Boosting colour and quality of stored prawns

NEW ASIAN EXPORT POTENTIAL FOR VACUUM DRIED FISH
Australian seafood companies have an opportunity to invest in the next Seafood Cooperative Research Centre. With the current Seafood CRC funding cycle concluding in 2014, the industry has two choices: allow the pace of seafood innovation to decline or invest in a renewed CRC.

Therefore the Seafood CRC executive team is busy formulating an application for a CRC rebid which will be submitted in June 2013. Interested companies are encouraged to get involved, particularly seafood processors. The post-harvest side of business will be a major focus of the new Seafood CRC, with research topics on manufacturing, retail and supply chain innovation. This could include support for waste utilisation, business clusters to use new processing machinery, exploitation of underutilised fish species, value-added products and new approaches to retailing. While the emphasis is on post-harvest, some research on seafood production and aquaculture is also likely to continue.

As with all CRCs, training will be a key component. Consequently seafood manufacturers who want to introduce innovations along with staff training should be particularly interested.

It is likely that the current work with the abalone industry in China will continue if the new bid is successful and some work may also be done with the lobster industry. In the new CRC it is planned to have fewer members, a lower number of larger projects and a less complex project approval arrangement. Funds will be available for the commercialisation as well as the discovery stages of projects. New intellectual property will be managed on a project by project basis, with the emphasis on bringing innovations to market.

Give me a call if you are interested.

Len Stephens
Managing Director
len.stephens@seafoodcrc.com
De Costi Oyster Merchandising Trials

A trial commenced in selected De Costi Seafood stores in November 2012 has shown promising signs of increased sales of oysters and improved in-store staff product knowledge and sales skills.

The trial included the installation of new retail oyster display units that emphasise the origins of oysters - Sydney Rock or Pacific - their region and flavour descriptors. Point of sale brochures for consumers were also provided and some stores conducted in-store demonstrations.

A cost-benefit analysis will also be conducted to determine whether the merchandising and demonstration costs are covered by additional margin from increased sales.

The trials are due to conclude in May 2013, and results will be released subsequent to this.

Trudy McGowan, Executive Officer of the South Australian Oyster Growers Association (SAOGA), said the trial came about in response to demands from consumers for greater transparency about the origins of their oysters.

Barramundi Taints

Soil bacteria rather than algal bloom may be the source of muddy taint in farmed Barramundi grown in Northern Queensland.

Researcher Paul Exley and Project Leader Sue Poole have discovered that blue green algae in open fish ponds may not be responsible for the earthy, wet moss smell that reduces the market appeal of some farmed Barramundi.

The initial project was to conclude in August 2012, however the Australian Barramundi Farmers Association elected to invest further funds through the Seafood CRC (to August 2013) to pursue the unexpected direction.
Mud Crab Rehab

A mud crab rehabilitation project at the Sydney Fish Market could boost revenue for the Australian crab industry.

JOHN MAYZE

At the centre of the recovery project will be Australia’s first “mud crab spa”, an aerated freshwater bath which after just three hours immersion, enlivens crabs which would otherwise have been wasted.

The spa encourages the crabs to excrete their wastes which refreshes them and improves meat quality.

The process has worked well in lab trials so the market has now installed spa equipment which will process commercial quantities of up to 90 crabs at a time.

The recovery system arose from previous research (supported by FRDC funding) and the method was included in the new mud crab handling and grading guidelines released late last year.

This work came about due to the number of people involved in putting a crab on a consumer’s plate - catchers, transport operators, wholesalers, retailers and restaurant chefs - which means the quality of the final product varies greatly.

A full information kit was developed, containing best practice fact sheets, a waterproof Australian Live Mud Crab Grading Guide and a DVD on how to grade mud crabs.

Handling Tips for Crabbers

- Check legal size and sex
- Tie claws hard against the body as soon as possible - ensure they can’t injure each other
- For live crabs hold in clean, damp, insect proof, hessian lined covered crates
- Keep the temperature constant – ideally between 18°C and 25°C
- Avoid direct sunlight, wind or breeze
- Limit loud noises, vibrations or impacts
- Disturb the crab as little as possible
- Handle gently

The implementation of the new guidelines throughout the mud crab supply chain will reduce waste and increase the value of the product by up to $2/kg.

