant innovative packaging
- Project 8: Promotion and marketing
- Project 9: Soft and broken opportunties

To assist in summarising the priorities we assigned a score from each of the stakeholders to the suggested improvement projects detailed in section 6. Where a stakeholder did not have a vested interest in a project we left the score blank. The scoring system was as follows:

- 5 – Highest priority project
- 4 – Priority project
- 3 – To be considered at a later date
- 2 – Not a priority
- 1 – Lowest priority project

Table 2: Assessing the priority of the suggested improvement projects

	SGWCPFA	**Drakes**	**Aust Bight**	**Hilton**	**Kinka-wooka**	**Avg.**
Industry wide projects						
Project 1	5	5	5	5	5	**5**
Project 2	3	2	4	2	2	**2.6**
Project 3	5	5	5	4	5	**4.8**
Project 4	5	2	2	2	4	**3**
Domestic retail						
Project 5	5	5				**5**
Project 6	3	5				**4.3**
Restaurants						
Project 7	3			5	4	**4**
Project 8	5			5	5	**5**
Project 9	3			3	2	**2.7**

Industry wide projects:
The highest priority of the industry wide projects was that concerning SO2. All of the stakeholders in the value chain analysis gave it the highest priority score. The suggested, 'next steps' for this project need to be driven by the Australian Council of Prawn Fisheries (ACPF), the Seafood CRC and FRDC.

The second highest priority of the industry wide projects was the development of a National set of sizing standards. The suggested 'next steps' for this project again need to be driven by the ACPF.

Domestic retail:
The highest priority of the Domestic retail projects was improving the information flow along the retail chain. The 'next steps' for this project need to be driven by the SGWCPFA, Australian Bight and Drakes. It is important that this project is initiated as soon as possible so the materials that it will generate will be available for trial prior to Christmas 2010.

Restaurants:
The highest priority of the Restaurant projects was developing a marketing and promotion strategy that focus on the values of the end consumer. The 'next steps' for this project need to be driven by the SGWCPFA and the Eyre Regional Development Board in conjunction with the Hilton Hotel.

8. PLANNED OUTCOMES

The results detailed in the previous sections of the report have outlined a number of intervention and improvement projects to be pursued by the SGWCPFA and stakeholders within the researched chains.

Throughout the entirety of the project the SGWCPFA and other stakeholders, including the Seafood CRC have been aware that the success of the project is determinant on the adoption of the results of the value chain analysis to develop intervention and improvement activity.

Stage 3 of the project will involve the complete costing and implementation of the improvement activity that has been detailed in sections 6 and 7 of this report.

The SGWCPFA have put aside $30k to co-contribute to funding the implementation of these projects. Stakeholders in the chains have given an in principal undertaking to be both financially and intellectually involved in these projects.

Costing the projects:
The authors have provided some in-principal budgets for the three priority projects that have been identified, focussing on the ‘next steps’ for each project. These costs will be subject to change with further input from the stakeholders.

Project 1: SO2

	2010/11			**2011/12**			**Total**
Next steps	**Salaries**	**Travel**	**Operating**	**Salaries**	**Travel**	**Operating**	
Training DVD	15 000	5 000	(printing) 10 000			(distribution) 5 000	**$35 000**
Literature review	25 000	5 000					**$30 000**

As previously mentioned this project needs to be driven by the ACPF, the Seafood CRC and the FRDC. Funding for the project should be negotiated between these organisations.

Project 5: Retail information flow

	2010/11			**2011/12**			**Total**
Next steps	**Salaries**	**Travel**	**Operating**	**Salaries**	**Travel**	**Operating**	
Facilitated meetings with SGWCPFA, Aust Bight & Drakes	5 000	2 500					**$7 500**
Point of sales material	10 000	5 000	(printing & distribution) 10 000				**$25 000**
Deli managers training	5 000	2 500					**$7 500**

As previously mentioned this project needs to be driven by the SGWCPFA in conjunction with Australian Bight and Drakes. Funding for the project should be negotiated between these organisations.

Project 8: Promotion and marketing

	2010/11			2011/12			Total
Next steps	**Salaries**	**Travel**	**Operating**	**Salaries**	**Travel**	**Operating**	
Hilton Hotel tour	10 000	10 000					**$20 000**
Point of sales material for restaurants	10 000	5 000	(printing & distribution) 10 000				**$25 000**

As previously mentioned this project needs to be driven by the SGWCPFA and the Eyre Regional Development Board in conjunction with the Hilton Hotel. Funding for the project should be negotiated between these organisations.

9. CONCLUSION

The Spencer Gulf and West Coast Prawn Fisheries have established an outstanding reputation for managing both the resource and the ecosystem that supports it. They have received a number of accolades for the co-management model they have been able to develop with Primary Industries and Resources South Australia.

It is unanimously agreed that the Spencer Gulf and West Coast Prawn Fisheries have not been supporting their harvest activity with post harvest programs and initiatives that maximise the value of their resource, a resource that has long been regarded as one of the best of its type in the world.

By analysing in detail the chains that supply consumers with prawns through existing markets, Drake Food Markets and the Hilton Hotel, this project has been able to recommend a number of post harvest intervention and improvement activities.

It was identified that the industry as a whole had 4 major activities to consider and develop further as part of the next stage of this project. As a priority the National industry, supported by the National body the Australian Council of Prawn Fisheries (ACPF) should investigate a replacement for sodium metabisulphite (SO2).

The ACPF should also be the major driver of a project to develop a National set of sizing standards that are consistent from the boat through the value chain to the consumer.

The remaining 2 activities should be addressed and driven by the SGWCPFA. They include, investigating a new industry wide post harvest model that maximises the value of having a relatively small but consistent quantity of a premium product; and developing an incentive scheme for fishermen that are supplying product which maximises the quality attributes that consumers are willing to pay for.

It was identified that the Drake Food Markets chain had 2 major activities to consider and develop further as part of the next stage of the project. Although these activities have been directed by an analysis of the Drake’s chain, it is fair to assume that these might be consistent for other retail chains.

The Drake Food Market chain needs to increase the flow of information throughout the chain but specifically to the end consumer at the point of sale. To enable this to happen Drake’s Deli Managers need to undertake training to understand the quality attributes of the prawn and more importantly how to handle the prawn to maximise these quality attributes. Further, the industry needs point of sale information from consumers so they can maximise their handling techniques to provide the best quality product they can.

The Drakes chain agreed that there was opportunity to provide more convenient and freezer friendly packaging. It would be a matter for the chain in question to establish at what point to implement this packaging to create optimal value. It may not be possible, cost-effective etc to do this on board the fishing vessel but 1kg or 2.5Kg, pre-packaged, one-time frozen prawns could provide significant marketing opportunities.

It was identified that the Hilton Hotel chain had 3 major activities to consider and develop further as part of the next stage of the project. Although these activities have been directed by an analysis of the Hilton Hotel chain, it is fair to assume that these might be consistent for other restaurant chains.

Restaurants require the packaging of prawns to be convenient for their needs; the Hilton Hotel will no longer take prawns in anything larger than a 5kg box. Those supplying to restaurant chains need to better understand the quantities of scale they work with, whether that be in a service, throughout a week etc. A smaller box than the 5kg one currently being used may assist the smaller restaurants.

A promotion and marketing strategy needs to be developed utilising the findings of this project. The strategy should be structured with detailed activities and timelines that focus on the values of the end consumer. The industries history of outstanding environmental stewardship and in particular the progress made to secure Marine Stewardship Council certification needs to be a focus of promotion and marketing activities moving forward.

There was agreement to investigate ways to value add to soft and broken prawns to supply the restaurant trade. Soft and broken product only represents a small component of the catch so it may need to be a ‘whole of fleet’ effort to see any benefits.

It is now the responsibility of the SGWCPFA and the chain stakeholders to ensure that the intervention and improvement activities detailed throughout this report are developed and implemented.

10. REFERENCES

Fearne, A. (2009): *Sustainable Food and Wine Value Chains*, A report prepared for the South Australian Department of Premier and Cabinet

Remaud, H. (2009): *Barriers and Drivers of the South Australian Food Service Sector's Purchase of Seafood*, A report prepared by Ehrenberg Bass Institute for Market Science for the South Australian Research and Development Institute

Remaud, H. and Danenberg, N. (2010): *What Influences Consumer Choice in a Restaurant Context*, A report prepared by Ehrenberg Bass Institute for Market Science for the South Australian Research and Development Institute

Remaud, H. and Danenberg, N. (2010): *What Influences Prawn Consumption in a Restaurant Context*, A report prepared by Ehrenberg Bass Institute for Market Science for Rural Solutions SA

11. APPENDICIES

11.1 Interview Guide

Interview Guide
'Value Chain Analysis –
Spencer Gulf and West Coast Prawn Fishery'

Date of Interview:

____

Name of firm / organisation:

____

Name of respondent:

____

Contact Details:

____

Interviewer/s:

____

Interview Introduction checklist:

At the start of the interview:

- ❑ *Explain the project's objectives:*
  - *to find out what the end consumer values and is willing to pay for*
  - *to assess and improve supply chain processes for the benefit of the whole chain, from fishermen inputs through to final consumption*
- ❑ *Explain what a Value Chain Analysis (VCA) is*
  - *hand out the VCA Methodology Summary Guide (one pager)*
- ❑ *Explain the project's structure*
  - *Stage 1 initially funded by the prawn association, SGWCPFA. Stage 2 being funded by seafood CRC*
  - *at this stage you just need to give your time and be open with information*
  - *aim is to prioritise a list of improvement projects*
  - *the opportunity will then present itself to jointly invest in those projects. Benefits will come from co-investment and being the first adopters but generic lessons learnt will also need to be shared with the wider industry*
  - *show case study presentation if more explanation is required on the projects structure*
- ❑ *Explain interview objectives*
  - *map flow of materials and information within and between organisations along the chain*
  - *assess relationships along the chain*
  - *identify key issues and opportunities to be addressed*
- ❑ *Explain confidentiality procedures, and ask interviewees to sign the consent form.*

Section A. GENERAL

1. What is your role in the business? Can you describe the activities or your business as a whole?

2. How much of your business is involved in Spencer Gulf King Prawns?

3. Who supplies you the prawns and who do you sell them to?

4. What is the average quantity of prawns you handle in a season? SGWCPFA / Other prawns?

5. What % of SGWCPFA prawns are raw vs. cooked?

6. What % of the different size grades do you handle?

7. For these separate product lines, what % quantities are sold to each of your customers?

8. Do you know the other links in the chain from the fishermen through to final consumption? What are they?

9. What are your thoughts regarding the broad industry wide chain map we have put together?

____
____
____
____
____
____
____
____
____

Section A. GENERAL

General checklist:

- ❑ *This specific chain constitutes a significant proportion of the whole SGWCPFA industry*
- ❑ *Have an understanding of the chain outside their organisation*
- ❑ *Verified the industry wide chain map*

Section B. MATERIAL FLOW

B1 Efficiency

1. For each activity you undertake with Spencer Gulf King Prawns describe the optimum processing rate. How frequently does the process operate at that rate and what are the main causes of disruption. How flexible is the material flow to changes in volume requirements, eg adjusting production to meet demand?

2. How well does supply meet demand? What planning and control methods are used in your organisation and how are they linked to other chain partners?

3. How does needing a whole of catch solution affect your strategy for selling the prawns through the chain?

4. How much do orders vary weekly, seasonally and annually? What issues does this variability cause for you? How do you deal with it internally and with chain partners?

5. At what point of the material flow is product no longer driven by actual demand and instead is caught or despatched against forecasts alone. How does this affect other inputs?

6. What are the lead times between decisions and completion of activities? Can this be shortened to provide an advantage for the whole chain?

7. How efficient is the layout of your operation in terms of minimising transport of work in progress?

8. How efficient is the geographic configuration of chain, in terms of minimising transport and facilitating the smooth flow of raw material, other inputs, WIP and finished goods?

9. What are the causes of inconsistency in the material flow (eg, varying prawn quality), and to what extent are they controllable?

10. Are orders delivered too early or late, wrong volume or quality, for raw materials, other inputs, or finished goods?

11. Does the SGWCPFA material flow intersect with the material flow of other products/brands? If so, what impact?

B2 Minimising Waste

Prompt: Need to elaborate and define the meaning of waste – i.e. anything that does not add value

12. Is there evidence of:

- ❑ Over-production (raw material and final product);______________________________
- ❑ Inappropriate, over-complex processing;(unnecessary steps) ____________________
- ❑ Waste during processing, storing and at retail;________________________________
- ❑ Unnecessary inventory;____
- ❑ Waiting - for raw material, WIP, finished goods, transport or people;______________
- ❑ Unnecessary staff effort;____
- ❑ Defects (Scrap, rework, etc) ____

____
____
____
____
____
____
____
____
____

13. Can you provide some detail on the time of year the prawns come in, the length of time they are stored and when they are despatched to the next link in the chain?

____
____
____
____
____
____
____
____
____

14. To what extent is waste material/by-products already being reused?

B3 Value adding

Prompt question: Do you think the processes and systems are flexible enough to allow for a) b) c)?

15. How flexible is the material flow in terms of:
    a. Product customisation
    b. New product introduction – rate of commercialising innovation
    c. Responsiveness to consumers – especially changes in needs of target market

16. What processing / value adding of prawns do you do?

17. What processing / value adding are you aware of in other links in the chain?

18. What is the investment programme in the value chain's material flow? It is driven by efficiency or value creation?

19. Does the material flow respond to direct consumer complaints/feedback?

Section B. MATERIAL FLOW

Material flow checklist:

Assessment criteria

Maximising efficiency

- ❑ *Timeliness: continuous, efficient flow through processing; avoiding unnecessary inventory and product movements, and ultimately avoiding stockouts in stores;*
- ❑ *Variability: order variability (weekly, seasonally and annually) reflected or amplified in production of raw material, packaging and other inputs*
- ❑ *Inventory creation: At what point of the material flow is finished product no longer made according to actual demand and instead is made against forecasts alone or raw material push*
- ❑ *Order fulfilment (raw material, other inputs and finished goods) delivered at required time, volume and quality*
- ❑ *Operation layout and geography of the chain*

Minimising waste

- ❑ *Over-production: raw material and final product*
- ❑ *Transport: double handling, excessive movements at:*
  - *micro-level, eg within companies floorplan*
  - *macro-level, eg configuration of Wholesalers and Distributors, storage and outlets.*
- ❑ *Inappropriate, over-complex processing;*
- ❑ *Waste created during processing and storing and at retail*
- ❑ *Unnecessary inventory*
- ❑ *Missed opportunities for using by-products*
- ❑ *Waiting: for raw material, WIP, finished goods, transport or people;*
- ❑ *Unnecessary staff effort*

Maximising adding value

- ❑ *Identify each distinct activity, and classify as value adding (is this maximised?), necessary but value-adding; wasteful*
- ❑ *Flexibility to customise for different customers/consumers, and responsiveness to changing needs of target market*
- ❑ *Rate of commercialising new product introduction*

- ❑ *Focus on investment programmes on value creation (R&D, processing, packaging)*
- ❑ *Responsiveness to consumer feedback and complaints*
- ❑ *Defects*

Section C. INFORMATION FLOW

C1 Consumer Value

1. How is consumer value assessed, communicated and applied? Have the key drivers and trends in purchasing behaviour been identified? Are these being used to generate NPD ideas, or just to test ideas?

2. What are the priority requirements for your next link in the chain ie. price, size, colour, freshness, taste, texture, SO2 content, convenience, appearance and presentation, packaging, species, Aust origin, environmental story, traceability, branding, regional branding, nutritional value, others?

3. Do you know the priority requirements at each link in the chain through to the final consumer?

4. What do you think the end consumer values in the product? Ie. Aust Origin, Appearance (larger size, lack of broken, soft and black defects), slightly firmer texture, sustainably wild caught?
    a. What size gradings do consumers want? Is there an opportunity to reorganise the whole chain around this?
    b. Do consumers want more convenient packaging for this product? What type and size? Who in the chain is in the best position to instigate this value adding step?
    c. Is SO2 an issue for consumers? Is it likely to be?
    d. Is the perception of some consumers that cabinet prawns are fresh and not frozen an issue?
    e. What marketing triggers would appeal to consumers?

5. How do these attributes differ from your competition in the market place?

6. How have these priority requirements changed over time?

7. Does current information flow support or constrain incentivisation around consumer value and innovation?

8. How many consumer complaints are there and about what? Who collects data and how is it communicated and used?

C2 Production/ processing efficiency

Prompt question: What sort of performance measures does your organisation adopt?

9. Are performance measurement systems monitoring the activities which consumers value at a chain, organisational and individual level? Is there a process to review performance of individuals and chain partners?

10. Who in the chain is responsible for forecasting? With what information, eg actual or estimated sales/inventory figures? What is target accuracy on different time horizons? What accuracy is achieved? What are the effects of inaccuracy (cost, mistrust, stockouts, excessive storage)? What modelling supports the forecasting, eg variation in prices either through promotion or of substitute products; impact of different prices paid to suppliers?

11. Are deficient flows caused by operational issues or based on problems in relationships, eg information not flowing because of a lack of trust, or flowing but not being used because of a lack of alignment?

12. In your operation how is waste data
    - Collected (how, by whom, how frequently)
    - Monitored (how, by whom, how frequently)
    - Acted upon (examples)

C3 Effectiveness of information flows

13. How effective is the information in terms of
    - ❑ *Validity: accuracy and reliability;*
    - ❑ *Robustness: similar interpretation by all users, repeatable, comparable across time and place;*
    - ❑ *Usefulness: relevant (indiscriminate communication), understandable, actionable, benchmarkable;*
    - ❑ *Completeness: measurement of all relevant aspects;*
    - ❑ *Timeliness: how often information is provided (real time or historic) and whether this is sufficient;*
    - ❑ *Targeted: does information reach everyone who needs to know and no one else;*
    - ❑ *Consistency with value chain's strategy;*
    - ❑ *Economy: cost–benefit evaluation of collecting and analysing data;*
    - ❑ *Format: is the most appropriate communication media used (from face-to-face to electronic)*

14. How is environmental impact assessed/monitored, communicated and applied? What information is collected and shared amongst chain partners?

Section C. INFORMATION FLOW

Information flow checklist:

The interviews should gather data/examples to assess against the following indicators:

Consumer value

- ❑ *Identification, communication and application of consumer values and behaviour in R&D, production, processing and marketing*
- ❑ *Priority requirements along the chain are consistent*
- ❑ *Understanding of consumer requirements*
- ❑ *Point of difference in the market place*

Production/processing efficiency

- ❑ *Correct Key Performance Indicators being monitored*
- ❑ *Maximising productivity*
- ❑ *Minimising waste,*
- ❑ *Ensuring traceability and quality assurance to meet regulatory and consumer requirements; and*
- ❑ *Informing strategic management of the chain, including shared visions and decision-making; process alignment; incentives and mutual benefits; and transparency of market, cost, forecast and performance data.*
- ❑ *Minimising delay and distortion in order/demand information, eg, reducing variation between actual demand and forecasts*

Effectiveness of information flows

- ❑ *Validity: accuracy and reliability;*
- ❑ *Robustness: similar interpretation by all users, repeatable, comparable across time and place;*
- ❑ *Usefulness: relevant (indiscriminate communication), understandable, actionable, benchmarkable;*
- ❑ *Completeness: measurement of all relevant aspects;*
- ❑ *Timeliness: how often information is provided (real time or historic) and whether this is sufficient;*
- ❑ *Targeted: does information reach everyone who needs to know and no one else;*
- ❑ *Consistency with value chain's strategy;*
- ❑ *Economy: cost–benefit evaluation of collecting and analysing data;*
- ❑ *Format: is the most appropriate communication media used (from face-to-face to electronic)*

Section D. RELATIONSHIPS

D1 Strategic alignment/ value chain integration

Prompt question: What is your organisation's underlying strategy for competitiveness? Is it in line with your customers' and suppliers' strategy?

1. Is the organisational strategy congruent with that of suppliers and customers? In what sense? (E.g. Cost, Speed, Flexibility, Quality, Reliability, growth and expansion, importance of corporate social/environmental responsibility, continuous improvement projects, joint investments, focus on customer value) Are strategic visions communicated, understood and shared within and among organisations?

2. How are relationships incentivised, eg commitment, quality, volume, reliability, efficiency, sustainability, &/or adding value/innovation? Do incentives upstream encourage the push of material flow, and so risk creating of inventory/waste?

3. Is the relationship viewed in the same light by both parties? Is one party mis-led as to how the other party considers the relationship? Is there equal reliance? If not, does this affect behaviours?

D2 Trust, commitment and collaboration

4. What is the nature of the interactions between partners? Confined to operational needs, or proactive and related to strategy?

5. Is there evidence of:
   a. Prioritisation to the customer/supplier in the value chain compared to other customers/suppliers (eg, exclusivity);
   b. Collaboration in innovation, consumer insight etc involving mutual commitment of time, money, data/knowledge/expertise, sharing of risks/rewards
   c. Honouring of commitments; reliable delivery of performance; timely response to requests; recognition of other's competency?
   d. Flexible thinking outside traditional organisational boundaries
   e. Joint investments, interfacing with suppliers and customers

6. What is the employee turnover like? Does the change in employees impact on the relationships, e.g. consistency of procurement/category strategy including towards innovation?

7. What is the extent of trust perceived? Is sensitive/proprietary commercial/technical information shared?

D3 Power and dependence

8. Are the arrangements between partners vague or precise? Nature of contracts, evidence of either party taking advantage?

9. Is there any indication of a power imbalance between partners? How does it impact on the behaviour and relationship between partners? (e.g. reluctance to commit to long term contracts, or invest in specific assets, extent of exercising options to change supplier/customer)

10. What deficiencies are seen in the supplier/customer, and what action is taken to tackle these?

Section D. RELATIONSHIPS

Relationships checklist:
The interviews should gather data/examples to assess against the following indicators:

Strategic alignment/Value chain integration:

- ❑ *Resources available (production/processing capacity) and investment strategy*
- ❑ *Ability, expertise and motivation*
- ❑ *Strategic planning: analysis and programme building based on the known*
- ❑ *Strategic thinking : synthesis of information, intuition, creativity and experimentation*
- ❑ *Investing in foresight: causes of change; mapping (and where possible influencing) alternative futures*

Trust, commitment and collaboration:

- ❑ *Long-term orientation: shared visions; compatible and adaptable structures and processes*
- ❑ *Contractual arrangements: formality and length of contracts; negotiation, monitoring and enforcement costs*
- ❑ *Joint ventures/investment*
- ❑ *Open communication, honesty and consistency: between words and actions; and in sustaining level of effort*
- ❑ *Understand each others' businesses, and so the impact of own actions upon the other chain members;*
- ❑ *Performance assessment, feedback and resultant action; pro-active suggestions for improvement*
- ❑ *Commitment to relationship greater than short term fluctuations in performance*
- ❑ *Consistency in attitude to individuals and a supplier/customer organisation*

Power and dependence; opportunism; conflict and its resolution:

- ❑ *Characterisation as high challenge driven by customers (with or without support); mutual development, eg joint planning; technology sharing*
- ❑ *Inter-dependence: the relative importance of the value chain to each party in the relationship in terms of volume, value or strategic significance to business growth*
- ❑ *Asymmetrical power: availability of alternative customers/suppliers, and ease and history of replacement; relative size of value chain partners*
- ❑ *Shared risks/costs and rewards for mutual benefit;*
- ❑ *Fairness of policies and procedures, and how procedures are enacted by individuals*
- ❑ *Dysfunctional behaviour: imbalance of power and its abuse*
- ❑ *Extent of opportunistic behaviour*
- ❑ *Is information seen as power rather than shared?*

❑ *Conflict creation and dispute resolution: causes of conflicts pre-empted; consequences of conflicts (impact on trust and commitment) minimised*

Section E. INNOVATIVE CAPACITY

E1 Continuous improvement

1. How influential is innovation in category strategy? Is the retailer realistic about the time/investment taken for innovative products to establish a market and re-coup development/advertising costs?

E2 Collaborative innovation

2. To what extent is R&D adopted and applied in the organisation and in the chain?

3. Are there KPIs or measures jointly established in the chain? Do they incorporate the chain's performance?

4. How often are improvement projects implemented; and what are the main issues? Do they incorporate suppliers and customers in the chain? How adaptive are they to change?

5. Are there opportunities for creativity, flexibility, and joint decision making in the organisation, and within the chain?

6. Are risks and uncertainties identified, eg in demand; production yield/quality and quantity of supply; market competition; and changing consumer preferences? How are they managed through flexibility and contingency plans? Are they managed collectively and in the interests of the whole chain? What use is made of foresight (identifying causes of change and mapping alternative futures)?

