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FISHERIES RESEARCH & DEVELOPMENT CORPORATION

Final Report

Communications and Extension in the Southern Rock Lobster Fishery

Southern Rocklobster LIMITED

Ross Hodge

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In submitting this report, the researcher has agreed to FRDC publishing this material in its edited form.

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Acknowledgments

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Southern Rocklobster Limited would also like to acknowledge the support of its Board of Directors and Members of the Research, Development & Extension (RD&E) Committee who provided a great deal of time and effort in developing and reviewing documentation including fact sheets and articles for editions of the SRL News generated through this project.

Southern Rocklobster Limited would like to finally acknowledge the support of all the authors including Daryl Sykes Executive Officer of the New Zealand Rock Lobster Industry Council (NZRLIC) who contributed articles to the editions of the SRL Newsletter and/or provided comment on the fact sheets produced by this project.

Southern Rocklobster limited would also like to acknowledge all the contributors of the images used in the various publications produced by this project.

Abbreviations

FRDC	– Fisheries Research & Development Corporation
SARLAC	– South Australian Rock Lobster Advisory Council
TRLFA	– Tasmanian Rock Lobster Fishermen's Association
VRLA	– Victorian Rock Lobster Association
Seafood CRC	– Australian Seafood Cooperative Research Centre
NZRLIC	– New Zealand Rock Lobster Industry Council
SRL	– Southern Rocklobster Limited
R D & E	– Research, Development & Extension
AMSA	– Australian Maritime Safety Authority

Executive Summary

This Communications and Extension Project was undertaken by Southern Rocklobster Limited (SRL). Most of the material for the project was either developed or sourced by the organisation's Executive Officer Ross Hodge, who was also the Principal Investigator for the project. The development of the communications and extension material produced by the project was also supported by the SRL Chair Dr Gary Morgan, Board of Directors and RD&E Committee as well as other stakeholders with an interest in the fishery/industry such as researchers, managers, exporters & processors and the state based industry representative bodies.

The project enabled the re-introduction of the SRL News which had previously been the only publication that provided consistent information with articles written on a range of industry/fishery initiatives and developments. Importantly, all editions of the SRL News contained articles on various R&D projects and associated outcomes. Each publication was distributed in hard copy to all stakeholders in a fishery that is managed separately within three state (SA, TAS & VIC) jurisdictional boundaries. Editions of the SRL News were published:

- July 2013
- February 2014
- August 2014
- March 2015

In addition to the SRL News a series of seven (7) Fact Sheets were developed and the titles of these documents were:

1. The Life of a Southern Rock Lobster
2. Southern Rock Lobster a Proud and Successful Fishery
3. A day in the Life of a Clean Green Fisherman
4. Bountiful Harvest Thriving Economy
5. Buying and Cooking Southern Rock Lobster
6. Exotic Lobster on a Shoestring
7. Interesting Facts about Southern Rock Lobster

The consistent message of all the fact sheets was to provide a broad spread of interesting, consistent and factual information about a successful and well managed species, fishery and industry. The combined content of the facts sheets 1 to 6 covers many aspects from breeding to the excellent cuisine it is highly regarded for locally and internationally, including how it is managed, caught, processed, exported and the economic benefits for the Australian economy and local rural communities. Fact Sheet 7 provides a series of numbered (35) short factual statements on the Southern Rock Lobster; species, management, research, harvesting and preparing, eating and health benefits.

SRL also produced a conference flyer document for the Rock Lobster Congress 2013 that was distributed to all the delegates in the conference satchel. The one page double sided flyer highlighted the key documents that SRL has available for industry use, such as:

- Southern Rock Lobster – The Finest in The World (With Chinese Translation)
- Clean Green Product Standard
- Recommended Guidelines – Managing Live Australian Southern Rock Lobster (including Chinese Translated Version)

The project also addressed the need to update the SRL Website and include additional sections on Research, Development and Extension (RD&E) as well as Education (Fact Sheets). The R&D section describes the importance and considerable investment made by industry to assist in the sustainable management of the industry and the education section provides access to the fact

sheets previously noted. Outdated material was either redrafted or if identified as superfluous it was removed.

The project commenced in May 2013 and was extended to allow for the production of an additional SRL News which are produced at six monthly intervals (bi-annually) and concluded in March 2015.

The overarching reason for undertaking this project was to improve stakeholder and community knowledge of the Southern Rock Lobster fishery by developing and disseminating consistent information through Newsletters, Facts Sheets and Website that would increase the awareness and relate the story of a very successful and sustainable fishery.

While the responsibility for delivering the project was SRL's, it was undertaken with a lot of input and support of the broad stakeholder representation associated with the Southern Rock Lobster fishery and broader industry.
Before proposing this project both SRL's Chair Dr Gary Morgan and the Executive Officer Ross Hodge attended a number of industry meetings and met with industry stakeholders including fishers processors/exporters, industry associations, research organisations, fisheries management agencies Government Departments (Commonwealth). Both the SRL Chair and EO took these opportunities to identify the level of need and the support for bolstering the level of communication in the Australian Southern Rock Lobster Fishery. They were given a clear message of support for re-introducing the Southern Rock Lobster News, providing more details on R&D opportunities, activities & outcomes and to develop educational and promotional material on the fishery/industry. Updating the SRL website to provide access to the new materials and promote the importance of RD&E was also identified as needing to be included in this project.

The Objectives of the Project were:

1 Provide mediums of communication with all stakeholders in the Australian Southern Rock Lobster Fishery through re-introducing the SRL News, updating the SRL Website to include new RD&E, Catching Sector information and Educational sections.
2 Encourage and focus R& D applications and activities to align with the Industry RD&E Industry Strategic Plan 2011-2016 through increased communications.
3 Extension of R&D outcomes to support and promote adoption of new technology and science and other outcomes through increased communications.
4 Provide factual, regular and consistent information to the community (in fact sheet format) and prepare press releases to media contacts to develop a more positive public perception as a 'Clean Green' sustainable and well managed fishery

Important to the success of this project was to identify key topics and ensuring a balanced scope of articles for each edition of the SRL News. This was achieved in consultation with the SRL RD&E Committee who provided suggestions for articles including assistance in writing or contact with an appropriate author. A professional design company was used to prepare the layout of each edition of the SRL News and usually a number of drafts were reviewed (including by FRDC) before approving a final copy for print.

With the development of the Fact Sheets, existing documents were reviewed and topics identified where no material currently existed. For the new fact sheets, the content was drafted by the SRL executive Officer and reviewed by the SRL Board and RD&E committee. A similar approach was undertaken with updating the existing documents. A number of images were sourced from industry contacts or developed (including new photographs) to specifically support the theme and content of each document. Again a graphic designer was engaged to design a 'new' look for the Fact Sheets and number of drafts of each individual set of documents was reviewed to achieve the final outcome.

They key results through publishing the SRL News have been a better informed industry that has been provided with factual articles that detailed R&D projects and the outcomes. Importantly the production of the SRL News has enabled SRL to provide the broader industry with a consistent message on developments with important issues, e.g. negotiations and outcomes of free trade agreements, bio-toxin events and implications of new AMSA commercial vessel legislative requirements – to name just a few. Importantly the publications also provided the opportunity for SRL to inform how it was involved and responding on behalf of industry to these matters.

The new and updated Fact Sheets provide an attractively presented range of documents that each tells an important story about the Southern Rock Lobster fishery. Industry bodies have used them as promotional material at events for display to the public.

It is recommended that publication of the SRL News continues to be supported as it is the one consistent forum for communicating directly and providing information across all jurisdictions in the Southern Rock Lobster fishery/industry.

Introduction

Southern Rock Lobster is one of Australia's signatory fisheries, it is managed responsibly, and proactively with a considerable annual investment in Research and Development. It is a high profile and successful fishery that has much to promote and celebrate. Jurisdictional boundaries divide the Australian Southern Rock Lobster fishery into three states, add in the commonwealth interests, which combined, makes for a considerable number of stakeholders to communicate with and keep on the 'same page' with consistent information. This communication and extension project provided the opportunity to keep everyone informed on matters of local, state, and national interest.

The overarching objective to undertaking this project was to improve stakeholder and community knowledge through developing and disseminating consistent information. This included increasing the awareness of R&D projects and outcomes as well as opportunities that align with the SRL Industry Strategic Plan and other developments from within, or externally, that impact on the industry. This was achieved through disseminating Newsletters with the content covering a range of topics, a more informative SRL website, and quality printed material in the form of industry fact sheets.

The development of new and/or the updating of existing educational material has provided the opportunity to spread the 'good news' story, that is, the well managed and sustainable Southern Rock Lobster Fishery and will contribute to the ongoing improvement in public perceptions of the fishery and the Australian Seafood industry in general.