The information pack was distributed to every person in Australia who is licensed to catch mud crabs for sale as well as retailers, distributors and wholesalers.

As most mud crabs travel to their final point of sale alive, its meat content and quality and its overall ‘liveliness’ has a major impact on price.

Even with good handling practices, in some cases the crab arrives at market a little stressed and “slow”. Such crabs are unacceptable to buyers as the risk of mortalities is high and often the crabs are unable to be sold. Recovery of these crabs provides a mechanism to reduce wastage.

The implementation of the new guidelines throughout the mud crab supply chain will reduce waste and increase the value of the product by up to $2/kg.

The Seafood CRC funded research is being undertaken by the Queensland Department of Agriculture, Fisheries and Forestry.
The extract used in the research trials is a natural anti-oxidant which helps retain colour, quality and freshness in the frozen prawns. The extract also has anti-microbial characteristics so that quality of the treated prawns after 14 days was much higher than the untreated controls.
Boosting colour and quality of stored prawns

A natural native plant extract, used by indigenous communities for generations, could enhance the shelf life of farmed prawns.

CARL PAULO

The extract has significantly reduced colour deterioration and microbial spoilage of frozen and chilled cooked farmed prawns in a research project commissioned by the Australian Prawn Farmers Association and funded through the Seafood CRC.

Whether caught at sea or produced in aquaculture farms, most cooked prawns are frozen for storage. Over time they can gradually lose their red colour and become pale and yellow, making them less attractive to the market and less valuable.

The extract used in the research trials is a natural anti-oxidant which helps retain colour, quality and freshness in the frozen prawns. The extract also has anti-microbial characteristics so that quality of the treated prawns after 14 days was much higher than the untreated controls.

The added advantage of the extract is that it is colourless and odourless, and does not influence the taste of the prawns - other than making them taste fresher and better than traditionally stored prawns.

The trials so far seem to indicate that this new extract will provide an easy on-farm solution to extending prawn shelf life for the farmed prawn industry. The additive can simply be introduced into the normal glazing and brining process at a minimal extra cost so there is no downtime or additional capital investment in new technology.

However, this theory is yet to be fully proven in a commercial production run and crop harvest. The additional cost of the extract depends on whether prawn producers use dip or spray-on glaze facilities.

From a marketing point of view, there is also a good story about using a natural, native Australian product which can be harvested by indigenous people as a source of community income.

The first 100 tonne trial has now been completed and a second commercial trial will be undertaken before the product is made widely available to industry - hopefully in late 2013.

MORE INFORMATION
Producers and processors wishing to assist in the trials should contact Carl Paulo: Department of Agriculture, Fisheries and Forestry.
E: carl.paulo@daff.qld.gov.au

Sue Poole, Qld Department of Agriculture, Fisheries and Forestry.
A new vacuum drying machine may turn abalone, scallops and dried pearl oyster meat into high-value dried seafood products for sale in Hong Kong, China and Japan.

Dried fish is a delicacy in Asia but traditional air-drying is time consuming and inexact.

An initial small-scale trial at Curtin University produced vacuum-dried and freeze-dried scallops and pearl meat. These were well received by two focus groups, composed of people from traditional Asian backgrounds.

Subsequent research is focusing on vacuum drying rather than the more energy intensive freeze-drying as it operates at near-ambient temperatures, preserving both the protein content of the seafood and the shape.

Vacuum drying is also more hygienic than air drying and quicker. Rather than taking months, the trial drier has taken only a few hours at 48°C Celsius to dry scallops, pearl meat and abalone.
meat and abalone. Further trials will ensure moisture, shelf-life and food safety targets are met in the dried products. These will be followed by sensory trials to compare the vacuum dried products with the traditional sundried products.

The drier can also be used to add value to waste products such as fishmeal and oil that could be used in new products for human consumption. The new vacuum drier uses an agitation process that breaks down solids into fish meal as it dries. Water and soluble elements are extracted and oil is also separated in the same process. Waste seafood products trialled in the vacuum dryer include Atlantic Salmon frames, Australian Salmon frames, Barramundi frames, prawn shells, shark cartilage, escolar and octopus heads.

One of the most likely products that could be developed is some kind of fish-fortified biscuit. In particular the study is investigating opportunities for emergency or supplementary rations as part of humanitarian aid supplies for developing countries. The fishmeal produced in the vacuum drying process has much higher levels of both protein and fat than skim milk, which is commonly used as a protein supplement in emergency rations. Further research is being undertaken at Curtin University into different formulae and palatability of fishmeal for emergency rations.

