

Final Report

Maintenance and Operation of the Australian Seafood Extension and Advisory Service (AUSEAS)

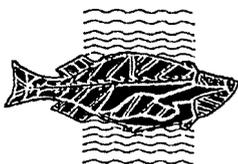
FRDC 1996/341

and

Establishment of Seafood Services Australia Stage 1 - Extension and Advisory Service

FRDC 1999/333

Stephen Thrower



**FISHERIES
RESEARCH &
DEVELOPMENT
CORPORATION**



**SEAFOOD SERVICES
AUSTRALIA**

ISBN 0 646 40220

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1996/341 Maintenance of Australian Seafood Extension and Advisory Service (AUSEAS).

1999/333 Establishment of Seafood Services Australia - Stage 1 - Extension & Advisory Service.

PRINCIPAL INVESTIGATOR

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OBJECTIVES

NOTE: This list combines the objectives of projects 1996/341 (completed June 1999) and 1999/333 (completed June 2000).

1. To provide the post-harvest sector of the Australian seafood industry with technical information and advice that is timely, accurate and relevant.
2. To proactively promulgate the results of research to companies that are well placed to use them.
3. To identify areas where research is needed and the institutes where the work can be done.
4. To promote networking between companies in the post-harvest area by personal contact and publications.
5. To provide sales support for selected publications and database maintenance. These include directories and research reports.
6. Publication of the second edition of the Australian Seafood Industry Directory.
7. To provide fast targeted responses to approaches by industry when problems occur.
8. To develop a comprehensive web page that provides basic free information to industry, the public and students, as well as further access to Seafood Services Australia (SSA) resources and other post-harvest programs.
9. To participate in the development and promotion of SSA.

NON TECHNICAL SUMMARY

This report covers the activities projects 1996/341 and 1999/333 for the period 1996 to 2000. In October 1999 AUSEAS along with the National Seafood Centre (NSC) and SeaQual were brought together under the umbrella name of Seafood Services Australia (SSA).

To avoid confusion, for the remainder of this report, the previous name of the service AUSEAS (Australian Seafood Extension and Advisory Service) has been replaced with the new title SSA.

The report begins with a review of current activities including:

- industry inquiries and the SSA responses;
- consultancies;
- the preparation of the Australian Seafood Industry Directory
- the sales of technical literature packages.

A discussion of the available information resources is then followed by promotional activities. This is followed by a consideration of staffing issues including staff skills development to better service clients' needs.

Finally, there is a discussion of planned new initiatives including development of a "one-stop shop" Internet site for the post-harvest fisheries sector. This will allow clients to access a wide range of information held in the SSA databases including: the bibliography of the technical information available through this service; sources of assistance for industry development; and a topical issues discussion line. A special feature of this will be a series of technical advisory notes.

Continuing Activities

All activities which were undertaken under both projects expected to continue to increase over the coming years. SSA has clients in all states of Australia and a small number of clients in overseas countries.

The majority of inquiries to date have involved requests for published information or saleable publications. This trend will continue as more publications are made available through SSA. Calls for information packages are expected to increase as SSA commences the development of information packages for industry sectors other than post-harvest and aquaculture.

KEYWORDS

Literature searches; Publications; Information; Advice; Research.

BACKGROUND

The Queensland Department of Primary Industries (DPI) and the Fisheries Research and Development Corporation (FRDC) have jointly supported the services provided by SSA for over eight years. DPI and FRDC are continuing to support this service.

This service has two broad functions:

- to supply the post-harvest sector with access to the best available technology from both local and overseas sources; and
- to promote networking within the industry between companies, researchers and the FRDC.

This service provides information and advice in a variety of formats ranging from on-line telephonic advice to full consultancy services (including written reports). SSA provides linkages between the FRDC, industry and research workers. The roles of this service are both reactive (responding to problems) and proactive (alerting people to new opportunities).

The formation of SSA in October 1999 brought AUSEAS, the NSC and SeaQual together under one name. A great deal of effort has gone into forming a seamless interface between these projects. This process is expected to continue, culminating in a single application to the FRDC Board in 2002.

NEED

This service receives a large number of inquiries from a wide spectrum of clients. The list of topics requested through the literature searches is detailed in the results section of this report. This list of packages compiled gives an indication of the scope of the inquiries that this service receives. However, it does not include the phone calls and emails that can be answered without going to the extent of providing a package. To bring some order into this picture, we need to consider both the client and the subject of the inquiry.

New players

The seafood industry is very dynamic, with companies constantly coming into existence and others going out of business. Many of our inquiries come from either people wanting to enter the industry or from companies looking to move from one role within the industry to another. An example of this is a young chef planning to open a seafood snack bar with a small processing/retailing seafood business on the side.

The most frequent inquiries from new players concern aquaculture or seafood markets. Inquiries come from the 'entrepreneurs' themselves, potential investors or financial institutions.

Expansion of existing business

Expansion can take many forms, including product diversification, waste utilisation, market development etc. Access to reliable information lays the foundation for success in these ventures. SSA has invested considerable resources in developing and maintaining information assets to help these businesses.

Trouble shooting

Some of the calls we receive are from companies with a crisis on their hands. Examples of some of these crises that this service has been asked to assist with are:

- ← a shipment has been seized;
- ← a customer has rejected product;
- ← the fish has developed an objectionable smell or an odd colour.

These situations demand skill in interviewing as to the circumstances, any particular variations in practice, any available data on temperatures etc. Sometimes the answer can be given over the phone and at other times a laboratory examination or a factory visit may be necessary.

Delivery mechanisms

The level of sophistication within the seafood industry is variable, so the way we deliver information can be critical. We use many different methods of dissemination including phone, mail, fax, email and Internet to cater for this diversity.

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6. Publication of the second edition of the Australian Seafood Industry Directory.
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8. To develop a comprehensive web page that provides basic free information to industry, the public, and students, as well as further access to SSA resources and other post-harvest programs.
9. To participate in the development and promotion of SSA.

METHODS

SSA is essentially in the business of assisting in the development and promotion of the seafood industry. At this stage they can be summarised as providing a technical information and advisory service to clients; participation in trade shows and conferences; and participation in the transition of SSA from three disparate projects into a single seamless service.

All the objectives of this project have been completed with the exception of the development of the Internet site. A discussion paper titled *Proposal for the Establishment of the Seafood Services Australia Website* has been distributed to interested parties. Further discussions need to be held regarding this paper prior to moving on with the SSA Internet site. Appropriate software has been purchased and a considerable number of assets such as advisory notes, databases etc are ready to be uploaded on to the Internet site.

Customised information packages

The provision of customised information packages is an important component of this service's information dissemination methodology. Clients contact this service with a specific problem or an idea for a new product or business venture. An officer from this service initially discusses the problem or concept with the client and then advises the client of a course of action which could involve researching the issue to gain further insight. Literature resources from both Australia and overseas are searched and a customised information package is prepared for the client. A list of customised information packages that have been supplied to our clients is available in the results section of this report.

Requests for customised packages have traditionally been restricted to the post-harvest and, more recently, the aquaculture sectors of the industry. A fee is charged for this service. See Appendix III for a copy of client testimonials.

Telephone requests for information

A considerable number of requests to SSA are from clients who simply need some telephone advice, a referral, or possibly one or two relevant articles to be supplied to them. This initial information is provided free of charge. These telephone queries may lead to further fee-for-service work being needed by the client, eg. an information package or a consultancy.

Some examples of such requests that this service has received and responded to in the past few months include:

- A request for information about the size of the mussel processing industry in Australia;
- An inquiry from a client in Hong Kong about the water quality of live seafood storage tanks;
- Information about the size of the Australian pearling industry;
- Information about the Australian market for oysters;
- Contact information for AUSTRADE;
- Query as to why golden snapper fillets curl when being grilled;
- Information about packaging for export to Burma;
- Contact details for fish processors in Brisbane;
- Guidelines for stocking densities in live holding tanks in restaurants;
- A Hazard Analysis and Critical Control Points (HACCP) chart for the smoking of mackerel;
- Market information for prawns.

A large percentage of calls to this service are handled over the telephone. To date, most inquiries have tended to be restricted to the post-harvest and aquaculture sectors. It is expected that SSA will receive more requests from other sectors in the future.

Conduct or coordination of consultancies

A number of inquiries to this service require some extra research or product development to be undertaken. The officers will either conduct this additional work themselves on a consultancy basis or coordinate the work using other industry experts.

Typical examples of these consultancies are:

- A client was involved in a court action involving the use of fish boxes and the quality of their manufacture. An SSA officer was able to provide an expert written opinion of the boxes under scrutiny and organised some microbiological examination to be conducted by the Analytical Services group at Centre for Food Technology (CFT).
- A client had a freezer seize up on the Good Friday public holiday resulting in a large shipment of fish thawing prior to the freezer becoming operational again. This resulted in a large insurance claim by the company. This service was contacted by the loss assessor and asked to give an evaluation of the quality of the product.
- A redclaw farmer contacted this service with a request for a documented procedure for the cooking of freshwater crayfish. A literature search revealed that there is currently no code of practice for cooking of freshwater crayfish available. A series of cooking trials were done by the Seafood Research and Development group at CFT on a private consultancy fee for service basis. SSA is presently negotiating with the parent aquaculture council to develop a code of practice for the cooking of redclaw using a combination of industry funding and product development grants.
- A Queensland processor wants to establish a factory for canning abalone shipped from Tasmania to the Gold Coast. This service, in association with the Product & Process Development Group at CFT, is assisting in the purchase of the correct equipment and developing the correct procedures to maximise yields and ensure that the resultant product meets customer specifications. We are also designing and implementing a HACCP plan to meet Australian Quarantine and Inspection Service (AQIS) export requirements.
- Two containers of imported product from Vietnam showed signs of spoilage on arrival in Brisbane. This service was contracted by the loss assessor to evaluate the product and provide an opinion as to where the failure in the quality chain occurred.

Training and seminars

- **Woolworths Training Course:** SSA staff were part of a team who successfully tendered for the development of training materials for a course on Seafood Handling. This course is a three-year certificate level program for all seafood handlers in Woolworths. The project entailed the development of student, assessment and teaching materials.
- **AQIS Training Course:** SSA staff have been involved in the development of training course material for AQIS and seafood industry personnel. The course has been designed for AQIS officers who are appraising Food Processing Accreditation (FPA) programs. The course assumes a prior knowledge of HACCP principles and will assist auditors to critically appraise the food safety plan of a company. The course will be delivered to industry personnel in the future. Delivery of the pilot course took place in the second half of 1999.
- **SeaQual Quality Chooser:** Stephen Thrower and Alan Snow were part of a DPI team who were requested to develop a prototype seafood quality chooser for the Australian seafood industry. The aim of the chooser was to develop a tool which would assist industry decision makers to determine the level of quality which needed to be introduced into their organisation. Wide industry consultation took place including meetings in Brisbane, Sydney and Canberra. This prototype has since been altered and distributed widely throughout industry.
- **Information Supermarket 1998, 1999 & 2000:** This service is a key member of a group of commercial information providers in the Queensland DPI who organise an annual conference and trade display. The trade display is designed so that both public and commercial sectors of the agribusiness industry are able to showcase their information services. The conference format allows for participation through video links by regional Queensland and interstate people who may otherwise be unable to attend. Profits from the conference are used to purchase enhanced information resources for the DPI information networks.
- **Participation in Conferences:** Staff of SSA have participated in and made presentations at a number of conferences and seminars over the past three years. Notable activities include:
 - **South Queensland Aquaculture Association Annual Conference.** Both Stephen Thrower and Alan Snow presented papers on *Aquaculture and Quality* and the *Role of Seafood Services Australia in Assisting the Aquaculture Industry*.
 - **Natfish Annual Conference and Trade Show.** Stephen Thrower presented a paper on *Quality Assurance and Aquaculture*.
 - **Making the Most of the Catch Symposium.** Participation and presentation of a paper on *Information Systems in the Seafood Industry*. Participation in the organisation of the conference by Bev Austin.
 - **Information Supermarket Conference and Trade Display.** Participation in the organisation and presentation of a paper by Alan Snow and Stephen Thrower in 1998. Participation in the organisation by Alan Snow and presentation of papers by Stephen Thrower and Alan Snow in 1999 and 2000. Assistance with the organisation of the conference by Bev Austin in 1998 and 1999.

Production of the Australian Seafood Industry Directory

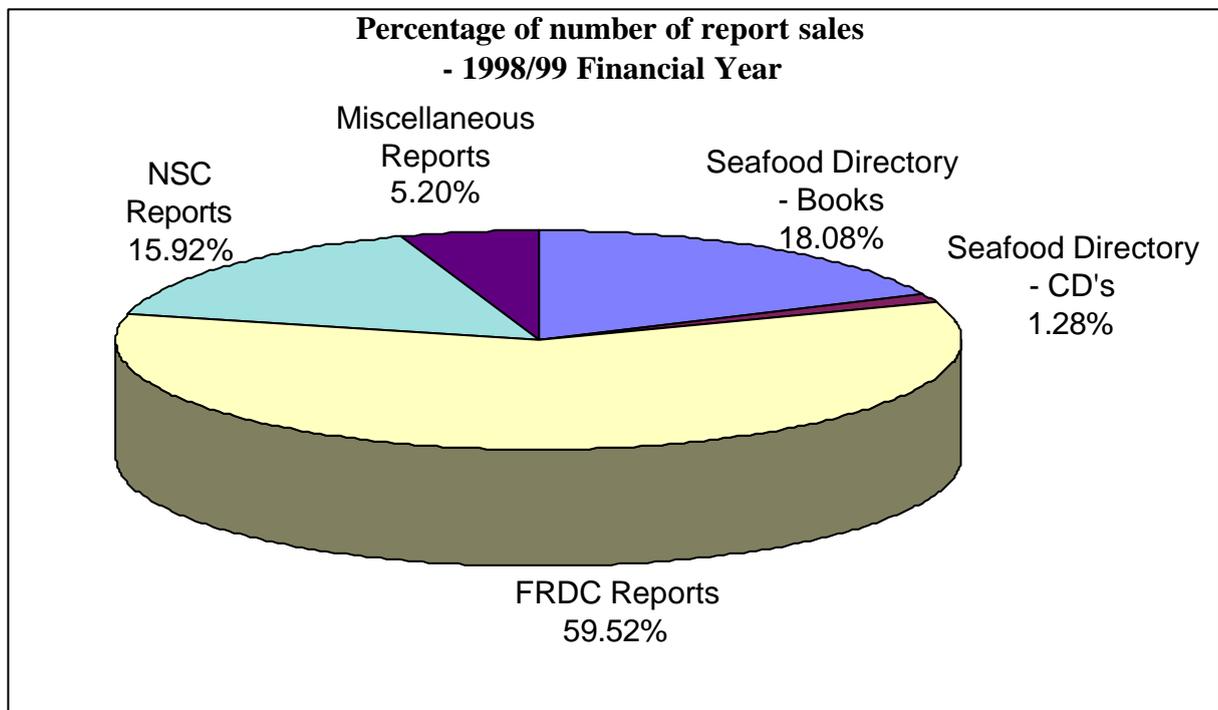
In 1995 this service assumed responsibility for the biennial publishing of the Australian Seafood Industry Directory. The 1995-97 edition was released both in book and computer disk format. The 1997-99 edition was initially released in a printed format with the CD version becoming available in 1998.

The directory concentrates mainly on the post-harvest sector of the seafood industry and its support services. This central focus helps to link the whole seafood production chain, effectively putting people in contact with many sectors of the industry from aquaculturalists through to sellers and exporters. This data is invaluable to all sectors of the industry and results in broadening of the range of sellers that buyers can access. This service currently returns 66% of the revenue from sales of the directory to FRDC.

An important feature of the directory is the entry form which enables new companies to supply their details to SSA at any time and also allows companies with entries in the directory to notify SSA of any changes. As a result, additional and updated entries for the directory are being received and the database is constantly being updated.

Technology transfer

SSA is responsible for selling a number of post-harvest reports and publications which are produced as a result of FRDC and NSC funded projects. A comprehensive list of reports, which are currently available through SSA, can be seen in Appendix IV. The percentage split of the sales of reports is detailed in the figure below.



Maintenance of the SSA technical databases

SSA has continued to maintain and further build its bibliographic database on seafood quality, safety and processing issues. The database contains data on reports, publications and relevant web addresses.

It is proposed that this database will be available on the Internet in the future and will potentially provide users with the best “one-stop shop” on the seafood processing industry in Australia. Material available to users will include the existing SSA collection, books, images, web addresses, access to chat groups, etc. This service will allow users to determine what information SSA currently holds that is relevant to their particular area of interest.

A comparison was completed recently where the number of queries covering the subject areas of HACCP and seafood were compared, pitting the SSA database against several commercially available databases. The SSA database located a greater number of relevant references than the electronic commercial databases, Aquatic Science and Fisheries Abstracts (ASFA) and Food Science & Technology Abstracts (FSTA).

SSA staff members have access to a wide range of databases through our close links to DPI Library Services. Key databases at our disposal include:

- FSTA (Food Science & Technology Abstracts);
- ASFA (Aquatic Science and Fisheries Abstracts);
- Food Nutrition;
- Foods Intelligence, a database of recent food research;
- Current Contents, a service that lists recent additions to a range of academic journals relevant to the industry;
- ABOA, the Australian Bibliography of Agriculture covering all aspects of agriculture including fisheries;
- ARRIP and CARRP (Rural Research in Progress and Completed Rural Research).
- AGRICOLA (Agricultural On Line Access);
- Global Alerts, a service that provides the user with daily updates relevant to the specific topic;
- ProQuest Direct, a business and management information database;
- A wide range of miscellaneous databases available through the Internet eg The Nutrient Data Laboratory Food Composition Database.

Information service on seafood safety and quality

A reference collection on the safety and quality of seafood was developed under FRDC Project 1998/350. The development of this collection involved scanning suitable literature and the Internet for material and also liaising with government agencies involved in food safety and quality. Materials collected by staff for this project have been catalogued into the normal SSA and CFT systems, where they are complemented by the texts collected by other groups at CFT. Responsibility for maintaining the currency of this collection now passes to SeaQual.

Changes in food legislation are occurring very rapidly on both the national and international levels. In order to keep abreast of these changes, the CFT library maintains a current hard copy version of the National Food Standards Code, and a digitised copy that is updated quarterly. DPI has a CODEX Alimentarius contact point who is informed of international developments, and the CFT library has a CD ROM version of the CODEX standards, Codes of Practice etc.

FishMad

SSA has been responsible for the marketing and sale of both the FishMad database and the summary report arising from the National Seafood Consumption Study conducted in 1991.

A number of copies of the summary report have been sold and the data included in the summary report has been used in many other publications relating to the seafood industry in Australia. No copies of the full database were purchased.

SSA was approached by the Australian Bureau of Statistics (ABS) about the database. In view of the reluctance of people to purchase the database, and the aging of the data, an alternative method of delivery was needed. A complimentary copy of the database was therefore given to ABS in 1998. The database was used along with other material to produce the "Fish Account Australia 1997" document (ABS 4607.D).

Marketing and Promotion

SSA has been actively engaged in a number of promotional activities over the past three years. The major activities have been:

- **Trade shows**

This service has been a participant and the prime organiser of displays at selected trade shows including *Fine Food* exhibitions in Brisbane, Sydney, and Melbourne, *International Catering Trade Fair* in Sydney and Melbourne, *International Seafood Fair* in Geelong. This service also participated in the *Good Food -Good Cooking* show in Brisbane, *Seafood Innovations '99* on the Gold Coast, and *World Aquaculture '99* in Sydney. This service has participated as part of the National Seafood Network for the majority of these exhibitions. The network mainly comprises of SSA, FRDC and Seafood Australia. Our participation in selected trade shows is expected to continue. See examples of our participation below.



Stephen Thrower with John Roach at launch of 2nd Edition of Australian Seafood Industry Directory at Fine Food 97 in Sydney.



Bev Austin talking to visitor about the publications at Fine Food 98 in Brisbane.



Stephen Thrower and Ian Wells speaking with Maggie Beer at Fine Food 98 in Melbourne.



Alan Snow undertaking a literature search on the bibliographic database at the '99 Innovations Conference held at Gold Coast.



SSA had a computer running a presentation on the stand at International Seafood Festival at Geelong. Example info searches were also undertaken.



SSA involvement with the National Seafood Network at International Catering Fair 99 in Melbourne.

- **Journal promotion**

This service regularly advertises and occasionally writes articles in *Seafood Australia*. Also during this time we took the opportunity to advertise in the *Hospitality Magazine*. We submit articles for other selected journals such as *R&D News*, *South Queensland Aquaculture Association Newsletter*, and *Queensland Aquaculture News*. These activities have been invaluable for the promotion of this service and will continue in the future. Following are some examples advertisement from both Seafood Australia and Hospitality Magazines.

Seafood Even Bigger At Fine Food 98 In Melbourne

The seafood industry is gearing up for another major presence at Fine Food 98 in Melbourne in September.

Building on the highly successful Seafood World concept (the latest in Brisbane) which has allowed seafood exhibitors to consolidate in one area, the seafood industry is taking full advantage of the momentum, a fact reflected in the record number of bookings.

The Seafood Network, a loose affiliation of organisations providing generic information on everything from seafood product development to recipe, will again be a focus for the industry.

Plans are being made to replicate Network stand to provide better access to the growing range of brochures, culinary books, directories and special reports on

almost every subject to do with seafood. The stand may even include a showcase of new seafood products and technologies developed in recent years with the assistance of R&D funding.

Last month the Seafood Network made its first appearance at the Brisbane Fine Food, along with a number of national and Queensland based seafood companies.

The photo shows the Seafood Network stand with Bev Austin from the Australian Seafood Industry Extension and Advisory Service (AISEAS) based in Hamilton Brisbane.

Bev is a twelve member for the industry and provides much of the organisational get-up-and-go which ensures the exhibit functions correctly. Alberta represented included the QSEI, the National Seafood Centre, SeaQual and the Fisheries R&D Corporation.



Trade Shows

Melbourne To Host Wine Australia 98

The Seafood Development Centre will once again, like Australia 98, will be held in the first time in Melbourne at the Melbourne Exhibition Centre from Thursday October 22 to Tuesday, October 27. With more than 100 exhibitors expected from all of Australia's diverse wine-making regions, the event will provide an excellent opportunity for specialists to exhibit their products to consumers, promote educational seminars and demonstrations.

More than 10,000 people are expected to attend Wine Australia 98 including many interstate and overseas visitors.

The best vintage of Pinot, Merlot, Shiraz and Cabernet Sauvignon will be available with an entry fee of \$15 per person (or children).

These include 4pm will include tastings, seminars, demonstrations, seminars and supplier information.

Industry is increasingly aware of the full range of products on display and will also provide a prime opportunity to establish business, place orders and establish contacts.