Objectives

1 Provide mediums of communication with all stakeholders in the Australian Southern Rock Lobster Fishery through re-introducing the SRL News, updating the SRL Website to include new RD&E, Catching Sector information and Educational sections.

2 Encourage and focus R& D applications and activities to align with the Industry RD&E Industry Strategic Plan 2011-2016 through increased communications.

3 Extension of R&D outcomes to support and promote adoption of new technology and science and other outcomes through increased communications.

4 Provide factual, regular and consistent information to the community (in fact sheet format) and prepare press releases to media contacts to develop a more positive public perception as a 'Clean Green' sustainable and well managed fishery

It was agreed that instead of providing press releases the project would produce an additional edition of the SRL News and a Fact Sheet. It the view of SRL that there was no specific industry development that would be likely to receive broad media coverage and publishing an extra edition of the SRL news and a Fact sheet would provide the project with a better output.

Method

SRL used its Board of Directors, RD&E committee and network of industry stakeholder contacts to provide input into all the material produced through this project.

The SRL Executive Officer was the principal investigator for the projects and was responsible for either writing or sourcing all the material that was used in all four (4) editions of the SRL News. Content of each edition of the SRL News was discussed at an RD&E committee meeting and always tried to reflect a balance of articles, e.g. Outcomes of R&D projects, updates and changes to the Southern Rock Lobster Strategic Plan, developments with the Clean Green program, developments in key markets including free trade agreements that included rock lobster, key delegations (to and from Australia) and general reports on developments across all the Southern Rock Lobster fishery jurisdictions. The re-introduction of the SRL News also provided the opportunity for collaboration with the NZRLIC who provided articles and received each publication electronically for distribution to their members.

The SRL News publications was produced in hard copy and mailed out to 780 industry stakeholders per edition. This included Rock Lobster license holders in all three jurisdiction (South Australia, Tasmania and Victoria), processors/exporters researchers, fisheries managers, key politicians, other industry associations, government departments and general contacts in organisations that have an interest in the Southern Rock Lobster fishery.

The SRL website was updated with the introduction of new sections for Research and Development (R&D) and Education. A lot of superfluous or outdated material was removed from the website as well as general updates to existing sections of the website.

A total of seven (7) fact sheets were developed by the project (originally nominated 4-5) that provide a range of information on various aspects of the industry. Four of the fact sheets are totally new documents and three were updated and presented in the ‘new look’ format. All Fact sheets have been loaded onto the SRL website and hard copies have been distributed through SRL members and to individuals who have requested copies for display purposes.

SRL has promoted key events such as the Trans Tasman Rock Lobster congress and presented at numerous industry functions where the SRL News and Fact sheets have been highlighted. SRL is aware that SARLAC, TRLFA and VRLA have used the facts sheets for display purposes at public events and that they are also being used by fisheries management departments to provide to students who request information for projects.

Results

Four editions of the SRL News published and distributed to 790 stakeholders (X 4 times) with an interest in the Australian Southern Rock Lobster Fishery. SRL has received positive comment on the importance of the SRL News to industry and the balance of articles that presented in each edition.

The Publication of the SRL News has been distributed to and reached the broad cross section of industry stakeholders. Every edition has featured papers written by researchers on their R&D and outputs as well as including articles on issues that lead to project applications. The RD&E Strategic Plan and it objectives have been documented in several editions of the SRL News.

The four editions (25 – 28) of the SRL News developed for this project were published:

- July 2013
- February 2014
- August 2014
- March 2015

Development of seven Facts Sheets providing educative and informative information on various aspects of the Southern Rock Lobster Fishery across the supply chain and also about the uniqueness of the species of rock lobster, which underpins the industry. The content of the Fact sheets will provide an ongoing role in educating the general public with factual and consistent information of a sustainable and well managed fishery. This was displayed in the following new and updated fact sheets;

1. Life of a Southern Rock Lobster
2. Southern Rock Lobster – A Proud and Successful Fishery
3. Day in the Life of a Clean Green Fisherman
4. Bountiful Harvest Thriving Economy
5. Buying and Cooking Southern Rock Lobster
6. Exotic Lobster on a Shoestring
7. Interesting Facts about Southern Rock Lobster

SRL also produced a conference flyer document for the Rock Lobster Congress 2013 that was distributed to all the delegates in the conference satchel. The one page double sided flyer highlighted the key documents that SRL has available for industry use, such as:

- Southern Rock Lobster – The Finest in The World (With Chinese Translation)
- Clean Green Product Standard
- Recommended Guidelines – Managing Live Australian Southern Rock Lobster (including Chinese Translated Version)

This documents was also printed and distributed in the Seafood Exporters Forum held in Canberra in 26-27 November 2014.

An updated website that provide more education on the Southern Rock Lobster fishery and species as well as information on Research, Development and Extension (R D & E). Much of the material such as the SRL News and Fact Sheets are available for download from the SRL website and will also contribute to the ongoing role of educating the general public.

Another pleasing outcome of this project is that it has enabled further development in collaboration between the Australian and New Zealand Southern Rock Lobster industry associations. The NZRLIC provided articles and received the News in electronic format for distribution to members. NZRLIC also assisted with images and content in the development of the fact sheets and are also using them educating and informing the public.

Conclusion

SRL is confident that this has been a successful project and the outputs have achieved many tangible benefits for the Southern Rock Lobster fishery and wider stakeholders. While the SRL News was able to convey information to stakeholders about many topical matters and important developments impacting on the industry, the production of the fact sheets and the updating of the SRL website have provide scope for ongoing dissemination of information and material to educate the broader community.

Communication to the industry was increased and the outcome of a number of key R&D projects was conveyed to a broad range of stakeholders through the SRL News. Each publication also addressed other key topics with articles that were of importance and/or of interest to the target readers. Importantly these publications provided a communications medium to present a diversity of consistent and factual information to many stakeholders in the one document.

The benefits from the production of the Facts Sheets and the updating of the SRL Website will be ongoing post the project and provide education to those outside of the industry. These important outputs from this project will continue to provide a 'good news' story about a successful, sustainable well managed fishery.

The development of new and updating of old fact sheets in a new format has resulted in a series of documents that all combine to present a positive story about the Southern Rock Lobster fishery/industry. It is all factual and colourfully presented material that promotes the industry investment in R&D, sustainable management, commitment to Clean Green work practices, managing environmental interactions as well as the economic contribution from export income and the local/rural employment opportunities.

The final fact sheet developed titled; 'Interesting facts about Southern Rock Lobster' is presented in a different format to the other 6 fact sheets and rather than tell a factual story it presents a series of (35) short statements (facts) across broad spectrum of information from breeding to the health benefits of eating lobster.

Key updates to the SRL website include the introduction of sections for Education and Research & Development. The Education Section provides access to all the Facts Sheets and makes them available as documents for downloading. The Research and Development section explains the importance of industry investment in R&D. The section also provides access to a number of articles detailing R&D projects and the outcomes from those projects. The websites cooking/recipe sections have been combined into the one section, outdated material was rewritten or if identified as superfluous it was removed.

The projects also provided the opportunity to increase the collaboration between the Australian Southern Rock Lobster Industry and the New Zealand Southern Rock Lobster Industry. This building of collaboration was evident through the inclusion of articles in the SRL News provided by the CEO of the NZRLIC and the distribution (electronically) of editions to the New Zealand Industry.

Implications

The outputs from this project will provide benefits to all sectors across the supply chain of the Southern Rock Lobster industry. There is now, as a result of this project, a considerable amount of well written, professionally presented and colourful material that demonstrates a proud and successful industry. Usually most fishing sectors are always struggling to keep abreast of the endless issues in resource management and sharing and have little time to promote themselves as well managed sustainable fisheries with a proud history and a-good news stories to tell. The benefits from the material developed from this project will achieve just that, provide the Southern Rock Lobster Fishery with resources that tell that story and be able to continue telling the story on an ongoing basis.

SRL has already widely distributed the material developed through this Communications and Extension project. There has been considerable interest from processors and exports for copies of the Fact Sheets to display on their premises where they can be read and observed by customers and the general public. Fishermen have requested copies to use in local schools and for discussions with the general public.

The use and display of the materials produced by this project will be relevant and of use for a considerable time.

Recommendations

The re-introduction of the SRL News was an important component of this project. SRL has received feedback on how important it is for this publication to continue to be regularly produced and circulated to the broad stakeholders across the industry. While it is distributed in a hard copy format making it expensive to produce and disseminate, it is a well received document that arguably reached a larger audience (i.e. not just license holders, but also family and deckhands) than if it were to be provided in electronic format only. SRL will consider undertaking a survey through SARLAC, TRLFA and VRLA of their members to see how distributing the SRL News electronically, though this would probably require it being presented in a new format. As the document was distributed to by NZRLIC to members (X 300) electronically some feedback from them will also be sought.