Section E. INNOVATIVE CAPACITY

Innovative capacity checklist:
The interviews should gather data/examples to assess against the following indicators:

Continuous Improvement

- ❑ *Mutual category strategy which includes innovation along the whole chain*

Collaborative Innovation

- ❑ *Mutual R&D strategy which incorporates consumer value and innovation as well as productivity and efficiency*
- ❑ *Engaging ingenuity: fostering creativity of all employees and key suppliers and customers*
- ❑ *Incentive structures and resource allocation systems which prioritise and reward innovation widely within and between organisations, including relative emphasis on the particular value chain by those participants involved in multiple value chains*
- ❑ *Mutual capacity for innovative thinking and adoption of its outcomes*
- ❑ *Thinking across organisational boundaries (internal and external)*
- ❑ *Culture of risk-taking and positive response to failure; risk and benefit sharing*
- ❑ *Communication of consumer insight throughout the chain and upon which all innovation programmes are then built*

Section F. SUMMARY

1. What are the key issues / opportunities you would like to address in your own operation?

2. What are the key issues / opportunities you would like to address with your chain partners?

Section F. SUMMARY

Summary checklist:

- ❑ *Identified key issues and opportunities within and between chain members*

11.2 Prawn Market Summary Analysis

Prawns

SA Production	ABARE - Australian Fisheries Statistics 2004/05	2005/06	2006/07	
Volume	2,173	2,070	2,233	tonnes
Value	$35,805,000	$36,909,000	$42,656,000	
Unit Price	$ 16.48	$ 17.83	$ 19.10	$/kg

SA Markets	ABS Trade / ABARE			
SA Production - Export	68%	62%	13%	
Export Volume	**1,469**	**1,288**	**287**	**tonnes**
Value	$27,795,852	$23,835,082	$4,961,536	
Unit Price	$ 18.92	$ 18.51	$ 17.28	$/kg
Australian Market	***704***	***782***	***1,946***	***tonnes***

Major SA Export Markets	ABS Trade			
Greece	293	242	156	tonnes
	$5,214,654	$4,303,409	$2,857,742	
	$ 17.78	$ 17.78	$ 18.30	$/kg
Spain	369	280	74	tonnes
	$5,805,611	$4,717,834	$1,059,676	
	$ 15.73	$ 16.87	$ 14.40	$/kg
Japan	799	699	43	tonnes
	$16,605,153	$13,730,507	$757,202	
	$	$ 19.65	$	$/kg

	20.78		17.65	
Other	7	67	14	tonnes

Australian Production	ABARE - Australian Fisheries Statistics			
Wild Catch	20,460	19,999	17,297	tonnes
	$256,741,920	$256,516,340	$219,842,050	
	$ 12.55	$ 12.83	$ 12.71	$/kg
Aquaculture	3,258	3,541	3,284	tonnes
	$50,363,550	$49,887,100	$45,125,000	
	$ 15.46	$ 14.09	$ 13.74	$/kg
Total	23,718	23,540	20,581	tonnes
	$307,105,470	$306,403,440	$264,967,050	
	$ 12.95	$ 13.02	$ 12.87	$/kg

Australian Markets	ABS Trade / ABARE			
Export	***70%***	***37%***	***31%***	
Export Volume	16,703	8,813	6,401	
Value	$256,850,543	$134,352,701	$93,735,344	
	$ 15.38	$ 15.24	$ 14.64	
Australian Consumption of Aus Prawns	7,015	14,727	14,180	tonnes
Australian Consumption of SA Prawns	*704*	*782*	*1,946*	tonnes

Major Export Markets	ABS Trade			
Japan	6,071	3,116	2,442	tonnes
	$118,078,377	$59,665,491	$45,446,135	
	$ 19.45	$ 19.15	$ 18.61	$/kg
Spain	2,874	1,503	902	tonnes

	$36,919,954	$19,684,274	$10,395,521	
	$ 12.85	$ 13.10	$ 11.52	$/kg
China	2,710	1,124	1,101	tonnes
	$31,556,412	$12,051,468	$11,287,035	
	$ 11.64	$ 10.72	$ 10.25	$/kg
Hong Kong	1,125	450	430	tonnes
	$16,379,854	$6,133,150	$6,095,240	
	$ 14.57	$ 13.62	$ 14.19	$/kg
Greece	870	403	327	tonnes
	$14,508,058	$6,902,589	$5,477,887	
	$ 16.68	$ 17.13	$ 16.75	$/kg
Viet Nam	1,184	554	507	tonnes
	$13,644,669	$7,528,790	$5,294,720	
	$ 11.52	$ 13.58	$ 10.45	$/kg
Other	1,869	1,663	693	

International Production ($US)

FAO Fishstat

	2003	2004	2005	
Capture fisheries	3,545,000	3,542,000	3,417,000	t
	$11,629,000,000	$11,407,000,000	$11,445,000,000	$US
	$ 3.28	$ 3.22	$ 3.35	$/kg
Aquaculture	2,129,000	2,446,000	2,675,000	t
	$8,535,000,000	$9,689,000,000	$10,608,000,000	$US
	$ 4.01	$ 3.96	$ 3.97	$/kg

All Production	5,674,000	5,988,000	6,092,000	t
	$20,164,000,000	$21,096,000,000	$22,053,000,000	$US
	$ 3.28	$ 3.28	$ 3.28	$/kg
Exporters	UN Comtrade			
All Exports	1,991,882	2,155,554	Incomplete	t
	$11,031,344,488	$12,111,069,686		$US
	$ 5.54	$ 5.62		$/kg
Thailand	283,012	346,248	356,364	t
	$1,777,178,600	$2,287,814,332	$2,376,698,982	$US
	$ 6.28	$ 6.61	$ 6.67	$/kg
China	223,233	270,306	258,755	t
	$1,087,254,783	$1,339,327,535	$1,275,657,407	$US
	$ 4.87	$ 4.95	$ 4.93	$/kg
Viet Nam	212,060	223,125	NA	t
	$1,323,888,425	$1,381,921,197	NA	$US
	$ 6.24	$ 6.19		$/kg
India	200,828	185,327	NA	t
	$977,682,992	$1,007,504,871	NA	$US
	$ 4.87	$ 5.44		$/kg
Ecuador	91,282	119,040	125,849	t
	$454,297,575	$596,886,205	$603,657,730	$US
	$ 4.98	$ 5.01	$ 4.80	$/kg
Major Importers	UN Comtrade			
All Imports	2,095,352	2,214,019	Incomplete	t
	$12,799,152,227	$14,082,055,717		$US
	$	$ 6.36		$/kg

	6.11			
USA	533,173	593,731	559,947	t
	$3,833,703,194	$4,315,803,123	$4,091,956,699	$US
	$ 7.19	$ 7.27	$ 7.31	$/kg
Japan	294,662	301,080	275,504	t
	$2,433,500,118	$2,502,356,173	$2,264,588,419	$US
	$ 8.26	$ 8.31	$ 8.22	$/kg
Spain	156,485	180,314	N/A	t
	$1,059,968,841	$1,288,309,808		$US
	$ 6.77	$ 7.14		$/kg
France	101,091	104,830	107,460	t
	$664,160,560	$702,624,626	$739,467,172	$US
	$ 6.57	$ 6.70	$ 6.88	$/kg
United Kingdom	90,439	89,140	87,483	t
	$614,967,521	$620,215,892	$652,302,920	$US
	$ 6.80	$ 6.96	$ 7.46	$/kg
Denmark	$136,025	$140,811	N/A	t
	$423,062,508	$433,231,399		$US
	$ 3.11	$ 3.08		$/kg

Australia's Competitive Position

UN Comtrade

Frozen Prawns in South Australia's Major Export Markets

	2005	2006	2007	
Japan Imports	232,435	229,948	207,243	t
	$1,938,848,930	$1,954,720,989	$1,741,793,243	$US

	$ 8.34	$ 8.50	$ 8.40	$/kg
Australia	3,587	3,154	1,904	t
	$55,539,348	$45,552,892	$28,772,830	$US
	$ 15.48	$ 14.45	$ 15.11	$/kg
Australia (kg % of market)	1.5%	1.4%	0.9%	
Australia ($ % of market)	2.9%	2.3%	1.7%	
Spain Imports	152,971	177,137	NA	t
	$1,031,250,386	$1,256,373,083		$US
	$ 6.74	$ 7.09		$/kg
Australia	1,745	1,379	NA	t
	$17,941,438	$14,291,230		$US
	$ 10.28	$ 10.37		$/kg
Australia (kg % of market)	1.1%	0.8%		
Australia ($ % of market)	1.7%	1.1%		
Greece Imports	3,290	3,645	4,887	t
	$30,466,633	$33,838,384	$44,544,224	$US
	$ 9.26	$ 9.28	$ 9.12	$/kg
Australia	415	352	199	t
	$4,050,050	$3,512,256	$1,828,711	$US
	$ 9.75	$ 9.97	$ 9.19	$/kg
Australia (kg % of market)	12.6%	9.7%	4.1%	
Australia ($ % of market)	13.3%	10.4%	4.1%	

Highest $/kg World Markets

UN Comtrade

Frozen Prawns Importer/Exporter Combination, minimum $3 million trade

Importer	Exporter		2006	2007
Spain	Ireland	Max of $/kg	$25.35	
		Sum of NetWeight (kg)	364,365	
	Algeria	Max of $/kg	$18.92	
		Sum of NetWeight (kg)	565,464	
	Angola	Max of $/kg	$18.42	
		Sum of NetWeight (kg)	1,279,179	
	Morocco	Max of $/kg	$15.92	
		Sum of NetWeight (kg)	4,997,096	
	CÃ´te d'Ivoire	Max of $/kg	$15.92	
		Sum of NetWeight (kg)	344,442	
	Italy	Max of $/kg	$15.67	
		Sum of NetWeight (kg)	2,498,985	
	Tunisia	Max of $/kg	$15.20	
		Sum of NetWeight (kg)	2,215,075	
Japan	USA	Max of $/kg	$18.17	
		Sum of NetWeight (kg)	213,302	
	Australia	Max of $/kg	$14.45	$15.11
		Sum of NetWeight (kg)	3,153,534	1,904,333

United Kingdom	France	Max of $/kg	$13.54	$15.35
		Sum of NetWeight (kg)	1,210,382	1,082,710
France	Nigeria	Max of $/kg	$12.48	$15.03
		Sum of NetWeight (kg)	1,788,100	1,410,800
Italy	Tunisia	Max of $/kg	$11.36	$14.49
		Sum of NetWeight (kg)	1,792,220	1,578,676

Australian Domestic Market

	2004/05	2005/06	2006/07	
Australian Consumption of Aus Prawns	7,015	14,727	14,180	tonnes
Australian Consumption of SA Prawns	704	782	1,946	tonnes

Australian Imports

Total	2005	2006	2007	
Import Volume	29,856	33,586	31,449	t
Value	$188,182,834	$228,552,956	$224,685,333	$US
$/kg	$ 6.30	$ 6.80	$ 7.14	$/kg
Major Importers				
Thailand	10,246	9,197	9,075	t
	$59,894,058	$59,237,338	$60,477,759	$US
	$ 5.85	$ 6.44	$ 6.66	$/kg
China	4,633	9,426	10,810	t

	$22,046,727	$50,944,878	$62,325,469	$US
	$ 4.76	$ 5.40	$ 5.77	$/kg
Viet Nam	7,221	8,478	6,326	t
	$56,281,259	$72,892,620	$60,184,784	$US
	$ 7.79	$ 8.60	$ 9.51	$/kg

Appendix 8: Supermarket Deli Manager Survey

The Centre of Excellence for Science, Seafood and Health
Questionnaire

Deli managers: Point of sale marketing

Q1 **What is your gender?**

Male ▢ Female ▢

Q2 **Which store do you manage?**

Q3 **How long have you been a deli manager with Drakes?** years

Q4 **How would you rate the following point of sale materials? Please rate on a scale of 1-10, with 1 meaning "poor" and 10 meaning "excellent"). Please also add any specific feedback, comments or observations about each. For example, are consumers actually reading or are they simply picking up and taking away for later?**

	Rating (1-10)	Comments
Information pamphlet/ recipe cards		
Decal/sticker on display case		
MSC logo		
Tasting (if applicable)		

Q5 **What impact have the point of sale materials had on knowlege about, and attitudes toward, Spencer Gulf (SG) king prawns?** *(Tick one per line)*

	No impact	Very little impact	Some impact	Moderate impact	Significant impact
What impact have point of sale materials had on your knowledge about SG king prawns?	▢	▢	▢	▢	▢
What impact have point of sale materials had on your attitudes toward SG king prawns?	▢	▢	▢	▢	▢
What impact do you think point of sale materials had on customers?	▢	▢	▢	▢	▢
What impact do you think point of sale materials had on deli staff?	▢	▢	▢	▢	▢

Q6 **What improvements or changes would you recommend to promote sales of SG king prawns?**

Q7 **Please note any observations you have made about staff or consumers in relation to the point of sale materials.**

Thank you for taking the time to complete this questionnaire.

Your participation in this research is valued.

Appendix 9: Supermarket Consumer Survey

The Centre of Excellence for Science, Seafood and Health
Questionnaire

Consumers: Point of sale marketing

Q1 What is your gender?

Male ▪ Female ▪

Q2 In what year were you born?

Q3 Which Drakes store are you shopping in?

Q4 What day is it?

Mon ▪ Tue ▪ Wed ▪ Thu ▪ Fri ▪ Sat ▪ Sun ▪

Q5 What time is it?

Before 12 noon ▪ 12 noon - 3pm ▪ 3pm - 6pm ▪ After 6pm ▪

Q6 How often do you buy prawns at Drakes? How often are the prawns Spencer Gulf (SG) king prawns? *(Tick one per line)*

	About once a week	About once a fortnight	About once a month	About once every 2-6 months	Less than once every 6 months	Only at Xmas time
Prawns	▪	▪	▪	▪	▪	▪
SG king prawns	▪	▪	▪	▪	▪	▪

Q7 <u>Before starting this questionnaire</u>, had you noticed any of the following point of sale materials for prawns? (Tick all that you'd noticed)

Information pamphlet /recipe cards	▪
Decal (sticker on display case)	▪
MSC logo	▪
Tasting	▪
Other	

Q8 How would you rate the following point of sale materials? Please rate on a scale of 1-10, with 1 meaning "poor" and 10 meaning "excellent").

	Rating (1-10)		Rating (1-10)
Information pamphlet /recipe cards		MSC logo	
Decal/sticker on display case		Tasting (if applicable)	

Q9 How likely is it that these materials will influence your purchase decision? *(Tick one per line)*

	Highly unlikely	Unlikely	Likely	Highly likely
Information pamphlet/recipe cards	▪	▪	▪	▪
Decal/sticker on display case	▪	▪	▪	▪
MSC logo	▪	▪	▪	▪
Tasting (if applicable)	▪	▪	▪	▪

Q10 How likely is it that these materials will make you purchase prawns more often?*(Tick one per line)*

	Highly unlikely	Unlikely	Likely	Highly likely
Information pamphlet/recipe cards	▪	▪	▪	▪
Decal/sticker on display case	▪	▪	▪	▪
MSC logo	▪	▪	▪	▪
Tasting (if applicable)	▪	▪	▪	▪

Q11 What would make you purchase Spencer Gulf king prawns more frequently? Please add any further comments.

Thank you for taking the time to complete this questionnaire.

Your participation in this research is valued.

CESSH CENTRE OF EXCELLENCE SCIENCE SEAFOOD HEALTH
AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE
University of the Sunshine Coast

Appendix 10: Draft Journal Article: Closing the loop with a VCA: Identifying, Implementing and Evaluating improvement projects in an Australian Prawn Fishery

DRAFT

Closing the loop with a VCA: Identifying, Implementing and Evaluating improvement projects in an Australian Prawn Fishery

Word count: currently around 5,200

Number of figures: 1

Number of tables: 8

Key words: Value Chain Analysis, evaluation, improvement projects, prawns, Australian

Target Journals: Supply Chain Management, Others?

Abstract

Introduction

VCA is increasingly being used as a tool to enhance the profitability and sustainability of agribusiness chains and wider food industry networks (Francis, Simons & Bourlakis 2008; Simons et al. 2003; Taylor 2005). However, to date the vast majority of published investigations in food and agribusiness chains have ceased at the conclusion of the analysis stage and have either not acted on the insights identified or failed to measure the benefits of any attempted improvement activity (Bernet et al. 2005; Taylor 2005).

The value chain concept was first introduced by Porter in 1980. Porter's value chain framework provided information in a way that business managers could use it to understand how they could improve their competitive advantage. This initial concept formed the basis of more modern value chain analysis (VCA) techniques where final consumer values are identified and then activities along the whole chain are assessed to prioritise improvements or new opportunities (Bonney et al. 2007). The principle concept behind this exercise is to identify opportunities (or improvement projects) where stakeholders in the value chain can partner together to improve efficiency, reduce costs or add value in ways that better satisfying the final consumer (Bernet et al. 2005; Devanney 2006).In addition to these private sector benefits, VCA has been increasingly used in different ways to understand industry networks and to provide policy insights which are useful for both private and public stakeholders (Kaplinsky & Morris 2001). While this flexibility in application enhances the usefulness of this technique, it also exposes a few short comings. Individual value chains and industry networks are very complex and are constantly changing so when a VCA is conducted it is important to strike a balance between being too broad and lacking detail in important areas and conversely, being too narrow and missing the wider issues. There also needs to be some consideration of how the project structure coincides with stakeholder expectations and whether the analysis itself is only going to identify potential improvements and plan for implementation, or whether it will progress further and be one of the few projects to actually implement the improvements (Bernet et al. 2005).

In this study we seek to extend the research into VCA by addressing the key research gaps around implementation of improvement projects identified previously in VCA analyses (Bernet et al. 2005; Taylor 2005). Specifically we propose to answer the research question of whether the VCA analysis can really provide significant benefits and profitable solutions following implementation of the recommended improvement activity. Our objectives were therefore to report on the implementation phase of a VCA analysis in the Australian prawn industry specifically looking at prioritising the best opportunity, implementation of the opportunity and then evaluation of the outcomes, thus closing the loop on the VCA process.

The next section will review relevant literature, with an emphasis on the evolution of VCA and the gaps/ limitations in previously published work on VCA implementation and evaluation. We then provide background and context to the case study by describing the prawn industry in Australia and VCA methods and results from the project up until the commencement of the implementation activity. The results section discusses the implementation activity in three sections: prioritisation of activity, implementation of activity, evaluation of activity. The article will conclude with some key summary points and the implications for further research.

Literature Review

To provide the most relevant context to this research and case study example, the review will commence by providing background on the history and application of VCA before identifying the similarities and limitations in the various techniques.

The term 'value chain' was described by Kaplinsky, R (2000) as a "full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final customers, and final disposal after use". Ever since Michael Porter published his work on competitive advantage (Porter1980), the term 'value chain' and 'value chain analysis' has been used by a variety of different disciplines and practitioners to aid in the identification of constraints and opportunities along value chains. Historically, the filière approach was used by French researchers to identify chain agents and to map the physical flow of the commodity and how it transformed along the chain (Raikes et al. 2000; Altenburg 2006). Since then, techniques and terminology such as 'supply chain management', 'global commodity chains', 'participatory market chain approach' and 'participatory value chain analysis' have emerged to describe some of the methodology options that can be used by practitioners in a variety of different circumstances and disciplines.

This wide variety of available value chain techniques/definitions brings with it a certain amount of confusion for agribusiness/food value chain practitioners wanting to choose a suitable technique for the specific set of circumstances and objectives of their test chain. The temptation is to broaden the scope to learn as much as possible about the whole industry from producer to the full range of final consumers in all domestic and export markets. While it is prudent to start the identification stage of the project quite broad it is important to limit the scope of the detailed analysis and implementation stages in order to match the inevitable limitations on time and project costs.

In general, most of the value chain analysis techniques share the same basic elements of; (Bonney et al. 2007; DFID 2008; Kaplinsky & Morris 2001; Simons et al. 2003; Taylor 2005)

1. Scope
    a. Define project scope and identify stakeholders
    b. Collect information / data
2. Analysis
    a. Identify key constraints and opportunities
    b. Prioritise and recommend improvement projects
3. Implementation and Evaluation
    a. Implement improvement projects
    b. Evaluate the effectiveness of the improvement project

Bernet et al. (2005) observed that publication of many value chain analysis projects do not progress to the stage 3 of implementation and instead limit the project scope to a final report which outlines the potential improvement projects and possible next steps. The further step of evaluating the effectiveness of the improvement project is even harder to find in the literature. A value chain analysis case study by Dekker (2003) on a large UK retail firm goes some way towards an evaluation of the VCA methodology; however it tends to focus more on supply chain management efficiency and doesn't go as far as evaluating any of the improvements suggested. Another recent publication by Prowes et al (2014) shows the effect over time by comparing value chain analyses done on the Malawi tobacco industry between 2003 and 2009 but it doesn't actually follow the effectiveness of the improvement made as a result of the initial VCA. There are also other examples of desktop based industry reviews (Haby et al. 2003) but the collection of new data as part of the evaluation of a value chain analysis seems to be a new area of research that has not received much attention.

The published research looking specifically at prawn/shrimp industries around the world vary widely in both methodology and industry scope. A few studies have used a broad industry framework to analyse competitor industries, import trends, market data and successful case studies to suggest how to reposition the prawn product into a higher end niche market (Fuduric, Barkley & Henry 2005; Haby et al. 2003). The prawn studies that have utilised value chain techniques such as chain member interviews and surveys have tended to focus on the supply end of the chain and have not included any interviews or surveys with retailers or end consumers (Doan 2011; Hassan et al. 2012; Islam 2008). Dubay, Tokuoka and Gereffi (2010) conducted a comprehensive value chain analysis of the Mexico shrimp fishery to understand the opportunities and recommended improvement projects, but with no report of implementation or evaluation.

Previous relevant research on POS material in relation to what consumers' value. 'Point of sale' or 'point of purchase' (POP) promotions have been found to have a significant influence on shopping behaviour which makes sense considering as much as 75% of buying decisions are thought to be made in-store (Nicolas 2007). Well-developed and targeted POS material has also been effective in influencing shopping behaviour by disturbing 'unconscious' shoppers from their set routines which is becoming more important as personalised service decreases (Nicolas 2007). However, Nicolas does caution that while POS material needs to seize your attention it also needs to fit into the overall retailer strategy or it can become part of the clutter that consumers are learning to ignore. It was also found that the effectiveness of different types of POS material can vary significantly. Research by ID Magasin found 55% of shopper attention goes to shelf edge material as opposed to only 3% to hanging fixtures (Nicolas 2007). POS material was also found to be more effective when it was positioned close to where shoppers are making the buyer decision (Nicolas 2007).

SG POS results (eg not noticing posters were similar to Nicolas 2007).

An industry that has devoted a lot of effort and significant budget into POS and POP material is tobacco. A recent study by Lavack and Toth (2006) estimated that 85% of the enormous $15 billion USD budget spent on promoting cigarettes in the United States, is devoted to POP promotion or retail merchandising. This high percentage is no doubt due to other forms of advertising being taken away through government policy, but nevertheless the industry has been quick to exploit the benefits of using POS and POP material (Pollay 2007). Studies have shown this type of advertising can not only benefit market share but also build image and category growth (refs).

Context and Background

The context for this research was the Spencer Gulf Prawn Fishery (SGPF). It is one of the largest and most important fisheries in South Australia in terms of value and production. The annual catch in the SGPF has averaged 2000 tonnes over a nine year period since 2002/03 and the Fishery is the third most valuable Prawn fishery in Australia $30.3m 2010/11 (EconSearch 2012). The fishery consists of 39 commercial licence holders that all utilise similar equipment and techniques to capture a single species, the Western King prawn, *Melicertus latisulcatus*. Prawns are caught, graded and sorted and sometimes cooked then frozen in 5kg or 10kg cartons. All of this processing happens on board the fishing vessels.

Management of the fishery is through a successful partnership between the local state government department responsible for Primary Industries and Regions and the Spencer Gulf and West Coast Prawn Fishermen's Association Inc. (SGWCPFA). This co management model has stabilised prawn production and the future sustainability of the fishery and has recently led to formal certification from the Marine Stewardship Council.

In recent years the fishery has been detrimentally impacted by increased competition from cheaper farmed prawns and reduced export competitiveness that results from a high Australian dollar. Considering the fishery has successfully implemented "at sea" collaboration, it was considered that the whole industry might gain a significant benefit from a value chain approach to better understand industry opportunities and identify whole of chain improvement projects.

The VCA of the Spencer Gulf Prawn Fishery (SGPF) was conducted using the basic elements of VCA methodology. The first step was to define the scope of the project and identify stakeholders.

A series of workshops were held in 2008 and 2009 with the SGWCPFA, including one that was facilitated by Professor Andrew Fearne, a recognised leader in value chain analysis, to introduce the theories of value chain thinking and to design a project methodology and project team that would work for all of the stakeholders in the industry. Once the project structure was established, interviews and surveys were conducted with value chain stakeholders from the producers through to the end consumers. The analysis of this information identified two target markets (supermarkets and restaurants) with the potential to provide significant growth in sales and profitability along the whole chain. A map of the flow of product for the SGPF at the time of conducting the interviews is shown in Figure 1.