An admission fee of \$25 for the general public includes all wine tastings. The nearest railway station is Flinders Street and wine will play a major role in Wine Australia 98, with a program of cooking demonstrations and sample presentations by specialist chefs. The public areas, one for "Regional Cuisine" and another for "Food and Wine Marketing" will be features of the event. Special profiles of specialty food will also be available at the event's regional displays. Wine Australia 98 will occupy a suitable 15,000 sqm in the Cleveland Street and of the Melbourne Exhibition Centre, opposite the new Crown Casino complex. The Centre is close to a wide range of hotels, serviced apartments, the restaurant district of Southbank and other tourist attractions. For further information contact: Exhibition Management Pty Ltd Tel: (03) 8640 4944 Fax: (03) 9646 1928



INFORMATION services

Good Decisions are Based on Accurate Information

Good decisions are based on accurate information, and it has traditionally been the function of AISEAS to provide quality information and sound technical advice to its clients in the post harvest seafood sector.

In addition to technical questions, there has been a gradual shift towards a much wider range of questions to recent times. Some examples of these include:

"Can you supply a list of the upcoming seafood shows across the world?"

"How will new food laws affect fishers and aquaculturists?"

"What are the prices, quantities and origins of prawns imported into Japan?"

"Are the restrictions on prawns exports to the USA due to toxic shellfish toxins still in place?"

"Can you supply me with a package on setting up an aquaculture system?"

At first glance, these topics are the province of agencies other than AISEAS, but the people who approach us have often made several fruitless calls to different agencies and institutions before contacting us.

To cope with these demands, we have developed a network of contacts both in Australia and overseas. They are in research laboratories, government agencies, universities and in the private sector. They have specialised knowledge across a range of areas.

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What AUSEAS Can Do For You?

For companies wanting to implement quality management.

Several new initiatives are also planned for next year, including:

Development of a web page as a central point on post harvest seafood matters.

Development of a series of advisory notes covering a wide range of subjects for seafood processing, for distribution as hard copy and through the Internet.

Development and maintenance of a database of sources of handling equipment for seafood processing.

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The role of AISEAS is to enable and assist to get the answers they need as much as possible. We will try to cut out the bureaucracy wherever we can. We will often hold the answers ourselves, those who wish to refer to us, or we will make the calls ourselves to confirm the information and the appropriate referral contact. This means that if our clients need a referral, they should only have to make one further call. By using our extensive database we can often bring a more global perspective to many questions.

We hope that this "one stop shop" approach will encourage take-up of the brochure and of advisory information for our clients whose main interest is raising profits not changing paper.

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INFORMATION SERVICES

Advisory Notes

AUSEAS has recently begun a series of Advisory Notes covering a wide range of subjects in seafood processing. For a distributor of hard copy and through the Internet. The notes can be obtained simply by contacting AUSEAS.

The following is an extract from AUSEAS ADVISORY NOTE - Number Two.

Freezing

By Stephen Thresher

Freezing processes food by two processes:

- preventing the growth of spoilage bacteria and
- slowing the rate of chemical and enzymic deterioration.

These two processes can best be achieved by looking at what happens as the temperature of the product falls in the freezer.

Ambient Temperature To 0°C

As the temperature falls, the rate of spoilage slows. Bacterial growth rates fall, and enzyme and chemical reactions slow down. The water in the product is still in the liquid state at 0°C.

At Zero Degrees

At 0°C, the water in the product begins to freeze, forming solid ice crystals. These crystals are fairly pure water, and the other components in the product such as proteins, sugars and salts become concentrated in the water as it is removed. This is important for two reasons:

- the enzymes present in the product are in closer contact with the components that they degrade, and so the rate of enzyme spoilage can actually be faster just below 0°C than at 0°C.
- ice crystals begin to grow in the product.

If the product freezes slowly, large ice crystals form in the spaces between cells, penetrating the cell's delicate membranes. This results in high drip loss and soft, sticky texture on thawing.

If the product goes quickly from 0°C to -7°C quickly (fast freezing), no crystal formation is seen in fish, with small ice crystals both inside the cells and in the spaces between them. In addition there is less time for enzyme spoilage to occur. The product has less drip loss, better texture and flavour retention.

Temperatures Below Zero

As the temperature continues to fall, progressively more water becomes locked in the form of stopping the water normally bound to proteins etc. Extreme spoilage is further slowed by both the fall in temperature and by a "drying" effect as the water necessary for enzymic processes to continue becomes bound up in ice crystals.

Some reactions are harder to stop than others, for example at -18°C, but oxidation will continue and enzyme formation of formaldehyde in the flesh will continue to lengthen the freezer.

AUSEAS Publications

AUSEAS is responsible for the sale of many different seafood reports including those from Fisheries Research and Development Corporation and National Seafood Centre projects.

<p style="text-align: center;">AUSTRALIAN SEAFOOD BY SEASON</p> <p>This month to month data for nine species highlights the seasonal availability of 130 of Australia's major and up-growing wild caught and aquaculture seafood species. In addition to this seasonality information, this well-illustrated handbook includes species identification photos, an alternative chart, and a national 'at a glance' chart.</p> <p style="text-align: right;">FRDC 91/001 \$427.00</p>	<p style="text-align: center;">DEVELOPMENT OF LIVE FISH TRANSPORT TECHNIQUES</p> <p>The supply of fish live to markets is a value adding process, where the higher prices paid for live fish are dependent on the fish arriving live at their destination. This report provides details of various aspects of live fish transport in three main areas: (1) Capture and pre-transport maintenance, (2) Packaging and live transport and (3) Post transport maintenance.</p> <p style="text-align: right;">FRDC 93/164 \$430.00</p>	<p style="text-align: center;">FOOD PROCESSING CONCEPTS FOR THE AUSTRALIAN BIVALVE DE MER INDUSTRY</p> <p>This publication is the culmination of a project into the processing of bivalve de mer (also known as the Corbicula in trapping). Topics covered in the publication include: Biology of the animals; Processing of the cooked/frozen product; Freezing and thawing; Marketing and logistics; Quality control and management; and Marketing.</p> <p style="text-align: right;">NSC 92/024/0 \$425.00</p>
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AUSEAS

For any further information, or to order, or for a full list of the available reports, contact Bev Austin at AUSEAS on (07) 3406-8617.

HOSPITALITY MAGAZINE ADVERTISEMENTS

Australian seafood industry directory 1997-99



This directory contains names and addresses of companies and individuals involved in both the aquaculture and post-harvest sectors of the industry. Also included have been a number of features to increase its ease of use.

Some of these features are: Grouped into States; Coastal strip maps; Seasonality guide; and Government agencies are listed in the front of the directory giving contact numbers for the head office and regional offices.

Categories covered in the book are Aquaculturalists; Consultants; Education & Training; Industry Equipment & Accessories; Industry Organisations; Information Services; Post Harvest and Research & Development. The Post Harvest section covers: processors; exporters, importers, wholesalers, agents and distributors and has its own product index. The book also contains a company index for ease of locating individual companies.

For more information on this book or to place an order call Bev Austin at AUSEAS on (07) 3406 8617.

950 K on Enquiry Coupon



SEAFOOD CATERING MANUAL VOLUME ONE

Seafood catering manual - Volume 1

This book details where and when a species is caught, the main ways it is sold, chef's choice, menu morsels, suggest wines and cooking ideas.

Also listed are some important features of the species including flavor, texture and moisture.

Species described include 37 fin fish (from Atlantic Salmon to Whiting), 18 shellfish covering prawns, crabs, lobsters, crayfish and molluscs plus crocodile.

Two alternative tables provide a quick reference guide to species that can be used as alternatives for another. Finally two nutrition tables, one for fin fish, one for shellfish, complete this thoroughly researched book.

For more information on this book or to place an order call Bev Austin at AUSEAS on (07) 3406 8617.

953 M on Enquiry Coupon

Australian seafood by season



SEAFOOD BY SEASON

This calendar has been designed for use by businesses and individuals involved in the purchasing of seafood.

Whether you are purchasing for a fish shop or restaurant or even as a home user this month by month and state by state calendar highlights the seasonal availability of 130 of Australia's major and up-coming wild caught and aquaculture seafood species. In addition to this seasonality information, this wall-mounted calendar includes species identification photos, an alternatives chart, and, a national 'at a glance' chart.

The calendar has been produced with a plasticised finish so that it can be mounted in the kitchen area without fear of heat or water damage.

For more information on this book or to place an order call Bev Austin at AUSEAS on (07) 3406 8617.

951 D on Enquiry Coupon

- **Internet site**

The SSA Internet site currently is housed within the site belonging to Centre for Food Technology. The pages on this site are frequently updated and are currently under review. See the Appendix VI for a copy of the previous site information and a copy of the new information pages.

- **Promotional material**

This service previously had a one page promotional leaflet which was used for inclusion in all literature packages and also used to fax to people who inquire about the service or any publications. When a publication inquiry is received the whole list of publications is faxed/posted to the person irrespective of which publication they are inquiring about. See the following pages for a copy of:

- the one page promotional leaflet previously used by this service.

To ensure that SSA is perceived as one seamless unit a number of joint promotional material is already in use

- a copy of the SSA service brochure
- a current publications order form which includes all publications sold by SSA.
- a copy of the SSA portfolio which portrays all aspects of SSA with what we do and what has been achieved.

AUSEAS – PROVIDING SEAFOOD SOLUTIONS

What is AUSEAS ?

AUSEAS is a joint initiative of the Fisheries Research and Development Corporation (FRDC) and DPI Qld which provides technical support for the seafood industry.

AUSEAS Goals

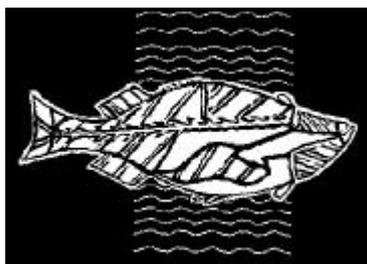
- Transfer appropriate technology to the Australian seafood industry.
- Develop a technology-based culture that will encourage industry.
- Facilitate the interpretation and adoption of research results.

Who are the clients of AUSEAS?

- The seafood industry including companies, individuals and agencies which service the industry.
- Researchers in post-harvest seafood technology.

What services do AUSEAS provide to industry?

- Written information packages customised to fit the client's unique needs.
- Specialist technical advice on all aspects of seafood technology.
- Referral to individuals and agencies relevant to the industry.
- Access to a network of expertise from contacts around the world.
- Subscription to current awareness updates compiled from a wide variety of databases.



What services do AUSEAS offer to the research community?

- Identification of the technical research needs of the seafood industry.
- Networking between industry partners and researchers.
- Searches of the published literature and electronic databases on a subject.
- Assistance in the preparation of research proposals.
- Review of the results of research during and at the conclusion of projects.

What are the unique characteristics of the AUSEAS operation?

- AUSEAS staff have access to a large "footprint" in information which extends across the world and back 70 years in time.
- AUSEAS has extensive holdings of hard copy material, allowing us to give very fast responses on most topics.
- AUSEAS staff have many years "hands on" experience with seafood and are able to interpret technical material, tailoring it to fit the client.

- A strong commercial focus with continuous contact with clients ensures a clear understanding of each client's needs.

AUSEAS Services include:

ABSTRACT SERVICE: For this charge you will receive a list of published articles, author, date of publication and a brief description of the article. To use this service, simply supply AUSEAS with the topic you are interested in. The full text of the article can be subsequently supplied on request from you.

LITERATURE SEARCHES: AUSEAS has access to a wide range of technical information sources. We have the ability to develop an information package to assist you with most of your enquiries. There are several different ways for you to keep abreast of your specific area of interest or expertise. To ensure you can get the best value for money and keep up-to-date with your information you can subscribe to any one of the annual services offered by AUSEAS.

Here are a few examples of the types of information package requests which are regularly received by the AUSEAS group.

- + Aquaculture and processing of squid
- + Cooking, processing, and post-harvest handling of prawns
- + Manufacture of fish sausage
- + Prevention of blackspot in prawns
- + Processing and handling of cuttlefish
- + Seafood handling in the retail sector
- + Smoking of fish and seafood in general
- + The processing, nutrition, and utilisation of carp

PUBLICATIONS: As well as the above services AUSEAS sells several of the FRDC and NSC project reports. Contact Bev Austin for a comprehensive list of these reports.

What do AUSEAS Services Cost?

AUSEAS is a fee for service operation, and its charges vary with the level of services provided. Charge rates are similar to those of private sector consultants. In general a quote is given and agreed to prior to commencement of the work.

What are the methods of payment used?

The following methods are available. Choose the most convenient:

- Cash, bank, company or personal cheque.
- Credit cards using Mastercard, Visa, Bankcard or Amex (in business hours).
- Fax using Mastercard, Visa, Bankcard or Amex.

Located at: Centre for Food Technology, 19 Hercules Street, HAMILTON Q 4007
Internet: <http://www.dpi.qld.gov.au/cft/auseas.html> **Email:** auseas@dpi.qld.gov.au **Fax:** (07) 3406-8677
For further information contact: Stephen Thrower **Ph:** (07) 3406-8599 **Mobile:** (0419) 649819
Alan Snow **Ph:** (07) 3406-8645 **Mobile:** (0412) 199516
Bev Austin **Ph:** (07) 3406-8617

WHAT IS



SEAFOOD SERVICES
AUSTRALIA

Seafood Services Australia is a joint national industry / government initiative supported by the Fisheries Research & Development Corporation.

Seafood Services Australia offers an Australia-wide service to anyone in the business of catching, farming, processing, transporting, wholesaling, retailing, exporting, importing or cooking seafood.

Seafood Services Australia now provides three core services to the Australian seafood industry:

- ↔ information and advice on technical issues;
- ↔ guidance on food safety, quality management and standards;
- ↔ assistance with adding value to your business through developing new products and processes.

Seafood Services Australia combines all the services previously provided by the Australian Seafood Extension & Advisory Service (AUSEAS), the National Seafood Centre (NSC) and SeaQual Australia under the one 'umbrella' name and in one location.

19 Hercules Street
HAMILTON Q 4007

Local call: 1300 130 321
Fax: (07) 3406-8677

TECHNICAL INFORMATION & ADVICE

INFORMATION AND ADVICE ON TECHNICAL ISSUES

One of Seafood Services Australia's functions is to supply the Australian seafood industry with easy access to the best available information and specialist technical advice on all aspects of seafood technology from local and overseas sources. Staff of Seafood Services Australia maintain an extensive database of information on seafood processing, handling, packaging, products and more. It is arguably the most comprehensive database of its kind in Australia.

INFORMATION SEARCHES

The database is used to deliver customised information in response to industry enquiries and problems. Here are a few examples of the types of requests for information that are regularly received by this service.

aquaculture and processing of squid;

- cooking, processing, and post harvest handling of prawns;
- manufacture of fish sausage;
- prevention of black spot in prawns;
- processing and handling of cuttlefish;
- seafood handling in the retail sector;
- smoking of fish and seafood; and
- the processing, nutritional composition, and utilisation of carp.

A standard information 'pack' may contain copies of published articles, lists of relevant publications and their sources and advice on 'where-to-from-here'. If you prefer, Seafood Services Australia can deliver a list of published articles on your topic including a summary of each article. You can choose which ones are of interest and Seafood Services Australia can provide the full text. Again there is a charge for this service.

QUARTERLY UPDATES

Subscription to Seafood Services Australia's **quarterly update** service will provide you, with a quarterly information update on the topic of your choice. This service is designed to keep you up-to-date with published technical information.

PUBLICATIONS AND REPORTS

Seafood Services Australia also facilitates technology transfer through the promotion and sale of over 45 research reports and publications from projects funded by the Fisheries Research & Development Corporation (FRDC) and from other agencies working in seafood development. A current publication list is available through our Internet site or you can phone to have one faxed, e-mailed or posted to you.

Seafood Services Australia compiles and publishes the *Australian Seafood Industry Directory*, a comprehensive guide to individuals, companies and organisations involved in the post-harvest sector of the seafood industry and its support services. The directory is also available on CD.

WHAT ELSE?

Seafood Services Australia also acts as a referral point for other sources of expertise relevant to the industry. We have access to a network of experts from around Australia and the world. We can provide basic market intelligence and assistance and advice in exporting of seafood.

WHAT DO THE SERVICES COST?

Technical information and advice is provided as fee-for-service, and charges vary with the level of service provided. Charge rates are competitive with those of private sector consultants. In general, a quote is given and agreed to prior to commencement of the work.

WHAT ARE THE METHODS OF PAYMENT USED?

The following methods are available. Choose the most convenient:

- Cash, bank, company or personal cheque.
- Credit cards using Mastercard, Visa, Bankcard or Amex (in business hours).
- Fax using Mastercard, Visa, Bankcard or Amex.

STAFF

☞ Stephen Thrower Ph: (07) 3406-8599
☞ Alan Snow Ph: (07) 3406-8645
☞ Bev Austin Ph: (07) 3406-8617

INTERNET: <http://www.dpi.qld.gov.au/cft/ssaustr/>

Email: throwers@ssaust.com
Email: snowa@ssaust.com
Email: austinb@ssaust.com

FOOD SAFETY, QUALITY MANAGEMENT & STANDARDS

GUIDANCE ON FOOD SAFETY, QUALITY MANAGEMENT AND STANDARDS

A systematic approach has been developed to assist members of the seafood industry identify quality management needs which are consistent with individual business objectives. There are several elements to this system.

Starting with the **SeaQual Quality Chooser** a quick self-assessment can be done to determine the capacity of a business to:

1. Comply with food safety requirements
2. Meet requirements of specific buyers
3. Achieve export certification
4. Undertake a whole of business approach to quality management.

This assessment helps to identify any areas in your business that may need to be addressed.

The next step is to order a SeaQual information kit (**SeaQual Packs 1, 2, 3 and 4**). The packs provide more detailed and specific assistance to enable a business to start to address their individual quality management issues. To ensure that the information is as up-to-date as possible a free update service is provided for twelve months to purchasers of the packs.

The SeaQual Packs provide general information and will not necessarily cover all the specifics required by a particular business operating in a particular situation. Therefore the third step in the SeaQual system is to seek specific advice. When you consider quality and food safety in the context of your business you will be in a good position to **ask the right questions to get the right information**.

STANDARDS DEVELOPMENT

Seafood Services Australia is facilitating the seafood industry's development of standards that enable all sectors of the industry to demonstrate they are meeting and exceeding customer and regulatory requirements.

To achieve the level of confidence required, all seafood industry standards are being developed in accordance with the requirements of the Joint Accreditation System of Australia New Zealand (JASANZ) and Standards Australia. JASANZ accreditation and Standards Australia registration will be sought to ensure each standard is readily available and compliance auditing can be undertaken by relevant JASANZ accredited certification bodies.

- Please do not hesitate to contact us if you wish to be involved in the development of seafood industry standards or simply want more information about our activities.

PUBLICATIONS

- *The Seafood Industry's Strategic Plan for Achieving Seafood Excellence*
- *SeaQual Food Safety Guidelines for Harvesting, Processing, Retailing and Aquaculture.*
- *Directory of Consultants for the Australian Seafood Industry*
- *Focusing on Food Safety and Quality*
- *Seafood Food Safety Risk Profile*

FUTURE INITIATIVES

- *SeaQual Airfreight User Guide* - to help you maintain quality to market.
- *Environmental Management Chooser* - to help you choose an environmental management plan suited to your business.
- *A Guide to Food Safety Hazards & Controls in the Seafood Industry* - to help you manage food safety risks in your business.
- *National Seafood Safety Emergency Management Plan*

STAFF

☛ Jayne Gallagher Ph: (07) 3406-8653 Mobile: (0412) 685741 Email: seaqual@ssaust.com
☛ Fiona Anderson Ph: (07) 3406-8648

PRODUCT & PROCESS DEVELOPMENT

ASSISTANCE WITH ADDING VALUE TO YOUR BUSINESS THROUGH DEVELOPING NEW PRODUCTS AND PROCESSES

One of Seafood Services Australia's aims is to support commercially focused, value-adding projects that can stimulate industry development and subsequent value adding. Each year, approximately \$300,000 is provided to Seafood Services Australia by the Fisheries Research & Development Corporation for this exclusive purpose.

MISSION

To increase economic and social benefits for the Australian seafood industry and the people of Australia, through commercially driven value adding research and development.

The priority is to add value to fish and fish products through:

- planning, funding and managing short-term market-focused applied research and development with the potential for high return; and
- keeping the Australian seafood industry aware of opportunities and technical developments through promotion of research and development results and collaboration between industry and R&D agencies.

This service has already assisted a number of Australian seafood businesses to develop products, processes, packaging and equipment including:

- three long shelf life (UHT) seafood soups produced by Mures, Tasmania, the first product of its kind in Australia;
- Ocean Gold trevally roe pate, produced by Australian Abalone Exports, Victoria;
- value-added warehou which is now on the function menu at Melbourne's Crown Casino;
- an innovative carp bacon product, from Black Forest Smokehouse, Sydney which is being served in many of Sydney's leading hotels;
- a technically advanced transportation package for live kuruma prawn exports;
- a shelf-life enhanced Tasmanian octopus product; and
- canned sardines by Fremantle Sardine Company, Western Australia.

SUITABLE FUNDED PROJECTS

Project concepts suitable for submission to Seafood Services Australia include:

- those concerned with post-harvest seafood technology, especially products, processes, packaging, equipment;
- those requiring a commercial partner; and
- those ensuring industry extension of existing or past FRDC funded projects.

Since commencing operations, this service has funded over forty-five (45) projects. Examples of other projects that have attracted funding to date include:

- development of a process to remove the skin from small fish;
- improving the stability and nutritional value of frozen small fish for tuna feed;
- pilot production of katsuobushi (an ingredient in Japanese cuisine);
- an improved packaging system for live Western rock lobsters;
- development of a process to manufacture powdered shark cartilage;
- response of wrasse and horseshoe leather jacket to capture and transport;
- improving post-harvest handling and marketing strategy for blue manna crabs;
- manufacture of powdered fish collagen as a finings agent by the brewing industry;
- the potential use of fish silage in Australian aquaculture;
- development of an automated oyster grading and counting line; and
- value adding to Jack Mackerel.

HOW TO APPLY FOR FUNDING

Seafood Services Australia will accept applications for funding at any time. An initial telephone enquiry may be made to the Commercial Manager, Seafood Services Australia who will provide you with the following details about the application procedure:

- the assistance available;
- the types of projects in which Seafood Services Australia 'invests';
- the information required to attract funding; and
- the application and evaluation procedure (the Commercial Manager will also help you with your application).