Further development

Further Australia New Zealand Collaboration - This project has enabled further collaboration to develop between the Australian and New Zealand Southern Rock Lobster industry bodies. Any future communications projects should continue to explore how SRL and NZRLIC work together and jointly develop and share educational and promotional resources.

High Quality Images and Photos - One of the key challenges to producing good educational and promotional material is sourcing high quality photos and general images to enhance and explain whatever the topic is that is being covered. It could be worth considering that where possible any project that includes work on boats and/or observing fishing activities includes a small component of photography to assist in developing a ‘pool’ of images that can used for industry publications.

Extension and Adoption

Promoting the outputs of R&D through written articles was already a key component of this project through the SRL News which was published in hard copy and circulated to just under 800 stakeholders in the Southern rock lobster industry. As long as the SRL News continues to be published articles on R&D project reports and outputs will be an important focus in each edition.
SRL has distributed the Fact Sheets widely (electronically and in hard copy) to a many industry contacts and has placed them onto the website for downloading. These documents will continue to be displayed at industry events, particularly where there will attendance by the public and at every opportunity that arises.

Through the SRL RD&E Committee there will be an annual review of this documentation to ensure that the information is still correct and has relevance. The format the documents have been produced in will enable the material to be amended and updated without incurring much cost.

Project materials developed

The Project has produced:

a. Four editions of the SRL News printed in hard copy and distributed to 790 stakeholders in the Australian Southern Rock Lobster industry, that also included not just license holders, but also Ministers, Politicians, Researchers, Fisheries and department managers. NZRLIC distributed the document electronically to 300 members. Each Newsletter has produced a broad based range of articles of interest to the industry.

Electronic copies are attached and hard copies will be provided with the final report

b. Seven fact sheets (mostly 3-pages) titled:
    1. The life of a Southern Rock Lobster
    2. Southern Rock Lobster a proud and Successful fishery
    3. A Day in the Life of a Clean Green Rock Lobster Fisher
    4. Bountiful Harvest – Thriving Economy
    5. Buying and Cooking Southern Rock Lobster
    6. Exotic Lobster on a Shoestring
    7. Interesting Facts about Southern Rock Lobster

c. An updated SRL Website that now includes sections on RD&E and Education as well as updated information to a number of sections, including consolidating all the recipes and general cooking information into the one section and removing a lot superfluous and outdated information from the webpage

d. A one page double sided flyer highlighting documents that SRL has available for industry use.

Copies of all the material developed for this project have been included as appendices

Appendices

- **Appendix 1**

Letters from Beneficiaries:

- Ferguson Australia
- Tasmanian Rock Lobster Fishermen's Association

- **Appendix 2a**

SRL News July 2013 edition

- **Appendix 2b**

SRL News February 2014 Edition

- **Appendix 2c**

SRL News August 2014 Edition

- **Appendix 2d**

SRL News March 2015 edition

- **Appendix 3a**

Photo of Fact Sheets on public display at the Hobart Wooden Boat Festival 6-9 February 2015

- **Appendix 3b**

Fact Sheet 1 – Life of a Southern Rock Lobster

- **Appendix 3c**

Fact Sheet 2 – Southern Rock Lobster a Proud and Successful Fishery

- **Appendix 3d**

Fact Sheet 3 – A Day in the Life of a Clean Green Fisherman

- **Appendix 3e**

Fact Sheet 4 – Bountiful Harvest Thriving Economy

- **Appendix 3f**

Fact Sheet 5 – Buying and Cooking Southern Rock Lobster

- **Appendix 3g**

Fact Sheet 6 – Exotic Lobster on a Shoestring

- **Appendix 3h**

Fact Sheet 7 – Interesting Facts about Southern Rock Lobster

- **Appendix 4**

One page doubled sided flyer highlighting the documents that SRL has available for industry use (N.B. this was produced prior to developing the Fact Sheets and has been used in conference satchels)

Ross Hodge
Executive Officer
Southern Rocklobster Limited
PO Box 305 Hampton
Hampton, VIC 3188

Dear Ross,

SRL Communications Material

On behalf of Ferguson Australia I would like to thank you very much for developing the series of Fact Sheets for the Southern Rock Lobster industry and for providing our company with a set of colour prints. The documents are very informative and professionally presented and we are pleased to be able to display them at both our factory outlets at Hendon and Kingscote on Kangaroo Island. Both of these facilities have a considerable number of consumers and/or general public visit and having the fact sheets on display provides an excellent opportunity to convey a very constructive message about Southern Rock Lobster as a species as well as the industry it supports.

We would also like to thank SRL for preparing and distributing the SRL News. Since resurrecting it the past couple of years it has been a very informative publication with a diverse spread of articles on topics relating to our industry. To have a publication such as this to provide regular updates and consistent information to all the stakeholders across the jurisdictions that make up the Southern Rock Lobster Fishery is very important for our industry.

Yours sincerely,

Andrew Ferguson

Managing Director
Ferguson Australia Pty Ltd

Tasmanian Rock Lobster Fishermen's Association Ltd
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Mr Ross Hodge
Executive Officer
Southern Rocklobster Ltd

rosshodge@southernrocklobster.com

3rd July 2015

Dear Ross,

Re SRL Fact Sheets

The TRLFA would like to congratulate SRL for producing the SRL fact sheets. As an educational tool we find them extremely valuable at industry displays and promotional exhibitions.

At the 2015 Australian Wooden Boat Festival in Hobart, the TRLFA had the fact sheets displayed in the fishing industry promotion site. The promotional theme was "Proud Past, Exciting Future" and had more than 50,000 visitors over the 4 day event. We found the fact sheets elicited great interest and comment from visitors.

The fact sheets have proved to be a great benefit to industry in enabling us to "tell our story" and help educate the general public on historical and current practices within the fishery.

The TRLFA believes that the fact sheets will have ongoing benefits for education in future events we plan to participate in.

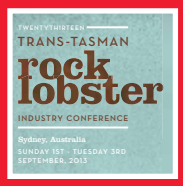
Yours sincerely
John Sansom
Executive Officer
TRLFA Ltd

Australian Southern Rocklobster INDUSTRY

ISSUE 25

News July 2013







Australian **Southern Rocklobster** Industry

China Delegation

In April this year a delegation of industry and SRL members undertook a Mission to China under a joint Government program called the Australian Chinese Agricultural Cooperation Agreement (ACACA). The Goal of the Mission was to understand how to '*Strengthen the Southern Rock Lobster Supply Chain to China*'.

Funding for the ACACA program is provided by the Department of Agriculture Fisheries Forestry (DAFF) and by the Chinese Department of Agriculture. The representatives who made up the delegation were, Rodney Treloggen SRL Director & CEO of TRLFA, Roger Rowe SRL Director, David Manser Chair of SEPFA and a Director with SARLAC and Ross Hodge EO of SRL.

The delegation was undertaken over 12-days starting in Guangzhou, then Shanghai and wrapped up in Beijing. Meetings were held with a broad range of Government agencies, Australian Embassy and Austrade Officials and visits to the wet fish markets in each of the cities.

In a country that consumes an extraordinary diverse range of seafood products, the delegation was frequently told the Australian Southern Rock Lobster (ASRL) is recognised as the best in the world, described as having "Much Fame".

Maintaining the position as the number one lobster species is certainly "not a given" in a country that is growing and changing so rapidly. The Delegation Team was frequently reminded that very little is done to promote ASRL to maintain its status in China as a superior imported seafood product.

SRL Delegation meeting in Beijing with the Centre for Economic Development, Ministry of Agriculture and representatives of Chinese Companies.

Several interesting observation by the delegation were:

- Lobster from other countries is incorrectly marketed as being "Australian".
- There was a concerted marketing initiative for lobster from another country, i.e. the USA species which is in bountiful supply.

There was a lot of discussion about quality control and the introduction of food safety standards in China including at the meeting with the Department for Quality Supervision, Inspection and Quarantine. There is certainly an emerging interest in quality control and sustainability.

In several of the markets the Delegation Team observed US lobster from Boston with country of origin labeling (COOL) and promoting being harvested from a sustainable fishery. This observation highlights the need to consider the introduction of tagging/traceability systems to clearly identify and differentiate ASRL in the China Market from other imported lobster.

In preparing a report for DAFF the Delegation Team has made a number of recommendations with number one recommendation being; *the ASRL Industry would benefit from developing a strategic vision for its product in the China market.* Other recommendations relate to establishing an ASRL Promotional Forum, the introduction of a tagging/traceability system and continue to cooperate with the Abalone sector through China Trade Reference Group to work with the Australian Government on a Free Trade Agreement with China.