Other potential uses being evaluated include dried sardine meal to produce dashi fish stock, a fundamental ingredient in Japanese and Korean cuisine. The quality and composition of the oils extracted from the fish frames are also being assessed to determine their value for inclusion in Omega3 fish oil supplements for human consumption.

The research team welcomes enquiries from seafood producers and processors who would like to test their products in the new machine.
The trial results with the Sepamic extraction machine delivered a yield of approximately 50% fish mince recovery from the frames.
Fish frames - a valuable by product

Mechanical meat extraction technology could provide an opportunity to value add discarded fish frames.

KAREN MCNAUGHTON

The SA Research and Development Institute has just completed a trial with Clean Seas Tuna Ltd, to value add Yellowtail Kingfish frames at their Port Lincoln headquarters in South Australia.

Traditionally processors take two fish fillets and throw away the frame which still contains lots of good quality meat. Food manufacturers are always seeking out fish by-products like off-cuts and mince, but currently these are derived from higher value whole fish.

The research with Clean Seas Tuna Ltd involved trialling a mechanical meat extraction machine which can be used to efficiently remove the meat from the frame and turn it into fish mince.

Encouraging results, including sensory and shelf life studies, were recorded from preliminary trials undertaken with a Baader machine on-loan from the Sydney Fish Market.

This prompted Clean Seas Tuna Ltd to purchase their own Sepamatic machine for more extensive product research.

The trial quantities ranged from 5kg, 10kg and 20kg of chilled raw frames up to a commercial quantity of 250 kg of ex-frozen raw frames.

The trial results with the Sepamatic extraction machine delivered a yield of approximately 50% fish mince recovery from the frames.

Mince derived from ex-frozen frames that had been stored at –18°C for 58 days from the day of extraction, received an average sensory score.

The trials also suggested that to make the product in a commercial quantity that is economically viable to process, freezing a reasonably large quantity of frames prior to processing is recommended. This maximises the set up and cleaning time.

It is likely that processors will mainly be using frozen product - and the commercial mince will be sold in frozen blocks - so additional research on frame handling prior to and during the freezing process is needed to further optimise quality of the final product.

The results suggest that fish mince can be a commercial saleable kingfish product that can be used as an ingredient in processed value-added products such as spring rolls, fish cakes, fish balls, soups and other dishes that do not require whole fish pieces.

The research was undertaken with the support of the Seafood CRC. Processors wishing to use the extraction machine can contact Karen McNaughton at SARDI.
Videos boost supply chain training

A series of training videos is aiming at getting producers, distributors and retailers engaged in supply chain monitoring to increase profitability.

DR JANET HOWIESON

Making incremental improvements in the way seafood is transported and stored before purchase is an increasingly important way of improving returns.

Supply chain monitoring has traditionally been undertaken by scientists but this Curtin University project has developed a series of YouTube videos which show that industry can actually do most of the analyses themselves.

Since the introduction of simple, inexpensive temperature loggers and the software to program the loggers, producers can download temperature profiles and undertake their own quality index assessments.

The process is not time consuming and can be undertaken without damaging the fish.

In addition to temperature assessments producers can also assess drip loss with a standard set of industrial scales.

The training videos which cover drip loss, temperature logging and quality assessment are available for download on the Seafood CRC website at www.seafoodcrc.com and eventually through CRC participant organisations.

The research team plans to run a master class for industry to demonstrate the technology in the next 12 months and will look to industry for feedback later in the year.

The Seafood CRC funded project, which was undertaken in conjunction with the Western Australian Fishing Industry Council.
TESTIMONIALS

DATA LOGGERS

DRIP LOSS

MICROBIOLOGY

QI

ECONOMICS

Seafood packaging workshop at Multivac

TOM MADIGAN

If you have ever wanted to test your seafood products in a range of packaging formats, Multivac Ltd is offering an opportunity to do it for free.

Multivac is a leading manufacturer of integrated packaging solutions with a strong history of working with industry to deliver innovative and appealing consumer products. It can support customers to develop new approaches to packaging, from concept through to technical implementation.