STAFF

☎ Ian Wells

Ph: (07) 3406-8595

Mobile: (0419) 643043

INTERNET: <http://www.dpi.qld.gov.au/cft/ssaust/>

Email: wellsi@ssaust.com



PUBLICATIONS AND REPORTS



SEAFOOD SERVICES
AUSTRALIA

PUBLICATION and DESCRIPTION	Order Code	Costs (\$A)
<p>A GUIDE TO THE SAFE HANDLING AND INSPECTION OF SEAFOOD This guide is for those who retail seafood and covers the many practices, procedures and rules that must be employed to help ensure seafood remains safe to eat. Sections covered in the book are: determining seafood quality; seafood spoilage and how to reduce it; cleaning and sanitising seafood work areas; and requirements for display seafood. This manual should be read in conjunction with the necessary Federal, State and Local Authority food laws.</p>	MISC 2	Book price \$25.00 GST cost \$2.50
<p>A STUDY INTO THE PRODUCTION OF NUCLEI FOR PEARL CULTURE USING AUSTRALIAN MOTHER-OF-PEARL SHELL The cultured pearl industry in Australia relies on the supply of shell beads or nuclei as the base for cultured pearls. This project sought to compare the production of mother-of-pearl nuclei from Pinctada maxima shells of three different origins: punch shell from WA pearl oysters; shells from NT pearl oysters; and shells from wild WA pearl oysters.</p>	SSA 97/403	Book price \$20.00 GST cost \$2.00
<p>A STUDY OF THE DEMAND AND IMPORTANCE OF SEAFOOD SOURCED IN NSW AND ELSEWHERE TO THE CATERING AND TOURISM INDUSTRIES IN NSW The NSW fishing and aquaculture industry recognised that there is an increasing demand for seafood for a growing number of domestic and overseas buyers but it is facing restrictions on various activities because of the limited nature of fisheries resources and waterfront aquaculture sites.</p>	FRDC 95/126	Book price \$40.00 GST cost \$4.00
<p>AN ANALYSIS OF ASIAN MARKETS FOR SEA FOOD PRODUCTS This report provides an analysis of selected Asian markets for under-utilised seafood products, and forms part of the market selection process of the FRDC project "Hooking into Asian seafood markets".</p>	FRDC 97/342	Book price \$20.00 GST cost \$2.00
<p>AN IMPROVED PACKAGING SYSTEM FOR LIVE WESTERN ROCK LOBSTER Marketing the western rock lobster has undergone a dramatic transformation. The rock lobster industry has developed on its own initiative handling, processing and packaging systems for live rock lobsters largely on an 'ad hoc' basis. This report sets out the results of a survey conducted into the packaging systems used with western rock lobsters.</p>	SSA 92/125.09	Book price \$25.00 GST cost \$2.50
<p>AUSTRALIAN COMMON CARP: A MARKETING STRATEGY The aim of the project was to identify potential markets for the consumption of carp. An additional aim was to control the carp population through commercial exploitation.</p>	SSA 92/125.04A	Book price \$15.00 GST cost \$1.50
<p>AUSTRALIAN SEAFOOD BY SEASON This month by month and state by state calendar highlights the seasonal availability of 130 of Australia's major and up-coming wild caught and aquaculture seafood species. In addition to this seasonality information, this wall-mounted calendar includes species identification photos, an alternatives chart, and, a national 'at a glance' chart.</p>	FRDC 97/301	Book price \$27.00 GST cost \$2.70
<p>AUSTRALIAN SEAFOOD HANDBOOK – DOMESTIC SPECIES This book is a comprehensive user-friendly identification guide. It contains full colour photographs of about 350 species of finfish and shellfish along with oil composition profiles, protein fingerprints and fish fillet. An essential reference for all professional and recreational fishers, fish mongers, processors, biologists and seafood consumers.</p>	FRDC 94/136.02 FRDC 94/136.02 W: (Waterproof copy)	Book price \$48.50 GST cost \$4.85 Book price \$83.50 GST cost \$8.35
<p>AUSTRALIAN SEAFOOD INDUSTRY DIRECTORY 1997-99 This directory contains names and addresses of companies and individuals involved in both the aquaculture and post-harvest sectors of the industry. Also included have been a number of features to increase its ease of use. Some of these features are: Grouped into States; Coastal strip maps; Seasonality guide; and Government agencies are listed in the front of the directory giving contact numbers for the head office and regional offices.</p>	FRDC 94/170	Book price \$20.00 GST cost \$2.00

PUBLICATION and DESCRIPTION	Order Code	Costs (\$A)
CANNED SARDINES PROJECT REPORT The report presents market background data for canned Sardines. The process, product formulations and product costing details are described.	SSA 92/125.012	Book price \$50.00 GST cost \$5.00
CEPHALOPODS OF COMMERCIAL IMPORTANCE IN AUSTRALIAN FISHERIES The guide identifies 30 species of squid, cuttlefish and octopus and is intended to promote accurate species reporting of commercial catches and more informed fisheries management.	SSA 98/483	Book price \$15.00 GST cost \$1.50
DEVELOPMENT OF A PROCESS TO MANUFACTURE POWDERED SHARK CARTILAGE This report covers the materials and methods used to develop the process to manufacture the powdered shark cartilage.	SSA 92/125.11	Book price \$30.00 GST cost \$3.00
DEVELOPMENT OF A PROCESS TO REMOVE THE SKIN FROM SMALL FISH This report outlines the method to skin cured pilchards. There is potential to adapt the equipment described to skin other species.	SSA 92/125.05	Book price \$30.00 GST cost \$3.00
DEVELOPMENT OF LIVE FISH TRANSPORT TECHNIQUES The supply of fish live to markets is a 'value-adding' process, where the higher prices paid for live fish are dependent on the fish arriving live at their destination. This report provides details of various aspects of live fish transport in three main areas: (1) Capture and pre-transport maintenance; (2) Packaging and live transport; and (3) Post-transport maintenance.	FRDC 93/184	Book price \$30.00 GST cost \$3.00
DIRECTORY OF CONSULTANTS FOR THE AUSTRALIAN SEAFOOD INDUSTRY This publication is designed to assist businesses when deciding to hire outside technical assistance. The directory provides information on how to select and achieve the greatest benefit from hiring a consultant. It is indexed to allow selection of a consultant from one of nine areas of expertise. Each consultant has provided a one page advertisement self-identifying their areas of expertise.	SSA 8	Book price \$9.10 GST cost \$0.90
DRIED SEAFOOD MARKETING REPORT 1996 This report is a market survey into the processing of seafood using such technological equipment as the heat pump drier. Topics covered in the report include: A survey of products and prices of dried seafood sold in Australia; Market information about dried seafood traded around the world; Import and export statistics; Study tour of manufacturers and wholesale and retail outlets for dried seafood in Hong Kong and Taiwan; A review of likely candidates for Australian production.	FRDC 94/123A	Book price \$105.00 GST cost \$10.50
EFFECTS OF STABILISED CHLORINE DIOXIDE ON REDUCING THE RATE OF SEAFOOD SPOILAGE AND MALODOURS The aqueous solution Aquaplus is marketed in Australia and is a very efficient sanitiser, with no harmful residues. This research looks at incorporating the chemical into ice and the benefit to shelf-life of whole prawns and whiting when stored in this ice.	SSA 97/482	Book price \$25.00 GST cost \$2.50
EVALUATING RE-USABLE CONTAINERISED SYSTEMS FOR AIR FREIGHTING LIVE FISH USING BOTTLED OXYGEN The work explores how fish react under transport conditions and how this effects demand for oxygen. Fish density, temperature and water quality requirements are also investigated. Trials include work with coral trout and banded morwong.	SSA 92/125.28	Book price \$30.00 GST cost \$3.00
EVALUATION OF THE COOKING PROCESS ON AQUACULTURED GIANT TIGER PRAWNS (PENAEUS MONODON) This report outlines an operational procedure for the cooking of P. monodon. It discusses critical control points within the process and gives an indication of best practices.	SSA 97/485	Book price \$15.00 GST cost \$1.50
EXTENDING THE HIGH QUALITY SHELF LIFE OF SEAFOOD PRODUCTS The shelf life of any seafood product is dependent on the initial levels of bacteria present. Modified atmosphere packaging (MAP) technology can extend the shelf life of seafood. This report shows that MAP technology can double the shelf life of fresh seafood under Australian conditions. The research applied MAP to four different types of seafood products: saucer scallops; broadbill swordfish cutlets; Atlantic salmon portions; rainbow trout fillets.	FRDC 96/338	Book price \$40.00 GST cost \$4.00
FEASIBILITY STUDY FOR ESTABLISHMENT OF A VICTORIAN COMMERCIAL JELLYFISH FISHERY Research results provide details of stock assessments in Port Phillip Bay, Victoria, along with harvest season consideration and harvest technique. Additional discussion includes on board processing and on shore drying of jellyfish bells. Market potential is linked to quality and export potential is indicated.	SSA 92/125.31	Book price \$20.00 GST cost \$2.00

PUBLICATION and DESCRIPTION	Order Code	Costs (\$A)
FISH MEAL PRODUCTION USING BY-PRODUCTS OF COMMERCIAL FISHERIES The specific aims of the study were to identify sources of fisheries waste materials, determine annual production and seasonal variability of the wastes in question and perform proximate analyses and fatty acid analyses on selected materials with the view of assessing their suitability for inclusion in aquaculture feeds.	SSA 92/125.08	Book price \$25.00 GST cost \$2.50
FISH SILAGE: CAN IT BE USED IN AQUACULTURE? Fish silage has potential as a protein component, flesh colourant and as a feed attractant. The extent of this potential should be evaluated for each opportunity. This report discusses the use of fish silage as an aquaculture feed based on trials conducted throughout Australia.	SSA 92/125.19	Book price \$20.00 GST cost \$2.00
FOCUSING ON FOOD SAFETY AND QUALITY Contains information and contact details for more than 100 initiatives and programs to assist seafood industry members with food safety and seafood quality issues. It is evident that there is a large body of information and significant resources available to the seafood industry, the key is knowing how to access them. This publication is offered as a wire bound printed version and as a CD ROM. Use of the CD ROM has the added advantage of allowing searching of the database for key words, organisations and quality codes.	SSA 9	Book price \$13.65 GST cost \$1.35 CD ROM price \$13.65 GST cost \$1.35
FOOD PROCESSING CONCEPTS FOR THE AUSTRALIAN BECHE-DE-MER INDUSTRY This publication is the culmination of a project into the processing of beche-de-mer (also known as Sea Cucumber or Trepang). Topics covered in the publication include: Biology of the animals; Processing of the cooked/dried product; Freezing and freeze drying; Handling and hygiene; Quality control and management; and Marketing.	SSA 92/125.02	Book price \$25.00 GST cost \$2.50
IMPROVEMENTS IN POST-HARVEST HANDLING AND MARKETING STRATEGY FOR BLUE SWIMMER CRABS Development of a simple method of handling live crabs at sea. This study shows that the industry will accept the change from netting to potting for crabs, that the superior quality of crabs caught in pots can be maintained, and that markets exist to obtain an increased return for these crabs.	SSA 92/125.17	Book price \$30.00 GST cost \$3.00
IMPROVING PACKAGING TECHNOLOGY, SURVIVAL AND MARKET OPTIONS FOR KURUMA PRAWNS This project seeks to improve packaging technology, survival and market options for Kuruma prawns and to assist the industry sector in establishing and maintaining a strong and reliable market position.	SSA 92/125.32	Book price \$20.00 GST cost \$2.00
LIVE SEAFOOD HANDLING - STRATEGIES FOR DEVELOPMENT Australia's live seafood trade is valued at over \$250 million, and is a major reason behind the growth in seafood exports in recent years. While the industry enjoys considerable success, there is still the need to solve a variety of highly complex problems associated with the capture, holding, and transport of a range of species. The National Seafood Centre held a live seafood forum to discuss many of these issues.	SSA 92/125.26	Book price \$35.00 GST cost \$3.50
MAKING THE MOST OF THE CATCH - INTERNATIONAL POST-HARVEST SYMPOSIUM PROCEEDINGS If you have anything to do with production, marketing, quality, technical management, QA, training or are an educator or student involved with seafood. It contains an enormous wealth of information from both Australia's and the worlds top fish technologists who made presentations at the Symposium.	SSA 92/125.30	Book price \$30.00 GST cost \$3.00
MARKETING NAMES FOR FISH AND SEAFOOD IN AUSTRALIA This publication contains a list of over 270 species of fish and seafood. It covers wild caught, farmed and imported fish and seafood. It will be of benefit to overcome economic inefficiencies and assist in fisheries management. This publication will be an essential tool for the marketing of fish and seafood.	FRDC 94/137	Book price \$15.00 GST cost \$1.50
MAXIMISING ECONOMIC RETURNS IN THE NORTHERN TERRITORY SPANISH MACKEREL FISHERY Two key product forms, that of whole spiced fish and headed and gutted fish, were assessed to determine the effect on shelflife and sensory attributes. An on board code of practice is included for handling, processing and packaging of Spanish Mackerel.	SSA 92/124.24	Book price \$15.00 GST cost \$1.50
MERCURY IN SHARK CASE STUDY This case study briefly traces the history of various changes to the food standards relating to mercury in fish & fish products since 1971. It describes the work done to achieve a scientifically sound decision about acceptable mercury levels for seafood sold in Australia.	FRDC 96/383	Book price \$9.10 GST cost \$0.90

PUBLICATION and DESCRIPTION	Order Code	Costs (\$A)
PILOT PRODUCTION OF KATSOBUSHI IN AUSTRALIA Skipjack tuna was processed into blocks for export to Japan. Raw material inputs are critical to successful production economics. Japanese acceptance and assessment of product is discussed. Processing conditions, product specifications and processing costs are provided.	SSA 92/125.07	Book price \$35.00 GST cost \$3.50
PROCESSING OF THE SOUTHERN KING CRAB (<i>PSEUDOCARCIRUS GIGAS</i>) This report identifies a market for larger crabs by processing the meat and packaging it in canned or snap frozen containers. To achieve this objective a suitable method for the commercial cooking and processing of the crabs was identified.	SSA 92/125.16	Book price \$15.00 GST cost \$1.50
REDUCING POST-CAPTURE MORTALITY WHEN STORING TROPICAL ROCK LOBSTERS FOR LIVE TRANSPORT This report identifies some of the problems currently affecting the live transport of rock lobsters in relation to concentrations of lactate, glucose and ammonia in the blood.	SSA 92/125.27	Book price \$25.00 GST cost \$2.50
RESEARCH ON POTENTIAL PHARMACEUTICAL PRODUCTS FROM AUSTRALIAN HOLOTHURIANS This report identified that control over species collection, handling, identification, processing and evaluation should be the first priority in any efforts to develop a therapeutic-based sea cucumber industry.	SSA 92/125.22	Book price \$20.00 GST cost \$2.00
SEAFOOD AIRFREIGHT PACKAGING STRATEGY: A SERIES OF CONSULTATIVE FORUMS This report contains a summary of workshop presentations given by speakers on issues surrounding the seafood airfreight regulations and appropriate packaging technologies. It also outlines key recommendations for future development of airfreight regulations and support systems.	SSA 97/401	Book price \$30.00 GST cost \$3.00
SEAFOOD THE GOOD FOOD The book lists the oil content and fatty acid composition of Australian commercial fishes, shellfishes and crustaceans.	FRDC 95/122	Book price \$25.00 GST cost \$2.50
SEAQUAL FOOD SAFETY GUIDELINES - AQUACULTURE Increasingly seafood businesses are being encouraged to develop food safety plans. Food Safety Guidelines - Aquaculture, is designed to assist in the development of a written food safety plan, providing specific information on the aquaculture section of the seafood industry. Prior to writing a food safety plan Good Hygienic Practice (GHP) or Good Manufacturing Practice (GMP) must be implemented within a business. The basics of GHP are explained in these guidelines. (A free copy of a food safety guideline is available when purchasing SeaQual Pack 1. Additional copies purchased at this time are only \$A10.00, which includes the \$A0.90. GST cost).	SSA 10	Book price \$13.65 GST cost \$1.35
SEAQUAL FOOD SAFETY GUIDELINES - HARVESTING Increasingly seafood businesses are being encouraged to develop food safety plans. Food Safety Guidelines - Harvesting, is designed to assist in the development of a written food safety plan, providing specific information on the harvesting section of the seafood industry. Prior to writing a food safety plan Good Hygienic Practice (GHP) or Good Manufacturing Practice (GMP) must be implemented within a business. The basics of GHP are explained in these guidelines. (A free copy of a food safety guideline is available when purchasing SeaQual Pack 1. Additional copies purchased at this time are only \$A10.00, which includes the \$A0.90. GST cost).	SSA 5	Book price \$13.65 GST cost \$1.35
SEAQUAL FOOD SAFETY GUIDELINES - PROCESSING Increasingly seafood businesses are being encouraged to develop food safety plans. Food Safety Guidelines - Processing, is designed to assist in the development of a written food safety plan, providing specific information on the processing section of the seafood industry. Prior to writing a food safety plan Good Hygienic Practice (GHP) or Good Manufacturing Practice (GMP) must be implemented within a business. The basics of GHP are explained in these guidelines. (A free copy of a food safety guideline is available when purchasing SeaQual Pack 1. Additional copies purchased at this time are only \$A10.00, which includes the \$A0.90. GST cost).	SSA 6	Book price \$13.65 GST cost \$1.35

PUBLICATION and DESCRIPTION	Order Code	Costs (\$A)
<p>SEAQUAL FOOD SAFETY GUIDELINES - RETAILING Increasingly seafood businesses are being encouraged to develop food safety plans. Food Safety Guidelines - Retailing, is designed to assist in the development of a written food safety plan, providing specific information on the retail section of the seafood industry. Prior to writing a food safety plan Good Hygienic Practice (GHP) or Good Manufacturing Practice (GMP) must be implemented within a business. The basics of GHP are explained in these guidelines. (A free copy of a food safety guideline is available when purchasing SeaQual Pack 1. Additional copies purchased at this time are only \$A10.00, which includes the \$A0.90. GST cost).</p>	SSA 7	Book price \$13.65 GST cost \$1.35
<p>SEAQUAL PACK 1 - FOOD SAFETY PLAN This pack provides information to assist seafood businesses in developing a written food safety plan. Included in the SeaQual Pack 1 is: The Australia New Zealand Food Authority (ANZFA) recall procedures. A food safety guideline book. A food safety template on computer disk.</p>	SSA 1	Book price \$22.75 GST cost \$2.25
<p>SEAQUAL PACK 2 - REQUIREMENTS FOR SPECIFIC BUYERS Customers are increasingly demanding that suppliers meet their specific requirements. This may take the form of a given product specification or extend to a third party auditable food safety or quality system. Included in SeaQual Pack 2 is: An information pamphlet on issues buyers may raise. The SQMI quality assurance guidebook which provides a quick reference to QA systems.</p>	SSA 2	Book price \$22.75 GST cost \$2.25
<p>SEAQUAL PACK 3 - EXPORT CERTIFICATION Exporting places specific requirements on a food business. The Australian Quarantine Inspection Service (AQIS) has different programs that a business can use to obtain export certification. Included in SeaQual Pack 3 is: An information pamphlet on AQIS requirements for premises and food safety systems and useful contact details. A booklet of case studies of successful exporters. Information from Austrade. A booklet on airfreight export cool chain.</p>	SSA 3	Book price \$22.75 GST cost \$2.25
<p>SEAQUAL PACK 4 - WHOLE-OF-BUSINESS APPROACH Quality systems are used to manage on a whole of business level. How these fit with export and food safety requirements are examined in an information pamphlet. Also included is: A list of issues that one should always monitor such as the trading and legislative environment. A choice of one of the ISO Best Practice Manuals.</p>	SSA 4	Book price \$22.75 GST cost \$2.25
<p>SILVER PERCH INDUSTRY DEVELOPMENT PLAN This report identifies the issues involved in modern marketing techniques and outlines an approach to achieving a profitable and market driven Australian silver perch industry.</p>	SSA 92/125.21	Book price \$25.00 GST cost \$2.50
<p>SOUTH AUSTRALIAN OCTOPUS - A MARKETING STUDY This report provides information on world trends in marketing and consumption. The Australian position with respect to production is outlined and areas such as processing, pricing and market strategies are discussed.</p>	SSA 92/125.04B	Book price \$15.00 GST cost \$1.50
<p>SPENCER GULF AND WEST COAST PRAWN FISHERMEN'S ASSOCIATION CASE STUDY This case study describes the Association's initiatives in: Improving the management of the quality of its prawn products, The branding and identification of its products; and The development of its markets in New South Wales.</p>	FRDC 96/384	Book price \$9.10 GST cost \$0.90
<p>STUDIES ON THE PHYSICAL RESPONSE OF WRASSE AND HORSESHOE LEATHER JACKET TO CAPTURE AND TRANSPORT This study looks into the water temperature at which fish can be comatosed for live transport and also the water temperature at which the majority of fish will survive for extended periods (e.g. transport to Asia, Japan or the USA).</p>	SSA 92/125.15	Book price \$15.00 GST cost \$1.50
<p>STUDY OF THE BY-CATCH, PROCESSING BY-PRODUCTS AND WASTE IN QUEENSLAND AND NEW SOUTH WALES This reports the findings of the study of the by-catch of many of the major fisheries and fishing grounds in Australia. The results cover the composition and abundance of by-catch; what is retained and how it is utilised; what are by-products and what are waste.</p>	SSA 92/125.10	Book price \$30.00 GST cost \$3.00

PUBLICATION and DESCRIPTION	Order Code	Costs (\$A)
<p>THE HANDLING AND VALUE-ADDING OF FARMED BARRAMUNDI The commercial handling, packing and distribution of farmed barramundi from producers to interstate markets and consumers were examined to assess the effectiveness of current practices. The potential of new products form large fish and value-adding opportunities were also examined so that industry could reduce its reliance on plate size fish and reduce its exposure to falling prices.</p>	SSA 92/125.33	Book price \$30.00 GST cost \$3.00
<p>THE IMPROVEMENT IN THE QUALITY OF MEAT FROM FROZEN TRAWL CAUGHT BLUE CRABS The technological aim o f the project was to improve the quality of frozen crab meat by examining a range of different on-board handling and freezing combinations. The quality of the meat obtained from these crabs was determined by carrying out focus group discussions and microbiological tests as an indicator of shelf life.</p>	SSA 92/125.34	Book price \$20.00 GST cost \$2.00
<p>VALUE-ADDING FOR SQUID PROCESSING IN THE GEELONG REGION This report details the primary and secondary processing opportunities for the squid industry. The market opportunity for value-added squid products is significant with Australia being a substantial net importer of squid products.</p>	SSA 97/402	Book price \$20.00 GST cost \$2.00
<p>VALUE-ADDING TO SEAFOOD BY APPLICATION OF MODERN DRYING TECHNIQUES A total of 16 species were trialed for this report using the Heat Pump Drier. Of the species dried there were several species which did not lend themselves to quick and easy drying.</p>	FRDC 94/123B	Book price \$40.00 GST cost \$4.00
<p>WALLIS LAKE FISHERMEN'S CO-OPERATIVE AND QUALITY ASSURANCE PLAN CASE STUDY This case study outlines the marketing and quality assurance plan devised by Wallis Lake Fishermen's Co-operative, in the context of the Co-operative's background and particular challenges. The study shows how the plan was created, how it evolved and describes its early successes and future.</p>	FRDC 96/382	Book price \$9.10 GST cost \$0.90

PUBLICATIONS ORDER FORM



Queensland Government
Department of Primary Industries
ABN 78 342 684 030

PLEASE COMPLETE DETAILS BELOW

COMPANY: _____

CONTACT NAME: _____ ABN (if applicable) _____

ADDRESS: _____

Mobile: _____

PHONE: _____ FAX: _____

BUSINESS TYPE: _____ (e.g. Processor; Retailer etc)

All prices include postage within Australia.