The SRL Delegation Team is very confident that their ACACA mission has provided firsthand the chance to identify a number emerging issues and opportunities for supporting and strengthening the trade of ASRL with China. A comprehensive report was prepared for DAFF on the return from the ACACA Mission and a copy can be downloaded from the SRL website www.southernrocklobster.com.

Tasmanian Rock Lobster Fishery Toxic Algal Bloom - **Update**

Stop Press: The SRL Board and the Seafood CRC have commissioned a project from SARDI to study toxic algal blooms with a view to developing emergency response plans.

The last remaining closure for the rock lobster fishery on the east coast of Tasmanian was lifted on 09 February 2013 following receipt of analysis results for rock lobster samples collected from near Bicheno and Maria Island showing concentrations of PST below the maximum allowable level of 0.8 mg/kg. This allowed the A/Director of Public Health to lift the public health warning relating to the consumption of rock lobster viscera for that section of coast between Marion Bay and St Helens.

The majority of the east coast of Tasmania had been closed to rock lobster and giant crab fishing from mid November 2012 due to a toxic algal bloom of a dinoflagelate algal species, *Alexandrium tamarense*. (see previous SRL newsletter for more details)

The impacts of the unprecedented biotoxin event have proven to be significant for both the commercial and recreational fisheries as well as the Department. The costs to the commercial fishery in terms of reduced catches are still to be fully assessed but it is clear that fishers reliant on the east coast fishery have been impacted financially. Statewide, the total allowable commercial catch for the 2012/13 quota year was under caught by 14 tonnes. More analysis will be undertaken as part of the annual stock assessment process. From the DPIPWE perspective, the costs for sample analysis, sample collection, freight and public notices alone have been calculated at $150,000.

The decision making of Marine Resources throughout the whole of the biotoxin event has been driven by two primary objectives, (1) to minimise risk to human health and (2) to protect access to the markets upon which industry is reliant. Fortunately, both of these objectives have been realised.

The experience from this event has highlighted an urgent need to develop a strategic approach to guide the management of future biotoxin episodes.

Clearly there is a need to improve our understanding of algal bloom events and their link with biotoxins in crustaceans. It is also necessary that we quickly develop an understanding of the link between biotoxins levels in crustaceans and risk to human health. A comprehensive research project to inform these knowledge gaps and identify management options has been developed by in close consultation with industry and regulators.

The SRL Research, Development & Extension (RD&E) Committee has received and considered a research project concept application: *Understanding and reducing the risk of paralytic shellfish toxins in Southern Rock Lobster.* The project application has been approved to be developed into a full application to be funded by the Seafood CRC and FRDC.

The project will specifically look at:

- **Algal Bloom Events**
  Determining the relationship between PST concentrations in probable prey species and lobsters during four different PST producing algal bloom events
- **Risk Assessment**
  To support the development of an appropriate regulatory limit for PSTs in rock lobster hepatopancreas and flesh
- **Risk Management Plan**
  Given the immediate issues regarding PST contamination of lobsters in Tasmania, it is essential to develop protocols for managing PST risk from lobsters to minimise impacts of future blooms.

However, this will take time and there needs to be immediate progress on determining how best to manage another episode should we be faced with a similar biotoxin event next spring.

There is an immediate need to better manage the commercial risk attendant with a biotoxin episode. This includes a clear understanding of the issues and decision path for determining the vexed issue of closures.

One of the lessons from the recent event has been the importance of traceability through the supply chain to provide greater flexibility for managing biotoxin episodes and reduce the risk of state wide recalls of fish.

It is important to appreciate that while this current algal bloom issue has been in Tasmania, it has flow on implications for the entire Southern Rock Lobster fishery. When a country places a halt on imports, it means reverting back to batch testing for all regions to show they are clear of any toxins.

The difficult issue of determining the best option for dealing with product with paralytic shellfish toxin levels above the maximum permitted needs to be resolved. This will require a careful assessment of the benefits and costs of the various options in the context of minimising the impacts on fishing businesses, ensuring that human health risk is adequately addressed and market acceptance.

Marine Resources intends to progress resolution of these issues and developing an agreed strategic approach in consultation with the TRLFA as a matter of priority.

This toxic algal bloom event is a significant issue for the Southern Rock Lobster Fishery as it has the potential to occur in other state waters. Therefore the research project and outcomes will be of interest to the other states should they be in the position to have to respond to and manage a future biotoxin event.

Hilary Revill
Principal Fisheries Management Officer, Wild Fisheries Management DPIPWE Tasmania.

SRL **News**

Welcome to another edition of the SRL News we hope you find it an interesting read. Once again we have focused on providing a broad of industry articles. SRL is pleased to acknowledge the support from Fisheries Research & Development Corporation (FRDC) in funding the Communications and Extension Project that enables this publication to be produced. The extension of outcomes to support and adopt new technology and science from industry's and government's invest in R&D is critically important for the future of the Southern Rock Lobster fishery.

SRL would welcome any articles or suggestions for articles for future editions of the publication. Please email the SRL Executive Officer Ross Hodge on rosshodge@southernrocklobster.com with your suggestions or give him a call on 0423 533 133.

These days many organisations only provide their newsletters and like publications in electronic format, SRL is aware that a large portion of our readership would prefer to receive in hard or printed format. An electronic/soft copy can be provided for those who would prefer to receive their News that way or to pass onto contacts that would like to read the publication. Copies can also be downloaded from the SRL Website (www.southernrocklobster.com) from the industry information section on the menu bar and then open up the newsletter section.

If you would like to receive more than one hard copy for your organisation that can also be arranged, just contact the SRL EO.

Clean Green - **Update**

Since the last edition of this Newsletter SRL has through the Clean Green program made representation on several legislative changes that will impact on industry.

National Vessel Legislation

Firstly, the new national vessel legislation that is coming into law from 1 July 2013 is going to require a safety management system that is tailored to the risks of individual vessels. Under the new national legislation the Australian Maritime Safety Authority (AMSA) is now the national regulator. State and territory maritime safety regulators will continue to deliver operations and services to the industry as delegates of the national regulator.

SRL's interest in this new legislation is to have the OH&S component of the Clean Green standard recognised in the Safety Management System requirements. Through the Clean Green program southern rock lobster fishers receive training in OH&S and then develop their own specific safety management plans which are audited for suitability for mitigating risks on the individual vessel they are developed for.

To-date discussions with the state legislators and AMSA have been very productive. SRL have been invited to participate in a forum that will be responsible for developing the procedures for auditing the individual vessel safety management systems. It is also pleasing to hear organisations such as Marine and Safety Tasmania (MAST) compliment Clean Green for the standards the program sets for fisher-vessel OH&S.

The Clean Green program is not only about establishing World's best practice in producing what is arguably the *'Finest Seafood in the World'*, it is also about reducing the regulatory burden through a single program.

Seafood Safety Act 2003 - Victoria

The second matter that SRL has addressed through the Clean Program was a submission to a parliamentary committee inquiry in Victoria last year that has recently tabled a number of recommendations in the Victorian Parliament. The inquiry was to specifically look at the: *Impact of food safety regulation on farms and on other businesses regulated by Dairy Food Safety Victoria (DFSV) and PrimeSafe.* In Victoria PrimeSafe is responsible for the *Seafood Safety Act 2003*.

When the Seafood Act was introduced it included the catching sector with rock lobster and abalone being classified as high risk. Even though both these fisheries deal in a live product that has to be both very much alive and healthy to sell, they were deemed under the Seafood Safety Act to be a higher safety risk than a boat with a few tonne fish that may have been dead for a number of days (though I am sure would be appropriately iced and stored). Needless to say Victorian Rock Lobster fishers have vigorously opposed their inclusion in the Seafood Safety Act and the high risk category they were labelled with particularly as the fee structure was also based on the risk rating.

Over the years there has been at least one inquiry into the Primesafe fee structure however that didn't deliver any relief for the Victorian Rock Lobster fishers. With the Terms Of reference with this latest Inquiry SRL was able to address in its submission a number of broader issues i.e. the risk factor as well as the fee structure. At the end of March the Committee's report containing a number of recommendations was tabled in Parliament.

Importantly for Rock Lobsters Fishers there were two key recommendations, being:

- That the state government move the regulatory requirement around the live handling of seafood in Victoria, in a way that is consistent with the approach taken by other states in Australia.
- That the Minister for Agriculture and Food security work with Primesafe and Dairy Food Safety Victoria to recognise private sector food safety standards where it is safe to do so, as one approach to minimising the cost compliance faced by farms and other food businesses.

The first recommendation would take Victorian Rock Lobsters out of PrimeSafe altogether (which is what SRL argued for in its submission) and the second one opens the door for a program such as Clean Green (which is also a food safety standard) to be recognised.