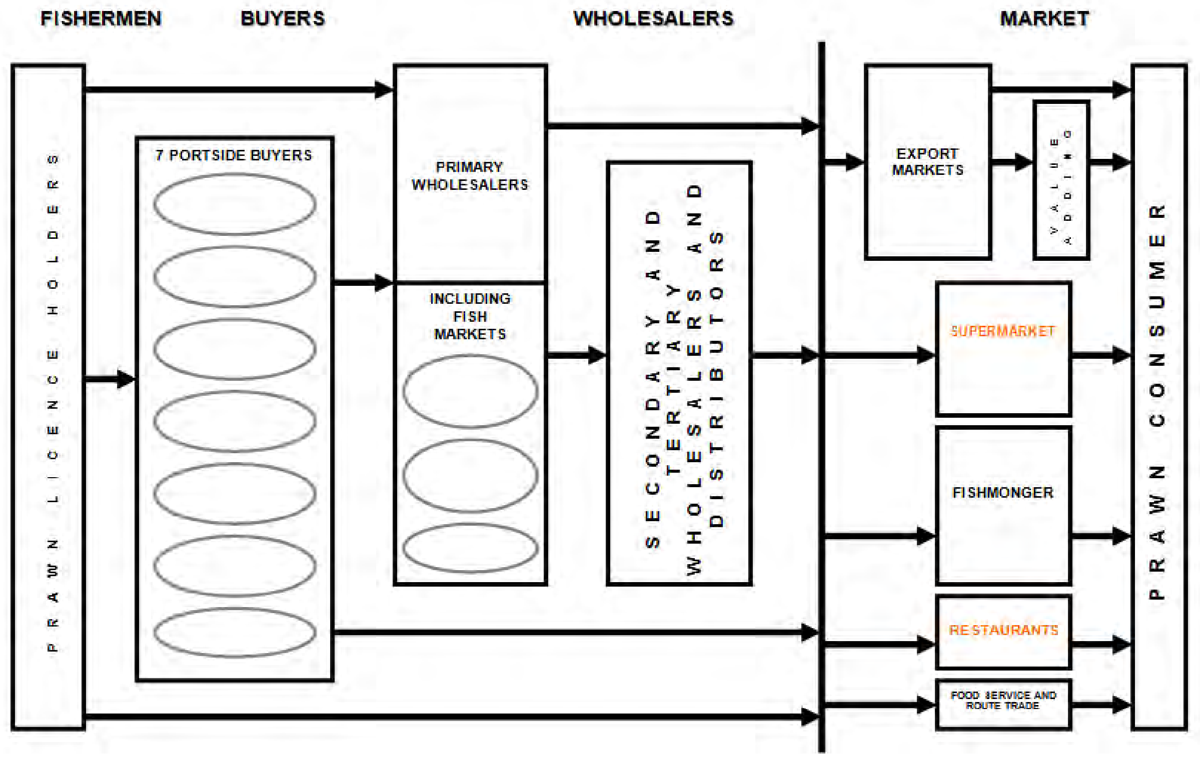


Figure 1: Map of the product flow for the Spencer Gulf Prawn Fishery

The next phase of the research focussed on the analysis of two isolated and distinct value chains that supplied product to the two target markets that were identified previously as having potential. Detailed analysis was undertaken on value chains that supplied product to a local supermarket and restaurant. The methodology was modelled around other studies that looked at breaking the value chain information into three key areas 1) material or product flow; 2) information flow; and 3) relationships (Bonney et al. 2007; Soosay, Fearne and Dent 2012; Taylor 2005.) In conjunction with the VCA study the researchers undertook consumer research in both of the target markets to identify the attributes valued by the consumer at the point of purchase.

The detailed VCA of the supermarket and restaurant chain resulted in the development of 9 conceptual projects/activities that had the potential to improve the overall performance of the industry.

These improvement projects are listed below.

- Project 1: Metabisulphite addition and /or alternatives
- Project 2: Incentivise attributes that consumers value
- Project 3: National sizing standards
- Project 4: Consumer driven industry value proposition
- Project 5: Retail information flow
- Project 6: Retail innovative packaging
- Project 7: Restaurant innovative packaging

- Project 8: Promotion and marketing
- Project 9: Soft and broken opportunities

Implementation Stage

a. Prioritisation of the improvement project

In September 2011 at a workshop consisting of industry stakeholders, project stakeholders and the researchers, the 9 conceptual improvement projects were considered and one (project 5) was unanimously prioritised. This project was that the industry as a whole had the most potential to grow sales and profitability through a targeted campaign that increased the level and type of information that was available to the consumer in the supermarket setting at the point of sale for the product.

b. Implementation of the improvement project

An expertise based team was bought together to plan, develop, print and distribute the point of sales material (POS) and undertake the range of evaluation activities. The team had representatives from the fishery, the wholesaler, the supermarket and researchers. The skill set of this team included project management, prawn industry knowledge, experience in supermarket retailing, skills in POS material development and understanding of surveys and evaluation techniques.

The POS resources/activities, their information and how they were used are summarised in Table 1. To ensure maximum penetration of the information and to address the seasonal factors that impact on the marketability of prawns in Australia it was decided that the implementation activity would target three separate time periods, 1) Christmas 2011; 2) Easter 2012; and 3) Winter 2012. The specific resources used over the three periods is also summarised in Table 1.

Table 1: POS resources/activities, information and activity periods for the implementation phase.

Point of sale resource / activity	Information provided	Number of items/how displayed	Period used	Comments
Information booklet	Defined the Spencer Gulf and West Coast Fishery, highlighting the fisheries environmental and social stewardship – which incorporated the Marine Stewardship (MSC) logo. Described the catching and storing methods on the boat and the best thawing and preparation methods for	On the retail cabinet in 40 stores (6000 copies). Provided to customers who approached the retail display	Christmas /Easter /Winter	Improved uptake was observed in Easter and Winter when the stand-up brochure holder was used. Two new replacement recipes were introduced for the Winter period booklet. Aim was to promote immediate sales of prawns but also provided the consumer with a level of knowledge about the product to encourage repeat sales.

	consumers. The booklet also provided consumers with 4 prawn recipe ideas.			
Decal	Highlighted the key attributes of the prawn industry.	Designed to be stuck on the bottom or top of the deli cabinet in 40 stores	Christmas /Easter	
Posters	Highlighted the marine stewardship accreditation of the fishery.	Designed to be stuck on the back wall of the deli area in 40 stores	Christmas /Easter	
In store tastings		Consisted of 3x4 hour sessions with cooking demonstrations and subsequent tasting of prawns. These were conducted at three key supermarket stores.	Winter only	Drew customer's attention to the purchase of prawns by having them taste the product as they were conducting their regular shopping activities in store. Once the customer was engaged at the tasting station a copy of the information booklet and new recipe cards were offered to them. The Winter period was targeted because this is the traditionally slow period for sales of prawns.

c. Evaluation of the implementation activities.

The techniques used in the evaluation are summarised in the table below. *Curtin University ethics approval was obtained for the evaluation activities (Number RD 46-10)*

Table 2: Evaluation techniques and tools used in the study

Evaluation Techniques	Details
Sales Figures	• Information shared by trader and supermarket retailer • Information was made available to the project partners for each of the periods of the campaign and also data from the comparable period in the previous year.
Consumer Surveys	• In store face to face interviews

	• These were undertaken throughout the winter campaign and conducted in conjunction with the in-store tasting sessions
Deli Staff Surveys	• Self-completed surveys by the managers in each of the supermarket stores that participated in the campaign prior to Christmas and Easter
Project evaluation interviews with key value chain stakeholders	• Self-completed surveys by the key businesses/stakeholders that operated within the chain

Results

Sales figures:

It is always difficult to separate impacts of a specific event/activity when comparing sales figures. In this case there was an upward trend of whole prawn prices during the survey period (REF) which would normally affect sales in a negative way. However, private sector partners have provided positive sales figures for the period since the point of sales and tastings activities were conducted in the supermarket stores. In the period 1 January to 1 August 2012 the sales of Spencer Gulf and West Coast prawns (whole prawns) through these supermarkets increased by close to 60% compared to the same period for 2011.

Consumer Surveys:

A total of 190 customers were surveyed at Drakes supermarkets, in line with the in-store tasting sessions. 74 (39%) customers were surveyed at Store 1; 59 (31%) at Store 2; and 57 (30%) at Store 3. Of the 190 respondents 72% were female and 28% male.

Customers were asked the frequency with which they purchased prawns in general, purchased West Coast and Spencer Gulf (WCSG) prawns and purchased prawns specifically at Drakes. The results were as follows:

Table 3: Frequency of prawn purchases

	Frequency of purchase / (n)							
	Once/ week (%)	**Once/ fortnight (%)**	**Once/ Month (%)**	**Once / 2-6 months (%)**	**Less than once / 6 months (%)**	**Once a year (%)**	**Never (%)**	**Not sure type of prawn**
Prawns in general (n=190)	2 (1)	43 (22.6)	65 (34.2)	40 (21.1)	13 (6.8)	17 (9)	10 (5.3)	0 (0)
WCSG Prawns (n=190)	1 (0.5)	11(5.8)	37 (19.5)	38 (20)	24 (12.6)	13 (6.8)	56 (29.5)	10 (5.3)
Prawns at Drakes (n=94)	1 (1.1)	9 (9.6)	14 (14.9)	15 (16)	6 (6.3)	9 (9.6)	39 (41.4)	1 (1.1)

It is evident from Table 3 that customers do not always choose Spencer Gulf and West Coast prawns when purchasing prawns, however those purchasing less frequently i.e. for special occasions, seem more likely to buy Spencer Gulf and West Coast prawns.

Customers were also asked if they had noticed the POS materials (92.63% noticed the recipe cards, 0% noticed the posters, 3% noticed the MSC logo). They were then asked to rate the 3 point of sale materials they had noticed, and the likelihood that the point of sales materials will increase frequency of future prawn purchases. These results are summarised in Table 4.

Table 4: Customers overall rating of the point of sales materials and likelihood that POS materials would increase

	Frequency of response				
	Mean	**4**	**3**	**2**	**1**
RATING OF POS MATERIAL					
Information pamphlets / recipe cards	2.5	19	97	32	41
Tastings	3.5	106	76	5	3
MSC sustainability logo	1.5	2	37	48	73
LIKEIHOOD TO INCREASE PURCHASE					
Information pamphlets / recipe cards	2.2	9	76	45	60
Tastings	2.9	66	67	20	37
MSC logo (sustainability logo)	1.8	2	26	65	67

(1 = Poor or N/A to 4 = Very good) or (1 = Highly unlikely to 4 = Highly likely)

Respondents were also asked to list activities/material which might increase their number/frequency of purchase occasions of West Coast and Spencer Gulf Prawns. The most common response was a decrease in price (40 respondents), whilst confidence in the origin (Australian local) (34 respondents) and sustainable management and harvest (10 respondents) were also key factors. When asked why they wouldn't increase their number/frequency of purchase occasions of West Coast and Spencer Gulf Prawns, 40 respondents said that they generally only purchased prawns/seafood from a fishmonger rather than a supermarket. In addition, 13 respondents gave reasons in line with only purchasing frozen and imported product, and 9 respondents gave reasons in line with price (i.e. they were too expensive).

Deli Staff surveys:

The response rate of the survey with deli staff was 44%, with 18 out of 41 deli managers completing the survey. Of the responses 100% were from females who had worked for Drakes in the position of deli manager for a period ranging 6 months to 14 years.

The deli managers rated each of the 3 point of sale materials and the results were as follows:

Table 5: Rating each of the Point of Sales materials by Deli Managers

	Frequency of response										
	Mean	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Information pamphlets / recipe cards	7.50	4		6	4	1	2		1		

Decal / sticker	7.50	2	1	8	4	2				1	
MSC sustainability logo	6.38			2	4		1			1	

(1 = Poor to 10 = Excellent)

The deli managers were also asked to rate the overall impact of the point of sales materials. The results were as follows:

Table 6: Overall impact of point of sales (POS) materials

	Frequency of response					
	Mean	**5**	**4**	**3**	**2**	**1**
Impact on attitude to West Coast & Spencer Gulf prawns	4.06	7	6	4	1	
Impact of POS on customers	4.06	6	7	5		
Impact on knowledge of West Coast & Spencer Gulf prawns	3.94	6	6	5	1	
Impact of POS on delicatessen staff	3.39	3	5	6	4	

(1 = No impact to 5 = Significant impact)

Project evaluation Interviews with key Chain Stakeholders:

Evaluation surveys were completed with seven key stakeholders in the value chain. The respondents included four fishers, the executive office for the SGWCPFA, the predominant wholesaler and the supermarket manager with overall responsibility for all delicatessen activity in the supermarket chain. Table 7 summarises the responses in regard to overall satisfaction of the project (1 to 10, least to most satisfied) the least and most useful aspects of the project and organisational changes (and outcomes) the project instigated.

Table 7: Results of Interviews with Key Chain Stakeholders

Role in chain	Overall satisfaction	Most useful aspect	Least useful	Changes within organisation	Result of changes
Fisher (F1)	6			no	
Fisher (F2) (sales management)	5	Retail awareness	Boats do a good job	no	Improved profitability
Fisher (F3) (skipper, Management committee member)	8	Understanding the lack of knowledge of handling frozen goods in supermarkets	n/a	no	Improved relationships
Fisher (F4) (skipper,	8	What consumers		Yes, asking buyers to pick	Improved sales volume

Management committee member)		want		up brochures and recipes and bunting	
Executive Officer of SGWCPFA	8	Clarity in the most effective POS given available resources. The mapping of the value chain		Yes, developed a promotional policy to guide future investment based on key factors including lessons learnt from this project. Need to establish a protocol to receive sales feedback etc.	
Wholesaler (supplier to the retailer)	8	Gaining a greater understanding of the retailers perspective and operation, and the ability to test ideas and concepts with a willing partner	Time commitment	Yes, we have looked at new product packaging more suited to the consumer and we continue to develop new POS material	Improved sales volume, Improved relationships
Supermarket Manager (strategic direction for Drakes supermarkets fresh foods section)	8	A better overall view of the supply chain and new POS material for customers	All relevant	Yes, more frequent promotions throughout the whole year with an emphasis on local and sustainable harvesting. Educating all staff giving them better information to pass onto our customers.	Improved sales volume, Improved relationships

The respondents were also asked to rank the value of the various different activities undertaken during the value chain project and the results are summarised below.

Table 8: Ranking of value chain project activities.

	Not aware of aspect	Slightly useful	Useful	Very useful	Extremely useful
Outcomes Value Chain Study and industry chain map			4	3	
Consolidation of existing research and consumer survey to fill in the gaps			4	3	
Identification of Improvement Projects			5	1	
Development of and Access to Promotional Material (posters/decal/brochure/recipe cards)			2	2	3
Christmas Promotional Activities in Drakes (poster, decal, brochure/recipe cards)			2	2	3
Easter Promotional Activity in Drakes (poster, decal, brochure/recipe cards)			2	4	1
Winter Promotional activity in Drakes (in store tastings)			2	4	1

Generally it can be said that whilst all respondents valued the activities highly the down chain stakeholders gave the highest values.

Discussion

In this study we sought to extend the research into VCA by addressing the key research gaps around implementation of improvement projects identified previously in VCA analyses (Bernet et al. 2005; Taylor 2005). Specifically we proposed to answer the research question of whether the VCA analysis can really provide significant benefits and profitable solutions following implementation of the recommended improvement activity. Our objectives were therefore to report on the implementation phase of a VCA analysis in the Australian prawn industry specifically looking at prioritising the best opportunity, implementation of the opportunity and then evaluation of the outcomes, thus closing the loop on the VCA process.

While each industry, value chain analysis and resulting implementation projects will be quite different, this study of the prawn industry was able to highlight the additional insights and benefits that can be gained by the evaluation of improvement projects.

Following the initial value chain analysis, an appropriate method of evaluation was utilised which included comparing product sales figures and surveys of consumers, deli staff and key project stakeholders. These measures were used to determine the private sector profitability of the changes implemented and the perceptions and impact the project has had on the different stakeholders involved in the value chain analysis process.

In a profound statement for the benefits of this project, the sales figures showed a 60% increase compared to the same period for 2011. Even though it is difficult to determine how much of the improvement can be attributed to this project, the increase in sales is even more impressive when we consider that prices have also increased over this same period of time.

As with most value chain analyses, the consumer surveys were able to provide some valuable information on shopping behaviour and consumer preferences, but in this project they were also used to evaluate the implemented improvement project itself and provide some feedback on its effectiveness. The result was a very positive consumer response to the prawn tasting activities, POS information pamphlets and recipe cards which no doubt contributed to the increase in new and repeat sales of the prawns. These insights have also proven valuable for further improvements to the POS material that has occurred since the project has completed.

The survey of supermarket deli staff also gave an important perspective of the project and showed that the staff involved in the project were very positive about the impact of the project and its effect on consumer attitudes and knowledge of the local prawn industry.

Finally, the evaluation process sought to get feedback from a range of key industry stakeholders about the effectiveness of the project. The response to these surveys highlighted that project benefits were experienced along the whole chain from producer to consumer. However, it was noted that stakeholders closer to the market were more positive about the project than those interviewed at the production end. This is not overly surprising considering most of the activities were with stakeholders at the market end of the chain. Fortunately in this case, the benefits of this project were experienced across the whole industry but these perceptions should be taken into account for any future projects using these methods. One way to manage expectations of stakeholders and try to ensure the best possible outcome for the whole industry would be to consider an even spread of improvement projects when prioritising activities at the end of the value chain analysis.

In conclusion, this study has shown that value chain analysis has not only been an effective tool for identifying industry improvement projects but the subsequent evaluation process has also provided additional insights that have benefitted the industry and essentially closed the loop on the project.

The next step in this area of research is to continue to close the loop in other value chain analysis projects to verify the additional benefits of this type of evaluation and continue to improve and refine the methodology that can be employed.

References Cited

Altenburg, T 2006, *Donor approaches to supporting pro-poor value chains*, Donor committee for enterprise development.

Bernet, T, Devaux, A, Ortiz, O & Thiele, G 2005, *Participatory market chain approach*, IDRC.

Bonney, L, Clark, R, Collins, R & Fearne, A 2007, 'From serendipity to sustainable competitive advantage: insights from Houston's Farm and their journey of co-innovation', *Supply Chain Management*, vol. 12, no. 6, pp. 395-399.

Dekker, HC 2003, 'Value chain analysis in interfirm relationships: a field study', Management Accounting Research, vol. 14, no. 1, pp. 1-23.

Devanney, M 2006, 'The benefits of agri-food value chains', Nova Scotia Department of Agriculture.

DFID 2008, 'Making Value Chains Work better for the Poor A toolbook for practitioners of value chain analysis'.

Doan, VB 2011, 'Black tiger shrimp value chain analysis in Bac Lieu province, Vietnam'.

Dubay, K, Tokuoka, S & Gereffi, G 2010, 'A value chain analysis of the Sinaloa, Mexico Shrimp Fishery', *Retrieved from Duke University-Center of Globalization and Governance and Competitiveness (CGGC) website*.

Francis, M, Simons, D & Bourlakis, M 2008, 'Value chain analysis in the UK beef foodservice sector', *Supply Chain Management*, vol. 13, no. 1, pp. 83-91.

Fuduric, JA, Barkley, DL & Henry, MS 2005, 'Marketing wild caught South Carolina shrimp: lessons learned from agricultural niche marketing programs', *Research Paper*, pp. 01-2005.

Gereffi, G & Lee, J 2012, 'Why the world suddenly cares about global supply chains', *Journal of Supply Chain Management*, vol. 48, no. 3, pp. 24-32.

Haby, M, Miget, R, Falconer, L & Graham, G 2003, 'Establishing Wild, Domestic Shrimp as a Premium Choice in the American Marketplace With a Verifiable, Quality Management System', *Extension Economics Staff Paper*.

Hassan, M, Rahman, M, Hossain, M, Nowsad, A & Hossain, M 2012, 'Post-Harvest Handling and Marketing of Shrimp and Prawn in South-Western Region of Bangladesh', *World*, vol. 4, no. 6, pp. 651-656.

Islam, M 2008, 'From pond to plate: Towards a twin-driven commodity chain in Bangladesh shrimp aquaculture', *Food Policy*, vol. 33, no. 3, pp. 209-223.

Jones, DT & Womack, JP 2002, *Seeing the whole: mapping the extended value stream*, Lean Enterprise Institute.

Kanji, N, MacGregor, J, & Tacoli, C 2005, *Understanding market-based livelihoods in a globalising world: combining approaches and methods.*, International Institute for Environment and Development (IIED), London, UK.

Kaplinsky, R 2000, 'Globalisation and unequalisation: What can be learned from value chain analysis?', *Journal of development studies*, vol. 37, no. 2, pp. 117-146.

Kaplinsky, R 2004, 'Spreading the gains from globalization: What can be learned from value-chain analysis?', *Problems of Economic Transition*, vol. 47, no. 2, pp. 1-36.

Kaplinsky, R & Morris, M 2001, *A handbook for value chain research*, IDRC.

Lavack, AM & Toth, G 2006, 'Tobacco point-of-purchase promotion: examining tobacco

industry documents', *Tob Control*, no. 15, pp. 377 - 384.

Mayoux, L 2003, 'Participatory value chains analysis', *Enterprise Development Impact Assessment Information Service*, vol. 19, pp. 1-4.

Nicolas, C 2007, 'POS advertising - Retailing's final frontier', *Retail Therapy, Australian Centre for Retail Studies, Monash University*.

Pollay, RW 2007, 'More than meets the eye: on the importance of retail cigarette merchandising', *Tobacco Control*, vol. 16, no. 4, pp. 270-274.

Porter, M. E. (1980). Competitive strategy: Techniques for analysing industries and competitors. New York: The Free Press.

Prowse, M & Moyer-Lee, J 2014, 'A Comparative Value Chain Analysis of Smallholder Burley Tobacco Production in Malawi – 2003/4 and 2009/10', Journal of Agrarian Change, vol. 14, no. 3, pp. 323-346.

Raikes, P, Friis Jensen, M & Ponte, S 2000, 'Global commodity chain analysis and the French filière approach: comparison and critique', *Economy and society*, vol. 29, no. 3, pp. 390-417.

Schmitz, H 2005, *Value chain analysis for policy-makers and practitioners*, International Labour Organization.

Simons, D, Francis, M, Bourlakis, M & Fearne, A 2003, 'Identifying the determinants of value in the UK red meat industry: a value chain analysis approach', *Journal on Chain and Network Science*, vol. 3, no. 2, pp. 109-121.

Springer-Heinze, A 2007, *ValueLinks manual: The methodology of value chain promotion*.

Taylor, DH 2005, 'Value chain analysis: an approach to supply chain improvement in agri-food chains', *International Journal of Physical Distribution & Logistics Management*, vol. 35, no. 10, pp. 744-761.

Webber, M 2007, *Using value chain approaches in agribusiness and agriculture in sub-saharan Africa*, World Bank.

Zokaei, AK & Simons, DW 2006, 'Value chain analysis in consumer focus improvement: a case study of the UK red meat industry', *International Journal of Logistics Management, The*, vol. 17, no. 2, pp. 141-162.

Appendix 11: Shark Bay Prawn Consumer Survey summary

Making Sense of It All:

Brand Strategy Development Session

for Shark Bay Prawns

Tiffany White, PhD
Associate Professor of Marketing
University of Illinois
College of Business

Agenda for next two sessions:

- Discuss the concept of branding
- Understand brand positioning from the <u>customer</u>'s point of view
- Discuss drivers of brand positioning from the <u>brand</u>'s point of view
- Strategy Planning Session:
  - Re-interpret key results through the lens of various potential segments
  - Make strategic decisions about which one or more segment(s) to target
  - Develop positioning strategies to successfully engage the target audience(s)

Data snapshot:

- Of 900 respondents, 171 had heard of SBP
- Of those 171, approximately ½ thought the key selling points are important or very important
  - Approved for fishing in World Heritage Area
  - No 1 exported King Prawn
  - Fully sustainable and regulated since 1962
  - Largest prawn fishery in WA
  - Fixed season closures
  - Small number of licenses granted
  - BRDs on all vessels

Data Snapshot:

- When asked what brand they recall, SB was mentioned twice (out of 696).
  - Carnarvon was mentioned twice as much as SB
- Many people mentioned species, rather than brands
- Many were more interested in Australian vs. imported
- The supplier was often mentioned as the brand (e.g., The Kailis Bros)
- Crystal Bay was mentioned several times

Data Snapshot

Looking only at WA, NSW & VIC (N = 144)

- *I like SBP*
- *I think SBP is a good brand of prawns*
- *I think prawns from SB taste better than most other brands*
- *I would be proud to serve SB prawns to my guests*
- *I am highly loyal to prawns from SB*
- *I feel a personal connection to SBP*
- *I prefer prawns from the SB region in WA*

Select findings:

- In general WA > NSW = VIC
- Exception = LOYALTY
  - WA was only higher than NSW

Socio-Economic Status Items

Those in the "high vs. low SES" category:

- Worked full or part time (vs. student or retired)
- Were university of other undergraduate or postgraduate
- Had incomes over $75K

Health Conscious Sample Items:

"Health conscious" segment agree more with statements such as:

- *I am very interested in finding out about the health benefits of different foods (1-strongly disagree; 7-strongly agree)*
- *I know the recommended dietary intake of two servings of fish/seafood each week*
- *I am concerned about the mercury levels in prawns*
- *I am a very healthy person*
- *I completely avoid prawns that contain additives or preservatives*

Food Quality Sample Items:

Consumers concerned about fresh/frozen agreed more with statements such as:

- ***The taste of defrosted prawns is as good as prawns that have never been frozen***
- ***You can't be sure about the quality of frozen prawns (reverse)***
- ***I look for authentic foods to cook***
- ***I prefer prawns that have been snap frozen at sea to maintain freshness***

“Food-Related Lifestyle” Sample Items

“Foodies” tended to agree more with statements such as:

- I am confident in my ability to select prawns
- I am confident in my ability to store prawns
- I am confident in my ability to prepare prawns
- I do NOT like cooking very much (reversed)
- I consider myself knowledgeable about various species of prawns

Recipe-Seeker Sample Items

"Recipe-seekers" tended to agree with statements such as:

- If I had more recipes, I would buy prawns more often
- I like to pick up recipe cards from retailers when shopping for food
- I will usually try food that is being demonstrated in store

Status Conscious Sample Items:

"Status" Conscious consumers agreed more with statements such as:

- **It says something positive about a person, if he/she eats prawns**
- **My choice of food gives other people an image of me**
- **Eating prawns is an important part of my lifestyle**
- **When I cook prawns, I feel like an accomplished cook**

Select Results (Status Conscious Segment)

Those more vs. less concerned about status are more likely to purchase prawns from:

- Commercial fisherman
- Wholesaler/Co-ops
- Fish market or general market
- Fishmongers
- Similar in purchase from mobile fish vans, restaurants and supermarkets

Select Results (Status Conscious Segment)

More frequently purchase prawns from:

- *Fresh-whole raw*
- *Fresh-whole cooked*
- *Fresh-peeled raw*
- *Thawed for your convenience – whole raw*
- *Thawed for your convenience – peeled raw*
- *Thawed for your convenience – peeled cooked*
- *Snap frozen at sea: whole raw*
- *Frozen whole cooked*
- *Frozen-peeled raw*
- *Frozen-peeled cooked*
- *Frozen-packaged/ready to cook (e.g., crumbled prawns)*
- *Vacuum-packed*
- *Dried-salted*
- *Pre-Prepared meal freezer*
- *Pre-prepared meal chilled*

Appendix 12: Shark Bay Prawn Perth Chef Survey summary

What chefs want!