Qty	Report code (e.g. SSA 97/403)	Book Price	GST Cost
SUB TOTALS			
TOTAL (Book + GST)			

The one FREE Guideline book I would like to receive with SeaQual Pack 1 (SSA 1) is:

Harvesting Processing

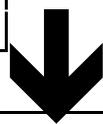
Retailing Aquaculture

When ordering any SeaQual Pack (SSA 1 or SSA 2 or SSA 3 or SSA 4) you are entitled to receive one free copy of the Directory of Consultants for the Australian Seafood Industry (SSA 8) and Focusing on Food Safety and Quality (SSA 9). Please indicate below if you require these copies.

SSA 8 SSA 9 Book OR SSA 9 CD

Contact me about quality management in my specialised line of business.

A



PAYMENT DETAILS - Please print clearly

(Please tick) Total amount of payment: \$A.....

- Cheque or Money Order (Please make payable to: Seafood Services Australia & mark not negotiable)
- Bankcard Card number _____
- Mastercard Expiry Date ____/____
- Visa Cardholder's Name _____
- Amex Signature _____ Phone No [] _____

If you wish to purchase any of these books please fill out the form indicating which book you require and return:
 - by post if paying by cheque or money order to: Seafood Services Australia, 19 Hercules Street, HAMILTON Q 4007
 OR - by fax if billing to your credit card: [07] 3406 8677 (International Fax: +61 7 3406 8677)



SEAFOOD SERVICES AUSTRALIA



SEAFOOD SERVICES AUSTRALIA is a joint national industry / government initiative supported by the Fisheries Research & Development Corporation.

Seafood Services Australia

Offering an Australia-wide service to anyone in the business of catching, farming, processing, transporting, wholesaling, retailing, exporting, importing or cooking seafood. It now provides three core services to the Australian seafood industry.





Fiona Anderson



Bev Austin



Jayne Gallagher



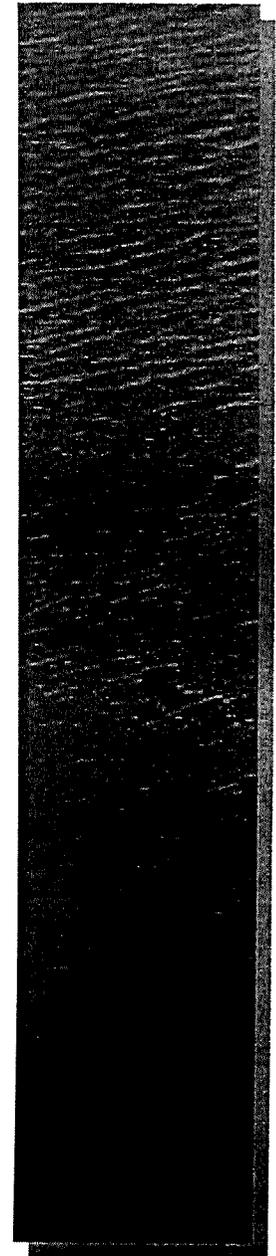
Alan Snow



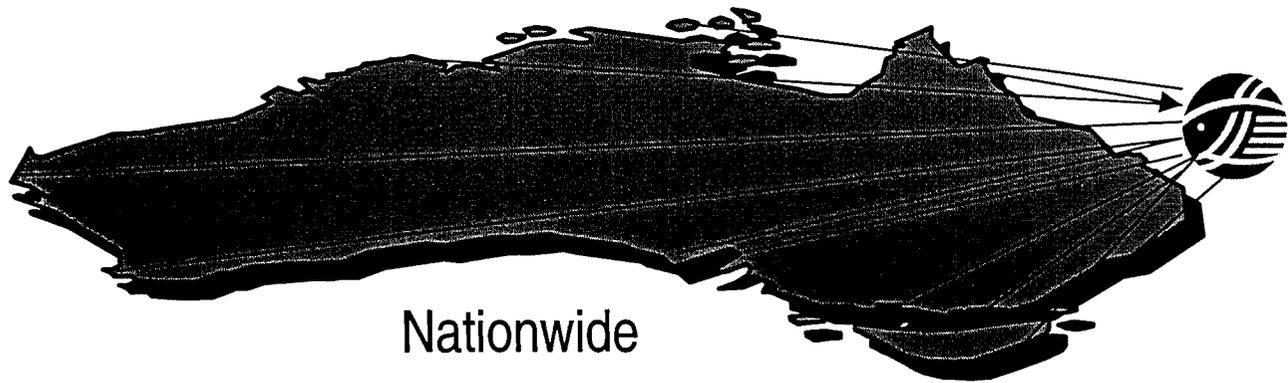
Stephen Thrower



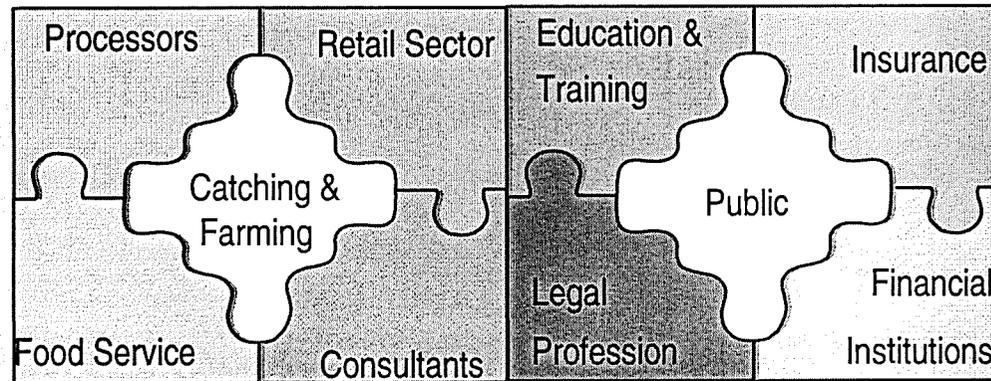
Ian Wells



Staff



Nationwide



Clients

Serving the Industry

Seafood Services Australia undertakes promotion of the seafood industry to the food trade by participating in the two major food shows (Fine Food and Catering Fair) held in Brisbane, Sydney and Melbourne. As well they participate in Industry Meetings, Conferences and their associated trade shows.



Participation at Food Trade Shows

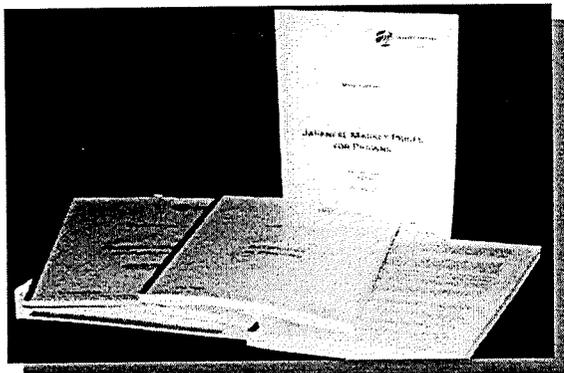
Participation & sponsorship at conferences & workshops

Industry Promotion and Conferencing

The **Technical Information & Advice** service has been set up to promote technology transfer, enabling Australian seafood producers to keep abreast with developments across the world, and assisting them to use the latest technology in solving problems they may encounter.

Access to a world of knowledge. Using our extensive literature database we can prepare customised information packages on all aspects of post harvest technology, marketing, aquaculture, etc.

This service is a fee-for-service operation, and its charges vary with the level of services provided.



Completed information packages for clients



Telephone enquiries are usually the first point of contact

Technical Information & Advice

The **Technical Information & Advice** service currently distributes over 45 reports and publications from research projects and other activities related to seafood. The services is also responsible for the publishing of the **Australian Seafood Industry Directory**.

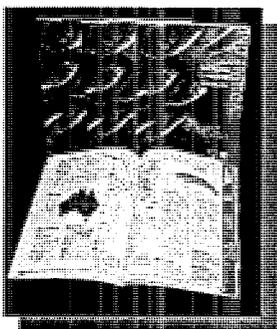


Australian Seafood Industry
Directory

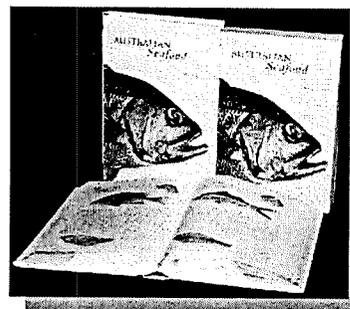


Australian Seafood by Season

Publications



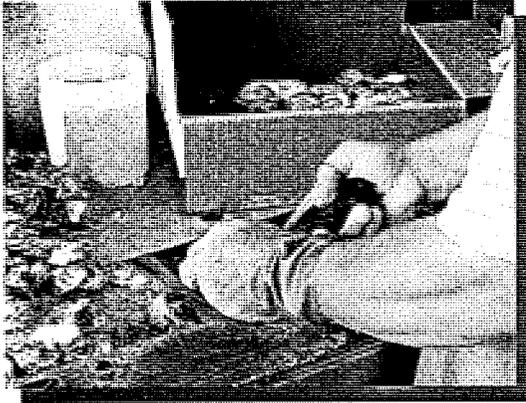
Seafood Catering Manual



Australian Seafood Handbook
- Domestic Species

Technical Information & Advice

The ***Technical Information & Advice*** service is responsible for the compilation of topical issues into a series of brief reference notes. Full literature searches can also be compiled on the topics.



Handling Oysters

Advisory Notes



Handling Squid

Technical Information & Advice

The aim of the ***Food Safety, Quality Management & Standards*** service is to help the seafood industry including fishers, farmers, cooperatives, processors, wholesalers, retailers, importers and exporters, meet their seafood safety and quality objectives.

Focusing on implementing *The Seafood Industry's Strategic Plan for Achieving Seafood Excellence*, this service will progress the achievements and activities of SeaQual Australia.

With the need to ensure that activities and services are responsive to industry and that industry is aware of what Seafood Services Australia can provide, significant effort is currently being directed towards the development of SeaQual networks in each state.

This service has compiled easy to use food safety guidelines to assist individuals and organisations in developing a food safety plan to suit their business. Also developed is a draft step-by-step guide for a food safety emergency management plan should a crisis occur.

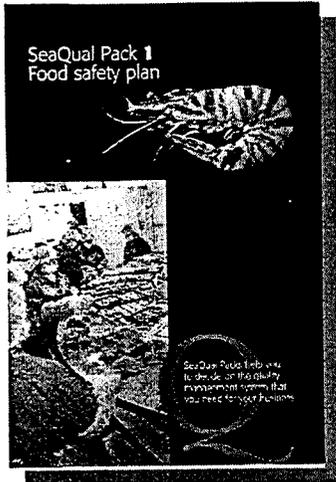
Work is currently occurring with industry to develop standards which will be recognised nationally and internationally.

Food Safety, Quality Management & Standards



SeaQual Packs

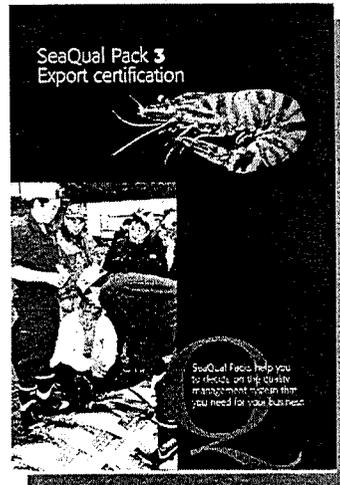
- Take your pick!



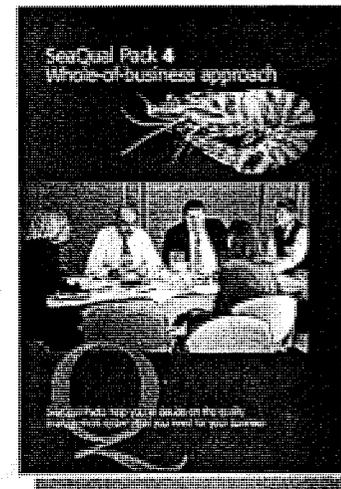
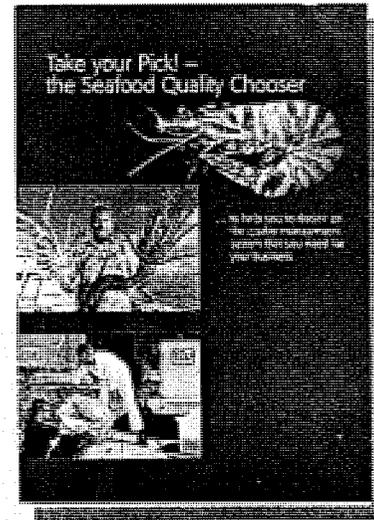
1 - Food Safety Plan



2 - Requirements for specific buyers



3 - Export certification

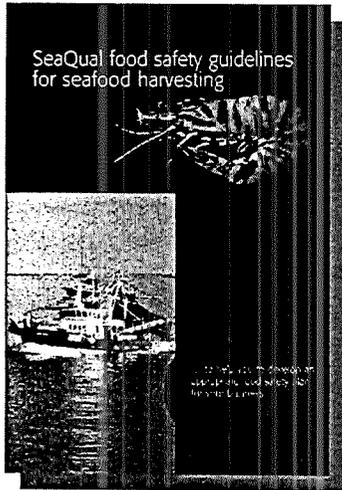


4 - Whole of business

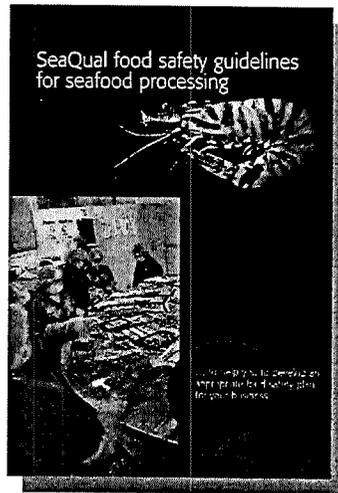
Food Safety, Quality Management & Standards

Food Safety Guidelines

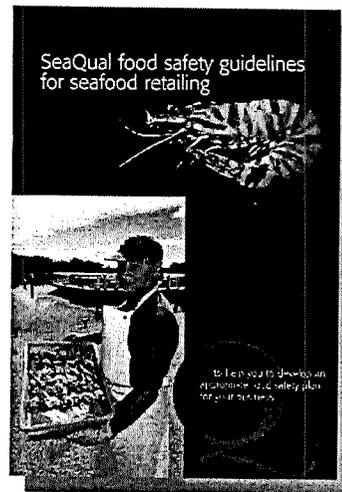
Harvesting



Processing



SeaQual food safety guidelines for seafood retailing



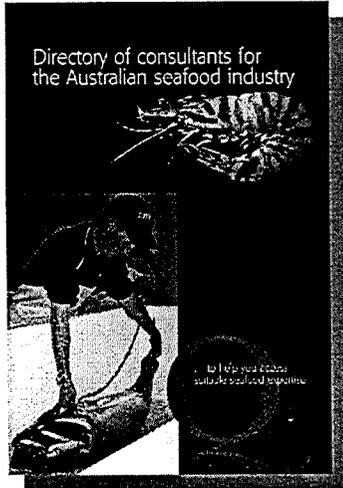
Retailing

SeaQual food safety guidelines for aquaculture



Aquaculture

Food Safety, Quality Management & Standards



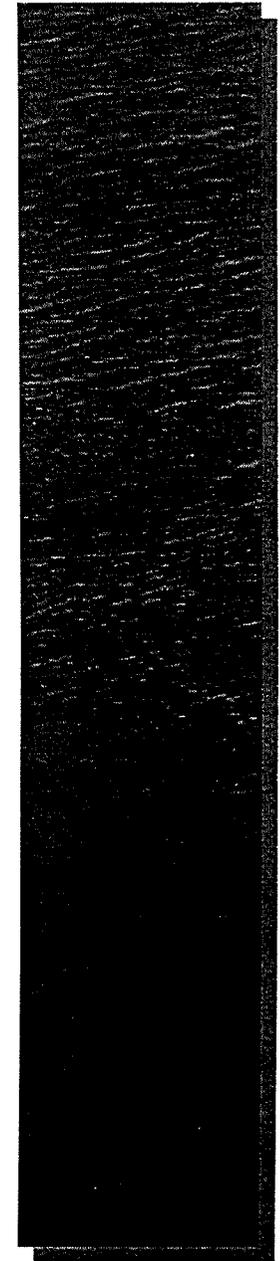
Consultants Directory



Focusing on Food Safety and Quality



Seafood Excellence



Food Safety, Quality Management & Standards

The ***Product & Process Development*** service was established to support commercially focused, value-adding projects that can stimulate industry development and subsequent production activities. Each year, approximately \$300,000 is provided to Seafood Services Australia by the Fisheries Research & Development Corporation for this exclusive purpose.

The priority is to add value to fish and fish products through:

- planning, funding and managing short-term market-focused applied research and development with the potential for high return; and
- keeping the Australian seafood industry aware of opportunities and technical developments through promotion of research and development results and fostering collaboration between industry and R&D agencies.

Applications for funding can be accepted at any time. Please contact us to determine if your project is eligible to submit an application.

Product & Process Development



The **Product & Process Development** service has already assisted a number of Australian seafood businesses to develop products, processes, packaging and equipment.



Trevally roe pate (Vic)

PRODUCTS



Packaged soups (Tasmania)



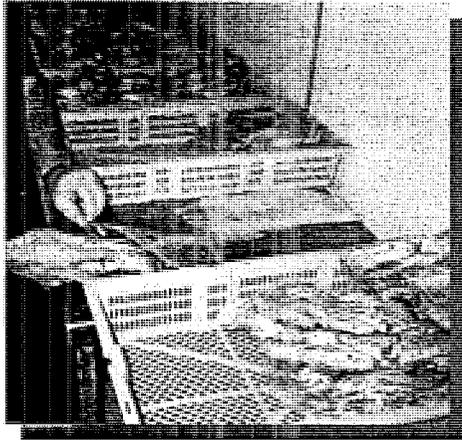
Canned sardines (WA)



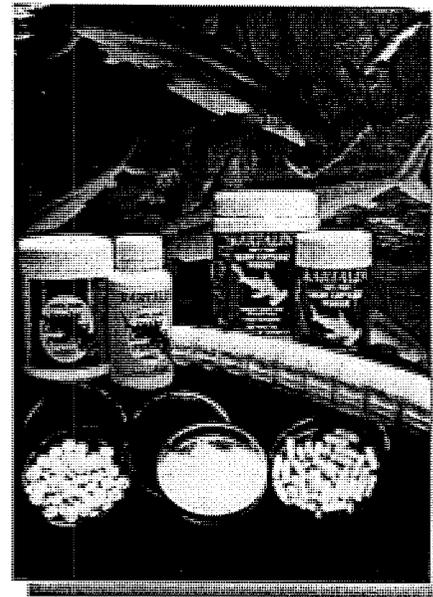
Marinated octopus
(Tasmania)

Product & Process Development

PROCESSES



Crab packaging process
(WA)



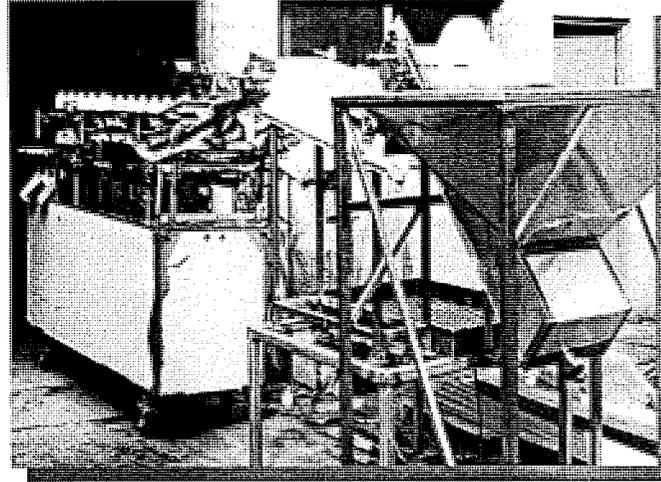
Process to dry shark
cartilage (Qld)

Product & Process Development

PACKAGING AND EQUIPMENT



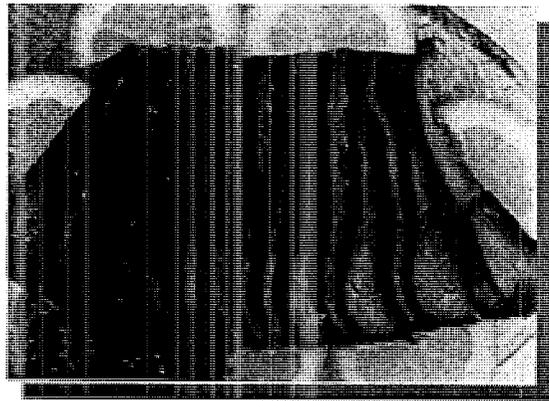
Export packaging for
Live Prawns (Qld)



Oyster grading machine
(Tasmania)

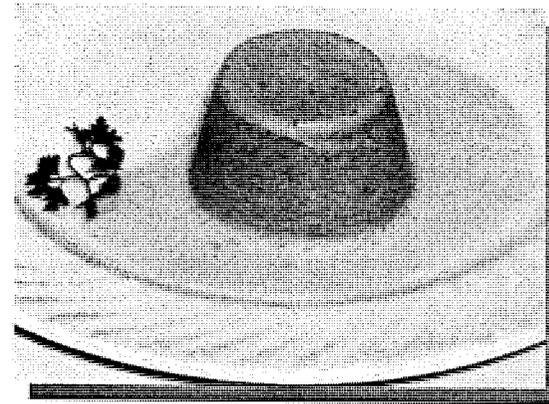
Product & Process Development

'99 INNOVATIVE SEAFOOD PRODUCT COMPETITION



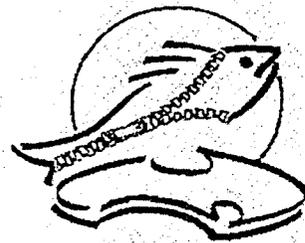
Carp bacon (NSW)

"Winner"



Crab mousse entree (SA)

"Runner Up"



Product & Process Development

For further information
about any part of this
service please phone
our toll free number
on
1300 130321

19 Hercules Street, HAMILTON Q 4007



RESULTS AND DISCUSSION

Industry continues to contact us for solutions to its problems. This trend is increasing as a result of the development work associated with SSA, which has increased the awareness of our services. We now have six people actively promoting our capabilities instead of the original three information staff.

Requests for information

This is a list of the requests for technical information packages that have been ordered over the past two years. This list is not exhaustive. Many requests were satisfied by a simple explanation over the phone or by the faxing of a single paper or two. Other requests required a complex literature search to be completed.