The Minister responsible for Agriculture and Food Safety will table his response to the report and its recommendations in the Victorian Parliament in September.

Professional Qualifications for Professional Fishermen

There are number of strong points that make the Clean Green Program unique and to SRL's knowledge the only fishing/seafood industry product standard of its type anywhere in the world. These strengths include:

- Training Program - must complete to participate in the program
- Audit protocol requirements for vessels and documented management systems to be accepted into the program
- Ongoing independent third party auditing requirements to remain compliant with the program

In regards to the first dot point, a project has now been approved by the Department of Industry, Innovation Science, Research and Tertiary Education to review the Clean Green training package. The project will map the current training against nationally endorsed units of competency for the Seafood Industry and the Transport and Logistics training packages. The intended outcome of this project is for the Government to endorse the components that make up the Clean Green training requirements as an approved training package(s).

The training can be then recognised as a Skill-Set for which a Certificate of Attainment is issued. Apart from providing the certificate of attainment and a vocational qualification, the training being a recognised Skill-Set will also is eligible for funding for ongoing training. Existing Clean Green fishers can receive refresher training and have a Certificate of Attainment issued for their past training through a recognition of prior learning (RPL) process.

This project to formally recognise the training and qualifications of Clean Green fishers will continue to build on the integrity of the program and will be undertaken by the AgriFood Skills Council and SRL.

Australian Southern Rocklobster clean. green.®

World's best practice Clean. Green. Rocklobster fisher

Documents **worth reading**

For those of us who like to read about our industry and/or the fishing-seafood industry in general the following are several publications that are worth following up on.

Australia's Out-Dated Concern over Fishing Threatens Wise Marine Conservation and Ecologically Sustainable Seafood Supply.

This is a paper that has been written by Professor Robert Kearney and published on the Open Journal of Marine Science. The paper considers the issues that have frustrated the fishing industry for years such as, confusing advice to the public on sustainable seafood and being misled on the environmental impacts of fishing. Despite Australian being ranked globally 4th out 52 countries for sustainable fisheries management we see continued pressure from non-government organisations misusing of management terms such as "overfished" to promoted misguided need for ever increasing fishing pressure.

In the closing section of his paper Bob Kearney also questions the fishing industries (and recreational sector) lack of capability or disinterest in forcing governments to publicly debate the strategic issues of fisheries management and seafood security. He states that neither industry has effective national coordination or gives adequate priority to strategic and long-term management.

The SRL website www.southernrocklobster.com has a link on the front page to where this paper can be downloaded from the Open Journal of Marine Science website.

It is definitely worth a read, particularly for those of us who are regularly required to defend against biased an uncorroborated reporting that industry is frequently subjected to.

Stock Status Report

The Status of key Australian fish stocks reports 2012 provides the first national assessments of our wild capture fish stocks, incorporating information from all eight fisheries management jurisdictions into a single set of reports. The reports have been initiated by the Fisheries Research and Development Corporation (FRDC) and the e Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)

The Status of key Australian fish stocks reports 2012 will provide a scientific resource for the general public, policymakers and industry on the sustainability of fish stocks. It has taken two years of collaborative effort from more than 80 marine scientists across state, territory and Commonwealth jurisdictions to complete the first series of assessments.

The reports bring together biological, catch and effort information to assess the stock status of the 49 key fish species (or species complexes) that contribute more than 80 per cent of the value of Australian wild-capture fisheries production and about 70 per cent of the annual catch. Australian waters support more than 4500 marine species, of which about 600 are commercially fished. The number of these species assessed is expected to increase in future editions of the reports.

Species reports

The Status of key Australian fish stocks reports 2012 consists of 49 separate chapters and assesses stock status based on data and information from 2010.

Each chapter includes information on the main fishing methods, management measures, number of vessels that catch the species and the amount of catch from commercial, recreational and indigenous fisheries. There is a summary of the possible environmental effects of fishing and the impact of environmental changes on the species. The key references on which assessments were based are also provided as background.

Southern Rock Lobster

Southern Rock Lobster is identified in the report as being sustainable and the information for our particular species of interest is reported is on page 156 listed under **13. Southern Rocklobster** *Jasus edwardsii*, SRL also has the section on Southern Rock Lobster on its website at www.southernrocklobster.com

Any extensive overview of the report can be obtained from the FRDC website at: http://frdc.com.au/stories/Pages/New-stock-status-report.aspx and a full copy of the report can be downloaded from http://www.fish.gov.au/Pages/SAFS_Report.aspx

Key Threatening Nomination for Seismic Surveys

In March 2013, the Commonwealth Fisheries Association (CFA) formally nominated marine seismic surveys as a 'key threatening process' (KTP) under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). SRL with financial contributions from TRLFA and SARLAC supported the CFA as did a number of fishing industry groups from around Australia.

Under the *EPBC Act,* a key threatening process is defined as something that threatens, or may threaten, the survival, abundance or evolutionary development of a native species or ecological community. Nominations are invited by the Commonwealth Minister for the Environment each year.

The CFA lodged the nomination because of growing evidence that seismic survey activities are harmful to marine life, causing physical damage, displacement from habitats and disruption to breeding. Seismic surveys probe the seafloor using high-energy, low-frequency noise pulses from air guns, and are conducted primarily by the petroleum and minerals industries.

The nomination lists nine species that could become vulnerable or more highly endangered (under the EPBC Act) due to marine seismic survey activities: black jewfish; Bass Strait scallop; arrow squid; scampi; blue warehou; southern bluefin tuna; orange roughy; gemfish; and the loggerhead turtle.

While Southern Rock Lobster is not a threatened species, industry has concerns with seismic activities not only with the impact on fishing operations but also the disruption to breeding. Little is known about the impact on larvae, plankton and spawning animals from seismic testing. If the KTP nomination is successful the EPBC Act will place the onus back on the exploration industry to prove their seismic surveys are not threatening to the nominated species rather than industry having to prove it.

The nomination is currently awaiting consideration by the independent Threatened Species Scientific Committee. The committee will decide on a priority list of nominations, which will be examined by the Minister for the Environment. If the committee and the Minister regard the marine seismic activity nomination as being a priority, the nomination will be subject to formal assessment, including public and expert comment. According to the Department of Sustainability, Environment, Water, Population and Communities, it is anticipated the list of priority nominations will be finalised by August/September 2013.

Country of Origin Labelling & Traceability – does SRL need it?

Gary Morgan SRL Chair

Australia has a well-deserved and well-established image in our major export food markets for producing safe, high quality food from a clean environment. For seafood from wild-caught sources, we can add 'from sustainable resources' into that mix.

There have been a number of both Government and private sector initiatives that support, or take advantage of our Country of Origin Image (COI), including the South Australian Government's 'Premium Food & Wine from a Clean Environment' campaign and the 'Australian made' logo which is used by a number of Australian seafood producers, manufacturers and exporters.

But, for Australian southern rock lobster, the vast majority of which is exported, does the COI work for us?

The answer is an unequivocal 'yes'! At least for our major export market, China.

For example, the recent SRL/ACACA mission to China (see the separate article in this newsletter about the mission) confirmed that Australian southern rock lobster is revered and is regarded as having 'much fame'. And studies by the University of Adelaide, supported by the Seafood CRC, have confirmed that the Australian COI has a major impact on Chinese consumer's choice of seafood, which becomes even stronger for those consumers who have visited Australia.

But is the southern rock lobster industry doing enough to take advantage of the very favourable image in China of Australia and Australian seafood? Certainly other countries are – as the SRL/ACACA mission saw, and which has been known by exporters of southern rock lobster for some time. We see rock lobsters from New Zealand, South Africa and other countries being sold as "Australian". And the reason they are labelled in this way is to take (illicit) advantage of Australia's image as the producer of rock lobsters that are the finest in the world and to benefit from the higher prices that being labelled 'Australian' brings.

There are of course both image and marketing consequences of this mis-labelling. First, the mis-labelled product eats into the market share of genuine Australian rock lobster, increases the apparent supply and therefore has the potential of impacting prices.

But, perhaps more importantly, is that much of the mis-labelled product does not have the same high standards of coming from sustainably managed resources and of product quality and safety – all attributes that can be guaranteed for Australian southern rock lobsters through both Government certification and through the Clean Green Product Standard. So, in short, mis-labelled "Australian" rock lobsters have the potential to impact on perhaps our major marketing advantage in China, that of our image.

The problem is that, at the moment, there is no way, apart from having a PhD in lobster taxonomy, that a Chinese consumer can be sure that the 'Australian' labelled rock lobster he or she is buying is actually from Australia. There is no country of origin labelling (apart from exporters cartons and documents) and no way of tracing individual rock lobsters back to the place they were caught.