A Summary of Results: Perth Producers Event May 2011

Associate Professor Meredith Lawley
Dr Janet Howieson

August 2011

AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

University of the Sunshine Coast

Background

CRC Research Projects: Farmed barramundi, sardines, Shark bay prawns, saddle tail snapper

- Little knowledge of how/why chefs make decisions
  - Who/how they buy from and why
  - What drives their purchase decisions
  - Where they get information from
  - Perceptions of farmed barramundi
  - Preferences form, price etc

AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

What we did

Perth Producer event

Multiple species

- Farmed barramundi
- Sardines
- Shark Bay King Prawns
- Saddle tail Snapper

Mail survey

- ‘Sundowner’ with 29 chefs/foodservice

Who we talked to

Perth (29)

- Position
  - 18 head chefs (62%)
  - 10 mix owners/managers
  - 1 wholesaler
- Type of establishment
  - Restaurants (18)
  - Catering (6)

AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

What we found: who they buy from

Finfish	Shellfish	Overall
• 1 from auction (95%) • 5 direct from producer (5 to 50%) • 19 wholesalers (13, 100%)	• 1 from auction (5%) • 6 direct from producer (20 to 100%) • 20 wholesalers (15, 100%)	• 85% used multiple wholesalers

AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

KEY MESSAGE

Middlemen (suppliers/wholesalers) are gatekeepers. So producers have two options:

- Work with them
- Work around them

What drives chefs purchase decisions

(from most important to least important 5 point scale)

	Perth
Consistency of quality	3.97
Country of origin	3.74
Confidence in origin of seafood product	3.69
Consistency of supply	3.59
Relationship with supplier	3.52
Shelf life	3.48
Sustainability	3.45
Customer requests	3.28
State of origin	3.22
Price	3.21
Packaging size/form	3.21
Supply of background information	3.10
Knowing the story of the fishery	3.07
Branding	2.38

Importance of information source

(from most important to least important 5 point scale)

	Perth
Producer events	3.29
Supplier	3.21
Word of mouth	3.21
Cook books	3.14
Food magazines	3.00
Web sites	2.88
Trade shows	2.82
Trade journals	2.74
TV shows	2.56

AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

Most frequently cited sources

fine food AUSTRALIA

MasterChef AUSTRALIA

AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

Shark Bay king prawns generally….

Currently on menu	• Yes 37% • No 57%
What they said	• *Using tiger prawns* • *Quality has not been so good* • *Hard to get all year round* • *Expensive* • *Do them on special, so have them some time…*

AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

Positives about Shark Bay king prawns

Local ingredient, good quality, sustainable

Firm flesh, full flavour

Excellent size, flavour, texture

Fresh, sweet, plentiful

Very good product, everyone loves them

Good quality

One of the best prawns we have had in a while, love the texture, flavour and just a great overall product

Problems with Shark Bay king prawns

Expensive

Too much work to clean

Getting them fresh

Sand in tract sometimes

Availability

Sometimes mushy flesh

If cutlets or fresh - that they may be processed offshore (ie defrosted and refrozen).

One thing your supplier could do…

No predominant responses

- *Better consistent price*
- *Create more demand by informing the public*
- *Provide price and availability info*
- *Clarify production and processing where/how etc - this should be mandatory on all shellfish*
- *Special prices when buying bulk*
- *Send samples*

Further helpful info…

History

Availability, quality and price

Sustainability

Why your product is good – compared to others

How much they're catching, when and where

All kinds……

Simply more knowledge of where caught/how caught/how treated after catching/how processed

Preferred form

	Shark Bay king prawns
Whole and raw	13 (43%)
Raw and peeled	6 (20%)
Cooked and peeled	1 (3%)
Whole and cooked	0
Variety of all above forms	3 (10%)
Variety of form but preference raw	4 (13%)

Shark Bay king prawn preferences

Packaging
- Carton is most preferred

Size
- Very little difference in preference of prawn size
- 20% preferred U10

Volume per package
- 2 kg most preferred

Price per kg
- Range $12 to $40 (most in $20s)

Sustainability: Who do you trust

Perth

- Supplier 10
- Fisheries/Gov/Scientists 6
- Producer 3
- Own research 2
- Greenpeace 1

AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

Appendix 13: Shark Bay Prawn Sydney Chef Survey Summary

Sydney Shark Bay King Prawn Questionnaire Answers

Q53. **Are Shark Bay king prawns currently on your menu?**

Yes	0
No	16

If not, why not?

- Never heard of them x 7
- Not sure where they are from
- Not heard of them, don't buy by region
- Not seen them
- No knowledge
- Not sure of origin, provenance has not been a deciding factor
- Not heard of these before
- Never seen the product
- No reason

Q54. **What are your perceptions of Shark Bay king prawns?**

Positives

- Need to sample
- No idea
- Not seen them
- Remote, clean water, nice back story
- Don't know much about them at all

Problems

- Have not heard of them
- Never heard of them
- Air miles to Sydney, sustainability issues

Q55. What is one thing that your supplier could do to help you buy more Shark Bay king prawns?

- Tell me about them!! x 3
- Introducing info & samples
- More info about the product
- Product info & samples
- Sample
- Samples, product info & fishing info
- Samples, & product info
- Samples to compare with current supplier
- Product knowledge
- Sample, regional info
- Supply & product info
- Product info & samples
- Inform me about them
- More info about the product

Q56. Would the story behind the Shark Bay king prawns you are supplied/ buy influence your purchasing decision?

Yes	14
No	2

Q57. Would further information influence your purchase of Shark Bay king prawns?

Yes	14
No	1

If yes, what sort of information?

- Any info I have not heard of them
- Fishing practices & eating qualities
- Availability & testimonials on product
- Availability, sustainability & processing
- Knowledge of product
- Product info
- Product info & fishery management
- Fishery management, purchasing info, availability & quality points
- Product info & availability, fishery management
- Sample, regional info
- Supply & product info
- Product info & samples
- Anything, haven't been made aware
- Consumer info

Q58. In what form would you prefer the prawns to come?

Whole and raw	15
Whole and cooked	2
Raw and peeled	4
Cooked and peeled	3
Cutlets/ tails	1

- Depending on application

Q59. What form of packaging would you prefer prawns to come in?

Vacuum packed	1
Carton	10
Polyethylene box	4
Other	

- Loose with ice x 2
- Sealed bag with ice

Q60. What is the ideal size for a whole king prawn to be used in your establishment?

U10	12
15	3
10-16	1
16-20	6
Over 20	0

Q61. What is your preferred volume of prawns per package?

1 kg	3
2 kg	2
5 kg	9
10 kg	0

- Loose
- N/A 4 kg

Q62. How much are you willing to pay for 1 kg of raw, frozen Australian king prawns?

- $ 33
- $ 23
- $ 26
- $ 28-30
- $ 19-25
- $ 25
- $ 24
- $ 38
- $ 22
- $ 28
- $ 24
- $ 19-23
- $ 23-25
- $ 17
- don't usually get frozen pays $18/kg for fresh

Appendix 14: Shark Bay Prawn Summary of Stakeholder Interviews and Suggested Strategies

Optimising Quality and Value in Domestic Prawn Chains: Project Update

Dr Janet Howieson

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

AUSTRALIAN
SEAFOOD
COOPERATIVE
RESEARCH CENTRE

Progress to date.

1. **Preliminary Interviews Results and Strategies**

30% of preliminary interviews completed.

- Association members (6)
- Wholesalers/middlemen (6)
- Fishmonger (10)
- Supermarkets (1)
- Food service (is a gap)

Results discussed under:

a. Supply Chain/Product Quality/Packaging/Presentation etc.

b. Market/ Buyer Perceptions/Recognition of Shark Bay Product

c. Consumer perceptions/Recognition of Shark bay product (from retailers/ buyers, we will follow up with consumer survey)

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

Progress to Date

2. **Sensory trials (in planning)**
   a. Comparison of different prawn species and kings from different regions (taste, texture, appearance, smell). (green prawns, is their a standard cooking method).
   b. Quantifiable Profiling of Shark Bay prawns
   c. Fresh/frozen comparison (!)

3. **Consumer surveys (to be developed by Tiffany and Meredith)**

4. Evaluation (economic and non-economic benefits)

Preliminary Interviews

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

1. Supply Chain/Product Quality/Packaging/Presentation etc.

- **Issues and Opportunities**.
  - Grading is an issue: across all sectors interviewed
  - Packaging: Supermarkets prefer 3kg boxes, retailers in markets like 5kg boxes, consumers may prefer 1kg down to 300 g boxes.
  - Meta is still an issue, especially in premium markets, some buyers said they could smell the meta when opening the box.
  - SB prawns too light when cooked (especially cf Spencer Gulf), should focus on green market.

- **Possible Strategies**
  - Standard national grading sizes (note this strategy also as outcome of SG study) and also standard size labels (eg jumbo, large, etc).
  - Market research on preferred packaging size (by market segment) (and aligned with operational choices).

2. Market/ Buyer Perceptions/Recognition of Shark Bay Product

Issues and Opportunities

- Flow of information between chain partners is very poor, many buyers have no knowledge of SB, have not been approached by anyone from Shark Bay.
- SB can fill gap when SG is unavailable.
- Price, consistency of quality and supply are most important factors (eg SG single desk plan may be trouble because buyers recognise certain buyers and will continue to try and buy from them).
- Branding does increase demand (eg Crystal Bay) but may not attract premium, especially in supermarkets. Brands must be underpinned by consistency of supply. Look at success or otherwise of branding in other seafood categories (eg Coffin bay oysters, Spring Bay mussels) and in prawns (Crystal Bay (effective??) and Lincoln Wild King (not effective), Come and Get it Tiger (Gold Coast Aquaculture), Yamba King and why. Learn lessons from Lincoln Kings brand (no standards etc to underpin branding, and boat variability does exists and is recognised by buyers who still ask for product from specific operators). did not involve all facets of supply chain (ie not sold to trade/retailers) and also did not work on heritage of 45 years of fishing (called it Lincoln King not Spencer Gulf).
- One on one consultation still very effective and enjoyed by buyers.
- Need scientific studies around quality/sensory aspects in order to start preferentially purchasing the product.

- Should focus on WA market (not much competition from aquaculture)
- Huge gap in market is cooked, peeled king prawns, processed in Australia.
- Raw prawn value added opportunities are there (skewers, marinades etc) but need to be mindful of quality issues (eg deveining)
- Producers should do more promotion with buyers: note differences between sales, promotion (that fishers are very good at), ,merchandising (cooking displays, checking how product looks on display, distributing flyers)
- Lessons from prawn and mango promotion in NSW this year, only one of the participating restaurants was selling 2000 prawn meals per week.
- Need to focus on pre-packaged to quality standards. This can be branded and means that retailers cannot mistreat, label incorrectly or misrepresent (and can guarantee provenance/quality. Also removes problems of continuity of supply.
- Tasting booths on site, some fishmongers happy to support but rarely happens, results in immediate lift of sales (eg exo salmon sauce, 2 months of tasting trials changed product from rarely purchased to commonly purchased.
- SB should avoid Melbourne (prefer larger product), Qld (prefer aquacultured product), maybe focus on WA and/or Sydney (trends often start in Sydney).

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

Possible Suggested Strategies

- Shark bay product needs a documented point of difference to show buyers ("king of kings").
- Undertake Sensory etc trials in comparison with other species and King prawns from other regions
- Shark Bay Prawn brand could be developed
  - should be underpinned by quantifiable quality parameters, recognised by buyers and consolidated and agreed to by producers.
  - Should be developed in association with environmental/ and or World heritage parameters and suggest site visits by WWF or the like to endorse (note as eg Spencer Gulf well know for harvesting sustainably only 50-60 days per year).
  - Logo, packaging, product description flyers etc.
  - Can then use internet linked/U tube etc campaigns (eg Ben Hale Qld prawn) Get producers to do short recoding on U tube because buyers do like to hear from producers.
  - Link brand to cooking displays, recipe cards etc.
- Improved one on one consultation with possible buyers
- MFMA (183 members) can facilitate an event to bring together fish mongers and SB producers (likely market?). event but needs to be short (<30mins) and at convenient time.
- Investigate Value added "processed in australia" opportunities.

3. Consumer perceptions/Recognition of Shark bay product (from retailers/ buyers, we will follow up with consumer survey)

- **Issues and Opportunities**
  - Price still very important (vannamei are very good sellers)
  - People stick to what they know and don't like trying new things.
  - Consumers Prefer fresh over frozen/thawed for your convenience.
  - Frozen, packaged, green kings are not good sellers (retailers in markets and supermarkets).
  - Interested in Aust origin but not state or region.
  - Do not understand differences in prawn species.
  - Consumers do not care about sustainability but buyers do.

- **Possible Strategies**
  - Investigate Chef shows being able to showcase Shark Bay product.
  - Flyers/Documents (point of sale) to emphasise differences in species and specific uses for different types of prawns.
  - Create a new category “Ultra frozen” and consumer education program to go with it. Emphasise top quality from rapid freezing, (supported by sensory studies), and include creation of standard for thawing and/or cooking frozen product. Emphasise value proposition ie do not need to eat all in one sitting and how rapid thawing of prawns can be. Look at optimum packaging sizes and external design (emphasising wild caught, sustainable and Aust).
  - Cooking demonstrations for Shark bay product.

Next Steps

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

- Complete first round interviews and forward results to Hamish/Tiffany etc. Reconvene to discuss.
- Undertake sensory trials
- Undertake consumer survey
- Commence evaluation (gain pre-project results).

Appendix 15: Outcomes of Shark Bay Strategy Workshop

SHARK BAY VCA PROJECT SUMMARY

1. **SUMMARY OF PREVIOUS ACTIVITIES**

STEP 1: SBPTA agrees to be one of three case studies for VCA project. (October 2010). (COMPLETED). Seafood CRC Funding application completed and agreed.

STEP 2: Interviews with Shark bay prawn stakeholders, consumer surveys etc. Development and presentation of issues and opportunities identified by the research for the Shark Bay prawn product (by April 2011)(COMPLETED)

STEP 3: Tiffany White and Meredith Lawley complete workshop with SBPTA to define market development strategy (July 2011) (COMPLETED).

<u>SHARK BAY AGREED STRATEGY: U16-20 high quality, packaged king prawns into high end retail.</u>

STEP 4: Following workshop steps, budgets and timelines are proposed by project team, based on timing to launch with start of 2012 season (August 2011) (COMPLETED).
Activities/Budgets/Timelines as defined by project team are shown in Appendix 1.

STEP 5: SBPTA provide indication of agreement and commitment of funds to implement strategy (December 2011). Decide to revise strategy to not just focus on one size and species, but commence with more generic Shark Bay prawn approach. (COMPLETED)

STEP 6: Tenders for proposals to develop brand/logo, recipes, photography etc sent to nominated groups (January 2012). COMPLETED???

STEP 7: “Soft launch” of Shark bay Wild (September 2012).

STEP 8: Meeting to decide way forward (October 2012).

2. PREFERRED MEETING OUTCOMES (SBPTA/Curtin Uni/Seafood CRC project) :

1. SBPTA discuss and commit or not to continuing the project, including co-contribution to implement agreed strategy. Will need written confirmation of both agreement and co-contribution.
2. Review strategy development to date
    a. Register of Shark Bay Wild?
    b. Is agreed strategy still relevant
    c. Are tender documents and list of people to be invited to tender still relevant.
    d. Other
3. Develop and agree to new timelines/budgets/responsibilities (for example see table).

Activity	***Responsibility***	***Budget***	***Timeline***
Register Shark bay Wild	*SBPTA*	*$450*	*ASAP*
Written Agreement to continue CRC project and co-contribute	*SBPTA*	*Co-contribution levels to be decided*	*ASAP*
Agreed Arrangements: supply, QA parameters, individual brands under generic brand etc	*SBPTA*	*$0*	*ASAP*
Develop, circulate tenders for brand/logo?; photos?; recipes?; Choose providors	*SBPTA*	*TBD*	*ASAP*
Develop packaging?? and POS resources: ??? posters, recipe cards, etc	*Chosen Providers*	*TBD*	
Identify and get agreement from down chain partners to be part of trial and commence trial.	*SBPTA and Curtin Uni*		*By march 2013*
Evaluate impact of trial	*Curtin Uni*		*By August 2013*

APPENDIX 1: SUGGESTED BUDGETS/TIMELINES/ACTIVITIES for Shark Bay market development strategy

1. Agree on parameters of product (cooked/not cooked, quality parameters, frozen or not etc).
COST: Minimal, need to get Assoc agreement based on feasibility/logistics.
TIME: by mid January 2012

2. Agree on weight and packaging type.
COST: Minimal, apart from research into what packaging is available, feasibility and costs, need to get Assoc agreement based on feasibility/costs.
TIME: by mid January 2012

3. Agree on how product is to be produced, sourced, how/if individual brands will be accommodated under generic branding.
COST: Minimal, need to get Assoc agreement based on feasibility/logistics.
TIME: by mid January 2012

4. Do we want chefs to recommend product and include some of their recipes, have a chef education day, endorse product??
COST: If yes allow $2000
TIME: run event or similar in early Feb 2012

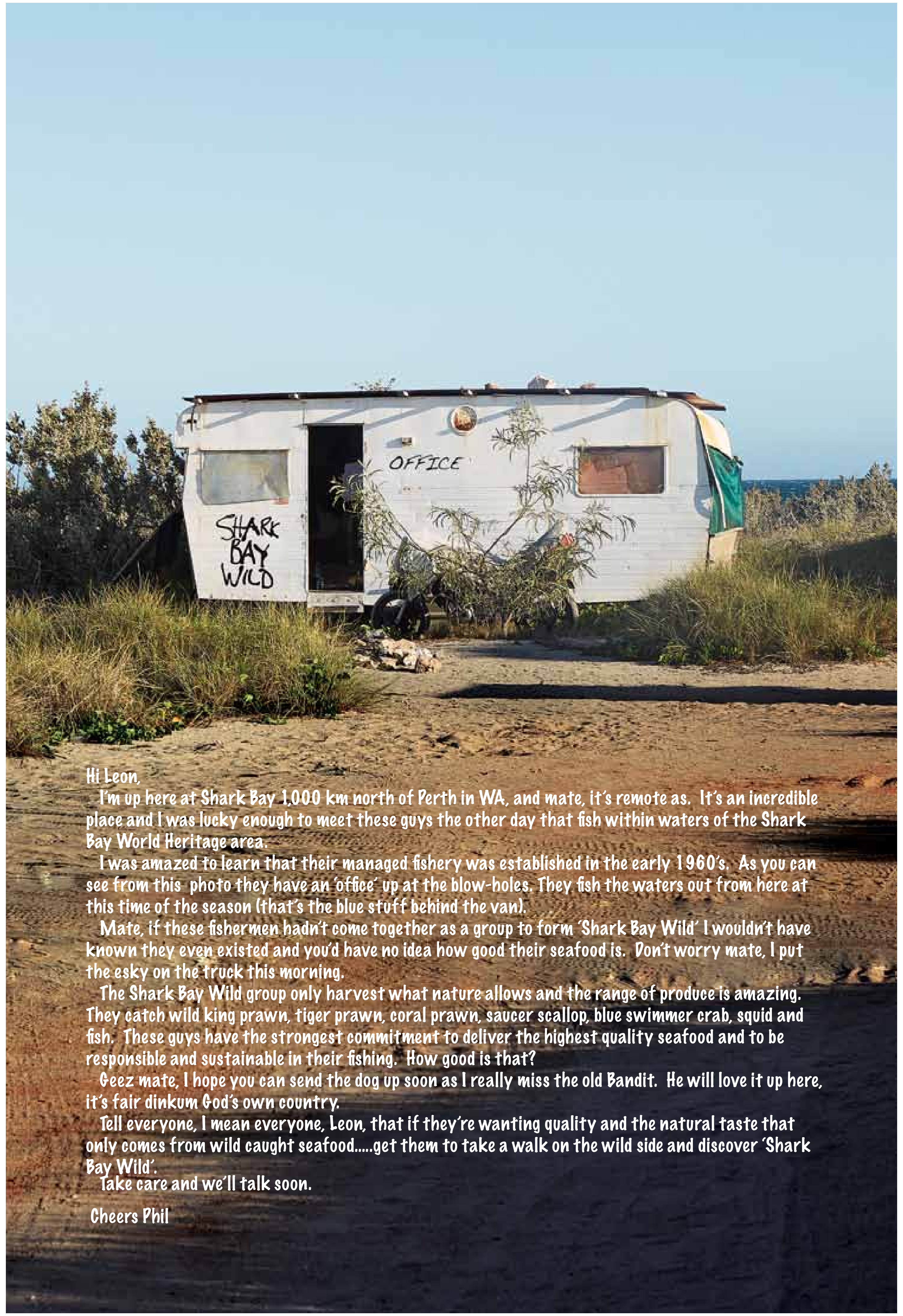
5. Develop brand, logo and messages (up to three catch phrases would be good, eg Shark bay heritage, quality, sustainable etc etc).
COST: allow $4000.
TIME: By end of Jan 2012.

5. Decide on what material will be developed for consumers/retailers and wholesalers, (POS, information brochure, COP, posters etc) and then design and print accompanying promotional material. Also need to design package/box (may need professional photographer for better association owned photos??, how/if individual companies are branded/fit under Shark bay brand).
COST: Allow $7000
TIME: By mid-March 2012

6. Need to have identified and got commitment for retail trial from high end retailers and associated potential distribution channels, ie identify chain partners willing to take part (eg owners of high end retail shops etc). Then can organize opportunities for joint planning/comment on docs and information exchange prior to start of pilot (Producers meet retailers events etc).
COST: Allow $5000
TIME: by mid March 2012

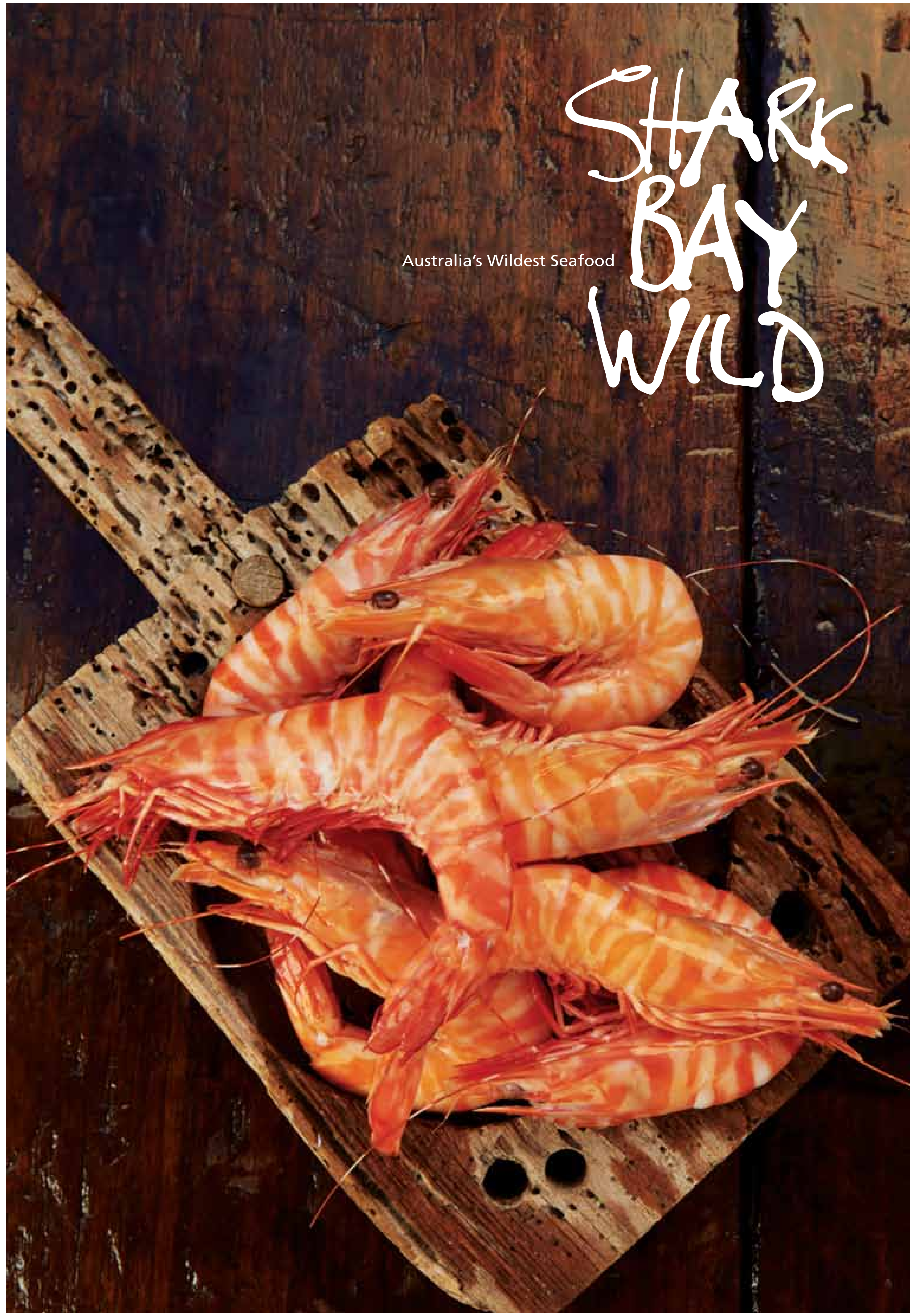
7. Design means of evaluation (we are trialling similar in SA and will be based on orders/sales, deli manager interviews and consumer interviews)
COST: Minimal Janet/Meredith to complete
TIME: by end of Feb 2012.