ABALONE

- Abalone
- Aquaculture of abalone
- Canning of abalone
- Drying of abalone
- Information about tropical abalone
- Preparation of thermally processed abalone
- Quality factors in the handling and canning of abalone
- Retort pouched abalone

AQUACULTURE

- Application of inositol in aquaculture feeds
- Aquaculture equipment
- Aquaculture potential of certain species
- Aquaculture prospects for development
- Aquaculture - seafood wholesale and retail - fish
- Aquaculture systems
- Information on aquaculture
- Information on setting up an aquaculture facility
- Manufacturers - aquaculture feeds
- Water quality for aquaculture ponds

BARRAMUNDI

- Barramundi aquaculture
- Generic HACCP plan - barramundi farm
- Growing and selling barramundi and eel
- Information about barramundi export premises

CARP

- Alternative products from carp
- Carp for human consumption
- Carp processing and nutrition
- European carp
- Information on carp
- Utilisation of carp
- Utilisation of carp for human consumption

CHITON

- Processing of chiton

CRABS (MUD)

- Aquaculture of mud crabs
- Cooking mud crabs by microwaving
- Crabs
- Export of spanner crabs
- Farming of mud crabs
- Handling of mud crabs
- Handling and export of mud crabs
- Handling and holding of mud crabs
- Information on size of spanner crab industry
- Live transport of mud crabs
- Mud crabs handling and transport
- Mud crabs processing and handling
- Packaging and processing of blue swimmer crabs
- Processing and packaging of mud crabs

CRUSTACEAN - GENERAL

- Blackspot in crustacean
- Export of Moreton Bay bugs
- Information about cooking of crustacean
- Market information bugs and crustacean
- Processing and preservation of crustacean
- Smoking of crustaceans especially crabs and freshwater crayfish

CUTTLEFISH

- Cuttlefish processing and handling

EEL

- Grow out conditions for eel
- Implications of building a processing plant for eels
- Live transport and grow out conditions of eel
- Live transport of eels
- Setting up an eel farm

-
- Smoking and processing of eels
 - Smoking of eel and octopus

FERTILIZER

- Fertiliser production
- Manufacture of fish fertiliser

FISH

- Aquatic plants for feeding fish
- Bait preservation
- Caviar from fish roe
- Chilean sea-bass
- Code of practice - fish handling
- Composition of devilfish
- Export of fresh fish to Asia
- Export statistics for live fish and oxygen consumption during export
- Factors affecting mouldy taste in pond fish
- Fish bait preservation
- Fish live transport
- Fish meal
- Fish meal and its alternatives - process conditions, transport and storage
- Fish silage and aquaculture
- Fish silage and fish hydrolysis
- Fish waste utilisation
- Freezing of fish
- Iodine toxicity from fish
- Information about naming of fish
- Information on line fishing and Asian markets
- Information about silver warehou
- Killing of coral trout using ike jime process
- Live fish handling and transport
- Live transport of fish
- Manufacture of fish leather
- Manufacture of fish powder
- Manufacture of fish sausage
- Minced fish products
- Modified atmosphere packaging for fresh fish
- Processing of fish feed
- Smoking of fish
- Source of product for fish stock
- Standards for fillet blocks
- Standards required for company layout for the process of filleting fish, cleaning spanner crabs and opening oysters
- Transport and handling of reef fish
- Transport of live ornamental fish
- Testing of block of fish
- Water quality - live holding tanks

HAKE

- Hake

HERRING

- Information on species of herring

KARASUMI

- Karasumi in sauce
- Smoked karasumi

LOBSTERS

- Cooking of freshwater crayfish
- Export requirements for crayfish
- Farming of yabbies
- Freezing and processing of freshwater crayfish
- Handling and air transport of lobsters
- Handling and bugs and lobsters
- Handling and transport of southern rock lobsters
- Handling of tropical rock lobsters
- Information about freezing lobsters
- Information on lobsters from Solomon Islands
- Live transport of lobsters
- Live transport of lobsters and crustacean
- Lobsters, crabs and abalone - live and frozen for export
- Lobster trade statistics
- Phosphate levels in lobster
- Prices for yabbies
- Rock lobsters
- Transport of live crayfish
- Live packaging of lobster
- Yabby (*cherax destructor*) production and marketing
- Yabby production and processing

MACKEREL

- HACCP chart - smoking mackerel

MULLET

- Handling and processing of mullet

OCTOPUS

- Handling of frozen octopus
- Methods of marinading cephalopod

OYSTERS (PEARL)

- Handling and transport of oysters
- Information about the qld pearling industry
- Marinating blue mussels
- Marketing and sale of Tasmanian seafood, primarily oysters and mussels
- Market for pacific oysters
- Mortality in *pinctada margeritifera*

- Oyster farming
- Oyster farming and handling for export and domestic markets
- Oyster farming and processing
- Oyster statistics
- Production weight of mussels
- Smoking of oysters
- Sucking and processing options for oysters
- Value adding mussels

PILCHARDS

- Processing of Pilchards
- Pilchards - Production of Marinades

PRAWNS

- Aquaculture of prawns
- Cooking and processing of prawns
- Export of live prawns
- Farming of redclaw
- Growout and sales of black tiger prawns and redclaw
- HACCP plan for prawn farm
- Handling and shipment of chilled prawns
- How to use metabisulphite to prevent blackspot in prawns
- Kuruma prawns
- Methods of chilling prawns with emphasis on brine chilling
- Nutritional value of prawns
- Opportunities for framed prawns
- Post-harvest handling and processing of prawns
- Prawn by catch feed for SBT
- Prawns live transport and handling
- Temperature of storage of prawns
- Thawing process for IQF prawns
- Transfer of allergens from black tiger prawns

SCALLOPS

- Information on scallop processing
- Utilisation of scallop processing waste

SEAFOOD - GENERAL

- Air freight of seafood
- Atlantic salmon - caviar processing and fresh fish processing
- Caviar from trout or salmon eggs
- Cold marination process
- Contacts in Malaysia
- Effects of freezing rates on seafood quality
- Exports of beche-de-mer
- Fishery statistics
- Freezing of seafood
- Flexible packaging for frozen retail seafood packs
- Frozen seafood products

- HACCP plan - live seafood part of retail shop
- Handling of seafood
- Information about age of fillets
- Information on Australian fishery statistics
- Information on Australian seafood industry
- Information about building permits - seafood processing
- Information about canning of trochus
- Information - energy levels in swordfish
- Information about export trade
- Information about export terms (incoterms)
- Information on film for packaging
- Information on salt
- Information about seafood training
- Information about storage times for seafood
- Information on standards for temperature in processing
- Information on tilapia
- Live seafood transport
- Live storage of seafood
- Live transport of seafood
- Major seafood exporters in Australia to china
- Nutritional information on seafood
- Nutritional value of seafood
- Ozone treatment of water
- Packaging of seafood
- Parasites in seafood
- Product information production statistics for various pacific countries
- Production statistics
- Quota information
- Quota's for Queensland wild caught fishery
- Salt water phase content
- Seafood consumption information
- Seafood handling for retail sector
- Seafood handling, storage and display
- Seafood transport - time/temperature
- Shrinking of seafood during live holding and freezing and frozen storage
- Supplies of sushi
- Smoking of seafood
- Use of polyphosphates
- Utilisation of seafood processing wastes
- Utilisation of waste from seafood processing
- Value adding of broadbill
- Water sterilisation

SEA CUCUMBER

- Catch and farming of sea cucumber

SEA SHELLS

- Utilisation of sea shells

SEA URCHIN

- Information about sea urchins
- Processing of sea urchin
- Sea urchin fishing
- Sea urchin processing

SEAWEED

- Processing of seaweed
- Suppliers of seaweed

SHARK

- Drying of shark fin
- Handling practices for shark
- Processing of shark
- Processing and presentation of shark fin
- Shark and scallop processing
- Shark processing and products
- Shark processing and products shark fin processing
- Shark species suitable for the Australian market
- Utilisation of shark liver oil

SQUID

- Processing aids for squid
- Skinning of squid using enzymes
- Squid aquaculture
- Squid processing

SURIMI

- Surimi uses and functional properties

TUNA

- Handling of yellowfin tuna
- Information on canned tuna
- Jerky production
- Market information tuna products
- Process for making tuna jerky & possible contact processors
- Processing of tuna
- Tuna handling and export
- Tuna handling and processing
- Tuna industry in Western Australia
- Tuna statistics
- Value added products from minced tuna and swordfish

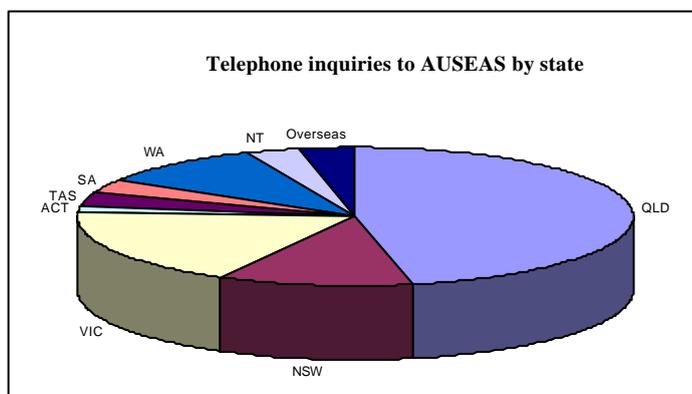
Funding

FRDC provides funding support to this service to cover two salaries, travel and operating costs. DPI provides support in the form of one salary, accommodation and administrative services for three officers, extensive information technology support, and excellent library facilities, both hard copy and electronic. Funds earned from activities of this service are channelled back into increasing the information resources. It is estimated that duplication of the CFT library resource would cost \$550,000, whilst the value of the DPI corporate library service is \$5 million.

Breakdown of Activities

The major activity undertaken by this service is the fielding of queries concerning publications, this activity usually leads to the sale of publications.

Although the largest number of telephone inquiries received by this service are from within Queensland, we also receive inquiries from interstate and overseas locations. Some inquiries are also directed to this service via email.



BENEFITS

This service has a wide and varied clientele. Even though the service is located in Brisbane the list of clients encompasses most areas of Australia. Also the clientele is not limited to the seafood industry. The inquiries from within the seafood industry come from companies, individuals and agencies that service the industry along with researchers in post-harvest seafood technology. Other client areas include legal and medical professionals.

Because of the diverse nature of our clientele, the benefits of SSA activities extend right along the seafood chain. We have a high level of repeat business, which indicates a good level of customer satisfaction. This can also be seen in the testimonials in Appendix III. Below is a few of the benefits which are important to our clients.

Quick solutions

When a crisis occurs, a fast effective response is essential. In an emergency we can often provide a solution in minutes.

Current reliable information

Because we are continually updating our databases etc from reputable publications, our information is current and reliable. This gives a better result than surfing through Internet material that is often of dubious origin, or non specialist libraries where the collections are often outdated.

Interpretive service

We try to match the level of the information we supply to the needs of the client. Much of the material that is available is highly technical and complex. Often we may supply papers that cover the same ground from different angles. If we are in doubt we supply a letter to assist the client to use the information, with the offer of being available for further consultation if the client requires this assistance.

Assistance with funding proposals

Officers from this service have extensive experience in preparing and evaluating research proposals. We are often called upon to assist in preparing proposals and also in evaluating proposals to FRDC, NSC, FRAB's, AUSTRADE etc.

FURTHER DEVELOPMENTS

New Initiatives

- ***Advisory notes***

This service regularly receives calls from industry, the community and students from universities, colleges and schools. Many of these calls are referred to this service by bodies such as Primary Industries, FRDC and Australian Fisheries Management Authority (AFMA). It has become obvious that there is an information gap that is not being adequately filled.

To fill this perceived need, SSA will commence the development of a series of SSA "Advisory Notes". These will be brief summaries of technical information that can be provided free of charge to the seafood industry and the broader community.

These advisory notes will provide introductory information which may lead the recipient to commission further work from SSA. See Appendix V for a sample of a proposed Advisory Note.

- ***Information services - all sectors***

This service has traditionally supplied information in the post-harvest sector of the industry. We have in more recent times expanded our expertise into the aquaculture sector and areas such as export assistance and marketing intelligence.

We have a program in place to expand into all sectors of the industry. Initially, our role will be to supply published information only until we develop our skills and knowledge in the areas.

- ***Front end access to a wide range of information***

Discussions with clients have revealed a major information gap in the literature resources available to the seafood industry.

Researchers and the industry alike have discovered that there is a wealth of information available to the community through a wide range of specialist seafood related electronic databases and the Internet. The main problem now is to actually find it. Discussions with clients have revealed that they actually need a comprehensive list of the databases.

What is needed is a "one stop shop" Internet site which will allow the user to clearly define the literature request so that they actually access the information that they require.

We have purchased software which will allow us to provide this service. The software will operate on the Internet, and will allow users to have access to database sources, Internet sites and a wide range of other available information.

- **Internet site**

As part of the initiative to provide the “one stop shop” as outlined above, SSA plans to expand its Internet site to provide a wider range of services to its clients.

We are intending to provide improved access to SSA resources by taking advantage of improved methods of communication. Limited access to SSA main information repository can now be made available through the World Wide Web using the software outlined above.

It is envisaged that SSA be able to provide a Current Issues Bulletin covering the post-harvest seafood area. Such a bulletin listing could be very useful to businesses involved in the post harvest sector of the industry.

- **Database of industry assistance**

Information on a wide variety of industry assistance packages is available through avenues such as the Internet, Government literature and contacts. This information is often available as specific entries. As a service to the industry, SSA will maintain a list of these programs and advise clients of their appropriateness through avenues such as the Internet.

- **Further saleable publications**

We have identified a need for more publications on topics such as best practice manuals and generic HACCP plans in a range of areas. These manuals should be easy to read and understand. The availability of these documents will assist industry to develop good manufacturing practices in their operations.

SSA will collaborate with other agencies to develop and disseminate these manuals as the need and the opportunities arise.

- **Future developments**

The establishment of SSA has integrated the post-harvest activities of the FRDC within one framework. This presents significant opportunities for all SSA services to increase their participation in industry development. On a broad scale, this services two main functions will continue to be:

- The collection, collation, and dissemination of information and advice to decision makers.
- The fostering of networks between all the stakeholders in seafood industry development.

SSA has the experience, expertise and facilities already in place to fulfil this role. We can broaden the scope of information handled to include subjects beyond the post-harvest sector. For example, the database on impediments to trade originally compiled by DPIE and passed to Australian Seafood Industry Council has not been maintained and is no longer used. The maintenance of this database could be taken over by SSA. The information from this database could then be disseminated to generate income to offset costs.

An expanded SSA will enable other components of the SSA to concentrate their efforts without having to duplicate these information management systems.

Networking is an important function of every component of the SSA. Experience with the CFT, which has eight operational units, shows a need for coordination of activities to avoid creating confusion in the minds of stakeholders.

A sophisticated database has been established at CFT to record client contacts. For example if the manager of the Process Development team plans to visit ACME Foods, he can quickly view previous contacts, what services were provided, who was contacted, what was discussed, and any special arrangements, discounts etc. which have been negotiated. This avoids the situation where two sections are working with a company in ignorance of each other. A similar facility will be set up for use by the SSA staff using existing software.

Formation of SSA will also present enhanced promotional opportunities. Surveys of our clients and a market research study have consistently shown that although SSA services are highly valued by our clients, our inability to effectively promote our services is a major impediment to extending the client base. Information services are difficult to conceptualise as a product.

The high level of recognition achieved by SeaQual illustrates the value in having a dedicated promotional budget. The evolution of the National Seafood Network to jointly promote post-harvest activities at trade shows etc has allowed us to reach operators further down the distribution chain. With the creation of SSA as a single entity, much more effective promotional activities will be open to us drawing on the synergy of all the components of SSA.

CONCLUSION

Much of the operation of SSA involves continuing delivery of services and development of new initiatives. A review of the objectives of the two projects follows:

- ***Provision of technical information and advice:*** This continues to be a mainstay of our activities as shown by the breadth and volume of material provided in this report.
- ***Proactive promulgation of research results:*** The two main areas in which research results have been of interest to our clients are modified atmosphere packaging (MAP) and food safety. MAP is now becoming widespread in Europe, and there is great interest in using it to extend chilled shelf life. Unfortunately few operators are currently unable to meet the microbiological standards necessary to use MAP effectively. Interest in food safety has arisen because of impending ANZFA requirements, and the incidences of food poisoning reported in the media.
- ***Identification of research opportunities:*** A number of research opportunities have been identified. These have been passed on to research institutes or universities. Some have been the subject of proposals to FRDC or NSC, some have been incorporated into existing research programs, and other smaller ones have been taken up as private research consultancies or student projects.
- ***Networking:*** On several occasions we have arranged successful cooperation between companies with complementary interests, particularly in the area of developing new ventures.
- ***Publication sales and database maintenance:*** Sales of publications have progressed to the point where they contribute significantly to our development income. We have developed a suite of databases that enable us to quickly respond across a wide range of topics.
- ***Publication of the Australian Seafood Industry Directory:*** The second edition of the directory was published in printed and electronic form, and the database was updated as any new information became available. Work has begun on validating existing entries and securing new entries for the third edition.
- ***Fast targeted responses:*** We use all the communication means at our disposal (telephone, fax, email, post and personal visits) to respond to urgent inquiries. Obviously, some problems are more serious than others and so it is necessary to assign priorities.
- ***Internet site development:*** We have canvassed the needs, purchased the necessary software and prepared some of the material to go on the Internet site. We are still negotiating the details of setting up the system with the Web Services section of DPI in a manner that will best suit our clients.
- ***SSA development:*** We are actively participating in the planning of SSA at both strategic and operational levels and have taken the lead in promotional activities such as trade shows, advertisements and conference presentations. The next challenge is to prepare and plan a submission that will present SSA as a single entity capable of fostering the whole of chain approach to seafood development in Australia, so that the maximum benefit is derived from our fisheries resources.

APPENDIX I

Intellectual property

Most of the information we disseminate is in the form of published papers and research reports so the issue of intellectual property does not arise. An arrangement is currently in place between FRDC and DPI to share returns from the Australian Seafood Industry Directory.

APPENDIX II

Staff

- **Staffing and staff capabilities**
- **Staff development**

Staffing and staff capabilities

SSA has a team of six people with three staff working on the information service. All three staff work across all functions to ensure that we have considerable flexibility and resilience. The areas covered by each officer are as follows:

Stephen Thrower, *Principal Food Technologist* is the team leader of CFT Information Services and the Principal Investigator of this service of the SSA project. Stephen has over 25 years' experience in post-harvest seafood work with the CSIRO, TFDA, FAO, AIDAB and WHO prior to joining the DPI.

Alan Snow, *Senior Information Officer* had the responsibility for the quality management service (FRDC Project 1998/350) and is also working on the development of new information technology initiatives. Alan has over 20 years' experience in food technical services and is a specialist in information technology.

Bev Austin, *Information Officer* has many years' administrative experience. Bev manages the sales of the most of the publications handled by SSA. Bev is responsible for the maintenance and printing of the Australian Seafood Industry Directory. She has recently been responsible for the co-ordination of the food trade show displays for the National Seafood Network. She also provides a level of administrative support for the Commercial Manager of SSA (product and process development).

Other specialist staff of the Centre for Food Technology (CFT) are regularly called upon and utilised. The areas they assist with include:

- Library services.
- Workplace Training in areas such as food hygiene, HACCP, quality systems implementation, seafood handling.
- Implementation and auditing of quality systems.
- New product and process development.
- Analytical testing of food products.
- Waste minimisation and utilisation.
- Expertise in live handling of seafood.

In addition to "in house" experts within the CFT, SSA has also developed a network of experts in both Australia and overseas. This network enables us to cover a broad range of topics, either by seeking answers to problems on behalf of our clients, or by referring clients to the appropriate experts.

Staff Development

SSA has a very proactive staff development program in place. A performance planning process is used effectively to ensure that the skills in the work unit adequately meet the skills required to match the challenges placed on us by our clients. Staff members have attended a number of training activities and workshops over the past three years.

Examples are:

- Attendance at the *Queensland Warm Water Aquaculture Conference* by Stephen Thrower and Alan Snow. This conference discussed all forms of aquaculture in Queensland.
- Training in export facilitation by Alan Snow. This course has assisted SSA to further broaden its expertise to assist potential exporters.
- Completion of a *Graduate Certificate in Rural Science (Extension Studies)* by Stephen Thrower.
- Attendance at various software training activities on the use of DBText by Alan Snow. This training has allowed us to utilise the software to the utmost and has allowed us to ensure that the SSA databases will be able to operate over the Internet in the future.
- Attendance at training course in *Seafood Handling* by Bev Austin and Alan Snow.
- Completion of an accredited training course in HACCP by Alan Snow.
- *Certificate IV in Workplace Training* accreditation by Stephen Thrower, Bev Austin, and Alan Snow.
- *Training in Consultancy Skills* by Alan Snow and Stephen Thrower.
- Selected Information Technology subjects by Bev Austin.

APPENDIX III

Client Testimonials

- **Tas Crays Pty Ltd (Tasmania)**
- **Omaru Fish Farm (Dalby)**
- **Talacinties (PNG) Pty Ltd (Cooktown)**
- **Rosebank Aquaculture Ventures (Woombye)**
- **Midwest Development Commission (Geraldton)**
- **Wingold Pty Ltd (Cairns)**
- **Tall-King Pty Ltd (Chisholm)**
- **Ocean Quest Seafoods (Albany)**
- **Roxbra Trader Pty Ltd (Tewantin)**

TAS CRAYS PTY. LTD.

A.C.N. 009 544 245

A Division of the Poulos Group of Companies



30 November, 1998

Stephen Thrower
AUSEAS
19 Hercules Street
HAMILTON QLD 4007

Fax: 07 3406 8677

Dear Stephen

I write to confirm my support on the services offered by AUSEAS to the seafood industry. From a processors perspective, sourcing of reliable information can be difficult due to factors of limited access to resources, time and costs. AUSEAS provide a service which enables our company to access information specific to what we require on a timely basis.

In future, I notice that AUSEAS intend to provide some additional services. I am particularly interested in the web page on post-harvest seafood matters, internet discussion group on current issues, and advisory notes on seafood processing.

I consider that AUSEAS provide their services in a professional manner and presentation. The quality of the information that they supply is high and sourced from a broad spectrum of sources.

With now being the exciting time for telecommunication advancement, I believe that many operators will be relying more and more on use of the internet as a source of information and contacts. With this form of communication breaking down distance barriers, AUSEAS will be in a unique situation of being able to provide services to anyone anywhere in the world.

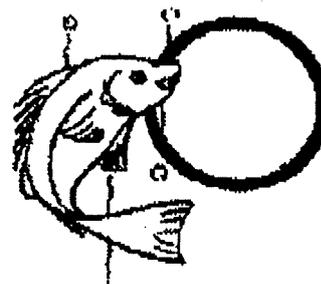
Yours faithfully

Sandra Phythian
General Manager

C:\General\Correspondence\GenManager\auseas.doc



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OMARU FISH FARM

BRUCE CHRISTIE
MANAGER
OMARU
P.O. BOX 701
DALBY, Q'LD 4405

Telephone 07 4663 8740
Fax 07 4669 6597
Mobile 0419 705424

DATE: 2/12/98
TO: STEPHEN THROWER, PRINCIPAL SCIENTIST, AUSEAS
FAX NO: 07 3406 8677
FROM: BRUCE CHRISTIE, OMARU FISH FARM

DEAR STEPHEN,

PLEASE FORWARD MY SINCERE THANKS TO THE PERSONNEL INVOLVED IN PREPARING THE DOCUMENTATION RELATING TO AQUATIC PLANTS IN AQUACULTURE. I WOULD CLASSIFY THIS DOCUMENT AS ONE OF THE MOST PROFESSIONAL AND DETAILED EXAMINATION OF THE SUBJECT I HAVE BEEN ABLE TO OBTAIN TO DATE.