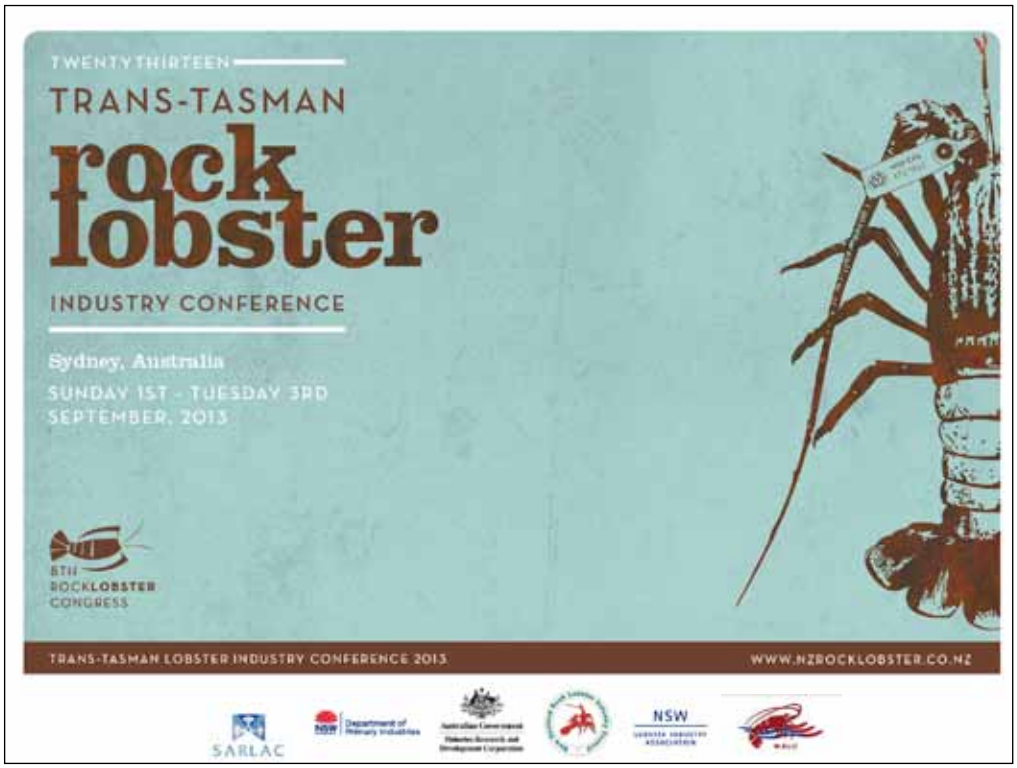
Other countries, particularly the USA have recognised this problem and have embarked on a comprehensive industry promotional campaign that emphasises the origins, sustainability and quality standards of their product. This allows individual exporters of American lobster to benefit from this increased Country of Origin Image that is being promoted. As an industry, Australia is doing nothing with regards southern rock lobster.

As exporters of the finest rock lobsters in the world, the southern rock lobster industry can't simply expect the Chinese regulators to act on mis-labelled product unless we help to provide them with the tools to act.

Boston Lobster labelled in Beijing Market

Those tools are verifiable and secure country of origin labelling and a means of tracing rock lobsters, preferably individually, back to their origin. And, as the SRL/ACACA mission learned, this also needs to be backed up with generic industry promotion to ensure these tools and the standards under which they operate are known in China.

There is no point in claiming that we produce rock lobsters that are 'the finest in the world' unless we have the means of distinguishing our product from others in the market and we let our customers know how they can recognise our product from 'replicas'. In closing, the other benefit of a traceability system to be considered is being able to locate product in the market taken from a particular fishing area that maybe subject to closure from an event such as an algal bloom.



Environmental Impacts on the Catchability of Southern Rock Lobster

Findings from a recently completed FRDC project titled "*Sustainability of the rock lobster resource in south-eastern Australia in a changing environment: implications for assessment and management*" provide some interesting insights into how much environmental factors affect lobster catch rates. The project analysed more than a decade of wave heights, moon phase and water temperature data against daily catch information across South Australia and Victoria. The aim of this project was to evaluate the influence of environmental factors on the catchability of rock lobsters and decide whether it was important to incorporate these factors into total allowable commercial catch decisions.

Data for the study came from a number of different sources. Daily catch rates were estimated from the logbooks of commercial fishers, while environmental data came from a range of sources. Sea surface height and wind data were provided by the Australian Bureau of Meteorology. Moon phase was sourced from the United States Naval Observatory website, while daily average bottom water temperatures were compiled from bottom temperature loggers maintained by SARDI Aquatic Sciences. The wave data set was obtained from WAVEWATCH III, a wind-wave model run by the US National Weather Service.

Overall, the study identified three environmental factors as having a significant impact on catch rates from day to day: wave action, moon phase and bottom water temperature. The strongest impact on catch rate was from wave action, especially during a storm event. The study found that when wave height was 25 per cent above the median height, the catch rate that day fell by an average of 10 per cent. However, three days after a storm, the catch rate would increase by about five per cent.

Moon phase was another factor that had an obvious impact on lobster catch rates, with an average increase of 10 per cent in catch rates in the three days before the full-moon and an average fall of 5 per cent after the full moon.

One of the main environmental events that triggered the project was an exceptionally strong upwelling of cold water in February of 2008 within the southern zone rock lobster fishery of South Australia. The assumption was that this surge of cold water from the Antarctic onto the shelf – which resulted in the sea temperature dropping substantially to 9-10°C – caused the lobsters to become less active, lowering catch rates. However, there was no evidence in the findings to suggest that lower water temperatures affected catch rates. Surprisingly, it was during warmer water periods, when water temperatures reached 18-19°C, that catch rates decreased notably, indicating that lobsters start to become inactive and therefore feed less at these temperatures.

While these environmental factors did have a measurable impact on the day-to-day catch rates, the overall effect on annual estimates of catch rate was low. Environmental factors were estimated to account for only 7 per cent of the change in catch rates, while abundance rates accounted for 84 per cent. Overall, the findings have confirmed the importance of recruitment of new lobsters into the fishery as the most influential factor affecting catch rates. This means that while environmental conditions do play a part in determining the numbers of lobster caught, and as such will be added to the factors used to calculate the TACC, it is unlikely that their impact will significantly alter the TACC.

Scientists believe that the findings make stock assessments of southern rock lobster across south-eastern Australia more scientifically defensible and help to reduce the bounds of uncertainty in future projections forward to estimate stock recovery.

Finally, the project also identified strong links between the numbers of puerulus (lobster in their post larval stage) found settling on special collectors and subsequent recruitment. Periods from settlement to recruitment ranged from 4–6 years. However, what remains a mystery are how various environmental factors affect the survival of the early life stages from egg to puerulus and what factors impact on the wide variation in the numbers of puerulus that settle from year to year. Further research is required to determine which factors influence the number of puerulus that actually survive to reach legal size and therefore recruit into the fishery.

The research project was conducted by Dr Adrian Linnane (SARDI), Dr Terence Walker (Department of Primary Industries, Victoria) and Dr Caleb Gardner (Institute for Marine and Antarctic Studies, Tasmania).

By Dr Adrian Linnane
Offshore Crustaceans Program Leader
SARDI Aquatic Sciences

TWENTY THIRTEEN Trans-Tasman Rock Lobster Congress

In September 2013 New South Wales will be hosting the 8th Rock Lobster Congress in association with a Trans-Tasman Rock Lobster Industry Conference.

This year we build on the success of the 2011 event in New Zealand and pick up the theme of our industries meeting new challenges with confidence – adapting to changing political priorities and preferences for access and use of marine resources generally and interacting with the professionals who can guide and inform industry responses to challenges and to opportunities.

The 2013 conference will be held in the spacious Four Points by Sheraton Hotel at Darling Harbour in Sydney and will commence with a welcome and registration function on the afternoon Sunday September 1st 2013.

The formal conference proceedings will commence on Monday September 2nd and conclude on the evening of Tuesday September 3rd. The conference dinner will be Monday night, September 2nd and hosted at the venue.

Register for the 2013 Rock Lobster Congress at *www.etouches.com/lobster2013*

CHINA TRADE **Learning from the Japanese history**

SRL director Nick Ruello recounts a few observations from his experience in overseas trade development relevant to the current China lobster trade.

The recent slide in the value of the Aussie dollar makes China an even more attractive market but it is still a challenging country for most exporters. The rather opaque nature of Chinese government policy makes trade predictions difficult but there are some interesting lessons to be learned from the history of Australia's seafood trade with Japan.

The Chinese and Japanese people are different but they share some common characteristics that are important in doing business. We must never forget however that government, business and the legal system operate in different ways in these two countries and differ from those in Australia.