Appendix 16: Shark Bay Wild Pamphlet

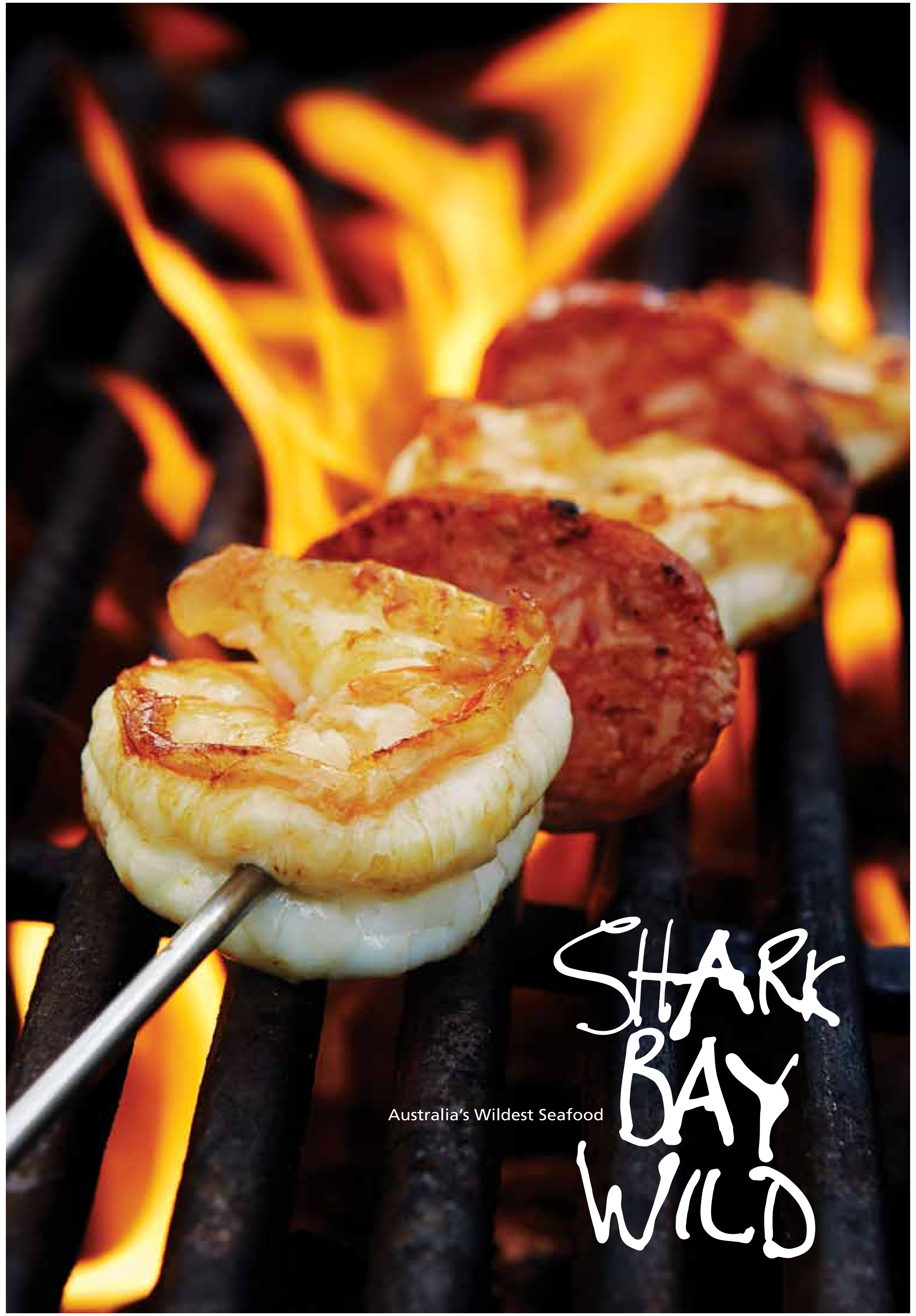


OFFICE
SHARK BAY WILD
Hi Leon,
I'm up here at Shark Bay 1,000 km north of Perth in WA, and mate, it's remote as. It's an incredible place and I was lucky enough to meet these guys the other day that fish within waters of the Shark Bay World Heritage area.
I was amazed to learn that their managed fishery was established in the early 1960's. As you can see from this photo they have an 'office' up at the blow-holes. They fish the waters out from here at this time of the season (that's the blue stuff behind the van).
Mate, if these fishermen hadn't come together as a group to form 'Shark Bay Wild' I wouldn't have known they even existed and you'd have no idea how good their seafood is. Don't worry mate, I put the esky on the truck this morning.
The Shark Bay Wild group only harvest what nature allows and the range of produce is amazing. They catch wild king prawn, tiger prawn, coral prawn, saucer scallop, blue swimmer crab, squid and fish. These guys have the strongest commitment to deliver the highest quality seafood and to be responsible and sustainable in their fishing. How good is that?
Geez mate, I hope you can send the dog up soon as I really miss the old Bandit. He will love it up here, it's fair dinkum God's own country.
Tell everyone, I mean everyone, Leon, that if they're wanting quality and the natural taste that only comes from wild caught seafood.....get them to take a walk on the wild side and discover 'Shark Bay Wild'.
Take care and we'll talk soon.
Cheers Phil

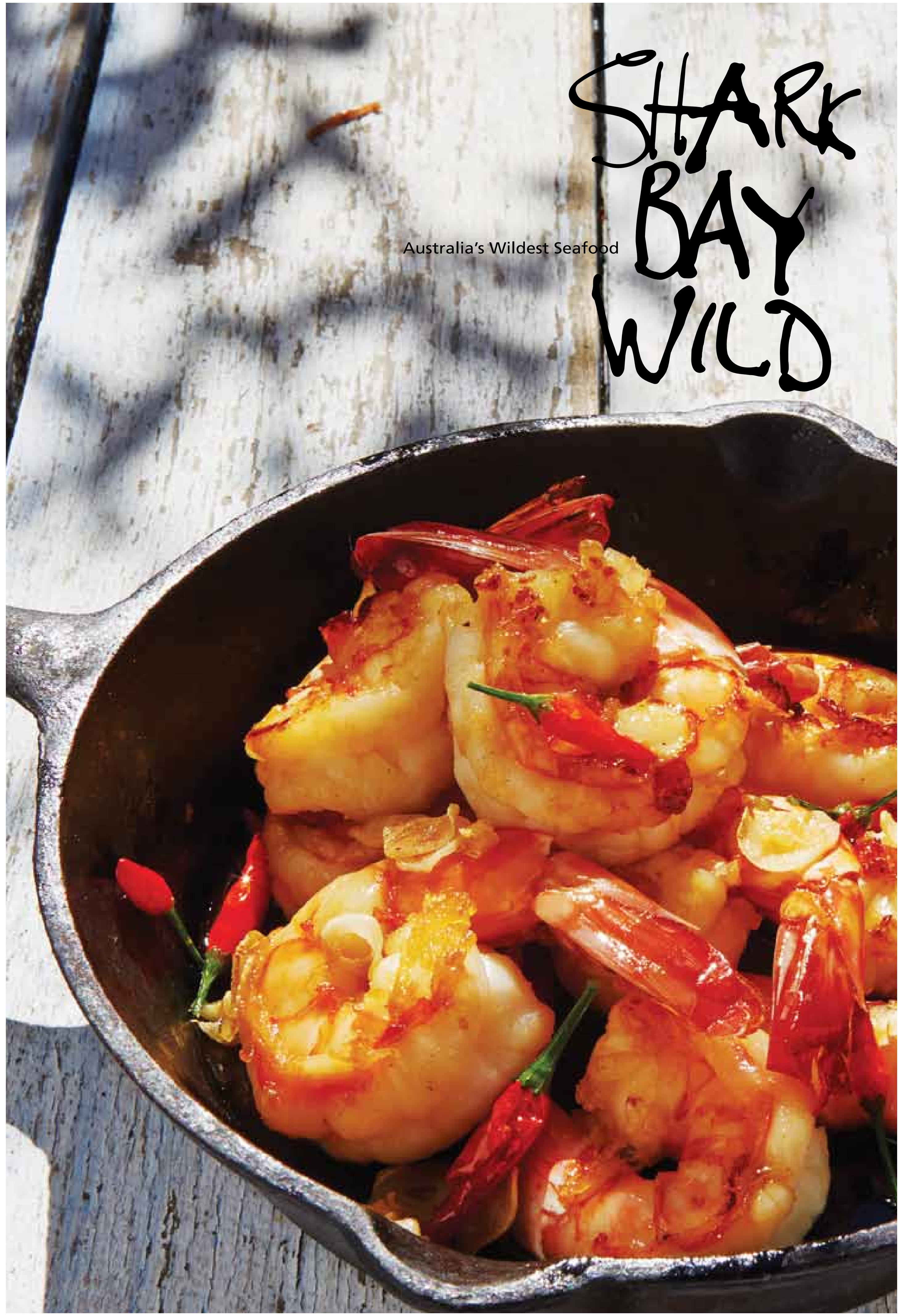
SHARK BAY WILD
SHARK BAY WILD
Australia's Wildest Seafood
For more information contact
Info @sharkbaywild.com
Where the desert meets the sea
Shark Bay, Western Australia
Design-www.leonbird.com



SHARK BAY WILD
Australia's Wildest Seafood


SHARK BAY WILD
Australia's Wildest Seafood


SHARK BAY WILD
Australia's Wildest Seafood


SHARK BAY WILD
Australia's Wildest Seafood

Appendix 17: CRFC Chef Survey Summary

Clarence River School Prawn Sydney Questionnaire Answers

Q41. Are school prawns currently on your menu?

Yes 5

No 11

If not, why not?

- Haven't seen high quality product
- Customers are fickle
- When available
- Menu changes
- Coming soon to menu
- Very seasonal, currently not available
- Need to sell on the day so can end up wasted. Sells well as a special with limited portions
- Not a fan
- Prefers fried school prawns, difficult to sell, labour cost to peel
- No reason, will do

Q42. Do you recognise or preferentially choose any particular region/source of school prawns?

Yes 8

No 8

If yes, which, and why?

- CR for locality
- Wallis Lake & Hawkesbury
- Local or near to Sydney
- Hawkesbury, close to proximity & Clarence
- Rely on supplier
- Harbour prawns (local)
- CR clean waters, flavour, consistency
- Buy best quality available
- Palm Beach, Hawkesbury. Superior product, low km travelled.
- CR, Wallace lake, Hawkesbury

Q43. What are your perceptions of Clarence River (CR) school prawns?

Positives

- Delicious/recognised brand
- Excellent consistent product
- Not tried them
- Good size & easy to sell
- Great
- Firm flesh & sweet
- Like them, would like to have a fried whole prawn booth @ stadium
- Very good
- Great, good quality & flavour
- CR clean waters, flavour, consistency
- Good
- Beautiful product
- Sweet flavour-delicious, serve fried whole. Prawns fantastic eye appeal
- Fantastic when handled correctly.
- Great product, clean, sustainable.

Problems

- If not fresh heads blacken quickly
- Availability
- Generally short shelf-life
- Don't like to eat
- Labour intensive
- Not known by region
- Distance & shelf-life
- No problems, availability if anything

Q44. What is one thing that your supplier could do to help you buy more CR prawns?

- Product samples & info
- Drop the price
- Communication & product descriptions
- More verbal about them inc. in emails
- Sample & product info
- None
- Samples, product info & educating chefs & waiters
- Availability
- Processed prawns, consumer promotion
- Product info & samples
- Ensure best handling, air freight
- Let me know that they will have consistent supply. Super fresh always

Q45. Would the story behind the CR school prawns influence your purchasing decision?

Yes	10
No	6

Q46. Would further information influence your purchase of CR school prawns?

Yes	12
No	4

If yes, what sort of information?

- Samples
- Evidence of sustainability
- Testimonials, recipes, history of product
- Sustainability i.e. processing, handling & product info
- Fishery management
- Sustainability of fishery & management. Product info, visits to the Co-op.
- Established brand, not heard of CR for ages
- Create regional preference
- Product info & samples
- Info regarding origin & regional info
- Info on eating for customers so not just chefs that know about great products

Q47. In what form would you prefer your prawns to come?

Whole and raw	16
Whole and cooked	0
Raw and peeled	2
Cooked and peeled	2
Extracted prawn meat	5

Q48. What form of packaging would you prefer prawns to come in?

Vacuum packed	3
Carton	5
Polyethylene box	5

Other

- Loose with ice
- Sealed bag packed with ice
- Live or loose green

Q49. What is the ideal size for a whole school prawn to be used in your establishment?

U150-180 10
U121-150 0
U81-120 3
U46-80 1 but depends on usage
<45 0

- Doesn't matter
- Don't know. Very small better

Q50. What is your preferred volume of school prawns per package?

500 g 4
1 kg 8
2 kg 2
5 kg 1
10 kg 0

- Depends on event size

Q51. Would you utilise extracted school prawn flesh?

Yes 9 (1 limited)
No 5

- Personally yes, but not suited to this establishment
- Not sure, would need to sample

Q52. How much are you willing to pay for the following?

<u>Fresh</u>

1 kg of whole, raw CR school prawns	1 kg of whole, cooked CR school prawns	1 kg of peeled, raw CR school prawns	1 kg of peeled, cooked CR school prawns	1 kg of extracted CR school prawn meat
15	15	22	22	26
20	20	35	35	45
19	19	28	28	
16	18	22		
15				18
pays 63/kg for live prawns & will pay for premium product and pass on to customer				
11				
12				
13-15				
35				
12				
22-25				
15				
15				

Frozen

1 kg of whole, raw CR school prawns	1 kg of whole, cooked CR school prawns	1 kg of peeled, raw CR school prawns	1 kg of peeled, cooked CR school prawns	1 kg of extracted CR school prawn meat
13	13	20	20	24
10				
22-25				
14				
13				
10				

Appendix 18: Moreton Bay Chef and Consumer Survey Summary

Moreton Bay Prawns

Key Findings

Chefs and Consumers

Associate Professor Meredith Lawley

July 2012

University of the Sunshine Coast

What we wanted to know….

Chefs and Consumers

- 18 chefs (telephone interviews)
- 353 consumers (online survey)

Current prawn purchasing behaviour

- Where
- Why
- What

Moreton Bay specific

- Knowledge and awareness
- Likes and dislikes
- Target market

Chefs

Overwhelming buy from wholesalers

Purchase decisions driven by

- Consistency of quality and supply
- Relationship with supplier
- Price

Get information by

- Dining in other restaurants
- Suppliers

Moreton Bay prawns generally….

Currently on menu

- Yes 44%
- No 56%

What they said

- *Poor consistency in price, quality and supply*
- *Supplier doesn't provide*
- *Don't know exist*
- *Don't see much, use Gold Coast Tiger prawns*
- *Never thought about it. Salesperson came in 2008 and never followed through*

Positives about Moreton Bay prawns

Local

Very fresh can't get better

Consistent

Great flavour

No metabisulphite

Local employment

Cooks quickly

Good yield, great flavour, good customer knowledge and appreciation

Problems with Moreton Bay prawns

Supply inconsistent and unreliable

Prawn prices vary

They can taste powdery

People worried about the condition of the water

Soft shells, sometimes mushy when cooked

Size, quality and price

One thing your (Moreton Bay prawn) supplier could do…

Predominant response	Other information required	Influence on purchasing

• *Educate me – provide availability – "Want to support local"!!*
• *Provide consistent supply*
	• *Provide information on:*
	  • *Supply*
	  • *Price*
	• *Provide samples*
		• *67% stated that further information would influence purchasing*
		• *83% stated story behind fishery would influence purchase decision*

Further helpful (Moreton Bay prawn) info…

Any!	*Quality, availability, price*	*Sustainability*
Seasonality	*Freshness and what's going on in the region*	*Supply*
Location of catch, age or season of catch, method of catching	*Names of boats - can use as gimmick to give dish stature*	*Consumers need to know more. Consumers confused about what comes out where.*

Consumers

Where they eat

- Mainly in home (only 28% eating mostly out of home)

What they eat

- **Fresh whole** prawns most popular, (*cooked* more popular than *raw*)

Why they eat it

- Most important factor is that they are **Australian** (over 50% *very important*)
- From Qld and MB much lower importance
- Note: 13% were not sure of COO of prawns purchased
- Fresh never frozen second most important factor

Where consumers buy prawns…

Actual	Prefer
• Supermarket (over 60%) • Fish market • Fish monger	• Commercial fisher/from boat (41%) • Fish market • Supermarket

Prawns generally…

Unaided awareness	Aided Awareness
• Bay 25.5% • Moreton Bay 6% • School 6% • Greasyback 1%	• Bay 61% • School 38% • Greasyback 3% • (over 20% don't know what species they purchase)

Moreton Bay Prawns – Awareness and knowledge generally low

82.7% (292) of respondents had heard of the name, Moreton Bay prawns

11.6% (41) of respondents stated that they were *very familiar* with Moreton Bay prawns

37.0% (108) of respondents were not sure which species Moreton Bay prawns were

9.9% (29) thought Moreton Bay was a species

What species of prawns are associated with Moreton Bay n=292

Bay
- (100, 34.2%)

Tiger
- (68, 23.3%)

King
- (61, 20.1%)

Banana
- (49, 16.8%)

School
- (47, 16.1%)

Endeavour
- (10, 3.42%)

Redspot
- (8, 2.74%)

Greasy
- (7, 2.40%)

Coral
- (6, 2.05%)

Vannamei
- (2, 0.7%)

Royal Red
- (2, 0.7%)

Most consumers do not know how often the prawns they bought were Moreton Bay Prawns

Of prawns purchased what percentage are Moreton Bay prawns n=292

16.4% (48) suggested that 50% or more of prawns purchased were MBPs.

6.8% (20) did NOT buy any MBPs.

48.3% (141) of respondents **did not know** what percentage purchased were MBPs.

% of Moreton Bay prawns	% of respondents	Number of respondents
90	3.1	9
80	3.8	11
60	2.7	8
50	6.8	20
40	3.1	9
30	3.1	9
25	3.1	9
20	5.1	15
10	5.1	15
0	6.8	20

Who currently buys Moreton Bay Prawns….

Empty nesters

- Retirees and people working full-time

People born in Australia more familiar with MBP

What consumers like most about Moreton Bay prawns n=280

	n	%
Flavour/Taste	37	13.2
Local	26	9.3
Fresh/Freshness	24	8.6
Fresh and tasty	21	7.5
Local and fresh	13	4.6
Other	159	56.8

43.2% (121) of the responses only mentioned tastiness, freshness, being local or a combination of these. This suggests that these aspects are what consumers like most about Moreton Bay prawns.

"The taste"

"Knowing they are local"

"Very fresh"

"They have the best flavour and I know they are likely to be really fresh"

"That they are local and are caught fresh"

How could Moreton Bay prawns be improved?

n=260

	n	%
Good enough/Can't be improved	27	10.4
Cheaper	21	8.1
Improve availability	17	6.5
Better advertising (Local paper/Internet)	10	3.8
Better labelling/signage/ identification	8	3.1
Improve environment of habitat	7	2.7
Don't know	115	44.2

44.2% (115) of respondents could not suggest how Morton Bay prawns could be improved. A further 10.4% (27) stated that they could not be improved.

However making them ***cheaper*** (21, 8.1%), ***improving their availability*** (17, 6.5%) and ***advertising better*** (10, 3.8%) were the most frequent suggestions for improvement.

"Great big signs and cut the cost for a bigger turnover"

"More readily available"

"Promote as being LOCAL"

"By explaining what they are"

"Being more affordable & available - better marketed"

In summary…

Chefs

- Wholesalers are currently key
- Consistency quality and supply critical

Consumers

- Knowledge and awareness low
- Local and fresh critical
- Empty nesters key market

Appendix 19: Moreton Bay Strategy Development Workshop Summary

CRC 2008.792.10 Optimising Quality and Value in Domestic Prawn Chains Moreton Bay Case Study

Value Chain analyses: to use whole of chain audit and understanding what the end-user values to identify market opportunities and develop strategies (repositioning/supply chain innovation or adjustment) to better meet those market opportunities.

- Existing seafood products
- New products (value-adding)

Project Objectives

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

- CRC Research focused on a better understanding of Australian prawn consumers is utilised by industry to identify and quantify the potential value of at least one new market opportunity for each target fishery.

- In each target fishery, collective agreement by chain partners to co-invest in one positioning and promotional strategy and aligned supply chain innovations to meet a viable market opportunity.

- Demonstrated increase in profitability in at least one fishery (quantified as increased price, reduced cost or increased volume into new markets) as a result of pursuing a repositioning and supply chain innovation strategy.

- In each target fishery, to identify and support industry leaders that will empower other chain participants to exploit emerging market opportunities.

Methodology

- Preliminary consultation and Identification of industry champions.
- Understand the market (Presentation by Meredith)
  - Consumers (Consumer surveys)
  - Food service (consultation with chefs)
- Walk the chain: resource and constraint audit

(interviews with chain stakeholders, sensory analyses)

- Secondary participation consultation and development of agreed strategy (s) TODAY!!!!
- Implementation of strategy (collaborative commitment to co-invest)
- Evaluation

Choice of Strategy

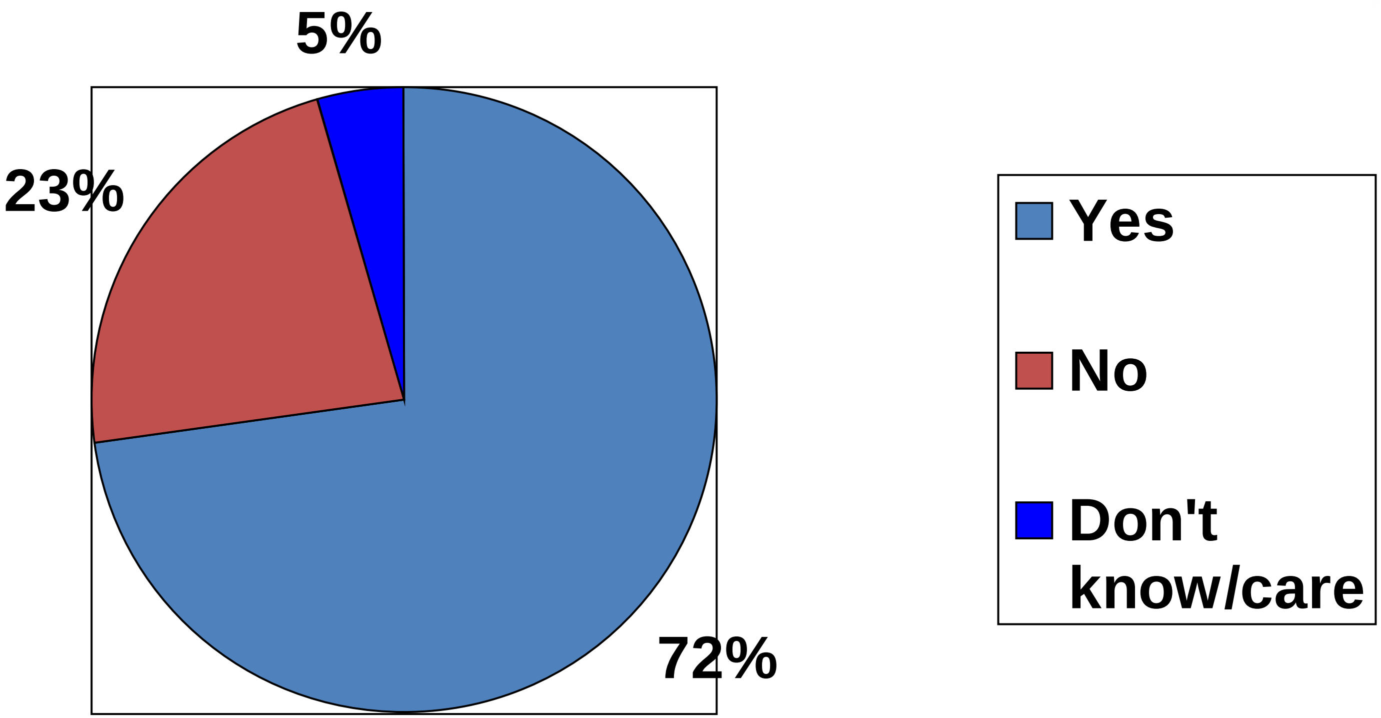
4 Strategies to choose one from:

\+ Quality and Standards Improvements

1) Value Adding of Product
2) Promotion and Advertising
3) Collaborative Arrangements
4) New Market Developments

Do we need quality/grading standards in Moreton Bay?