In conjunction with the Seafood CRC and the South Australian Research and Development Institute (SARDI), Multivac will be hosting a hands-on workshop where seafood processors can use the latest packaging solutions for chilled seafood. This workshop will be held at Multivac’s testing and training facility near Melbourne airport on June 13.

The workshop will cover the areas of modified atmosphere packaging, vacuum packaging, DuPont dual ovenable films (an innovative new thermoform film technique), high pressure processing, labelling and product presentation. Those attending the workshop will have the chance to operate the machinery under instruction to pack and label seafood. The workshop will provide an opportunity for participants to either use entry level equipment or automated high throughput machines.

Scientists from SARDI will be on hand to help with the demonstrations and can continue to assist in product development after the workshop.
MARKETING

MORE INFORMATION
A limited number of Super Seafood handbooks in hard copy are available by contacting Emily Mantilla, Seafood CRC. E: emily.mantilla@seafoodcrc.com

If you liked the Super Seafood Industry Kit developed late last year which included a suite of downloadable resources (in pdf, jpeg and eps files) that demonstrated that Australian seafood is healthy and safe to eat, you’ll love the new Super Seafood handbook. Just released, it is perfect for communicating these findings to your customers.

The Seafood CRC funded nutritional analyses of 21 species of Australian seafood which was undertaken by the SA Research and Development Institute. The study was the most comprehensive update in over ten years of the nutritional composition of Australian seafood.

The project outputs included a Nutritional Information Panel (NIP) for each species, Recommended Daily Intake (RDI) graphics and comparative Omega 3 ratings with other foods such as chicken and beef. The kit also pointed out which species were sources of (and good sources) of nutrients such as iodine, selenium and phosphorus.

The new 32 page Super Seafood handbook summarises this information in an eye-catching user friendly format which focuses on the health benefits of seafood in the Australian diet.

The handbook also breaks down some of the myths about seafood, such as the link between cholesterol and prawns, and suggests links to a number of health and education websites.

The handbook is aimed at those that process, pack and label their own seafood or for those that market seafood.

To download the Super Seafood resources and an e-version of the Super Seafood handbook visit www.seafoodcrc.com.
New Cram conference to boost industry marketing

The impact of advertising on salmon sales, the new prawn marketing campaign, innovative oyster retailing and using environmental sustainability in marketing will be just some of the topics covered at Australia’s first seafood marketing conference on Wednesday May 1 in Adelaide.

This is a totally new type of conference, designed to provide ideas that marketers can use in their business and leaders can use in their industry associations.

There will be no boring opening and closing addresses, no sponsors, no conference organising company, no plenary sessions, no dinner, no rock bands. It’s all about business.

The idea of a cram conference is a series of short, sharp presentations of less than 15 minutes that delivers dynamic new information and practical ideas, not theory or blue sky gazing.

Seafood researchers, marketers and processors from all over Australia will be able to hear about the successful marketing strategies undertaken with Atlantic Salmon, oysters, abalone and prawns, from experienced Seafood CRC industry participants such as Caroline Hounsell, Trudy McGowan and Dean Lisson.

Delegates will also get the latest research from leading analysts such as Professor Byron Sharp and Professor Larry Lockshin from the Ehrenberg Bass Institute of Marketing Science and be challenged by some of the nation’s most experienced brand builders and strategists including David McKinna, Reg Bryson and John Susman.

The day will also be an opportunity to experiment with Twitter to network with other delegates - an enlightened version of the usual question time at conferences.

For more information and a registration password contact E: emily.mantilla@seafoodcrc.com

Media Mentors: We need you

Seafood marketers with experience in media and advertising are currently being recruited as mentors for this year’s Seafood Industry Partners Project (SIPP).

SIPP mentors work with PhDs, MScs and post-doctoral research scientists to help them gain a practical understanding of industry and an insight into areas which are not traditionally explored by young academics in science.

A key aspect of SIPP is the training retreat, which will be held in Tasmania in October 2013.

Last year’s mentors – Marty Phillips from Pejo Enterprises, Mark Boulter from Sydney Fish Market, André Gorissen from Noosa Junction Seafood Market and Nick Burrows from Clean SeasTuna Ltd – guided the students through a business pitch process.

This year’s retreat will see students developing a new product marketing, media and advertising campaign.

For a full report on the 2012 SIPP Retreat go to www.seafoodcrc.com