Respect, tradition, superstition, trust and relationships are some considerations that come to mind in dealing with both countries. Understanding the importance of their traditions, superstitions and the need for mutual respect are paramount in building long lasting business relationships.

The reddish colour of the Southern Rock Lobster (SRL) has given the SRL industry a valuable natural trade advantage over almost all other species because the colour red is a symbol of prosperity and happiness for Chinese. But while the use of red in promotional materials is helpful it should not be overdone.

The western way of doing business where we quickly get into discussing product features, price, and distribution arrangements and expect a straight forward **yes**, or **no** does not work with most in mainland China, like it does in the USA or even Hong Kong. Chinese businesspeople today, like the Japanese are not used to giving or expecting a direct **"no"** reply.

Both Asian countries enjoy their food and a drink or three and doing business around the restaurant table is par for the course but there are some traditions and superstitions that need understanding and respect from the western guest.

For example Chinese and Japanese commonly slurp their noodles down in a manner seemingly noisy for westerners, who tend to be silent eaters who cut the noodles with their teeth or a knife in order to swallow them. Cutting noodles with a knife is seen by the Asian host as lacking in table etiquette while westerners are surprised by their noisiness in slurping down noodles.

Both countries like to serve whole fish when hosting a meal and have presentation customs that surprise some visitors. The fish is traditionally served on the plate with head pointing to the left in both countries but the Chinese seafood industry and maritime communities don't turn the fish over when the flesh on the topside has been eaten.

The turning over of the fish to get at the lower side, rather than removing the backbone for access, is seen by superstitious maritime Chinese as "rocking the boat" and likely to lead to a capsize at sea and a loss of life.

The technology boom of the past fifteen years has changed international trade dynamics. The internet has made communications easier, faster and cheaper for all but it has also made deception and theft easier and more subtle.

Red, a lucky colour for Chinese, gives the southern rock lobster a natural advantage over some of its less attractive competitors. But too much red in promotional material can be a negative.

Anyone trading high value items like seafood is bombarded directly or indirectly with requests for product from people/companies purporting to be seafood buyers. But a growing number are just old-fashioned crooks looking for suckers on the web.

This has increased the need for competent interpreters, especially in dealing with contractual matters. Years ago at the Tokyo Seafood Show I learned that it was beneficial to employ an interpreter to help me man the stand, even though I was fluent in Japanese; I believe it is best to employ an appropriate Australian or another "foreigner" who has lived in the country/city for some years rather than a national because they are less prone to nationalistic impulses or pressures in translating for you.

While the strong demand for seafood from China is heartening another lesson we can learn from the Japan trade is that boom times don't last forever. Moreover the bigger the boom the bigger the bust that eventually comes around. So the SRL industry's R & D looking for market diversification in China and elsewhere is more than sensible, it is essential.

Weighing up **the risks**

The dangers in fishing has been popularised through programs such as *Deadliest Catch* and *Trawlermen*. So it's no surprise that Australian fishing, combined with agriculture and forestry, had the highest occupational fatality rate of 11.4/100,000 workers in 2009-2010. This was six times the average annual fatality rate of 1.9/100,000 workers.

Tim Emery, Klaas Hartmann, Bridget Green, Caleb Gardner and John Tisdell
IMAS and School of Economics and Finance, University of Tasmania

Although fishing is a dangerous occupation, this doesn't mean that fishers themselves are risk-lovers. In fact research conducted suggests the opposite, with fishers averse to physical risk at a comparable level to the majority of the population. Fishers clearly try to avoid fishing in hazardous weather conditions when possible. Of course no two people are the same and risk aversion can vary based on factors such as the current management system, skipper experience, vessel size and/or financial security.

The movie *The Perfect Storm*, provides a colourful example on how financial incentives and/or management institutions can alter the tolerance of fishers to physical risk. When the swordfish fishing vessel *Andrea Gail* disappeared, it was speculated that the crew continued to fish despite the approaching storm because of the possibility of a greater reward (i.e. landing a sizeable catch at high market prices). Their motivation to keep working was also elevated by apparent financial difficulties.

Continued on page 8

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Australian Government
Fisheries Research and Development Corporation

FRDC Project Number 2012/511

Weighing up **the risks** *Continued from page 7*

The Institute for Marine and Antarctic Studies (IMAS) at the University of Tasmania has researched the extent to which financial incentives can increase risky behaviour in the Tasmanian Southern Rock Lobster fishery (TSRLF). It was assumed that the introduction of individual transferable quota (ITQ) management in 1998 would improve the workplace health and safety (WHS) of fishers. The theory is that fishers have a guaranteed share of the resource and an expanded fishing season, so they have more flexibility in deciding when and where to fish. We tested this by examining the daily decision-making of different types of fishers between 2001 and 2010: those who leased the majority of their quota holdings versus those who owned the majority of their quota holdings. We measured their response to the physical risk of operating in rough weather conditions and the effect of financial incentives, such as high market prices.

As expected, increasing wave height was a disincentive to operate for all fishers with a critical point being whether wave heights were more or less than 5 m. Tolerance of risk varied between regions.

Fishers were more tolerant of wave heights over 5 m when expected revenue per potlift was high on the same day. In other words, fishers traded off greater physical risk for higher financial reward. In one block, 11% more fishers operated at wave heights ≥5m if expected revenue per potlift increased from AU$50 to AU$100.

We also examined the differences between individual fishers. Lease fishers, were more averse to physical risk than quota owners under normal conditions but became significantly more tolerant of risk than quota owners when expected revenue per potlift was high. A tipping point of around $55 per potlift was identified as the point where lease fishers became more likely to operate in riskier conditions than quota owners. This appeared to be due to small daily profit margin between the lease and market price, which makes the economic benefit of lease fishing more volatile than for quota owners.

It is important that we understand how fishers respond to physical and/or financial risk to prevent changes in regulations and/or policies leading to deterioration in WHS. Fishing is a dangerous job and lives are lost regularly so there's an obligation to carefully consider management decisions and how these affect safety. Historically, there has been little attempt to consider and assess the effect of fisheries management regulations and/or policies on WHS outcomes.

This study has shown that management systems that promote the development of a lease-dependent fishing sector will increase the likelihood that fishers will operate in riskier conditions. It is also clear that the commonly exposed theory that ITQ fisheries reduce risk is incorrect and simplistic because it assumes that all fishers are quota owners and that their individual catch is constrained by their quota holding. Management agencies cannot assume that ITQs will improve WHS outcomes, particularly as the proportion of lease fishers increases through time.

Australian Southern Rocklobster INDUSTRY

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Australian **Southern Rocklobster** Industry

SRL **UPDATE**

SRL Operations Reviewed

The core function of SRL is to undertake the national planning and management of Research, Development, and Extension (RD&E) for the Southern Rock Lobster Fishery. This role is undertaken through a 4-year project agreement No 2010/402 funded by the Fisheries Research & Development Corporation (FRDC).

As the project is at the mid-way point, FRDC commissioned an independent performance review of SRL. This was undertaken by CRG Essentials a company specializing in Governance and Performance reviews. Interviews were conducted with a broad cross-section of SRL members, industry and Government to gain an insight into SRL's performance as an organization.

The findings of review were provided first to FRDC and then to SRL in a written report and presentation at SRL's last (31 October) Board meeting. The report noted that there was *"virtually unanimous endorsement given to the officers of SRL in terms of their personal performance. As to the organisations performance, comments were mostly positive: but there is a wide range of opinions about what SRL is expected to deliver".*

It therefore appears from the review that SRL is doing OK for what it is contracted to deliver, but the question remains as to whether what we do, now in and in the future, provides the best support to industry. In other words, what should SRL's future role be and how do we better communicate that role?

CRG Essentials report made a number of recommendations which SRL's Board considered at its last Board meeting. Probably the first and most important of the actions that SRL is taking is to establish a Board Committee that will be responsible for meeting with industry and other stakeholders over the coming months to hear what opinions our stakeholders have as to SRL's future role and how we achieve that role. We will be in touch with industry associations and other stakeholders soon to work out a schedule for these important consultations.

Overall SRL have found this review to be a very helpful process and has provided constructive recommendations for how the organisation can be more affective in the future. We would like to thank the industry representatives who made themselves available for an interview.

The Business of SRL

The performance review of SRL noted that *"there is a wide range of opinions about what SRL is expected to deliver".* Therefore it is an opportune time to provide some background to what SRL does.

RD&E Planning and Management

SRL's core activity is the National planning and management of Research, Development & Extension (RD&E) in support of the Southern Rock Lobster fishery. To achieve this, SRL, in consultation with industry, Government and other key stakeholders prepared a Strategic Plan for the period 2011-16 which guides all our activities. This strategic plan, which is reviewed annually, defines the overall strategic RD&E Objectives and prioritizes RD&E activities through annual operational plans. SRL does not involve itself in state-based management issues but looks at RD&E issues that can benefit the entire southern rock lobster industry.