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH



Quality Standards Projects

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

1. Set standards and organise supply chain monitoring to meet standards (traceability, quality, etc) Data loggers (part of another CRC project)
2. Develop Code of Practice including EMP for distribution to customers (part of another CRC project).

- VOTE ON INVOLVEMENT – YES/NO

Criteria for Selection of Strategy

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

- Today is selection of one long term strategy, then one project within that category.
- Other projects can be addressed at a later date (part of post harvest strategic plan??).

Considerations for selection

- Personnel –leadership group, consultants.
- Cost – project must be funded with matching funds.
- Time scale for implementation.
- Feasibility – some options extremely difficult to implement – proposals are from interviews. Be **realistic** !
- Should be of benefit to whole of chain.

Choice of Strategy

4 Strategies to choose one from:

+ Quality and Standards Improvements

1) Value Adding of Product
2) Promotion and Advertising
3) Collaborative Arrangements
4) New Market Developments

Selection of Strategies

Strategy 1 :Value adding of Product:

a. Peeling machine (Vac and MAP) (eg ready to eat cups in servos and similar outlets)
b. Meat extraction as ingredient for use in ice/home cooking
c. Drying (leading to dried beer nibbles, deal with liquorland to give a box of prawns with wine/beer.
d. Premium Frozen whole product (IQF)
e. Premium Berley/Bait
f. Other value add products (eg. true blue seafood dips, pecks paste)

a) Peeling machine

- High capital outlay on equipment (grading, cooking &freezing)
- Questionmark over Bay prawns small sizes.
- Low yield rates
- Requires processing facility
- Probably needs frozen product
- High labour cost

- Provides convenience in product (shelling)
- Value adds to product
- Leads to ready meals, packaging and further value adding
- Grants available (50%)

b) Meat extraction

- Market questionable
- Untested
- Requires processing facility.
- Commodity product

- Recovery 82%
- No grading needed
- Whole prawn used
- Low capital
- Low labour
- Simple processing

c) Drying

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

- Grants available
- Market questionable
- Highly competitive
- Requires processing facility
- High labour cost

- Innovative technology
- Grants available

d) Premium Frozen whole product (IQF)

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

- High capital outlay
- Labour intensive
- Requires processing facilities
- Argument over increased cost of product not reflected in sales price ?

- Avoids gluts in market
- Ability to market strategically
- Increased product value

e) Premium Berley/Bait

- Bait market already competitive and close to saturation
- Low value

- High yield
- Berley - simple process

f) Other value added products (pecks pastes, true blue seafood dip)

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

- No ready market
- Usually requires frozen product

- Niche product
- Value adding

Selection of Strategies

Strategy 2: Promotion and Advertising through Value Chain

a) **Fresh**, **local** branding promotional push through retailers/IGA, particularly during glut periods, promote seasonality. This could include:

1. Moreton Bay Fresh, vote on brand name ? (requires code of conduct and EMP) Select species.
2. QR codes.
3. Messages, stories, video's, information
4. Taste testing in stores
5. Food expo's,
6. Advertising – radio, tv and media, websites, facebook.
7. Chefs event

b) Develop material with story of fishery published in media, promotional videos and education material, include schools.

c) Join QSMA marketing campaign, i.e. Queensland Week

a) Fresh, local branding-

- Danger of local brand if negative advertising e.g. floods
- Difficult to police
- Open to misuse
- Ongoing process

- Links to consumer research on local and fresh demand
- Provides provenance and story
- Create customer base.
- All of chain participation
- Increased demand in volume

Fresh Local Branding

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

MORETON BAY
FRESH

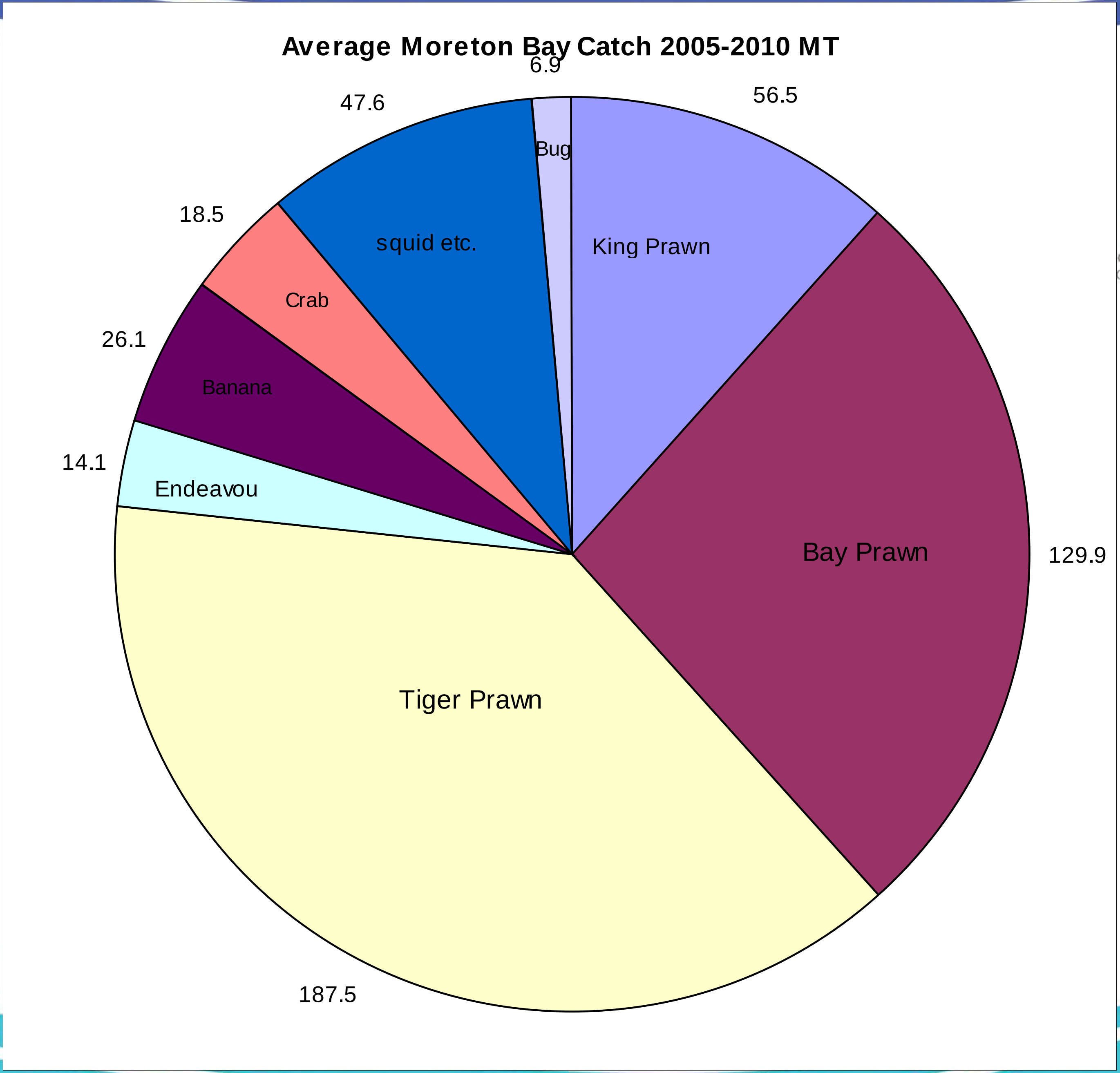
MORETON BAY
FRESH

Selection of Brand Names and Species

- Cape Moreton Prawns
- Moreton Bay – Queensland's Seafood Capital
- Moreton Bay Fresh – already Trademark
- Moreton Bay Prawns

Bay Prawns – nobody loves me..

- More than 90% of chain stated Bay prawns had a marketing problem.



CESSH
CENTRE OF EXCELLENCE
CIENCE SEAFOOD HEALTH

Bay Prawns

- No marketing
- Small size
- Quality problems
- $5 per kg – retail need mark up
- Irregular supply

b) Develop material with story of fishery published in media, promotional videos and education material, target schools.

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

- Lack of immediate results
- Not easy to evaluate

- Educates Public
- Improves perception of fishery
- Targets young generation

c) Join QSMA marketing campaign, i.e. Queensland Week

- Loss of local identity
- Loss of control over marketing strategies

- Join statewide promotions
- Greater coverage
- Bigger budgets

Selection of Strategies

Strategy 3: Collaborative arrangements

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

1. CO-OP
   a. Re-open Sandgate Co-op, re-invigorate the Sandgate area.
   b. Form a Co-op similar to Gold Coast to retail direct from boats.
   c. Improve bait market with large volume collective contract.
   d. Shareholder type company for combined marketing of the product
   e. Brisbane Seafood Market
2. Harvest strategies around reduction in volumes caught
   a. suggested one extra night for closure to reduce effort and volume.
   b. catch to market demand
   c. recommend a buyout of licenses and fishers
   d. less volume with higher quality

a) Co-ops or shareholder arrangements

- Requires collaboration
- Lack of management
- Internal politics
- Not profit driven
- History of Failure
- Required high capital input
- Requires State gov and Council support

- Working models prove beneficial to fishers – Clarence River, Gold Coast.
- Increased collective bargaining power
- Volume contracts
- Direct sales from vessels leads to increased prices
- Local 'story' increases value

b) Harvest strategies around reduction in volumes caught

- Covered in separate project

Strategy Selection

CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

Strategy 4: New market development

a. Petfoods or other volume sales
b. Export markets – Japan and China,
c. Asian population - Chinese New Year

Vote on Strategy

1) Value Adding of Product
2) Promotion and Advertising
3) Collaborative Arrangements
4) New Market Developments

Strategy 1 :Value adding of Product:

Peeling machine,

Meat extraction, Drying,IQF,

Premium Berley/Bait, Value

add products

Strategy 3: Collaborative arrangements

Sandgate Co-op, Gold

Coast co-op to retail direct

from boats. bait market,

Private company, Brisbane

Seafood Market. Harvest strategies.

Strategy 2: Promotion and Advertising through Supply Chain

Fresh, **local** branding,

QR codes, video's,

information,taste testing,

food expo's, radio, tv

and media. Chefs event ,

Develop material with story,

education material, include

schools. QSMA marketing

Strategy 4: New market development

Petfoods or other volume

Sales, Export markets,

Asian population

CESSH

CENTRE OF EXCELLENCE SCIENCE SEAFOOD HEALTH

Funding

- Levy
- Innovation grants
- FRDC and CRC
- Self-funding through sales exhibitions, contributions of product and time.
- State government and local Council

Appendix 20: Moreton Bay Strategy Implementation Plan

MB Prawn VCA Implementation plan (CRC 2008/793.100) (CRC VCA).

PHASE AND ACTIVITY	RESPONSIBILITY	COMMENTS/STATUS/TIMELINE
PHASE 1 MORETON BAY FRESH PRAWN BRANDING AND ASSOCIATED MATERIAL		
a. Business model for governance of logo use (in accordance with current MB Fresh protocols)	MBSIA	In development (by April 2013)
b. Initial consultation with MB Prawn Fishers to be part of/provide cash support for implementation activity.	MBSIA/CRC VCA.	Commenced and Ongoing (by March 2013)
c. Logo development	MBSIA	Ready for Board approval
d. Code of Conduct	MBSIA/Oceanwatch /CRC VCA	Template from MB tunnel net C of C (by May 2013)
e. Recipe cards/product information	MBSIA/Oceanwatch/QDAFF/CRC VCA	Recipe (popcorn prawns) already developed by chef, photos to be organised (BY May 2013).
f. Posters/Banners	MBSIA/Oceanwatch	
a. Digital/Electronic/Social media	MBSIA/CRC SNA (V.Schaffer)	Market opportunity as part of CRC 2010/777. AS undertaken by industry to include the collection of material, administrative and content management and development/design of social media technology (by end of April 2013).
b. Initial identification of project partners (distributors (x3) and retailers (x6).	MBSIA	Initial consultation commenced (by March 2013)
g. Local Council involvement??	MBSIA	Initial meetings promising (by April 2013)
PHASE 2: IMPLEMENTATION AND EVALUATION		
a. Confirmation with distributors and retailers to be part of activity	MBSIA	USC/Curtin to supply description of protocols/expectations (by May 2013)
b. “Regional flavours” planning	MBSIA/CRC VCA/QDAFF/Oceanwatch	Ethics??? , evaluation tools finalised, product, stall and staff organisation, social network activation (by July 2013)
c. Regional flavours event	MBSIA/CRC VCA/QDAFF/Oceanwatch	Evaluation kit/tools, retailer vouchers, commence data collection (July 2013)
d. Follow up/evaluate purchasing from participant retailers	MBSIA/CRC VCA	Evaluation tools prepared and data collected, up to 6 monthly follow up (by Dec 2013)
e. Planning for future activity	MBSIA	Eg MBSIA approached re participation in Food and Wine Show
PHASE 3: REPORTING		

a. Analysis/Reporting	CRC VCA	Project complete Dec 2013

Appendix 21: Moreton Bay Fresh COP Licensing Agreement and Rules of Engagement

Licence Application Agreement Form

Moreton Bay Fresh Logo
LICENSE APPLICATION / AGREEMENT

April 2013

Applying for a license

License applications must be made on the official Moreton Bay Fresh Logo licence Application Form. Completed license application forms must be:

- submitted to MBSIA by post or email
- on the official application form
- accompanied by appropriate License fees.

Email: info@mbsia.org.au Facsimile: N/A

Postal: PO Box 5060
Victoria Point
Q. 4165

Phone: 07 32078394

Type of Application

Initial Application [ ]

Renewal [ ]

License fees

The fees are set by the MBSIA board and can be changed at any time. However 6 months notice is to be provided to licensees for any changes to the fee schedule. Section 7 of the code outlines the rules in relation to license fees and a specific fees schedule in operation at the time of printing.

Payment options

- Direct debit: Payment can be made directly to MBSIA's ANZ Bank account. BSB: 014228 Account:110967247. Please provide trading name as reference during EFT process.
- Cheque: Payment by cheque can be made by posting to MBSIA's postal address with the application.
- Credit card: Complete the credit card section on the agreement page.
- Contact Moreton Bay Seafood Industry Association if you need an invoice before paying – such an invoice will be posted out as a receipt of payment if not previously provided.

Need help?

- Email Moreton Bay Seafood Industry Association on info@mbsia.org.au or phone 07 32078394.

The agreement

I declare and confirm that I will:

- ✓ Agree to be bound by the rules and conditions in the Moreton Bay Fresh Logo Code of Practice.
- ✓ Only display the Logo while I comply with the Code.
- ✓ Take prompt action to ensure that I have the systems in place to comply with the Code
- ✓ Only display the Logo in association with the business specified on my license and in association with seafood products included on my Product List (contained herein)
- ✓ Take immediate action to rectify any instances of non-compliance with the Code.
- ✓ Advise MBSIA promptly of any changes to my licensee details.
- ✓ Ensure that a competent person is responsible for compliance with the Code.
- ✓ Ensure that my staff are aware of their responsibilities in relation to the Logo
- ✓ Use the standard fish names as specified in the Australian Fish Names Standard on all labels and signage in my business.
- ✓ Maintain a customer complaints system as required by the Code.
- ✓ Maintain sufficient documentary records to demonstrate compliance with the Code.
- ✓ Make relevant documentation available, and allow activities that may be necessary, in the course of independent compliance audits carried out by MBSIA or agents thereof
- ✓ Indemnify MBSIA against any action or claim brought as a result of my use of the Logo

Product List

I wish to use the Logo in association with the following seafood products:

Species Name	Product Form	Source (how harvested)

I understand that this agreement forms a legally binding contract with MBSIA. I also confirm that I am authorised to enter into contractual arrangements on behalf of the business(s) specified on the following pages of this application.

Business Details

- **New applicants** must complete all parts in this section.
- For **license renewals**, only complete those parts where details have changed.

Trading Name: .... ABN:	
Registered Name (if different): .... ABN:	
Postal Address: .... **Suburb**: .... **State**: .... **Postcode**:	
Street Address: .... **Suburb**: .... **State**: .... **Postcode**:	
Vessel Name (if applicable):	
Authorised Business Representative: (Person authorised to enter into this contract on behalf of the above business).	**Contact Person**: (if different from Authorised Business representative)
Name:	**Name**:
Position:	**Position**:
Telephone:	**Telephone**:
Email:	**Email**:
Fax:	**Fax**:
Website:	**Website:**

Credit card payment

Please debit my: [ ] Bankcard [ ] MasterCard [ ] Visa to the amount of $.....................
Card Number: __ __ __ __ / __ __ __ __ /__ __ __ __ /__ __ __ __ Expiry Date: __ __ /__ __
Cardholder's name:
Signature:
Card Holder Address:

MORETON BAY **FRESH** LOGO
CODE OF PRACTICE

INCORPORATING THE RULES AND CONDITIONS GOVERNING THE USE OF THE MORETON BAY FRESH LOGO

April 2013

Disclaimers

Notwithstanding anything contained in this Code of Practice, MBSIA disclaims responsibility for any direct or indirect loss, damage, claim, or liability any person may suffer or incur as a result of any reliance on or compliance with this Code; inaccuracy or inappropriateness of these Rules; or inconsistency of this Code with any law. MBSIA disclaims responsibility for ensuring compliance by any person with this Code. These disclaimers do not apply to the extent they are inconsistent with any relevant legislation.

Contents

1. Moreton Bay Fresh Logo

The Moreton Bay Fresh Logo (hereafter referred to as 'the Logo') and any associated trademarks are the property of, and are administered by the Moreton Bay Seafood Industry Association (MBSIA).

2. The Code of Practice

Scope of the Code

This Code of Practice ('the Code'):

- ✓ constitutes the 'rules governing the use of the Logo'
- ✓ applies to all licensees of the Logo and to MBSIA as licensor of the Logo
- ✓ places a series of obligations on licensees, including compliance criteria that seafood must meet for licensees to be eligible to use the Logo, and record keeping obligations
- ✓ establishes a complaints and dispute resolution process that all licensees must abide by.

Objectives of the Code

The objectives of the Code are to:

1) provide information to licensees of the Moreton Bay Fresh Logo on their rights and obligations to ensure the consistent, correct usage of the Moreton Bay Fresh Logo
2) build consumer confidence that seafood promoted in association with the Moreton Bay Fresh Logo complies with established legislative consumer information, country of origin labelling standards, meets premium product-quality standards, exceeds minimum standards set by state and commonwealth governments in relation to environmental sustainability, and meets the standard of industry best practice in respect to environmental footprint, economic efficiency, and social responsibility.
3) promote the benefits of buying seafood produced in the Moreton Bay region
4) raise the profile of seafood produced in the Moreton Bay region.

Amendment and Review of this Code and its Rules and Conditions

This Code of Practice in its entirety is subject to the approval of the MBSIA as the owner of the Logo. The MBSIA may review the Code of Practice periodically to determine its efficiency and effectiveness in guiding the correct usage of the Logo, and the efficiency and effectiveness with which the Code of Practice has been administered. Any amendment to these rules and conditions must be approved by the MBSIA Board.

3 License to Use the Logo

MBSIA may issue a licence to use the Logo to an individual, business or organisation. A licence authorises the holder to use the Logo:

(a) in association with the business identified on the License
(b) on or associated with seafood or seafood products harvested in the Moreton Bay region

(c) on vehicles operated from that business and distributing product exclusively for that business
(d) on vessels operated by that business and supplying product exclusively to that business
(e) on promotional material, stationary etc. relevant to that business address;

subject to the Licensee's compliance with the Code.

It is a condition of licence approval that applicants agree to be bound by all of the rules and conditions contained in the Code.

A licence to use the Logo does not give any entitlement to be a member of the MBSIA. A licensee of the Logo does not, by becoming a licensee, acquire any rights, interests or other entitlements with respect to the ownership, management, administration or control of MBSIA or the Logo.

Compliance criteria relating to the use of the Logo

Licensees may only use the Logo in relation to seafood

- ✓ produced in the Moreton Bay region
- ✓ named in accordance with the Australian Fish Names Standard AS SSA-5300
- ✓ produced in accordance with a legally required food safety plan
- ✓ harvested in accordance with an EMS and Code of Industry Best Practice endorsed by MBSIA for that fishery.

Applying for a license

License applications must be made on the official Moreton Bay Fresh Logo Application/Agreement Form (Appendix B). Completed forms must be submitted to MBSIA by post or email and accompanied by appropriate License fees.

Initial license applications

MBSIA assesses all initial applications against the following criteria:

(i.) whether the applicant has paid the appropriate license fees.
(ii.) whether the application form/agreement is completed and signed
(iii.) whether the applicant has previously had a license to use the Logo cancelled or suspended
(iv.) whether MBSIA has reason to believe that licensing the applicant could bring the Logo into disrepute.

Subject to an application meeting the appropriate criteria, MBSIA will issue the applicant with a licence to use the Logo for the remainder **of the calendar year** in which the licence is issued.

License renewal

All licence renewals a due on or before 1 January each year. MBSIA will issue a renewal invoice before the license expiry date. Upon payment of the fee, MBSIA will assess the license renewal against the following criteria:

- ✓ whether the annual license fee specified on the renewal invoice has been paid
- ✓ whether the licensee has complied with the Code in the past

- ✓ whether MBSIA has reason to believe that renewing the license could bring the Logo into disrepute.

Subject to the renewal meeting the above criteria, MBSIA will issue the applicant with a licence to use the Logo for 12 months ending on 31 December.

License refusals

If an application for a license or license renewal is refused MBSIA will provide the applicant with the reasons for the refusal. An applicant whose application has been refused may address the reasons for the refusal and reapply, or

- request a review of the decision by the MBSIA Board, or
- request that the decision be reviewed by an independent reviewer agreed between MBSIA and the applicant or if agreement is not reached on an independent reviewer, a reviewer appointed by the Institute of Arbitrators and Mediators Australia. The decision of the independent reviewer will be binding on all parties.

The cost of an independent reviewer will be met by:

(a) the applicant if MBSIA's decision to refuse the license is upheld, or
(b) MBSIA if the applicant's appeal against MBSIA's refusal of the license is upheld.

Expiry or termination of a license

If a license expires, is cancelled, or is suspended in accordance with the Code, the licensee must immediately cease using or promoting the Logo and any related material including all stationary and promotional material referring to the Logo.

4 Obligations and Commitments on Licensees

As part of the licensing process, applicants must agree to be bound by this logo Code of Practice and the rules and conditions detailed herein. Applicants must also complete the application form/agreement which includes a declaration in relation to the compliance of the seafood identified on their product list with the rules and conditions contained in the relevant Codes of Industry Best Practice.

Licence Fees

Annual licence fees are levied on all licensees of the Logo according to the annual budgeted sales turnover for those seafood products identified on the licence's product list. Where a licensee voluntarily surrenders the licence, or where their licence is suspended or revoked, these fees are forfeited to MBSIA.

Licence fees are payable by 1 January each year in accordance with the fee schedule in Appendix B. For the initial licence issue a pro-rata fee is payable for the remainder of the calendar year in which the licence is issued,

Systems and Policies for Compliance with the Rules

In their application for a licence to use the Logo, all applicants must agree to abide by a range of rules and conditions relating to record keeping, information provision, compliance monitoring and complaints and dispute resolution. Licensees should establish systems and policies to effectively meet their obligations and ensure that their employees and agents know their responsibilities in relation to the use of the Logo.

Licensees should advise MBSIA in writing of changes to their contact details or their product list, and must give written notice of intention to terminate a licence before its expiry date, or to not renew a licence.

The Product List

The licence application incorporates a product list. The product list is a list of those seafood products the applicant wishes to promote in association with the Logo, and which meet the rules and conditions in this Code, as well as all underlying statutory obligations. Upon acceptance of an application, MBSIA retains the product list on file. If a licensee, for whatever reason, wishes to amend the product list, they should apply to MBSIA. The Logo can be used by licensees only in association with products identified on the product list.

Complaints and Dispute Resolution Processes

The Code includes a complaints and dispute resolution process that MBSIA and all licensees must abide by. Licensees should be aware that the complaints and dispute resolution process places obligations on them in relation to the provision of information to MBSIA in the compliance investigation phase and, if necessary, their participation in the conduct of an independent compliance audit.