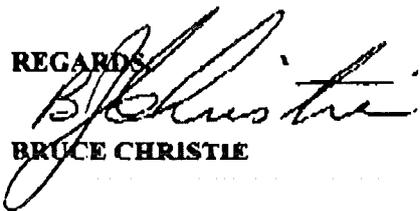
AS TO MY MEETING WITH YOU AS FAR AS THE M.A.P. PROGRAMME, OUR STOCK OF FISH HAVE NOT YET YIELDED TO A POINT OF REQUIRING FURTHER PROCESSING AS THE CURRENT MARKETING PROGRAMMING OF A RAPTIS & SONS IS TO DATE UTILISING OUR AVAILABLE STOCKS.

I WILL ADVISE YOU WHEN THE PRODUCTION OUTSTRIPS THE DOMESTIC REQUIREMENT OF OUR PRODUCT AS IT IS.

I AM CONFIDENT FROM TALKS WITH ARTHUR RAPTIS THAT THE ADVICE GIVEN BY YOU WILL BE CONSIDERED VERY STRONGLY IN THE COMING YEAR TO ENCOMPASS THE M.A.P. SYSTEM OF FRESH WATER FISH PROCESSING.

PLEASE ACCEPT MY SINCERE THANKS AGAIN AND I WISH YOURSELF ALONG WITH THE STAFF OF AUSEAS A VERY SUCCESSFUL 1999.

REGARDS


BRUCE CHRISTIE

TALACINTIES (PNG) PTY LTD

BRAD UFER - DIRECTOR - MANUS
P.O. BOX 330, COOKTOWN,
AUSTRALIA 4871
PH/FAX 05 6170 695 197

SILAS ROROH
P.O. BOX 552
LORENGIAU
MANUS

ANTONIO SEETO - DIRECTOR - MADANG
P.O. BOX 668, MADANG
PH 8521070

4th December, 1998.

The Executive Directors
Qld Department of Primary Industries
and Fisheries Research Development Corporation.

RE: AUSEAS CONTINUATION AND EXPANSION

Dear Sir,

I wish to extend my gratitude for the support and professional advice and services that my associates and I have received from AUSEAS in the past 4 years. On many occasions, technical obstacles have threatened to hinder my company's progress specifically in the area of seafood handling and processing. I was introduced to Stephen Thrower by means of referral from the DPI in February 1994 in order to seek possible solutions for some niggling problems that we were facing. From that moment to this day, Stephen Thrower, Alan Snow and the rest of the staff have been diligent, industrious and have constantly shown a dexterity that is second to none.

By means of direct consultation or via fax overseas, AUSEAS has provided us with

- customised technical information
- solutions to numerous problems
- publications of relative matter
- referrals to consultants in associated industries.

We are now seeking support for quality services in the form of Sea Qual Packs and advice in the implementation of quality management.

I am excited to learn of some new initiatives on the horizon such as

- greater client access to resources via the Internet
- contact points on marketing and aquaculture.

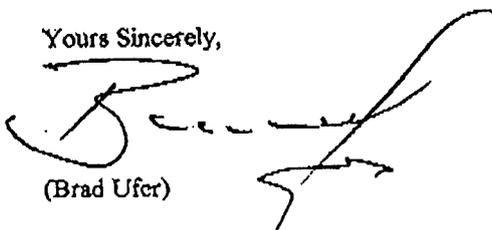
Our next venture will be initiated in Far North Queensland. A freshwater prawn aquaculture center. I feel very confident in knowing that this venture will be rolling along with the on going support and assistance of AUSEAS who has at its disposal a wealth of information which I understand can be enhanced by new telecommunication technology.

A combination of excellence, up to date technical information and courtesy is what is installed in my mind every time I walk through the doors of the AUSEAS office in Hamilton. It is for this reason that I now wish to become a fully fledged member or client of this organisation and you have my utmost support in recommending continued funding for this service as they are a credit to you both.

I can be contacted on the above phone/fax.

Thank you.

Yours Sincerely,



(Brad Ufer)

WINGOLD PTY LIMITED

A.C.N. 010 886 889

(ALSO HORIZON RESOURCES PTY LTD. P.N.G. C.N. 1.20066)

16 Brady Close, Brinsmead Glen.
Cairns. Qld. 4870
Australia

Tel: (07) 4058 1210
Fax: (07) 4058 1438
(Int'l) (61-7)

FACSIMILE

TO: AUSEAS DATE/TIME: 8.12.98
ATTENTION: MR STEPHEN THROWER FAX NO: 07.34068677
REFERENCE: PAGES TRANSMITTED: 1

MESSAGE

HELLO STEPHEN. IT IS RUMORED THAT THERE MAY BE FUNDING CUTS SHORTLY TO AUSEAS WHICH WILL INHIBIT ITS OPERATION.

I HAVE BEEN USING AUSEAS SERVICES FOR OVER EIGHT YEARS TO ASSIST ME IN DEVELOPING, AND CONTINUING TO DEVELOP, SEVERAL FISHING AND SEAFOOD VENTURES. I HAVE ALWAYS BEEN IMPRESSED BY THE PROMPTNESS TO MY INQUIRY AND THE EXPERTISE AVAILABLE ON A WIDE RANGE OF TOPICS, INVALUABLE INFORMATION NECESSARY FOR TODAY'S BUSINESS PROPOSALS.

I HAVE HAD MANY OCCASIONS WHERE I HAVE HAD SUPPLIED WRITTEN MATERIAL, GATHERED WORLDWIDE, AND HAVE ABSOLUTE CONFIDENCE IN ANY PERSONAL ADVICE OF THE EXPERIENCED AND HELPFUL STAFF, WHICH CANNOT BE REPLACED BY "DATABASES" AND "ADVISORY NOTES" BECOMING THE ACCEPTED WAY OF DELIVERING INFORMATION. COMPUTERS SHOULD COMPLIMENT PERSONAL SERVICE AND EXPERIENCE ONLY, IF THE FISHING INDUSTRY IS TO SUCCEED INTO THE FUTURE.

I REGARD "AUSEAS" AS A VITAL PART OF MY BUSINESS AND OBJECT STRONGLY TO ANY DOWN-GRADING OF THE SERVICE BY REDUCING FUNDING.

Charles Townson.
(DIRECTOR)

Tall-King Pty Ltd
Mr L J Torronen
43 Wolstenholme St
CHISHOLM ACT 2905
AUSTRALIA
Phone & Fax: 61 (02) 6292 4558
ACN: 063 155 297

AUSEAS
Stephen Thrower
Fax: 07 3406 8677
19 Hercules St Hamilton QLD 4007

To whom it may concern

Dear Madam / Sir

I can recommend and fully support AUSEAS, in its continuation and expansion of its services.

As an information provider AUSEAS has provided, my company with comprehensive industry wide searches. The information detailing, practices, procedures, policy advice, unavailable from other agencies, have been of immense importance in guiding our decisions for the future.

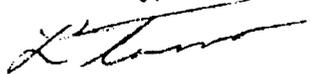
Their promptness in supplying requested information on diverse and detailed subject matter Has been exemplary.

Industry requires the services supplied by AUSEAS to keep a highly competitive edge, in the flow of information in a dynamic marketplace, it has not been forthcoming elsewhere.

Their expertise, in extrapolating the information needs of industry for practical applications allows informed judgment of actions to be taken, to increase export market share for our produce in a competitive market environment.

I believe the services provided by AUSEAS are not replaceable and are essential to keeping Australian industry at the forefront of development in seafood technology and practices.

Yours truly,



Mr. L J Torronen
Managing Director



Ocean Quest Seafoods

PO BOX 857 ALBANY 6331

WESTERN AUSTRALIA

Telephone (08) 9842 8778

Facsimile (08) 9842 8692

(A Division of Natural Processors Pty Ltd

ACN 081 379 393)

FACSIMILE COVER SHEET

To:	Centre for Food Technology, Qld DPI	
Facsimile	0734 06 8677	
Attention:	Steve Thrower	
Subject:	Correspondence	
From:	Nicolaas VanRoosendael	Mobile: 0418.5861`07
Pages:	One (1) page only	Date: 10 December, 1998

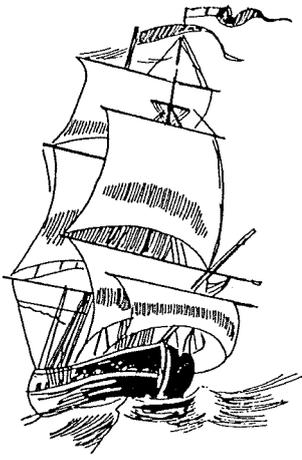
Dear Sir

we would like to give this unconditional letter of support for the valuable work given by you and your fellow officers in all areas related to the seafood industry, its development and future planning, and especially in value adding for new products.

Without your papers, research and advices we would have found it impossible to put all the pieces of the jigsaw together in our new processing plant here in Albany; which is already starting to employ significant numbers of people after 6 months

Thank you for all your help in the past and we look forward to your continuing service to our investment in a growing and value adding seafood industry; delivering the highest quality product possible to Australia and our overseas export customers.

Nicolaas van Roosendael
 Managing Director
Ocean Quest Seafoods



Roxbra Trader

Pty. Ltd.
ACN 071-314-693

IMPORT - EXPORT - WHOLESALE - RETAIL

3 Ridge Street, Tewantin Q. 4565 Australia • Phone/Fax: (07) 54741989
~~(074) 741 989~~

11 December 1998

AUSEAS
19 Hercules Street
Hamilton QLD 4007

Dear Sirs,

I am very happy to support the continued funding of AUSEAS, who are contributing so much to the Seafood Industry.

My Company recently took the decision to engage in importing Seafood, and was directed to AUSEAS - being "new chums" - not having had previous exposure to the Industry we had a lot to learn.

I am pleased to say that the volume of valuable information, the lists of technical publications, and the professional, friendly service are outstanding, and have been of inestimable value in the decision making and planning of our new venture.

We are a progressive company, and I am sure that in the future we will be availing ourselves of the services AUSEAS has to offer, which we acknowledge are vital to our future planning.

Yours faithfully,

DIRECTOR.



M I D W E S T
D E V E L O P M E N T
C O M M I S S I O N

FAXED
4.12.98

Mr Stephen Thrower
Manager
AUSEAS
19 Hercules Street
HAMILTON QLD 4007

Dear Mr Thrower

RE: AUSEAS SERVICES

Thank you for the prompt and professional manner in which AUSEAS handled a recent enquiry from the Mid West Development Commission.

Acting on behalf of a client in Geraldton, the Commission contacted AUSEAS seeking information on the process for developing a food supplement from shark cartilage. Your organisation's response was timely, economical and very efficient. The information provided from AUSEAS more than adequately met our client's needs.

Encouraged by the valuable information provided by AUSEAS, our client is confident of progressing a shark processing facility in Geraldton.

It is comforting for regionally based development organisations such as the Mid West Development Commission, to have access to a service such as AUSEAS which offers professional, expert advice and information on issues relating to the seafood industry.

I look forward to the opportunity to use AUSEAS services for future seafood enquiries.

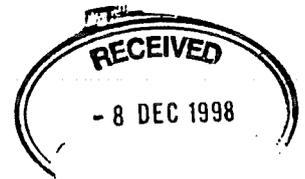
Yours sincerely



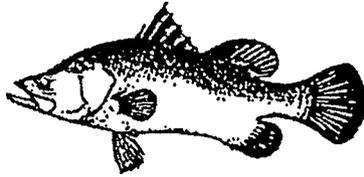
WAYNE MORGAN
CHIEF EXECUTIVE OFFICER

4 December 1998

(dir:jackieh/doc:auseassupport)



SGIO Building
45 Cathedral Avenue Geraldton
PO Box 238 Geraldton Western Australia 6531
Tel: (08) 9921 0702 Fax: (08) 9921 0707
Email: info@mwdc.wa.gov.au



Rosebank Aquaculture Ventures

22 Wilson Lane, WOOMBYE, Qld 4559

Telephone: 07 5442 2015

Facsimile: 07 5442 2023

4 December 1998-12-03

Alan J Snow
Information Officer
AUSEAS
19 Hercules Street
HAMILTON Qld 4007

Dear Alan

I would like to show my support to you and AUSEAS by making the following statement.

“While developing **Rosebank Aquaculture Ventures**, which is a barramundi farm on the Sunshine Coast some two years ago, it was of great relief to find an organisation like AUSEAS to assist us with information and development advice on aquaculture farming. AUSEAS were also able to help us with the following information:

- Marketing advice
- Market intelligence
- Transporting
- Processing
- Quality and food safety issues
- Seafood directory

As **Rosebank Aquaculture Ventures** looks at new areas like value adding and on farm processing, AUSEAS has again been able to assist with information and technology in these areas.

As the aquaculture and seafood industries develop, it will be important for an organisation like AUSEAS to develop with these industries and provide expert information. The new proposals being put forward by AUSEAS will help the transfer of information and technology via the Internet and/or other means, which will be of great value to the industry and the people involved.

As the aquaculture and seafood industries are at an early stage of development in Australia, it is very important to have a good service provider like AUSEAS for expert advice.”

Yours sincerely

Garry Saunders

APPENDIX IV

List of Saleable Reports and Publications

SEAFOOD REPORTS

FRDC Reports

- A study of the demand and importance of seafood sourced in NSW and elsewhere to the catering and tourism industries in NSW.
- An analysis of Asian markets for seafood products.
- Australian seafood by season.
- Australian seafood handbook – domestic species.
- Australian seafood industry directory 1997-99.
- Development of live fish transport techniques.
- Dried seafood marketing report 1996.
- Extending the High quality shelf life of seafood products.
- Marketing names for fish and seafood in Australia.
- Seafood catering manual - Volume 1.
- Seafood the good food.
- Value-adding to seafood by application of modern drying techniques

NSC Reports

- A study into the production of nuclei for pearl culture using Australian mother-of-pearl shell.
- An improved packaging system for live western rock lobster.
- Australian Common Carp: A Marketing Strategy.
- Cephalopods of Commercial Importance in Australian Fisheries.
- Development of a process to manufacture powdered shark cartilage.
- Evaluation of the cooking process on aquacultured giant tiger prawns (*Penaeus Monodon*).
- Feasibility study for establishment of a Victorian commercial jellyfish fishery.
- Fish meal production using by-products of commercial fisheries.
- Fish silage: Can it be used in aquaculture?
- Food processing concepts for the Australian beche-de-mer industry.
- Improvements in post-harvest handling and marketing strategy for blue crabs.
- Improving packaging technology, survival and market options for kuruma prawns.
- Live seafood handling - Strategies for development.
- Making the most of the catch - International post-harvest symposium proceedings.
- Maximising economic returns in the Northern Territory Spanish mackerel fishery.
- Processing of the southern king crab (*Pseudocarcinus gigas*).
- Reducing post-capture mortality when storing tropical rock lobsters for live transport.
- Research on potential pharmaceutical products from Australian Holothurians.
- Seafood airfreight packaging strategy: A series of consultative forums.
- Silver Perch Industry Development Plan.
- Studies on the physical response of wrasse and horseshoe leather jacket to capture and transport.
- Study of the by-catch, processing by-products and waste in Queensland and New South Wales.
- The handling and value-adding of farmed barramundi.
- The improvement in the quality of meat from frozen trawl caught blue crabs.
- Value-adding for squid processing in the Geelong Region.

Miscellaneous Reports

- A guide to the safe handling and inspection of seafood.
- Aquaculture Queensland identification poster.

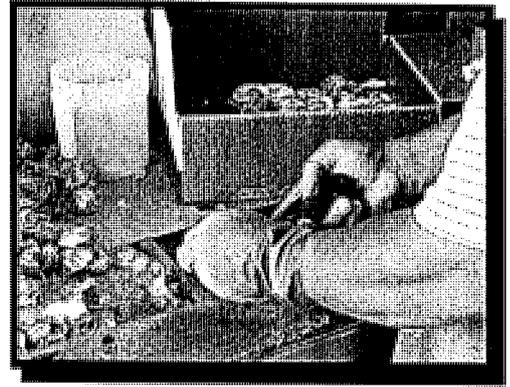
APPENDIX V

Sample Advisory Notes

- **Handling Oysters**
- **Quality index system for fresh fish**
- **Squid processing and handling**

Advisory Notes

No: 1



HANDLING OYSTERS

Australia has long enjoyed a well-deserved reputation for producing quality oysters. Indeed evidence from middens shows that oysters have played a significant role in the diets of our indigenous people both on the mainland and in Tasmania for over 5000 years.

In the early years of European settlement, colonists dredged oysters for food and as a source of lime for the mortar in brick buildings. Farming of oysters was one of the earliest forms of aquaculture practiced in Australia.

The two main species of oyster farmed for food today are the Sydney Rock oyster (*Saccostrea commercialis*) and the Pacific oyster (*Crassostrea gigas*). The Sydney Rock oyster is farmed in New South Wales and Queensland. The Pacific oyster, which was introduced into Tasmania and NSW (to a small extent) from Japan in the 1950s, has since been farmed successfully in South Australia. A third less well known oyster is the flat mud oyster (*Ostrea angasi*) which is similar to the European species (*Ostrea edulis*).

EATING QUALITY

A number of factors influence the eating quality of an oyster. These include the season, method of farming and the way they are handled and stored. Sometimes customers buy oysters whole in shell, when quality and keeping characteristics are difficult to assess prior to purchase. This task is, of course, easier when oysters are presented on the half-shell.

Here are some hints to buying a good oyster.

WHOLE OYSTERS

- **smell:** oysters should have a fresh 'sea' smell. Avoid any that have an unpleasant or unusual smell. Generally oysters are washed before sale though occasionally barnacles still adhere to the shell
- **shape:** some indication of the quality of an oyster can be gleaned from the shape of the shell. An oyster with a deep cup-like shape is more likely to have a higher meat to shell ratio than a flat, misshapen one
- **gaping:** the shells of an oyster out of water should be intact and not broken and should be tightly closed, or at least should close when the oyster is lightly tapped. Avoid oysters that are obviously gaping open or damaged
- **storing live whole oysters out of water:** whole oysters can live for a considerable time out of water, but survival time depends on temperature. It is best to keep the oyster in a cool, moist environment but not too cold. One way of successfully storing Pacific oysters is to cover them with a layer of cloth under a layer of melting ice. The trickling ice water keeps the oysters cool though always ensure that the ice is replenished, and that the water drains away. Sydney Rock oysters are adapted to a warmer environment and so exposure to cold conditions may be detrimental.

HALF-SHELL OYSTERS

If the oysters are presented on the half shell, the customer can examine the meat more closely.

- **meat to shell ratio:** the volume of meat in an oyster will vary with season the meat of a prime oyster should fill most of the shell
- **colour:** when the oyster is in good condition, it builds up a layer of creamy glycogen. At other times the glycogen is lower and the oyster may have a glassy, grey/tan/green appearance. Some processors cut the meat from the shell completely and turn it over to fully display the glycogen, while others leave it attached to the lower shell, so it may not appear to be as creamy
- **taste:** the taste of oysters varies with season, species and the locality where they are grown. An oyster in good condition with plenty of glycogen will have a creamier taste and richer mouthfeel than an oyster in poor condition. In general, all oysters should have a fresh flavour. The 'sweet' fresh taste of a very fresh oyster can dissipate quite quickly when they are stored out of water for long periods of time, especially if they are left uncovered on the half shell.

BOTTLED OYSTERS

Oysters are also sold bottled in a brine solution. Since no preservation measures are taken, these should be stored at chill temperatures (0-2°C) to prevent growth of bacteria. Bottles should be examined carefully for chips in the glass and for glass shards in the bottom of the bottle.

The meats in the bottle should be intact with no large fragments, and the fluid should be clean, not grey or off white. There should be no trace of off odours when the bottle is opened and emptied.

SHELF LIFE

The shelf life of oysters varies with species, time, husbandry practices and temperature. As a guide, whole Pacific oysters will survive in air up to 7-8 days at 0-2°C in a moist environment. Sydney Rock oysters will survive a little longer (10-12 days) at cool ambient temperatures.

Oysters on the half shell should be stored as close to 0°C, or frozen. Because half shell oysters are normally sold as fresh seafood and are normally eaten 'au naturel', it is important that correct temperature regimes are followed.

CAUTION

Because they are often eaten raw, oysters have been involved in outbreaks of food poisoning. Considerable efforts are being made to ensure the quality of water in commercial oyster growing areas. To avoid problems, it is best to buy oysters from a reputable source that operates through an approved shellfish quality assurance program.

WASH BEFORE USE

Live oysters may have sand and grit adhering to the shells. It is advisable to briskly scrub the outside of the shells before opening.

Half shell oysters are usually rinsed before purchase. If you are opening the oysters yourself, you may need to wash away shell fragments broken off during opening. Washing with salt water will preserve the flavour best, but a quick wash under clean tap water will often suffice.

FOR FURTHER INFORMATION

Call Seafood Services Australia, Technical Information and Advice on 1300 130321.

Last update: 1 March 2000



SEAFOOD SERVICES
AUSTRALIA

This series of *Advisory Notes* has been compiled from the resources held by Seafood Services Australia. Please contact this office for a list of available *Advisory Notes*.



QUALITY INDEX SYSTEM FOR FRESH FISH

The Quality Index System (QIS) is a system developed by the CSIRO in Tasmania for inspecting and rating the freshness of fish that have not been frozen. Inspections are done using the senses of sight, smell, and touch.

HOW DOES QIS WORK?

An inspector rates a representative sample of several fish using a score sheet that takes them systematically through 14 key quality indicators, assigning a demerit score for each indicator.

The system takes a holistic view of the fish. Several fish are examined and numerous indicators are scored to ensure that variations between fish are overcome. The demerit points are then totalled to give a quality score for the batch of fish.

HOW WAS THE SCORING SYSTEM DEVELOPED?

The system is the result of many chilled storage trials using hundreds of fish of numerous species.

Initially, a uniform set of scores was used in the assessments. The results were then analysed using a statistical method that developed ranges for each indicator such that the sum of the scores fitted closely with the time of storage. It is therefore important that scores be assigned using the ranges provided on the sheet for each indicator.

WAS THE SYSTEM VERIFIED?

The demerit scores were compared with more rigorous laboratory analyses of the fish. A close correlation between the quality index and the chemical and microbiological assessment was confirmed.

WHICH SPECIES CAN THE SYSTEM BE USED ON?

The system was developed using data from many different types of finfish, for example dory, anchovy, perch and flathead.

Because it takes a holistic view of the fish, it can be applied to most finfish species.

DOES THE SYSTEM WORK FOR OTHER PRODUCTS?

This system was developed for fresh finfish. The quality index method has been successfully extended to prawns using a different score sheet. The principle itself is universal. It is simply recording in a systematic, quantifiable form, what discerning seafood buyers do every day.

HOW CAN THE QUALITY SYSTEM INDEX BE USED?