Maintenance of Documentary Records

It is a requirement of the licence that all licensees agree to maintain sufficient documentary records to substantiate the compliance of the seafood products identified on their product list with the compliance test contained in the rules and conditions. Licensees may also be required to provide these records to an independent compliance auditor from time to time.

Compliance Monitoring and Auditing

MBSIA undertakes monitoring of the compliance of licensees with the rules and conditions contained in the Code of Practice. This includes an ongoing program of random independent compliance auditing that places obligations on licensees in relation to the provision of documentary records. It also includes compliance investigation by MBSIA and possible independent compliance auditing in relation to a dispute. Where a compliance investigation or independent compliance audit is undertaken, it must be conducted according to the rules and conditions.

5. Obligations in relation to the Logo

Licensees are subject to a range of obligations in relation to the use of the Logo. These are detailed in the **RULES AND CONDITIONS** contained at Annexure 1 of this Code of Practice. These obligations are identified and discussed below.

Rules Relating to Design

Colour and Size

The design of the Moreton Bay Fresh Logo cannot be altered under any circumstance. This means that licensees cannot make alterations to the graphic proportions of the Logo or its individual elements. However, the Logo can be sized to meet licensee requirements.

Use of the Logo

Licensees may only use the Logo in association with seafood identified on the licensee's product list, as amended from time to time.

The logo can only be used on seafood packaging and displays with other logos that are approved by the MBSIA board.

These products must meet the compliance test contained in the **RULES AND CONDITIONS** in Annexure 1 of this Code of Practice.

Country of Origin Labelling

The Australia New Zealand Food Standards Code contains standards to regulate food sold in Australia and in New Zealand. Standard 1.2.11 - Country of Origin Requirements sets out the requirements for country of origin labelling of packaged and certain unpackaged fish, fruit and vegetables, and pork.

The standard requires businesses to label all packaged and certain unpackaged food with their country of origin.

Packaged food must have a label with a statement on the package that clearly identifies where the food was made or produced, or a statement on the package that identifies the country where the food was made, manufactured or packaged for retail sale and to the effect that the food is constituted from imported ingredients or from local and imported ingredients. For unpackaged foods that require country of origin labelling under the Code similar rules apply.

The Country of Origin Standard and a guide to the Standard are available on the Food Standards Australia New Zealand (FSANZ) website at www.foodstandards.gov.au. Information can also be obtained from the FSANZ Information Officer on (02) 6271 2241, or email info@foodstandards.gov.au. If applicants or licensees are in doubt about their compliance with these criteria, they should seek their own legal advice.

Compliance with Underlying Statutory Obligations

The Code does not take precedence over statutory requirements. It is the responsibility of licensees to ensure that their usage of the Logo does not contravene any statutory requirements.

The extent of underlying statutory requirements may depend on the corporate structure of the licensee organisation, the State or Territory of operation of the licensee's business or the existence of statutory requirements that apply to firms in specific industry sectors. Licensees should seek their own legal advice to determine that their usage of the Logo and any representations used with the Logo complies with these underlying statutory obligations.

6. Consumers, Complaints and the Logo

Consumers are a Key Stakeholder

Consumers who look for and purchase products promoted in association with the Moreton Bay Fresh Logo are a key stakeholder in the Moreton Bay Fresh Logo initiative. It is vital, therefore, that consumers are certain that the Logo is being used according to the rules and conditions detailed in or pointed to by this Code of Practice, and that any consumer concern about the use of the Logo is addressed in an appropriate manner.

The Complaints and Dispute Resolution Process

Misuse of the Logo, whether by a licensee or a non-licensee, is a serious matter which could undermine the integrity and reputation of the Logo in the eyes of licensees and consumers.

MBSIA undertakes to investigate all such complaints received, and to keep all parties to the complaint fully informed as to its progress and outcome.

The **RULES AND CONDITIONS** provided in Annexure 1 of this Code of Practice establish a complaints and dispute resolution process that applies to MBSIA and all its licensees.

7. Licence Fees

The fee schedule will be determined from time to time by the Board of MBSIA and licensees will be given six months' notice of any proposed changes.

MBSIA will always publish and make available the fee schedule, and will publish six months' advance notice of changes to the fee schedule.

The Board of MBSIA may at its discretion waive or vary a licence fee in individual cases.

Licence fees will normally be payable for a twelve month period, but a licence for a period other than twelve months may be granted at the discretion of the MBSIA Board. In such cases the licence fee shall be calculated on a pro rata basis.

Schedule of licence fees as of 1 April 2013

For fishers, use of the logo requires agreement to operate in accordance with the Code of Industry Best Practice that is endorsed by the MBSIA board and relevant to the fisher's business. At this point in time only the tunnel-net fishery has an MBSIA-endorsed Code of Industry Best Practice suitable for this purpose. Currently a project is in place to produce a suitable Code of IBP for the trawl and Beam Trawl fisheries. These will be developed by industry leaders over the next few months with the aim to be operational by the 1/7/2013. The other Moreton Bay Fisheries can endeavour to produce ratified IBP codes in any time frame that suits.

In view of the above policy and current industry development plans, a 3-yr fee schedule has been formulated by the MBSIA board. This specifies set fees in the coming years for tunnel-net and Beam/trawl fishers, and also provides provisions for fishers from other fisheries dependent on progress with developing the appropriate documentation of standards for Industry Best Practice. Incorporated in the fee schedule is an incentive scheme involving free membership to the MBSIA and substantial discounts for existing members that generally phases out after 2 years for all licensees that are involvement with the scheme from the time that it is first established for their fishery.

For the 2013 calendar year and subsequent years up to and including 2015, licence fees (inc GST) for usage of the MB Fresh Logo are as follows:

Year	Licensee type	License fee for logo usage	Complimentary Yearly MBSIA membership (valued $165 in 2013)	Discount for existing MBSIA members	Date from which logo can be used	Prorate Licence fees for initial applications late in the year
2013	Trawl[1] Fisher	$110	Yes	$82.5	1 July	Yes
2013	Tunnel-net Fisher	220	Yes	$165	1 Jan	Yes
2013	Wholesaler	$220	Yes	$165	1 Jan	Yes
2013	Retailer	$220	Yes	$165	1 Jan	Yes
2014	Tunnel-net or trawl Fisher	$220	Yes	$165	1 Jan	Yes
2014	Wholesaler	$220	Yes	$165	1 Jan	Yes
2014	Retailer	$220	Yes	$165	1 Jan	Yes
2015	Fisher	$220	No[2], Yes[3]	$0[2], $165[3]	1 Jan	Yes
2015	Wholesaler	$220	No	$0	1 Jan	Yes
2015	Retailer	$220	No	$0	1 Jan	Yes

[1] This reference to trawl fishers also includes beam-trawl fishers

[2] For tunnel-net or trawl fishers

[3] For Fishers whose operations become incorporated into the MB Fresh Logo system after 2013 (eg crab, mesh net etc)

Appendix 22: Moreton Bay Fresh COP Rules of Engagement

Retailer Kit

Moreton Bay Fresh

MORETON BAY FRESH

The Moreton Bay Seafood Industry Association represents local fishermen who are justifiably proud of the environmental credentials of their fishery. The Association's Moreton Bay Fresh brand promises Brisbane consumers quality, local product that has been sustainably harvested. Only those fishermen, retailers and wholesalers who have signed up to the licensing agreement are able to use the Moreton Bay Fresh logo in-store.

COMPLIANCE CRITERIA

Licensees may only use the Logo for seafood:

- ✓ produced in the Moreton Bay region
- ✓ named in accordance with the Australian Fish Names Standard AS SSA-5300
- ✓ produced in accordance with a legally required food safety plan
- ✓ harvested in accordance with an Environmental Management System and Code of Industry Best Practice endorsed by MBSIA for that fishery.

COMMITMENT TO SUSTAINABLE SEAFOOD

Moreton Bay Fresh fishermen manage their operations using strict environmental managements systems. These systems exceed the legislative requirements placed on them by the Australian Government under the Environmental Conservation and Biodiversity Act, 1999.

A list of Moreton Bay Fresh fishermen and their contact details are attached with this kit.

MBSIA CONTACT DETAILS

John Page
President
Moreton Bay Seafood Industry Association
M 0418 756933
E johndpage@bigpond.com

David Sterling
Treasurer
Moreton Bay Seafood Industry Association
M 0428331103
E djstgs@bigpond.com

Further information
W: www.mmbsia.com.au
F: Moreton Bay Prawns

SAMPLE MEDIA RELEASE

31 July 2013

Love your Bay Locals!

On these dark, cold winter mornings, the alarm goes off and most of us pull the doona covers over our heads and hit the snooze button.

Not John Page and Dave Thomson. They've been out in the dead of night, working the tides to net some of Moreton Bay's tastiest fish. By 7.00am they are steering the boat across a calm waters to the ramp at Wellington Point or Wynnum. The perfectly chilled catch is unloaded for distribution through their wholesaler to some of Brisbane's leading fish retailers.

For many 'Brisbanites', our knowledge of Bay seafood is restricted to the ubiquitous Moreton Bay Bug and yet there is a wealth of other local seafood, sustainably caught, right on our doorstep to taste and enjoy.

Moreton Bay mullet; tailor and garfish are in season now through to September. They are excellent fish for easy dinners and all have high levels of that essential Omega 3 oil. Simply pan fry and accompany with warm, winter vegetables. Mullet's firm flesh also makes it ideal for grilling, barbecuing, baking and for the more adventurous cook, smoking. Garfish has a delicate sweet flavour that is perfect for cooking in a tempura batter.

From September, the iconic Bay prawns will start their run. These sweet prawns are an economical, fun pre-dinner snack that will have the whole family begging for more.

Leading Brisbane chef Richard Webb, owner of Swampdog seafood is a passionate exponent of local seafood. He is making it his business to educate both chefs and consumers about it, regularly taking chefs on tours to the fish markets and establishing a better fish web site.

"Locally caught equals low food miles", he says. "*Brisbane chefs can be putting fresh Bay prawns or mullet on their menus that were caught that day……..*

John, Dave and their mates, including local prawn fisherman Darryl Town take great pride in their efforts to protect fish numbers and the pristine Moreton Bay environment. John says:

"We use specially designed tunnel nets to harvest our fish. These nets prevent turtles and other marine animals from being caught or harmed. We are particularly proud of the fact that we have ZERO bycatch".

The fishers have developed the Moreton Bay Fresh brand to ensure that Brisbane consumers can trust in both the freshness and sustainability of their local, wild caught seafood.

From August through to October John, Dave and other Moreton Bay tunnel net fishers will be profiling Moreton Bay Fresh at leading: Aussie Seafood House at Durack, Capalaba and Aspley; Florence Street Seafood, Wynnum; Samie's Girl Seafood Market, Hamilton; Morgan's Seafood Market, Redcliffe and VJ's Seafood at Mt Gravatt. Look out for Moreton Bay Fresh specials during August and September.

Learn more about your local seafood, share your own Bay fish recipes and taste test some of the Moreton Bay Fresh crew's best fare!

Interviews: John Page 0418 756933 or David Sterling 0428331103

Further Information: Moreton Bay Seafood Industry Association, www.mbsia.org.au

FISH ‘N’ TIPS – Moreton Bay Mullet

FEATURES: Moreton Bay mullet is a plump, silvery fish approximately 50cm in length. High in Omega 3 oil, it has moist flesh that flakes easily. Fillets have few bones, which can be easily removed. Contrary to popular mythology, Moreton Bay mullet doesn’t have a muddy taste. It swims freely amongst lush sea grass beds in a sandy-bottomed Bay before heading out into deeper ocean waters. Mullet roe is a delicacy featured in many Mediterranean cuisines.

SEASONALITY: May – September is peak season, although the fish run all year round

HARVESTING METHOD: Tunnel Nets. These nets have been specifically designed to prevent turtles and other marine animals from being caught or harmed.

PURCHASING: Fresh whole fish should have clear eyes and shiny, firm flesh. If you poke the flesh it should spring back. Mullet have a lovely, pale blue colour running along their backbone.

COOKING: An excellent fish for easy dinners. Pan fry and accompany with warm, winter vegetables. Mullet’s firm flesh also makes it ideal for grilling, barbecuing, baking and for the more adventurous cook - smoking. Salted and dried mullet roe (Bottarga) can be shaved or thinly sliced and tossed through pasta or scrambled eggs.

STORAGE: Mullet fillets are best cooked fresh on the day of purchase, however they will store for up to 3 days in the refrigerator. They are not suitable for freezing.

FISH 'N' TIPS – Moreton Bay Whiting

FEATURES: Moreton Bay whiting is a long, gold coloured fish. It has delicate white flesh, a sweet flavour and low oil content. The fine bones can be easily removed. It is at its best when fried simply and quickly (skin on) in a pan with a little butter.

SEASONALITY: May – September is peak season, although the fish run all year round

HARVESTING METHOD: Tunnel Nets. These nets have been specifically designed to prevent turtles and other marine animals from being caught or harmed.

PURCHASING: Fresh whole fish should have clear eyes and shiny, firm flesh. If you poke the flesh it should spring back. Mullet have a lovely, pale blue colour running along their backbone.

COOKING: Whiting is at its best when fried simply and quickly (skin on) in a pan with a little butter. It is also an excellent fish for frying in a tempura batter.

STORAGE: Whiting are best cooked fresh on the day of purchase, however they will store for up to 3 days in the refrigerator. They are suitable for freezing.

Where to Buy

Moreton Bay Fresh seafood can be found throughout Brisbane. Listed below are six well-known and respected seafood retailers supporting the Moreton Bay Fresh brand and two wholesalers. Moreton Bay Fresh promises you quality product that has been sustainably caught.

RETAILERS

Aussie Seafood House 656 Blunder Rd Durack Ph: 32799400	Aussie Seafood House 690 Gympie Rd Lawnton Ph: 38810895
Aussie Seafood House 3230 Old Cleveland Rd Capalabla Ph: 07 32453003	Morgans Seafood Market (Retail/Wholesale) Bird of Passage Parade Scarborough Boat Harbour Ph: 32034592
Florence Street Seafood (Retail/Wholesale) Shop 6 147 Florence Street, Wynnum Phone: 33933193	VJ's Seafood Mt Gravatt Plaza 55 Creek Rd Cnr Creek & Logan Rds Mt Gravatt East Phone: 33933193
Samies Girl Seafood Market 15 Hercules St Hamilton Ph: 3131 4120	

Further Information: Moreton Bay Seafood Industry Association www.mbsia.org.au

Appendix 23: Moreton Bay Fresh Retailers Kit

Moreton Bay Fresh Seafood

Q1. Gender Male ☐ Female ☐

Q2. Have you heard of Moreton Bay Fresh before? Yes ☐ No ☐

Q3. **IF YES** Where did you hear about or see Moreton Bay Fresh?

Q4. What are the first 3 words you think of when you hear or see '**Moreton Bay Fresh Seafood**'?

Q5. Have you heard of Bay prawns before? Yes ☐ No ☐

Q6. **IF YES** What are they? *(If not correct go to Q9.)*

Q7. **IF YES** How often do you eat Bay prawns?

Q8. **IF YES** How do you normally eat Bay prawns?

Q9. How often do you buy ***local/fresh*** seafood (and prawns)?

Q10. Where do you buy ***local/fresh*** seafood (and prawns) from?

- Commercial fisherman/buy from boat ☐
- Wholesaler / Co-op ☐
- Fish market or general market ☐
- Fishmonger (selling mostly uncooked seafood) ☐
- Fishmonger (selling mostly cooked seafood) ☐
- Mobile fish van ☐
- Restaurant / takeaway (including sushi stalls) ☐
- Supermarket / food store ☐
  - Which one ____________________________
- Not sure ☐
- Other ☐

Q11. What year were you born?

Q12. What is your postcode?

Q13. We would like to send you **ONE** follow up email survey about this research; please may we have your email address for this?

Any further comments.

Thank you for taking the time to complete this questionnaire.
Your participation in this research is valued.

Appendix 24: Draft Journal Article on revised VCA Framework

A Value Chain Analysis framework: from diagnosis to implementation

Purpose: This article reports the development and testing of a framework for value chain analysis as a tool for both diagnosing opportunities for creating value and the subsequent implementation of the selected opportunity in an agribusiness context. The framework guided the process of understanding the chain and identifying opportunities for implementation, as well as then evaluating implementation activities.

Design/methodology/Approach – The framework used in this research was synthesised from the literature (Bonney 2009; Fearne 2009; Taylor et al 2005 and Collins et al 2008) and included six steps:

1. Engage the chain
2. Understand the market
3. Map the current state including product, relationships and information flows
4. Identify challenges and opportunities for improvement
5. Implementation
6. Evaluation

The framework was adapted to include a stronger initial focus on the consumer market which had received little attention in previous studies and had been identified as an area that needed improvement (Bonney et al 2007). Further this study incorporates implementation and evaluation phases rather than the framework finishing with recommendations as the final phase as proposed in previous frameworks (Taylor 2005).

Using a multiple case study design, the framework for value chain analysis (VCA) was tested in four prawn fisheries across Australia. These fisheries varied in size, location, management structures, volume of prawns and marketing arrangements thus allowing the generalizability of the framework to be explored.

Findings: The application of the framework for value chain analysis to the selected fisheries revealed the importance of undertaking a strategic approach with an outcome for all fisheries being a greater understanding of their consumers and a realisation of the challenges and opportunities available to them. However only two fisheries completed the full process with the findings suggesting that relationships and adopting a relational approach are crucial in the overall success of the creating value.

Research limitations/implications: This research furthers the literature in the area of value chains and contributes a valuable staged process for the application of value chain analysis across multiple settings. Further, this research highlights that obtaining value chain improvements is not achievable for all supply chains and if the entire supply chain is not willing to engage with the process, the end results will be compromised. These findings have only been applied to the Australian prawn industry and further research is needed to confirm the validity of findings beyond this industry.

Originality/value : The framework developed within this paper is an original contribution to the area of value-chain analysis and contributes not only to the literature but makes a valuable industry contribution in providing a guiding framework to creating value chains.

1. Introduction

The value chain analysis (VCA) concept outlines how firms can achieve a competitive advantage by adding value within their organisations through activities such as producing, marketing, delivering and supporting the goods and services (Porter 1985). Porter's view was that a competitive advantage cannot be achieved by a firm in isolation, but depends on the activities of the whole chain and being able to create improvements through the chain to the end-user (Porter 1985; Soosay et al 2012). At the heart of this concept is the focus on the end-user and organising the chain around supplying the needs and wants of the consumer (Fearne 2009).

While the value chain approach has been advocated for use in the Agri-food sector, the majority of agribusiness firms are still organised in traditional supply chain models (Fearne 2009; Taylor 2005; Bonney et al 2007). Traditional supply chains tend to focus on the material flow pushing what is produced through as many distribution channels as possible and efficiencies are achieved through cost savings (Fearne 2009). However, the chains are under increasing pressure to become more efficient and create more value for their customers in response to rapid changes in global markets (Soosay et al. 2012). Traditional competitive advantages of price, season or location are being challenged by increased competition created through market access, technological advances (such as packaging to increase shelf-life) and currency fluctuations (Soosay et al. 2012).

Value chain thinking requires a relational approach highlighted by collaboration, open communication and sharing of resources, risks and rewards. It is a paradigm shift in our thinking and is difficult to implement (Fearne 2009). Studies suggest that it is not for everybody and a good relationship is needed to successfully implement VCA (Bonney et al 2007). VCA in itself can be considered a relationship builder and a catalyst for change (Taylor 2005), yet few studies has moved from VCA being a diagnostic tool to the business to having successfully implemented value chain improvements at a practical level (Bonney et al 2007).

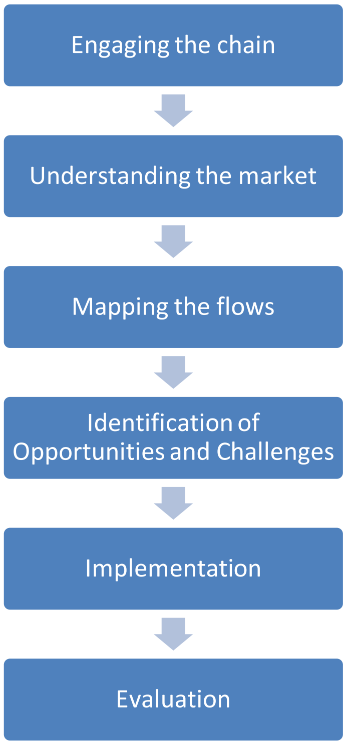
This research builds a framework for value chain analysis, implementation and evaluation and subsequently trials this framework on four prawn fisheries in Australia. This research extends our knowledge on applying value chain analysis and furthers our theoretical base in the process.

2. Value Chain Analysis Framework

The objective of Value Chain analysis is to improve supply chain performance (Taylor 2005). A prerequisite therefore is the understanding of the product flows, information flows, and the management and control of the value chain. In this context, Value Chain Analysis is a diagnostic tool used to aid management decisions and result in recommendations for the chain (Porter 1985). Since that time, studies have added and refined the initial process of VCA by adding consumer research to reflect the focus on consumer needs and wants (Collins et al 2008; Soosay et al 2012). The approach of VCA was broadened to establish VCA as a research methodology by Hines and Rich (1997) and has subsequently been further developed and extended to a variety of situations (Rother and Shook 1998; Jones and Womack 1992). In Agri-chains, Taylor (2005) developed a staged framework for adopting the VCA methodology and Bonney et al (2009) used multiple methods to implement the VCA process into value chains.

The value chain framework developed in this research was based on 6 steps synthesised from the literature (Bonney 2009; Fearne 2009; Taylor et al 2005 and Collins et al 2008). These steps are illustrated in Figure 1. The value chain framework has been adapted to include the consumer market which had received little attention in earlier studies that concentrated on the Supply Chain and has since been identified as an area that needed improvement (Bonney et al 2007). Further this study has included implementation and evaluation phases rather than offering recommendations as suggested in previous frameworks (Taylor 2005). The phases are described in more detail next.

Figure 1 – Framework for Value Chain Analysis



Developed from: Bonney et al 2009; Fearne 2009; Taylor et al 2005 and Collins et al 2008

Engaging the chain: This first and fundamental step in the Value Chain process sets up the way the chain members interact through the value chain. Previous studies have highlighted the importance of gaining commitment from the chain members and further the 'buy-in' by senior management to the process in order to ensure success (Taylor 2005; 2006). As many of the chain members have never worked together, activities such as team-building are considered an important step to a successful VCA (Francis et al. 2008; Taylor et al. 2009). Working together successfully, in previous projects was considered a good indicator of the success of the VCA (Collins 2010). Recent studies have emphasised creating a receptive organisation (Collins 2010; Soosay et al 2012) with the identification of industry champions and a committed stakeholder group (Bonney et al. 2009; Howieson 2010). VCA projects can be used as a catalyst for collaboration. Undertaking a VCA project is an "effective way to start the process of translating the partnership concept from wish to reality , even when pre-existing relations are hostile "(Taylor 2005, p758).

However there is a lack of clarity on the process of engaging the chain which may be partly attributable to it being used as a diagnostic tool rather than a framework, as it is being developed in this research.

Understanding the market. The importance of the end-user in Value Chain Analysis is recognised in this study by including 'understanding the market' as the second step in the Value Chain process. Previous studies have recognised the importance of understanding the needs of the consumers as central to the whole value chain process (Fearne 2009; Taylor 2005; Zokaei et al 2007; Bonney et al

2009). In order to create value within the chain we must understand the consumers needs and wants as well as their evaluation of the product or service (Fearne 2009).

Mapping the current state of the chain: Mapping the chain has been a fundamental component of value chain analysis from Porter's concept. The three fundamental elements that mapping covers are the flow of products, information and relationships (Fearne 2009). Mapping allows opportunities and challenges within the chain to be identified. Data to inform the mapping process is gained by interviewing the chain members from point of harvest to point of purchase in relation to planning, forecasting, ordering, production, distribution, marketing and customer service. This information will inform the product and information flows for the chain but further data will be needed to inform the relationship flows, such as stakeholder meetings or workshops (Francis et al 2008).

Product flow requires the mapping of the physical flow of goods through the value chain. The aim is to coordinate the delivery of the correct volume and quality of the product desired by the consumer (Bonney et al. 2009). Misalignment in agri-food chains between supply and demand causes oversupply and shortfalls in the chain. Both situations are costly to individual firms and stop the chain creating value. Information on consumer preferences and demand assists in production planning and smoothes the product flow (Fearne 2009).

Information flow is a two way process along the value chain. Information regarding the end-user (e.g. preferences, demand specifications and quality) can be transferred back along the chain to the producers, whereas the producers can notify the market of supply and quality issues. In practice this knowledge transfer allows firms to become more competitive, however information sharing is rarely done well. Studies have cited issues with forecasting to assist in production planning (Taylor 2006) and lack of knowledge of end-user demand (Taylor 2006; Mowat et al 2000).

Relationship flow describes the way chain members relate to each other. Relationships offer the possibility for all parties to gain through coordination and joint optimisation, by sharing value activities and working to identify opportunities for further value creation. Poor communication and a lack of transparency due to a lack of trust and commitment between trading partners, leads to poor information flow and inefficient operation of the value chain (Bonney et al. 2009).

Identifying Challenges and Opportunities: "There are opportunities for improvement in all organisations and all value chains" (Fearne 2009, p.9). Through an analysis of product flows, information flows and relationships, attention can be drawn to the opportunities for improvement at different stages and identification of such opportunities can be an effective catalyst for change. How inclusive, transparent and responsive are the information flows in the chain? To what extent are stakeholders' decisions (what to produce, when to produce, how to produce) influenced by what end-users value? Is there waste in the current production and processing activities and how well does the chain work together? Answers to these questions form a blueprint for change in the value chain. Information from the end-users can be used to generate new opportunities for the chain (Fearne 2009).

Implementation: Once the opportunities/challenges have been identified, the chain members will need to select the areas that they would like to implement to achieve greater value. To ensure the commitment of the chain to the improvement process, it is recommended that chain members take responsibility for the implementation. "It is important to stress that Value Chain Management is a strategy that businesses, individually and collectively within the chain, choose to do; it cannot be imposed from above, by industry associations, government agencies or regulators' (Fearne 2009, p13). Implementation was included in the work of Bonney (2009) as a part of the stage process of value chain analysis. Previous studies had used VCA as a diagnostic tool that produced recommendations rather than an actual implementation process (Taylor 2005). Within this study two types of evaluation will be used. Firstly, an evaluation of the process of VCA will be conducted across of supply chain members to evaluate through feedback the applicability of the VCA framework in creating value for chain members. Secondly, an evaluation of the opportunity selected will be conducted to assess the success of the chain in creating an improvement to the chain. Data such as sales figures, retail feedback and strategy evaluation form.

Evaluation: The final step in the framework is an evaluation by the value chain members on the overall performance of the Value Chain process. This step has been included as a feedback loop to provide a method for continuous improvement and also a measure of the value to the stakeholders of undertaking such a process. This step has not been included in any previous studies conducted on agribusiness value chains and is therefore a novel contribution to this area of research and it flows on from the literature which suggests that the contribution of Value Chain Analysis should be a continuous improvement for the chain (Fearne 2009).

3. Methodology

A multiple case study methodology was used to provide rich, multiple-source streams of data to test the effectiveness of the framework. Four prawn fisheries were chosen to apply the Framework for the Value Chain analysis process as outlined in Figure 1. These fisheries differ in size, geographical location, economic capabilities, and business and management structures as shown in Table 1. The choice of cases was designed to produce literal and theoretical replication. That is, each case was chosen to produce similar results for predictable reasons (literal replication) and contrary results for predictable reasons (theoretical replication) (Yin 1994; Perry and Coote 1994). The Fisheries are geographically spread across the states of Queensland, New South Wales, South Australia and Western Australia. Two are considered large fisheries within their states and two are considered small fisheries.

Table 1 – Profile of Fisheries

Characteristics	**FISHERY 1 (F1)**	**FISHERY 2 (F2)**	**FISHERY 3 (F3)**	**FISHERY 4 (F4)**
Formalised Structure	Commercial industry association (prawn specific)	Commercial industry association (prawn specific)	Commercial industry association (not prawn specific)	Co-operative (not prawn specific)
Paid Staff	Executive Officer	Executive Officer, Admin Officer	Part time EO for non specific Industry Assoc	General Manager Admin and operational staff
Number of Prawn Species	1	3	5	4
Number of Boats (Prawns)	35	18	57	
Fresh vs. Frozen product	Frozen	Frozen	Fresh	Fresh
Number of licences	39	18	72	130

Source: Howieson et al 2014; Courtney et al 2012

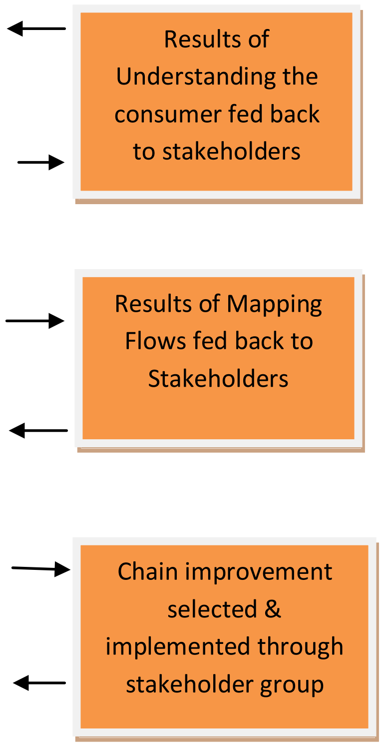
The Australian prawn industry provides an opportunity to implement value chain analysis in a sector that is characterised by traditional supply chains and a changing external environment. Over the last 10 years the Australian wild capture prawn industry has been confronted with challenges on two fronts. Firstly there has been a decline in the price received of some 64% for prawns in the period 1998 to 2009 (DAFF 1999, 2009). This decline in value can be partly attributed to declining export sales in the wake of a strengthening Australian Dollar and stronger competition on the world stage for Australian product. Secondly, over the period 1998-2010 there has been a 25% decrease in the production of wild caught prawns. The industry now faces issues of decreased volume, increased competition and decreasing prices on the domestic market, as prawns once destined for export markets are sold domestically and imports provide strong competition. Prawn exports from Australia have reduced from 10302 tonnes in 2004-5 to 6419 tonnes in 2010-11 (ABARES 2011). Over the same period prawn imports into Australia have increased from 29855 tonnes in 2004-5 to 32588 tonnes in 2010-11. Further, Australian aquaculture prawn production has increased from 2319 tonnes in 1998-99 to 5381 tonnes in 2009-2010 (ABARES 2011).

In response to the challenges facing the wild capture prawn industry this study develops a framework for the implementation of value chain analysis to the Australian wild capture prawn industry. Through this process, new market driven quality and value innovations will be identified along the supply chain of the four fisheries to try and improve returns to the domestic market.

Multiple methods were used to gather the data across the steps of the framework. The method used at each step was chosen specifically for that step as depicted in Table 2. In engaging the chain, a key method of undertaking stakeholder meetings and workshops was used. Step one 'Engaging the chain' and Step 2 'Understanding the market' were conducted simultaneously and the results of 'Understanding the market' were used as tools to help the engagement process for the Value Chain. The same method applies to Step 3, 'Mapping the flow of product, information and relationships' and Step 4, 'Identification of opportunities and challenges'. This process was suggested by Taylor (2005), where the actual VCA process could be used as the catalyst for change. In this process, the consumer research results were used to engage the chain and provide a basis for relationship building. The results of the in-depth interviews with chain members were fed back into the chain through Stakeholder meetings, workshops and written summaries of the research provided to all chain members. This process was designed to assist and maximise the engagement of the chain.

Table 2 – Multiple Methods used to gather data for Case Studies

Step number	Step in Framework	Methodology
1	Engaging the chain	• Stakeholder meetings
2	Understanding the market	• Secondary data search • Quantitative consumer surveys of behaviours, attitudes and knowledge • In-depth Interviews with Chefs
3	Mapping the flows; product, information and relationships	• In-depth one –on-one Interviews with Fishermen, Wholesalers and Retailers
4	Identification of Opportunities and Challenges	• Stakeholder group meetings • Workshops prioritising improvement projects • Written summaries provided to all stakeholders (including those unable to attend workshops and meetings) • Final decision to prioritise which activity made in stakeholder workshop
5	Implementation	Conducted through the Stakeholder group
6	Evaluation	Conducted by the Stakeholder group on the results of their Value Chain analysis process



The mapping process provided a platform for the identification of opportunities and challenges to emerge. The best opportunities to improve the value of the chain were presented to key members of the chain in a facilitated workshop, who then voted on which improvement they would like to see implemented. The selected strategy was then given to the stakeholder group to implement. This requirement was to ensure stakeholder commitment and 'buy-in' by the Leadership group and or Management depending on the particular structure of the individual Fisheries, as suggested in the literature.

There were two areas of evaluation. The first evaluated the success of the implemented improvement, measured in actual sales data and retail/consumer feedback and strategy evaluation forms. The second form of evaluation was the feedback from chain members on how worthwhile they considered the value chain process to their businesses. This feedback was obtained through project evaluation forms.

4. Results

The value chain process methodology outlined in the previous section was conducted for the four case fisheries and produced different results for varying reasons as summarised in Table 3. Of the four fisheries within this case study, only two successfully completed the process. The results of applying the value chain process across four fisheries is summarised in Appendix 1. Individual fishery results are detailed as follows.

Fishery 1 (F1) completed the whole value chain process. This Fishery was a good candidate for the value chain process as the chain members knew each other well and had worked together previously. There was a commitment from the Industry Association to the project and identified "Team Leaders" within the chain. The chain members identified the key improvements in growing the retail market and to do this, more knowledge was needed on the way prawns were handled and presented to the end-users (Howieson et al. 2014). The Fishery utilised the consumer research and applied their knowledge into existing channel arrangements to achieve higher penetration rates with end users. The evaluation process confirmed that the implementation had been economically successful for the Fishery and has achieved an improvement in information flows through the chain. Comments such as "very helpful process" and "full of great information" , illustrates the positive response from the chain members.

Fishery 2 (F2) also benefited from the application of the framework having completed all stages and succeeded in achieving both economic and behavioural changes from the process. F2 had a specific industry association around the Fishery and strong "Team Leaders" stepped forward to drive the process. This Fishery identified a number of issues around product quality and consistency, communication and market knowledge. Through the application of the framework, the strategy chosen was to brand F2 products and raise the profile of the fishery. This was done through point of purchase material, recipe cards and promotional brochures. The Fishery also used public relations as a key marketing strategy and launched their brand at numerous events. The results of implementing the value chain strategy were improved communication and relationships. This fishery has continued with the value chain concept and has on-going marketing campaigns.

Fishery 3 (F3) completed the process to the stage where it was required for the chain members to take ownership of the value improvements. As there wasn't a strong leadership group, the process struggled from this point and the group only partially completed the implementation and evaluation stages. The strategy selected for Fishery 3 was divided into two parts;

Part 1: focused on branding and included activities such as logo development, recipe cards, product information, posters, banners etc. In this section, a licensing agreement was achieved for the chain members to have access to a regional seafood branding opportunity. The implementation across the chain of this opportunity is still in its infancy and more evaluation will need to be conducted at later dates.

Part 2 focused on promotional events with a stand at Regional Flavours organised for the Fishery to market their product. A new product was launched for trial at this promotional event. The evaluation of the product was 50/50 with equal numbers enjoying the product while other didn't like it at all. Comments ranged from "Nice for a tasty treat, not a meal", to "threw it out!" No further trials have been undertaken for this product.

The researcher kept engaging the chain in the hope that perceived progress would encourage 'buy-in' from the fishery members. This Fishery has a reputation for being openly hostile to each other and other members of the value chain. There are accounts of power/dependent relationships and an adversarial trading environment, characterised by lack of communication and trust within the members of their value chains. Many are struggling financially and are angry at the state of the industry. Yet the majority of members continue to stay with their current supply arrangements. Although a strong team leader was found, it was very difficult in this environment to encourage collaborative effort and shared goals, as the foundation of goodwill was not apparent.

Fishery 4 (F4), despite being engaged in the same manner as the other fisheries F4 did not commit to the value chain analysis process at all. It was apparent that the leadership group were the 'gatekeepers' of the information and they did not buy into the process. This step is so crucial to the overall success of the process that without the commitment of the senior management of the fishery, the process foundered from the start. The process was hindered by a change of management personnel who did not share the value of the project that had commenced under previous management. Further, the Co-operative staff regulated access to its members and effectively stifled the involvement of its members. Despite gaining good access to market information and having identified areas for improvement, the fishery did not proceed with the process.

5. Discussion and Implications

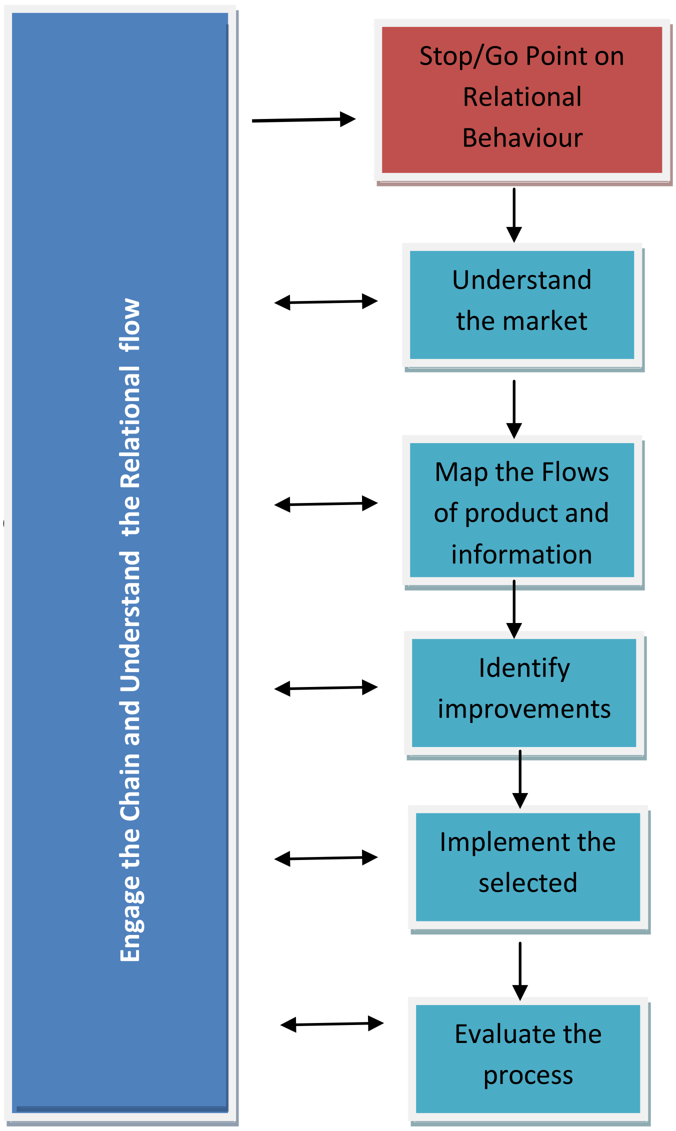
The research has endorsed the use of Value Chain Analysis Framework as developed for this research in agri-food chains, to create improvements in their chains. Two of the fisheries succeeded in adopting the value chain process. They have improved their profitability, as well as flow of relationships, products and information in the process of conducting the Value Chain Analysis and they continue to use this process. However the research also endorsed previous studies that suggested that creating value chains is a process not suitable to everyone as it is a difficult and highly relational approach that needs to be adopted (Collins 2010).

The results highlight the importance of the first step in the framework “engaging the chain”. Where this step was successful, the Fishery fully engaged in the process and made gains through the value chain. In other cases where the Fishery struggled at “engaging the chain”, the end outcome proved to be ultimately unsuccessful. One of the key findings of this research therefore is the critical importance of relationships within the chain and how the chain needs to engage to improve both information and product flows. Further research is needed on how relationships can be fostered and improved within the chain to gain further value. More specifically, research on relationships at the start of the Value Chain process is needed to identify how chains can work more efficiently and effectively together.

The case results indicate that formalised structures may assist in the overall implementation of the value chain analysis in Agri-food chains. With Fishery 1 and 2, a formalised structure based around a specific industry association with an Executive Officer proved to be a solid basis for starting the VCA process. Conversely, Fishery 3 did not have a formalised structure in place and struggled to organise a leadership group. Fishery 4 had a cooperative as its formalised structure, which did provide the basis for the process, however the management team did not support the process and it was ultimately unsuccessful. Further, the Fisheries that were more focussed on one species and offering a frozen product were successful at implementing the VCA (Table 1). The reasoning for this may include financial stability, as a greater volume of prawns allows for specialisation of fishing. This is further supported by the type of product being frozen in the case of Fishery 1 and 2, which indicated higher volumes and higher quality products on offer to a larger distribution network. This situation would lead to better financial outcomes for the Fisheries 1 and 2.

These findings have led to an amended framework as shown in Figure 2. Engaging the chain is an on-going process through the whole of the VCA process as shown in Figure 2 and forms part of an ongoing process at each stage. Further, a stop/go point has been inserted after the initial engagement of the chain. This was added in recognition of the results that revealed a relational approach was crucial to the overall success of the Value Chain process. This study therefore recommends that if a relational approach is not present in the initial stages and the environment is such that a relational approach could not be fostered, the process should not continue until relationships are built.

Figure 2 - Amended Framework for Value Chain Analysis



In conclusion, this research has endorsed the Value Chain framework as a guide for chains to follow to create further value. In conducting this framework, the need for good relationships within the chain is crucial to the overall success of the value chain and further research is encouraged into this sector. It was also found that engaging the chain is an ongoing process and not an initial stage as previously indicated in the literature. Finally, the chain must be "ready" to engage in the process and more research needs to be conducted on how to be value chain 'ready'.

References

ABARES (2011). Australian Fisheries Statistics 2010. Canberra.

Al-Mudimigh, A. S., Zairi, M., Ahmed, A. M. M. (2004) “Extending the concept of supply chain: The effective managmeent of value chains’, International Journal of Production Economics, 87(3), pp.309-335.

Bonney, L., Clark, R., Collins, R., and Fearne, A. (2007). "From serendipity to sustainable competitive advantage: insights from Houston's Farm and their journey of co-innovation." Supply Chain Management: An International Journal **12**(6): 395-399

Bonney, L., Clark R., Collins, R., Dent, B., and Fearne, A. (2009). “Sustainable value chain analysis: an agri-food chain diagnostic”, University of Tasmania, Australia.

Collins, R. J. and A. J. Dunne (2008). A rapid supply chain appraisal approach for agribusiness development projects. Acta Horticulturae. P. J. Batt**:** 73-79

Courtney, A., Kienzle, M., Pascoe, S., O’Neill, M. F., Leigh, G. M., Wang Y-G, Innes, J., Landers, M., Braccini, M., Prosser, A. J., Baxter, P., Sterling, D. And Larkin, J. (2012), “Harvest strategy evaluations and co-management for the Moreton Bay Trawl Fishery”, Australian Seafood Cooperative Research Centre, Project 2009/774.

DAFF (1999). Prawn Prices DAFF

DAFF (2009). Prawn Prices DAFF

Fearne, A. (2009). Sustainable Food and Wine Value Chains. Department of Premier and Cabinet. Governement of South Australia.

Francis, M., Simmons, D., Bourlakis, M. (2008). "Value chain analysis in the UK beef foodservice sector." Supply Chain Management: An International Journal **13**(1): 83-91.

Hines, P. And Rich, N. (1997), "The seven value stream mapping tools", "International Journal of Operations and Production Management, Vol. 7, No.1

Howieson, J. and Lawley, M. (2010). Implementing Whole of Chain Analyses for the Seafood Industry: A Toolbox Approach. Australian and New Zealand Marketing Academy (ANZMAC) Annual Conference 2010. D. P. B. a. D. J. Finsterwalder. Unviersity of Canterbury, Christchurch New Zealand

Howieson, J., Lawley, M., Johns, C. and Johns, N.,(2014). "Optimising prawn quality and value in domestic prawn value chains", Australian Seafood Cooperative Research Centre, Bedford Park, South Australia,

Jones, D. And Womack, J. (2002), "Seeing the Whole – Mapping the Extended Value Stream, LEI, Brookline, MA.

Mowat, A., Collins, R. (2000), "Consumer behaviour and fruit quality: supply chain managment in an emerging industry". Supply Chain Management 5(1), pp45-62.

Perry, C and Coote, L. (1994), 'Processes of a case study research methodology: tool for management development', Working paper, University of Queensland and Queensland University of Technology.

Porter, M. E. (1985). Competitive Advantage. New York, The Free Press.

Rother, M. And Shook, J. (1998), "Learning to See – Value Stream Mapping", LEI, Bookline, MA.

Soosay, C., Fearne, A., and Dent, B. (2012). "Sustainable value chain analysis - a case study of Oxford Landing from "vine to dine"." Supply Chain Management: An International Journal **17**(1): 68-77.

Taylor, D. H. (2005). "Value chain analysis: an approach to supply chain improvement in agri-food chains." International Journal of Physical Distribution & Logistics Management **35**(9/10): 744-761.

Taylor, D. H. (2006). "Demand management in agri-food supply chains: an anlaysis of the characteristics and problems and a framework for improvement." The International Journal of Logistics Management **17**(2): 163-186.

Taylor, D. H. and A. Fearne (2009). "Demand management in fresh food value chains: a framework for analysis and improvement." Supply Chain Management: An International Journal **14/5**: 379-392.

Yin, R.K. (1994), *Case Study Research: Design and Methods*, Applied social research methods series, (5), 2nd Edition, Sage Publications, Newbury Park, California.

Zokaei, A. K. and P. Hines (2007). "Achieving consumer focus in supply chains." International Journal of Physical Distribution & Logistics Management **37**(3).

Appendix 1:.- Results of the Implementing the Value Chain Framework Across Four Fisheries

			RESULTS OF VALUE CHAIN PROCESS ACROSS 4 FISHERIES			
STEP	**VCA PROCESS**	**FISHERY 1 (F1)**	**FISHERY 2 (F2)**	**FISHERY 3 (F3)**	**FISHERY 4 (F4)**	
1	Engage the Chain	2 Stakeholder meetings with researchers	2 Stakeholder meetings with researchers	2 Stakeholder meetings with researchers	2 Stakeholder meetings with researchers Attend Conference Phone hook-ups	
2	Understand the market		Research conducted and delivered to all fisheries on end-user behavior and customer perceptions of prawns (included chefs as well as consumers)			
3	Mapping the Flows					
	• *Product Flows*	Approximately 25% of prawns sold through chain retailers and a further 8% direct through restaurants.	Product size grading is an issue. F2 prawns too light when cooked. Major drivers are: consistent quality, meeting specifications product availability and price. Use of Sodium Metabisulfite remains an issue. Meeting supermarket standards. Some product deterioration occurring over extended storage times.	Seasonal, highly perishable, supply not aligned with demand. Prices decreasing in real terms. Lack of product promotion. Limited to smaller prawn species.	Lack of consistent supply. Huge variety of species labeled as one species 'school' prawns. Volume restrictions due to small scale fishery Lower quality due to warmer water of Southern prawns.	
	• *Information Flows*	Flow of information along the chain is very sound. Due primarily to the very few members in the chain (they know each other well).	Flow of information between chain members very poor. Many end-users have no knowledge of F2 fishery. Scientific studies required	Upstream information flow from end-users is limited. Price information is all that is received. Information flow to end-	Information flow between members very poor. Scientific studies required into quality & sensory aspects of prawn	

		Communication between the fishery, license holders & the boat skippers is very sound. Communication to the end-user needs improvement but is improving	into quality & sensory aspects of prawn species to initiate preferential purchasing. F2 points of difference not well documented for consumers to see. Pricing still key – Imported prawns very good sellers.	users on seasonality & species availability does not occur. No transparency with pricing. No consumer research carried out to attain wants and needs. Local product attributes & benefits relayed to end-users.	species. Reputational limitations as a supply region. F4 region favoured by some due to larger scale. Require more promotional activities (sales & merchandising) with end-users.
	• *Relationship Flows*	Logistics of upstream chain dominated by a key buyer & a primary wholesaler, who know each other well. Relationships throughout the chain are simple in nature & very effective. While pricing must be competitive, relationships are built on more than just price. Communication channels are open & effective.	One on one consultation very effective and enjoyed by end-users. Producers need to do more promotional activities with end-users.	Product sold on transactional basis, with limited relational interaction. Any relationships are aggressive, transactional & price driven. No collaborative marketing occurs. F3 reputation for mistrust, aggressive competition, no transparency, no collaboration.	One on one consultation very effective and enjoyed by buyers. Co-op gatekeepers of knowledge. Lack of commitment to process Failed to complete VCA process.
4	ID Opportunities & Challenges	9 projects identified Increase sales into chain retailers. Chain retailers still have much to learn about handling & presenting	5 projects identified Increase focus on green prawn market F2 can fill supply gap when F1 unavailable. Develop F2 Brand. This can	15 projects were identified including marketing of fresh and local prawns, improvements in product quality, using freezing	A number of projects identified including; Standardization of national grading sizes and labels Improve grading

		prawns for sale. Improve information flow from fishermen right through to consumer. "Sell" the story of the fishery to the consumer, including in restaurants. Relationships between F1 & restaurants could be improved.	increase demand, but may not attract price premium & must be underpinned by consistent supply. Focus more on F2 State market. Opportunity to supply cooked, peeled Aust prawns. Value added raw prawns eg. Skewers, marinades. Supply pre-packs of tamper proof branded quality-assured prawns to retailers. Initiate tasting booths at POS.	technology, Branding, Value-Adding, re-opening local Co-op.	Product development options (minced prawn meat) Packaging options
5	Implementation	The strategy chosen was for domestic retail of innovative packaging, and improved information flows together with restaurant innovative packaging.	The strategy is to be branding Fishery 2's U16-20 "premium" king prawns into high end retail (speciality stores and fish mongers) at a premium price. Strategy implementation was built around three preliminary activities including development of a brand/logo, photography and recipe development to support the logo. Signature Chef appointed and launched at many high profile events	The strategy chosen was a promotional and marketing strategy based on "fresh and local" attributes. Stalls at local food festivals were organized as the starting point for this strategy.	Not implemented
6	Evaluation	The process was	This process was successful	While the stall was a	Not implemented

		successful in economic terms for the fishery and improved communication, and relationships of the stakeholders.	in economic terms for the fishery and has documented change of behavior in improved relationships and communications resulting from conducting the value chain process	success on the day it was driven by the researcher and a lack of commitment from the fishery meant the value chain process has not achieved any gains.	