The index is a tool to assist in decision making.

A skipper may monitor the quality of the catch and decide to return to port. A processor may use the index to decide how the fish can best be used and therefore the monetary value he will be prepared to pay for it.

IS THE SYSTEM USED IN PRACTICE?

The system is becoming widely accepted in Europe, even to the extent of recording the index on the barcode labels on batches of fish unloaded from trawlers.

It has had limited use in Australia, with only one cannery using it to record the Index. It will become an important tool as electronic marketing becomes widespread.

CAN THE INDEX BE USED TO PREDICT SHELF LIFE?

The system was developed using fish held in ice as a benchmark.

The variables, which need to be considered for predicting shelf life, are the initial index and the temperature of storage.

The temperature of storage must be taken into account as the rate of spoilage is directly related to temperature. It is then possible to calculate a relative rate of spoilage at other temperatures.

WHAT IS NEEDED TO SET UP A QIS?

The key to successful implementation of QIS is to have well trained, experienced personnel, experienced in the species that they are dealing with. A vital training aid in this is a series of good photographs showing the changes in indicators, but there is no substitute for hands-on experience.

FOR FURTHER INFORMATION

Call Seafood Services Australia, Technical Information and Advice on 1300 130321.

Last update: 1 March 2000



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Advisory Notes

No: 3

SQUID PROCESSING AND HANDLING

Despite their appearance, squid are molluscan shellfish, and as such are related to animals such as periwinkles, limpets, oysters and abalone. Squid, octopus and cuttlefish make up the class Cephalopoda. There are three families of squid described in "*Cephalopods of Commercial Importance in Australian Fisheries*" by Wadley and Dunning (1997).



FISHING METHOD

Squid are caught by jigging and trawling. The method of jigging is to attract the squid to the side of the vessel at night using very powerful lights. The jig lines are then pulled up in a series of jerks, snaring the squid in the rosette of hooks that forms the lures.

Although the Australian catch of squid is comparatively small (approx. 3000 tonnes p.a.), on the world scene squid is a major fisheries resource, and a further 8000 tonnes p.a. is imported. The local catch is expected to increase, and secondary processing will become more attractive as supplies become more reliable.

POST HARVEST RESEARCH

Globally, a great deal of research has gone into suitable means of post harvest handling and processing. In Australia, a FRDC funded project identified options for processing of the southern species (*Nototodaris gouldi*). The report from that project (NSC 97/402) lists a range of products and processes that can be used to maximise the returns from that species.

ANATOMY AND COMPOSITION

The body of a squid can be thought of as four parts:

- The bell shaped mantle or 'tube' which encloses the viscera
- The viscera or 'guts' which includes the alimentary canal, the gonads, and the digestive organs,
- The rudimentary shell or 'quill',
- The head,
- The tentacles which surround the mouth,
- The 'flaps' which vary in size from running the whole length of the mantle to simply forming an arrowhead like tail at the end of the mantle.

Most of the body is made up of soft tissue with the exception of the cartilaginous quill, the beak, and rings of 'teeth' in the suckers in the tentacles. The nutritional composition of the flesh is 78% water, 15-19% protein, 1-1.5% fat, with an energy value of 2 J/g. The omega-3 fatty acids acid content is quoted as 566mg%.

HANDLING AND PROCESSING

Squid are not usually gutted at sea, but are simply washed, graded, packed, and either frozen or chilled in ice or refrigerated seawater. Sometimes, a sheet of polythene is placed between the squid and the ice to prevent leaching of the skin's colour. Whole squid are frozen in cartons in a blast freezer or in moulds in a plate freezer. It is advisable to glaze squid after freezing to preserve the colour and prevent dehydration.

To gut squid, twist the head and squeeze the mantle, while gently pulling the gut and head clear of the mantle. If the quill does not come out during this procedure, it may be removed separately. For Gould's squid, the tail flaps can be cut off and the quill removed in one action. The tentacles can be severed from the head and the beak removed.

Complete removal of the male sex organs (the 'milt') can be a problem. Machines are available that can ream out the milt and any remaining gut material.

Several methods are used to assist skinning:

- Blanching in hot water between 20-30°C for 15 seconds makes the skin easier to remove.
- Some mechanical skinning machines can skin squid quite effectively.
- An enzymic process has been developed to break down the connective tissue linking the flesh and the skin.

RECOVERIES

The recoveries from processing vary with species, yields from Gould's squid are quoted as:

Tubes	30%
Tentacles	30%
Viscera	30%
Flaps	8%
Fluid loss	2-5%

PRODUCT DEVELOPMENT

Raw material is a major cost in squid processing, so optimisation of returns by value adding and utilisation of off cuts etc is very desirable. A number of products have been suggested.

- **Existing products:** Better presentation of existing product can be achieved by more creative dressing and improved packaging. Systems such as vacuum skin packs and evacuated blister packaging can be used.
- **Breaded and battered products:** Crumbed products such as squid balls, nuggets, bites and rings can be made from reformed flesh from off cuts.
- **Prepared Dishes:** The excellent nutritional properties of squid should make it a suitable component for prepared dishes for both the food service and retail sectors. Prepared salads and stir fry dishes have been prepared using *sous vide* technology.
- **Other products:** Other technologies such as canning, marinades, smoking and drying are used overseas, and these squid products are currently imported into Australia.

FOR FURTHER INFORMATION

Call Seafood Services Australia, Technical Information and Advice on 1300 130321.

Last update: 1 March 2000



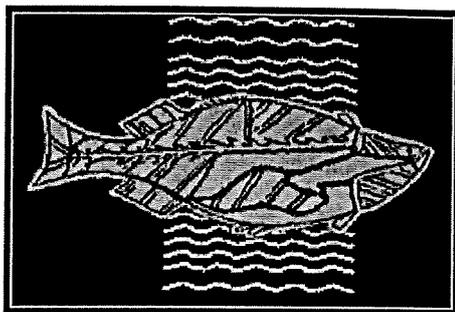
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APPENDIX VI

Internet Pages

- **Previous pages for AUSEAS**
- **Current pages for information service under Seafood Services Australia**



Technical Information & Advice for the Seafood Industry

AUSEAS - *Providing Seafood Solutions*

AUSEAS is a joint initiative of the Fisheries Research & Development Corporation (FRDC) and DPI Queensland. AUSEAS provides a comprehensive extension service on post-harvest seafood technology, facilitating the adoption of leading-edge technology. Also associated with AUSEAS is the National Seafood Centre (NSC). NSC provides funds for research and development to foster value-adding and product development in the post harvest seafood industry.

[What is AUSEAS?](#) [Services](#) [Reports](#)

ADDITIONAL LINKS (Other Sites of Interest)

-  [ABARE](#) (Australian Bureau of Agricultural & Regional Economics)
-  [AFMA](#) (Australian Fisheries Management Authority)
-  [ASIC](#) (Australian Seafood Industry Council) and [\(SeaQual\)](#)
-  [AUSTRADE](#)
-  [DPI Fisheries](#)
-  [DPIE Fisheries](#)

-  [Current Fish Prices](#)
 - [Melbourne Fish Markets](#)
 - [Sydney Fish Markets](#)

For Further Information:

Email [CFT](#), Australian Seafood Extension & Advisory Service

Centre for Food Technology

19 Hercules Street Hamilton Brisbane Queensland 4007

Telephone: 07 3406 8597

Facsimile: 07 3406 8677

International Fax +61 7 3406 8677



CENTRE FOR FOOD TECHNOLOGY



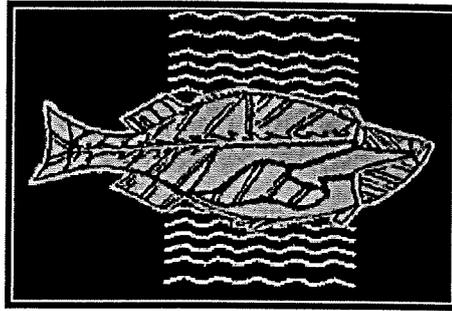
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Creators: [Tim Beattie](#) & [John Mayze](#) Centre for Food Technology
This page approved by: Peter Skarshewski, CFT
Date created: 19 May 1997 Revised: 02 Jun 1999

DPI Queensland, 80 Ann Street, Brisbane Q 4000.
©The State of Queensland, Department of Primary Industries 1998.



What is AUSEAS?

AUSEAS - *Providing Seafood Solutions*

AUSEAS is a joint initiative of the Fisheries Research and Development Corporation (FRDC) and DPI Queensland which provides technical support for the seafood industry.

AUSEAS Goals

- Transfer appropriate technology to the Australian seafood industry.
- Develop a technology-based culture that will encourage industry.
- Facilitate the interpretation and adoption of research results.

Who are the clients of AUSEAS?

- The seafood industry including companies, individuals and agencies which service the industry.
- Researchers in post-harvest seafood technology.

What services does AUSEAS provide to industry?

- Written information packages customised to fit the client's unique needs.
- Specialist technical advice on all aspects of seafood technology.
- Referral to individuals and agencies relevant to the industry.
- Access to a network of expertise from contacts around the world.
- Subscription to current awareness updates compiled from a wide variety of databases.

What services does AUSEAS offer to the research community?

- Identification of the technical research needs of the seafood industry.
- Networking between industry partners and researchers.
- Searches of the published literature and electronic databases

- on a subject.
- Assistance in the preparation of research proposals.
 - Review of the results of research during and at the conclusion of projects.

What are the unique characteristics of the AUSEAS operation?

- AUSEAS staff have access to a large "footprint" in information which extends across the world and back 70 years in time.
- AUSEAS has extensive holdings of hard copy material, allowing us to give very fast responses on most topics.
- AUSEAS staff have many years "hands on" experience with seafood and are able to interpret technical material, tailoring it to fit the client.
- A strong commercial focus with continuous contact with clients ensures a clear understanding of each client's needs.

What do AUSEAS services cost?

AUSEAS is a fee-for-service operation, and its charges vary with the level of services provided. Charge rates are similar to those of private sector consultants. In general a quote is given and agreed to prior to commencement of the work.

For Further Information:

Email CFT, Australian Seafood Extension & Advisory Service
 Centre for Food Technology
 19 Hercules Street Hamilton Brisbane Queensland 4007
 Telephone: 07 3406 8597
 Facsimile: 07 3406 8677
 International Fax +61 7 3406 8677



CENTRE FOR FOOD TECHNOLOGY



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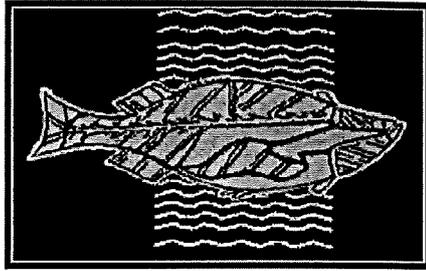


QUEENSLAND
GOVERNMENT



Creators: [Tim Beattie](#) & [John Mayze](#) Centre for Food Technology
 This page approved by: Peter Skarshewski, CFT
 Date created: 19 May 1997 Revised: 08 Apr 1999

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AUSEAS Services

AUSEAS - *Providing Seafood Solutions*

AUSEAS Services include:

QUARTERLY UPDATES: For this charge you are entitled to four (4) quarterly updates on the topic of your choice. These will be forwarded to you every three (3) months on the topic you requested when you subscribe.

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PUBLICATIONS: As well as the above services AUSEAS sells several of the FRDC and NSC project reports. [Click here to see comprehensive list of reports available from AUSEAS.](#)

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Here are a few examples of the types of information package requests which are regularly received by the AUSEAS group.

-  Aquaculture and processing of squid
-  Cooking, processing, and post harvest handling of prawns
-  Manufacture of fish sausage
-  Prevention of blackspot in prawns
-  Processing and handling of cuttlefish
-  Seafood handling in the retail sector
-  Smoking of fish and seafood in general
-  The processing, nutrition, and utilisation of carp

What do AUSEAS services cost?

AUSEAS is a fee-for-service operation, and its charges vary with the level of services provided. Charge rates are similar to those of private sector consultants. In general a quote is given and agreed to prior to commencement of the work.

What are the methods of payment used?

The following methods are available. Choose the most convenient:

- Cash, bank, company or personal cheque.
- Credit cards using Mastercard, Visa, Bankcard or Amex (in business hours).
- Fax using Mastercard, Visa, Bankcard or Amex.

For Further Information:

Email CFT, Australian Seafood Extension & Advisory Service

Centre for Food Technology

19 Hercules Street Hamilton Brisbane Queensland 4007

Telephone: 07 3406 8597

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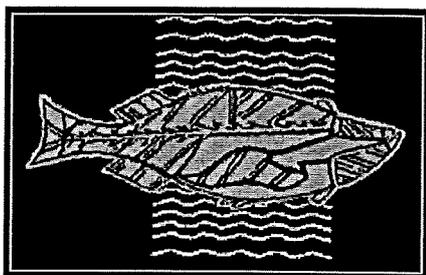
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Seafood Reports

AUSEAS - *Providing Seafood Solutions*

➤ ***A guide to the safe handling and inspection of seafood***

This guide is for those who retail seafood and covers the many practices, procedures and rules that must be employed to help ensure seafood remains safe to eat. Sections covered in the book are: determining seafood quality; seafood spoilage and how to reduce it; cleaning and sanitising seafood work areas; and requirements for display seafood. This manual should be read in conjunction with the necessary Federal, State and Local Authority food laws.

(back to fax form) **MISC 2: \$A23.00**

➤ ***A study into the production of nuclei for pearl culture using Australian mother-of-pearl shell***

The cultured pearl industry in Australia relies on the supply of shell beads or nuclei as the base for cultured pearls. This project sought to compare the production of mother-of-pearl nuclei from *Pinctada maxima* from WA pearl shells of three different origins: punch shell oysters; shells from NT pearl oysters; and shells from wild WA pearl oysters.

(back to fax form) **NSC 97/403: \$A20.00**

➤ ***A study of the demand and importance of seafood sourced in NSW and elsewhere to the catering and tourism industries in NSW***

The NSW fishing and aquaculture industry recognised that there is an increasing demand for seafoods for a growing number of domestic and overseas buyers but it is facing restrictions on various activities because of the limited nature of fisheries resources and waterfront aquaculture sites.

(back to fax form) **FRDC 95/126: \$A40.00**

➤ ***An analysis of Asian markets for seafood products***

This report provides an analysis of selected Asian markets for under-utilised seafood products, and forms part of the market selection process of the FRDC project "Hooking into Asian seafood markets".

([back to fax form](#)) **FRDC 97/342: \$A20.00**

➤ ***An improved packaging system for live western rock lobster***

Marketing the western rock lobster has undergone a dramatic transformation. The rock lobster industry has developed on its own initiative handling, processing and packaging systems for live rock lobsters largely on an 'ad hoc' basis. This report 'ad sets out the results of a survey conducted into the packaging systems used with western rock lobsters.

([back to fax form](#)) **NSC 92/125.09: \$A25.00**

➤ ***Aquaculture Queensland identification poster***

Highlighting six of Queensland's main aquaculture species, this identification provides information on the characteristics of these species, including aspects such as flavour and texture. In addition to illustrating these species, this poster also informs on the seasonal availability of these species.

([back to fax form](#)) **MISC 3: \$A10.00**

➤ ***Australian Common Carp: A Marketing Strategy***

The aim of the project was to identify potential markets for the consumption of carp. An additional aim was to control the carp population through commercial exploitation.

([back to fax form](#)) **NSC 92/125.04A: \$A15.00**

➤ ***Australian seafood by season***

This month by month and state by state calendar highlights the seasonal availability of 130 of Australia's major aquaculture seafood species and up-coming wild caught species. In addition to this seasonality information, this wall-mounted calendar includes species identification photos, an alternatives chart, and, a national 'at a glance' chart.

([back to fax form](#)) **FRDC 97/301: \$A27.00**

➤ ***Australian seafood handbook – domestic species***

This book is a comprehensive user-friendly identification guide. It contains full colour photographs of about 350 species of finfish and shellfish along with oil composition profiles, protein fingerprints and fish fillet. An essential reference for all professional and recreational fishers, fish mongers, processors, biologists and seafood consumers.

([back to fax form](#)) **FRDC 94/136.02: \$A48.50**
FRDC 94/136.03W: (waterproof copy) \$A83.50

➤ ***Australian seafood industry directory 1997-99***

This directory contains names and addresses of companies and individuals involved in both the aquaculture and post-harvest sectors

of the industry. Also included have been a number of features to increase its ease of use. Some of these features are: Grouped into States; Coastal strip maps; Seasonality guide; and Government agencies are listed in the front of the directory giving contact numbers for the head office and regional offices.

([back to fax form](#)) **FRDC 94/170: Book \$A20.00**
CD \$A20.00

➤ ***Cephalopods of Commercial Importance in Australian Fisheries***

The guide identifies 30 species of squid, cuttlefish and octopus and is intended to promote accurate species reporting of commercial catches and more informed fisheries management.

([back to fax form](#)) **NSC 98/483: \$A15.00**

➤ ***Development of a process to manufacture powdered shark cartilage***

This report covers the materials and methods used to develop the process to manufacture the powdered shark cartilage.

([back to fax form](#)) **NSC 92/125.11: \$A30.00**

➤ ***Development of live fish transport techniques***

The supply of fish live to markets is a 'value-adding' process, where the higher prices paid for live fish are dependent on the fish arriving live at their destination. This report provides details of various aspects of live fish transport in three main areas: (1) Capture and pre-transport maintenance; (2) Packaging and live transport; and (3) Post-transport maintenance.

([back to fax form](#)) **FRDC 93/184: \$A30.00**

➤ ***Dried seafood marketing report 1996***

This report is a market survey into the processing of seafood using such technological equipment as the heat pump drier. Topics covered in the report include: A survey of products and prices of dried seafood sold in Australia; Market information about dried seafood traded around the world; Import and export statistics; Study tour of manufacturers and wholesale and retail outlets for dried seafood in Hong Kong and Taiwan; A review of likely candidates for Australian production.

([back to fax form](#)) **FRDC 94/123A: \$A105.00**

➤ ***Evaluation of the cooking process on aquacultured giant tiger prawns (*Penaeus Monodon*)***

This report outlines an operational procedure for the cooking of *P. monodon* and . It discusses critical control points within the process gives an indication of best practices.

([back to fax form](#)) **NSC 97/485: \$A15.00**

➤ ***Extending the High quality shelf life of seafood products***

The shelf life of any seafood product is dependent on the initial levels of bacteria present. Modified atmosphere packaging (MAP) technology can extend the shelf life of seafood. This report shows that MAP technology can double the shelf life of fresh seafood under Australian conditions. The research applied MAP to four different types of seafood products: saucer scallops; broadbill swordfish cutlets; Atlantic salmon portions; rainbow trout fillets.

(back to fax form) **FRDC 96/338: \$A40.00**

➤ ***Feasibility study for establishment of a Victorian commercial jellyfish fishery***

(back to fax form) **NSC 92/125.31: \$A20.00**

➤ ***Fish meal production using by-products of commercial fisheries***

The specific aims of the study were to identify sources of fisheries waste materials, determine annual production and seasonal variability of the wastes in question and perform proximate analyses and fatty acid analyses on selected materials with the view of assessing their suitability for inclusion in aquaculture feeds.

(back to fax form) **NSC 92/125.08: \$A25.00**

➤ ***Fish silage: Can it be used in aquaculture?***

Fish silage has potential as a protein component, flesh colourant and as a feed attractant. The extent of this potential should be evaluated for each opportunity. This report discusses the use of fish silage as an aquaculture feed based on trials conducted throughout Australia.

(back to fax form) **NSC 92/125.19: \$A20.00**

➤ ***Food processing concepts for the Australian beche-de-mer industry***

This publication is the culmination of a project into the processing of beche-de-mer (also known as Sea Cucumber or Trepang). Topics covered in the publication include: Biology of the animals; Processing of the cooked/dried product; Freezing and freeze drying; Handling and hygiene; Quality control and management; and Marketing.

(back to fax form) **NSC 92/125.02: \$A25.00**

➤ ***Improvements in post harvest handling and marketing strategy for blue crabs***

Development of a simple method of handling live crabs at sea. This study shows that the industry will accept the change from netting to potting for crabs, that the superior quality of crabs caught in pots can be maintained, and that markets exist to obtain an increased return for these crabs.

(back to fax form) NSC 92/125.17: \$A30.00

➤ ***Improving packaging technology, survival and market options for kuruma prawns***

This project seeks to improve packaging technology, survival and market options for Kuruma prawns and to assist the industry sector in establishing and maintaining a strong and reliable market position.

(back to fax form) NSC 92/125.32: \$A20.00

➤ ***Live seafood handling - Strategies for development***

Australia's live seafood trade is valued at over \$250 million, and is a major reason behind the growth in seafood exports in recent years. While the industry enjoys considerable success, there is still the need to solve a variety of highly complex problems associated with the capture, holding, and transport of a range of species. The National Seafood Centre held a live seafood forum to discuss many of these issues.

(back to fax form) NSC 92/125.26: \$A35.00

➤ ***Making the most of the catch - International post-harvest symposium proceedings***

If you have anything to do with production, marketing, quality, technical management, QA, training or are an educator or student involved with seafood. It contains an enormous wealth of information from both Australia's and the worlds top fish technologists who made presentations at the Symposium.

(back to fax form) NSC 92/125.30: \$A30.00

➤ ***Marketing names for fish and seafood in Australia***

This publication contains a list of over 270 species of fish and seafood. It covers wild caught, farmed and imported fish and seafood. It will be of benefit to overcome economic inefficiencies and assist in fisheries management. This publication will be an essential tool for the marketing of fish and seafood.

(back to fax form) FRDC 94/137: \$A15.00

➤ ***Maximising economic returns in the Northern Territory Spanish mackerel fishery***

(back to fax form) NSC 92/124.24: \$A15.00

➤ ***Processing of the southern king crab (*Pseudocarcinus gigas*)***

This report identifies a market for larger crabs by processing the meat and packaging it in canned or snap frozen containers. To achieve this objective a suitable method for the commercial cooking and processing of the crabs was identified.

(back to fax form) NSC 92/125.16: \$A15.00

➤ ***Reducing post-capture mortality when storing tropical rock lobsters for live transport***

This report identifies some of the problems currently affecting the live transport of rock lobsters in relation to concentrations of lactate, glucose and ammonia in the blood.

([back to fax form](#)) **NSC 92/125.27: \$A25.00**

➤ ***Research on potential pharmaceutical products from Australian Holothurians***

This report identified that control over species collection, handling, identification, processing and evaluation should be the first priority in any efforts to develop a therapeutic-based sea cucumber industry.

([back to fax form](#)) **NSC 92/125.22: \$A20.00**

➤ ***Seafood airfreight packaging strategy: A series of consultative forums***

This report contains a summary of workshop presentations given by speakers on issues surrounding the seafood airfreight regulations and appropriate packaging technologies. It also outlines key recommendations for future development of airfreight regulations and support systems.

([back to fax form](#)) **NSC 97/401: \$A30.00**

➤ ***Seafood catering manual - Volume 1***

This book details where a species is caught, the main ways it is sold, chef's choice, menu morsels, suggest wines and cooking ideas. Species described include 37 fin fish (from Atlantic Salmon to Whiting), 18 shellfish covering prawns, crabs, lobsters, crayfish and molluscs plus crocodile. Two alternative tables provide a quick reference guide to species that can be used as alternatives for another. Finally two nutrition tables, one for fin fish, one for shellfish, complete this thoroughly researched book.

([back to fax form](#)) **FRDC 94/166: \$A30.00**

➤ ***Seafood the good food***

The book lists the oil content and fatty acid composition of Australian commercial fishes, shellfishes and crustaceans.

([back to fax form](#)) **FRDC 95/122: \$A25.00**

➤ ***Silver Perch Industry Development Plan***

This report identifies the issues involved in modern marketing techniques and outlines an approach to achieving a profitable and market driven Australian silver perch industry.

([back to fax form](#)) **NSC 92/125.21: \$A25.00**

➤ ***Studies on the physical response of wrasse and horseshoe leather jacket to capture and transport***

This study looks into the water temperature at which fish can be comatised for live transport and also the water temperature at which the majority of fish will survive for extended periods (e.g. transport to Asia, Japan or the USA).

([back to fax form](#)) **NSC 92/125.15: \$A15.00**

➤ ***Study of the by-catch, processing by-products and waste in Queensland and New South Wales***

This reports the findings of the study of the by-catch of many of the major fisheries and fishing grounds in Australia. The results cover the composition and abundance of by-catch; what is retained and how it is utilised; what are by-products and what are waste.

([back to fax form](#)) **NSC 92/125.10: \$A30.00**

➤ ***The handling and value-adding of farmed barramundi***

The commercial handling, packing and distribution of farmed barramundi from producers to interstate markets and consumers were examined to assess the effectiveness of current practices. The potential of new products form large fish and value-adding opportunities were also examined so that industry could reduce its reliance on plate size fish and reduce its exposure to falling prices.

([back to fax form](#)) **NSC 92/125.33: \$A30.00**

➤ ***The improvement in the quality of meat from frozen trawl caught blue crabs***

The technological aim o f the project was to improve the quality of frozen crab meat by examining a range of different on-board handling and freezing combinations. The quality of the meat obtained from these crabs were determined by carrying out focus group discussions and microbiological tests as an indicator of shelf life.

([back to fax form](#)) **NSC 92/125.34: \$A20.00**

➤ ***Value-adding for squid processing in the Geelong Region***

This report details the primary and secondary processing opportunities for the squid industry. The market opportunity for value-added squid products is significant with Australia being a substantial net importer of squid products.

([back to fax form](#)) **NSC 97/402: \$A20.00**

➤ ***Value-adding to seafood by application of modern drying techniques***

A total of 16 species were trialed for this report using the Heat Pump Drier. Of the species dried there were several species which did not lend themselves to quick and easy drying.

(back to fax form) **FRDC 94/123B: \$A40.00**

For additional information about any of these books please contact Australian Seafood Extension and Advisory Service (AUSEAS) on:

Telephone: [07] 3406-8617 Fax: [07] 3406-8677 International: +61

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Date created: 19 May 1997 Revised: 02 June 1999

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SEAFOOD PUBLICATIONS

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SEAFOOD SERVICES AUSTRALIA

Technical information & advice
Food safety, quality management & standards
Product & process development

Seafood Services Australia is a joint national industry/government initiative supported by the Fisheries Research and Development Corporation (FRDC). It combines all the services previously provided by the Australian Seafood Extension & Advisory Service (AUSEAS), the National Seafood Centre (NSC) and SeaQual Australia under the one 'umbrella' name and in one location.

As a result, Seafood Services Australia now provides three core services to the Australian seafood industry:

- Information and advice on technical issues
- Guidance on food safety, quality management and standards
- Financial assistance to support commercially focused, value adding projects.

Seafood Services Australia also acts as a referral point for other individuals and agencies relevant to the industry and has access to a network of expertise from contacts around Australia and the world.



ADDITIONAL LINKS (Other Sites of Interest)

-  **ABARE** (Australian Bureau of Agricultural & Regional Economics)
-  **AFMA** (Australian Fisheries Management Authority)
-  **ASIC** (Australian Seafood Industry Council) and (**SeaQual**)
-  **AUSTRADE**
-  **DPI Fisheries**

-  **Current Fish Prices**
 - **Melbourne Fish Markets**
 - **Sydney Fish Markets**



For Further Information:

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Date created: 28 Sep 1999 Revised: 29 Mar 2000

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SEAFOOD SERVICES AUSTRALIA

Technical information & advice

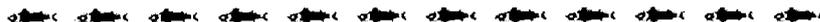
Providing Seafood Solutions Information and advice on technical issues

This component of Seafood Services Australia has been set up to promote technology transfer, enabling Australian seafood producers to keep abreast with developments across the world, and assisting them to use the latest technology in solving problems they may encounter. To find out more about the Technical information & advice component or its services or the reports and publications available through the service click on one of the buttons below:

About this Component

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Reports and publications



For Further Information:

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QUEENSLAND
GOVERNMENT



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SEAFOOD SERVICES AUSTRALIA

Technical information & advice

Providing Seafood Solutions **About Technical information and advice component**

Technical information & advice (TIA) goals

- Transfer appropriate technology to the Australian seafood industry.
- Develop a technology-based culture that will encourage industry.
- Facilitate the interpretation and adoption of research results.

Who are the clients of TIA?

- The seafood industry including companies, individuals and agencies which service the industry.
- Researchers in post-harvest seafood technology.

What services does TIA provide to industry?

- Written information packages customised to fit the client's unique needs.
- Specialist technical advice on all aspects of seafood technology.
- Referral to individuals and agencies relevant to the industry.
- Access to a network of expertise from contacts around the world.
- Subscription to current awareness updates compiled from a wide variety of databases.

What services does TIA offer to the research community?

- Identification of the technical research needs of the seafood industry.
- Networking between industry partners and researchers.
- Searches of the published literature and electronic databases on a subject.
- Assistance in the preparation of research proposals.
- Review of the results of research during and at the conclusion of projects.

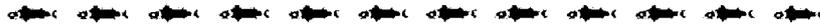
What are the unique characteristics of the TIA operation?

- Staff have access to a large "footprint" in information which extends across the world and back 70 years in time.

- It has extensive holdings of hard copy material, allowing us to give very fast responses on most topics.
- Staff have many years "hands on" experience with seafood and are able to interpret technical material, tailoring it to fit the client.
- A strong commercial focus with continuous contact with clients ensures a clear understanding of each client's needs.

What do the services cost?

TIA is a fee-for-service operation, and its charges vary with the level of services provided. Charge rates are similar to those of private sector consultants. In general a quote is given and agreed to prior to commencement of the work.



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Technical information & advice

Providing Seafood Solutions Services

Often the answers to today's problems have been discovered years ago. Using our extensive literature database we can prepare customised information packages on all aspects of post harvest technology, marketing, aquaculture, etc. To ensure you can get the best value for money and keep up-to-date with your information you can subscribe to any one of the subscription services offered by TIA. Our services include the following:

UPDATE SERVICE: Keeping pace with the ever changing trends in the global seafood market is a challenge for busy seafood producers. We can set up a personalised update service that will give you information on developments in your area of interest on a regular basis. This is usually quarterly but the frequency can be varied to suit you.

ABSTRACT SERVICE: For this charge you will receive a list of published articles, author, date of publication and a brief description of the article. To use this service, simply supply TIA with the topic you are interested in. The full text of the article can be subsequently supplied on request from you.

LITERATURE SEARCHES: TIA has access to a wide range of technical information sources. We have the ability to develop an information package to assist you with most of your enquiries. There are several different ways for you to keep abreast of your specific area of interest or expertise.

Here are a few examples of the types of information package requests which are regularly received by the TIA staff.

-  Aquaculture and processing of squid
-  Cooking, processing, and post harvest handling of prawns
-  Manufacture of fish sausage
-  Prevention of blackspot in prawns
-  Processing and handling of cuttlefish
-  Seafood handling in the retail sector
-  Smoking of fish and seafood in general
-  The processing, nutrition, and utilisation of carp

PUBLICATIONS: As well as the above services TIA sells several of the FRDC project and sub-project reports. See the comprehensive

list on this site for further details.

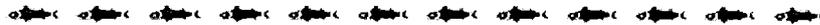
What do TIA services cost?

TIA is a fee-for-service operation, and its charges vary with the level of services provided. Charge rates are similar to those of private sector consultants. In general a quote is given and agreed to prior to commencement of the work.

What are the methods of payment used?

The following methods are available. Choose the most convenient:

- Cash, bank, company or personal cheque.
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Date created: 28 Sep 1999 Revised: 29 Mar 2000

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SEAFOOD SERVICES AUSTRALIA

Technical information & advice

Providing Seafood Solutions **Seafood Reports**

➤ ***A guide to the safe handling and inspection of seafood***

This guide is for those who retail seafood and covers the many practices, procedures and rules that must be employed to help ensure seafood remains safe to eat. Sections covered in the book are: determining seafood quality; seafood spoilage and how to reduce it; cleaning and sanitising seafood work areas; and requirements for display seafood. This manual should be read in conjunction with the necessary Federal, State and Local Authority food laws

(back to fax form) **MISC 2: \$A** *"amount to be advised"*

➤ ***A study into the production of nuclei for pearl culture using Australian mother-of-pearl shell***

The cultured pearl industry in Australia relies on the supply of shell beads or nuclei as the base for cultured pearls. This project sought to compare the production of mother-of-pearl nuclei from *Pinctada maxima* shells of three different origins: punch shell from WA pearl oysters; shells from NT pearl oysters; and shells from wild WA pearl oysters.

(back to fax form) **NSC 97/403: \$A** *"amount to be advised"*

➤ ***A study of the demand and importance of seafood sourced in NSW and elsewhere to the catering and tourism industries in NSW***

The NSW fishing and aquaculture industry recognised that there is an increasing demand for seafoods for a growing number of domestic and overseas buyers but it is facing restrictions on various activities because of the limited nature of fisheries resources and waterfront aquaculture sites.

(back to fax form) **FRDC 95/126: \$A** *"amount to be advised"*

➤ ***An analysis of Asian markets for seafood products***

This report provides an analysis of selected Asian markets for under-utilised seafood products, and forms part of the market selection process of the FRDC project "Hooking into Asian seafood markets".

(back to fax form) **FRDC 97/342: \$A** *"amount to be advised"*

➤ ***An improved packaging system for live western rock lobster***

Marketing the western rock lobster has undergone a dramatic transformation. The rock lobster industry has developed on its own initiative handling, processing and packaging systems for live rock lobsters largely on an 'ad hoc' basis. This report sets out the results of a survey conducted into the packaging systems used with western rock lobsters.

(back to fax form) **NSC 92/125.09: \$A** *"amount to be advised"*

➤ ***Aquaculture Queensland identification poster***

Highlighting six of Queensland's main aquaculture species, this identification poster provides information on the characteristics of these species, including aspects such as flavour and texture. In addition to illustrating these species, this poster also informs on the seasonal availability of these species.

(back to fax form) **MISC 3: \$A** *"amount to be advised"*

➤ ***Australian Common Carp: A Marketing Strategy***

The aim of the project was to identify potential markets for the consumption of carp. An additional aim was to control the carp population through commercial exploitation.

(back to fax form) **NSC 92/125.04: \$A** *"amount to be advised"*

➤ ***Australian seafood by season***

This month by month and state by state calendar highlights the seasonal availability of 130 of Australia's major and up-coming wild caught and aquaculture seafood species. In addition to this seasonality information, this wall-mounted calendar includes species identification photos, an alternatives chart, and, a national 'at a glance' chart.

(back to fax form) **FRDC 97/301: \$A** *"amount to be advised"*

➤ ***Australian seafood handbook – domestic species***

This book is a comprehensive user-friendly identification guide. It contains full colour photographs of about 350 species of finfish and shellfish along with oil composition profiles, protein fingerprints and fish fillet. An essential reference for all professional and recreational fishers, fish mongers, processors, biologists and seafood consumers.

(back to fax form) **FRDC 94/136.02: \$A** *"amount to be advised"*

FRDC 94/136.03W: (waterproof copy) **\$A** *"amount to be advised"*

➤ ***Australian seafood industry directory 1997-99***

This directory contains names and addresses of companies and individuals involved in both the aquaculture and post-harvest sectors of the industry. Also included have been a number of features to increase its ease of use. Some of these features are: Grouped into States; Coastal strip maps; Seasonality guide; and Government agencies are listed in the front of the directory giving contact numbers for the head office and regional offices.

(back to fax form) **FRDC 94/170: Book \$A** *"amount to be advised"*

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➤ ***Cephalopods of Commercial Importance in Australian Fisheries***

The guide identifies 30 species of squid, cuttlefish and octopus and is intended to promote accurate species reporting of commercial catches and more informed fisheries management.

(back to fax form) **NSC 98/483: \$A** *"amount to be advised"*

➤ **Development of a process to manufacture powdered shark cartilage**

This report covers the materials and methods used to develop the process to manufacture the powdered shark cartilage.

(back to fax form) **NSC 92/125.11: \$A** *"amount to be advised"*

➤ **Development of live fish transport techniques**

The supply of fish live to markets is a 'value-adding' process, where the higher prices paid for live fish are dependent on the fish arriving live at their destination. This report provides details of various aspects of live fish transport in three main areas: (1) Capture and pre-transport maintenance; (2) Packaging and live transport; and (3) Post-transport maintenance.

(back to fax form) **FRDC 93/184: \$A** *"amount to be advised"*

➤ **Dried seafood marketing report 1996**

This report is a market survey into the processing of seafood using such technological equipment as the heat pump drier. Topics covered in the report include: A survey of products and prices of dried seafood sold in Australia; Market information about dried seafood traded around the world; Import and export statistics; Study tour of manufacturers and wholesale and retail outlets for dried seafood in Hong Kong and Taiwan; A review of likely candidates for Australian production.

(back to fax form) **FRDC 94/123A: \$A** *"amount to be advised"*

➤ **Evaluation of the cooking process on aquacultured giant tiger prawns (*Penaeus Monodon*)**

This report outlines an operational procedure for the cooking of *P. monodon*. It discusses critical control points within the process and gives an indication of best practices.

(back to fax form) **NSC 97/485: \$A** *"amount to be advised"*

➤ **Extending the High quality shelf life of seafood products**

The shelf life of any seafood product is dependent on the initial levels of bacteria present. Modified atmosphere packaging (MAP) technology can extend the shelf life of seafood. This report shows that MAP technology can double the shelf life of fresh seafood under Australian conditions. The research applied MAP to four different types of seafood products: saucer scallops; broadbill swordfish cutlets; Atlantic salmon portions; rainbow trout fillets.

(back to fax form) **FRDC 96/338: \$A** *"amount to be advised"*

➤ **Feasibility study for establishment of a Victorian commercial jellyfish fishery**

Catostylus mosaicus is one species of jellyfish, abundant in Australian waters, which is suitable for Asian markets where dried jellyfish bells are a highly regarded food. This study estimates order-of-magnitude jellyfish biomass in Port Phillip Bay, investigates harvesting and on-board storage techniques, trials processing and alternative drying techniques. Includes market testing in Asia.

(back to fax form) **NSC 92/125.31: \$A** *"amount to be advised"*

➤ ***Fish meal production using by-products of commercial fisheries***

The specific aims of the study were to identify sources of fisheries waste materials, determine annual production and seasonal variability of the wastes in question and perform proximate analyses and fatty acid analyses on selected materials with the view of assessing their suitability for inclusion in aquaculture feeds.

(back to fax form) **NSC 92/125.08: \$A** *"amount to be advised"*

➤ ***Fish silage: Can it be used in aquaculture?***

Fish silage has potential as a protein component, flesh colourant and as a feed attractant. The extent of this potential should be evaluated for each opportunity. This report discusses the use of fish silage as an aquaculture feed based on trials conducted throughout Australia.

(back to fax form) **NSC 92/125.19: \$A** *"amount to be advised"*

➤ ***Food processing concepts for the Australian beche-de-mer industry***

This publication is the culmination of a project into the processing of beche-de-mer (also known as Sea Cucumber or Trepan). Topics covered in the publication include: Biology of the animals; Processing of the cooked/dried product; Freezing and freeze drying; Handling and hygiene; Quality control and management; and Marketing.

(back to fax form) **NSC 92/125.02: \$A** *"amount to be advised"*

➤ ***Improvements in post harvest handling and marketing strategy for blue crabs***

Development of a simple method of handling live crabs at sea. This study shows that the industry will accept the change from netting to potting for crabs, that the superior quality of crabs caught in pots can be maintained, and that markets exist to obtain an increased return for these crabs.

(back to fax form) **NSC 92/125.17: \$A** *"amount to be advised"*

➤ ***Improving packaging technology, survival and market options for kuruma prawns***

This project seeks to improve packaging technology, survival and market options for Kuruma prawns and to assist the industry sector in establishing and maintaining a strong and reliable market position.

(back to fax form) **NSC 92/125.32: \$A** *"amount to be advised"*

➤ ***Live seafood handling - Strategies for development***

Australia's live seafood trade is valued at over \$250 million, and is a major reason behind the growth in seafood exports in recent years. While the industry enjoys considerable success, there is still the need to solve a variety of highly complex problems associated with the capture, holding, and transport of a range of species. The National Seafood Centre held a live seafood forum to discuss many of these issues.

(back to fax form) **NSC 92/125.26: \$A** *"amount to be advised"*

➤ ***Making the most of the catch - International post-harvest***

symposium proceedings

If you have anything to do with production, marketing, quality, technical management, QA, training or are an educator or student involved with seafood. It contains an enormous wealth of information from both Australia's and the worlds top fish technologists who made presentations at the Symposium.

([back to fax form](#)) **NSC 92/125.30: \$A** *"amount to be advised"*

➤ *Marketing names for fish and seafood in Australia*

This publication contains a list of over 270 species of fish and seafood. It covers wild caught, farmed and imported fish and seafood. It will be of benefit to overcome economic inefficiencies and assist in fisheries management. This publication will be an essential tool for the marketing of fish and seafood.

([back to fax form](#)) **FRDC 94/137: \$A** *"amount to be advised"*

➤ *Maximising economic returns in the Northern Territory Spanish mackerel fishery*

Reports on the shelf-life of Spanish mackerel caught by line fishing in Northern Australian waters. Handling practices on-board the capture vessels were investigated and possible differences in shelf life between the headed and gutted product and the uncut were tested. A code of practice for handling, processing and packaging of Spanish mackerel was developed and is included.

([back to fax form](#)) **NSC 92/124.24: \$A** *"amount to be advised"*

➤ *Processing of the southern king crab (*Pseudocarcinus gigas*)*

This report identifies a market for larger crabs by processing the meat and packaging it in canned or snap frozen containers. To achieve this objective a suitable method for the commercial cooking and processing of the crabs was identified.

([back to fax form](#)) **NSC 92/125.16: \$A** *"amount to be advised"*

➤ *Reducing post-capture mortality when storing tropical rock lobsters for live transport*

This report identifies some of the problems currently affecting the live transport of rock lobsters in relation to concentrations of lactate, glucose and ammonia in the blood.

([back to fax form](#)) **NSC 92/125.27: \$A** *"amount to be advised"*

➤ *Research on potential pharmaceutical products from Australian Holothurians*

This report identified that control over species collection, handling, identification, processing and evaluation should be the first priority in any efforts to develop a therapeutic-based sea cucumber industry.

([back to fax form](#)) **NSC 92/125.22: \$A** *"amount to be advised"*

➤ *Seafood airfreight packaging strategy: A series of consultative forums*

This report contains a summary of workshop presentations given by speakers on issues surrounding the seafood airfreight regulations and appropriate packaging technologies. It also outlines key recommendations for future development of

airfreight regulations and support systems.

(back to fax form) **NSC 97/401: \$A** *"amount to be advised"*

➤ ***Seafood catering manual - Volume 1***

This book details where a species is caught, the main ways it is sold, chef's choice, menu morsels, suggest wines and cooking ideas. Species described include 37 fin fish (from Atlantic Salmon to Whiting), 18 shellfish covering prawns, crabs, lobsters, crayfish and molluscs plus crocodile. Two alternative tables provide a quick reference guide to species that can be used as alternatives for another. Finally two nutrition tables, one for fin fish, one for shellfish, complete this thoroughly researched book.

(back to fax form) **FRDC 94/166: \$A** *"amount to be advised"*

➤ ***Seafood the good food***

The book lists the oil content and fatty acid composition of Australian commercial fishes, shellfishes and crustaceans.

(back to fax form) **FRDC 95/122: \$A** *"amount to be advised"*

➤ ***Silver Perch Industry Development Plan***

This report identifies the issues involved in modern marketing techniques and outlines an approach to achieving a profitable and market driven Australian silver perch industry.

(back to fax form) **NSC 92/125.21: \$A** *"amount to be advised"*

➤ ***Studies on the physical response of wrasse and horseshoe leather jacket to capture and transport***

This study looks into the water temperature at which fish can be comatised for live transport and also the water temperature at which the majority of fish will survive for extended periods (e.g. transport to Asia, Japan or the USA).

(back to fax form) **NSC 92/125.15: \$A** *"amount to be advised"*

➤ ***Study of the by-catch, processing by-products and waste in Queensland and New South Wales***

This reports the findings of the study of the by-catch of many of the major fisheries and fishing grounds in Australia. The results cover the composition and abundance of by-catch; what is retained and how it is utilised; what are by-products and what are waste.

(back to fax form) **NSC 92/125.10: \$A** *"amount to be advised"*

➤ ***The handling and value-adding of farmed barramundi***

The commercial handling, packing and distribution of farmed barramundi from producers to interstate markets and consumers were examined to assess the effectiveness of current practices. The potential of new products form large fish and value-adding opportunities were also examined so that industry could reduce its

reliance on plate size fish and reduce its exposure to falling prices.

(back to fax form) **NSC 92/125.33: \$A** *"amount to be advised"*

➤ ***The improvement in the quality of meat from frozen trawl caught blue crabs***

The technological aim of the project was to improve the quality of frozen crab meat by examining a range of different on-board handling and freezing combinations. The quality of the meat obtained from these crabs were determined by carrying out focus group discussions and microbiological tests as an indicator of shelf life.

(back to fax form) **NSC 92/125.34: \$A** *"amount to be advised"*

➤ ***Value-adding for squid processing in the Geelong Region***

This report details the primary and secondary processing opportunities for the squid industry. The market opportunity for value-added squid products is significant with Australia being a substantial net importer of squid products.

(back to fax form) **NSC 97/402: \$A** *"amount to be advised"*

➤ ***Value-adding to seafood by application of modern drying techniques***

A total of 16 species were trialed for this report using the Heat Pump Drier. Of the species dried there were several species which did not lend themselves to quick and easy drying.

(back to fax form) **FRDC 94/123B: \$A** *"amount to be advised"*

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QUEENSLAND
GOVERNMENT



Creators: [Tim Beattie](#) & [John Mayze](#) Centre for Food Technology
This page approved by: Peter Skarshewski, CFT
Date created: 28 Sep 1999 Revised: 29 Jun 2000

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