Continued on page 2

Rock Lobster - Trade Figures

Some interesting figures on Australia's 2012 food trade with China.

Australian Rock Lobster exports to China (including trade to Hong Kong and other transit points) combined represents 9.68 percent of Australia's overall food exports to China. At $303 million, Rock Lobster compares well with wine $240 million and dairy $233 million.

Combining, the total exports of Rock Lobster and Abalone ($135 million) at $338 million makes up a total of 14 percent of Australia's overall food exports to China. This combined figure also represents over 80 per cent of all Australian seafood exports to China.

Total value of Australian Rock Lobster exports to all international destinations for 2012 was just under $400 Million.

Source: ABARES, 2012

Free Trade Agreements

The figures of Rock Lobster and Abalone individually or combined highlight the importance of finalising free trade agreement (FTA) negotiations with China. This FTA which includes Rock Lobster has seen the elimination of tariffs of up to 300 percent on some agricultural exports.

A joint press on release on the 5 December 2013 from the Hon Tony Abbott, Prime Minister and the Hon Andrew Robb, Minister for Trade and Investment announced FTA negotiations had concluded with Korea. This FTA has seen the elimination of tariffs of up to 300 per cent for Australian Agricultural exports to Korea including seafood.

SRL **UPDATE** *Continued from page 1*

SRL not only initiates projects consistent with its strategic plan but also reviews all R&D project proposals applicable to Southern Rock Lobster for which either FRDC or the Seafood CRC funding is being sought. Such reviews of projects are made by the SRL RD&E Committee against a set of criteria. These criteria include consistency with the SRL Strategic Plan, the technical merit of the project and the capacity of the researchers to deliver outcomes, whether the proposed research is relevant and applicable to all States and, importantly, does the proposed project provide value for money for the amount of funds being sought.

Projects can vary from R&D into science and new technology (mostly using FRDC funding) through to market development and supply chain education. However, all projects must fit with the Objectives of the SRL RD&E Strategic Plan which are:

1. *Add value along the supply chain from fisher to customer*
2. *Optimize fisheries production*
3. *Promote and support people development across all sectors of the Southern Rock l9obster Industry*

SRL's role in RD&E Management and Planning is underpinned by an Industry Partnership Agreement (IPA) supported by Government Departments responsible for Fisheries Management in South Australia and Tasmania and the industry bodies SARLAC and TRLFA from those states. Victoria has not become a signatory to the IPA.

Communication and Extension

SRL has an additional project funded by FRDC to provide communications and extension in the Southern Rock Lobster fishery. This SRL Newsletter is an example of the communication component of this project. Extension is the "E" in RD&E and is about supporting and promoting the adoption of outcomes from R&D projects. The considerable investment in R&D projects loses a lot of potential in take up/adoption if there is no effort put into extension.

The communications and extension project is also supporting the development of new, and updated fact sheets that promote the Southern Rock Lobster industry. As well as being available in a printed format, these new/updated fact sheets will be available in an education section to be added to the SRL website. This material and the updating the website are to provide a focus on promoting Southern Rock Lobster the species and having good news of a successful fishing industry. There is a lot of good information and stories' regarding the Southern Rock Lobster Fishery and it is important to compile it in an easy to read format and make it accessible to the public.

Australian Southern Rocklobster clean. green.®

World's best practice Clean. Green. Rocklobster fisher

Clean Green Program

SRL delivers the Clean Green program which is the only third party audited fishing industry/seafood standard in Australia and as far as we aware internationally as well. The Clean Green program sets standards for:

- Workplace Health & Safety
- Environmental Impacts of fishing operations
- Food Safety & Quality
- Animal Welfare
- Sustainability (Compliance with *EPBC Act*)

Clean Green is self-funding in that it generate enough income to cover the costs of annual auditing and the administration of the program. SRL has also invested a lot time in maintaining Clean Green and building its profile as it recognises the program providing a very important role in the future of the industry. The suite of standards that make up Clean Green establish best practice for a range of issues that singularly or collectively need to be addressed now or in the not too distant future.

SRL has had very productive dialogue to have Clean Green recognised in AMSA's new national vessel legislation requiring a safety management system on commercial vessels. This should result in a considerable saving for boats compliant with the Clean Green program.

Clean Green addresses many of the "Social License" expectations that are placed on industries that harvest natural resources. Clean Green also provides a great opportunity to brand and promote Australian Southern Rock Lobster in its international markets.

Currently there is a project being undertaken by the AgriFood Skills Council to have the Clean Green training package recognised as a skills-set in the national seafood training package. This formal recognition of Clean Green training will allow the program to receive funding for ongoing training.

Conclusion

While SRL does get some additional funding to assist in delivering projects it is directly involved in, i.e. to arrange workshops and cover travel costs, it does not receive funding to deliver other services that many may have an expectation that it should or could deliver. Over the next six months, SRL will undertake the strategic review of its current and future role and identify options for funding so it can position the organisation to deliver more services and benefits and meet the expectations of industry.

Clean Green Audits 2013/14

The Annual Auditing requirements for Clean Green were undertaken in late October and November in Tasmania, Victoria and the South Australian Southern Zone, leaving only the SA Northern Zone to be done in February. Thanks to the owners/skippers whose boats were audited for their cooperation in scheduling this year's audits, it is always a challenge lining up dates/times and vessels.

The annuals audits are performed by Tom Juergens from SAI-Global and he has provided the following list as reminder for the requirements to complete a successful audit.

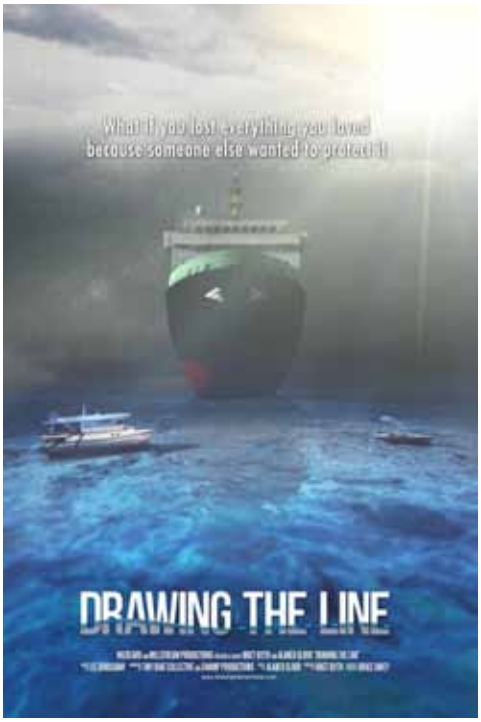
SRL Vessel Mandatory documents/ requirements for Audits

- Current Vessel Lobster Fishing License
- Catch and Effort log book
- Skippers certificate (Master 5 or Coxswain) & Marine Engines Drivers (MED) qualification
- Current vessel's survey certificate
- Current 1st Aid certificate
- Clean Green Manual
- Clean Green or ships log book
- Induction records for new crew/visitors
- Chemical MSDS's
- Bilge rat in bilge
- On boat stickers attached (MARPOL Waste disposal sticker, Safety sticker for high risk tasks- ropes, hatches, winches and pot handling, Safety sticker for hearing protection required outside of the engine room)

Anyone needing a log book or stickers please contact SRL's Executive Officer Ross Hodge on 0423 533 133.

SA Rock Lobster Industry Gets On-Board with 'Drawing The Line'

South Australia's multi-million dollar rock lobster industry has been included in the recently released documentary bringing a fishermen's perspective to the political decision to implement the world's largest network of marine reserves in Australian waters. *Drawing The Line* was released on 21 November 2013, World Fisheries Day, and is a revealing tale about Australia's oceans and the men and women who depend upon it for their livelihood.



South Australian Rock Lobster Advisory Council (SARLAC) Executive Officer and Southern Rocklobster Limited (SRL) Director, Justin Phillips, said the industry was pleased to be involved in *Drawing The Line*, which features interviews with fishermen from some of the most remote locations along South Australia's coastline.

Mr Phillips described *Drawing The Line* as telling an objective story about marine parks and demonstrates that it is possible to deliver effective protection for the marine environment by dealing with real threats without unnecessarily excluding highly sustainable fisheries that support regional families and communities for political reasons. Unfortunately what should have been a really positive Government initiative is now resented by coastal families and communities around Australia who will have to deal with the real economic and social losses which will be far reaching.

Drawing The Line's producers highlighted the importance for communities to understand what is happening regarding marine conservation and the film is helping deliver some of the key messages in a factual way. .

Featured in *Drawing The Line* is another SRL Board Director, Associate Professor Caleb Gardner from the University of Tasmania. In the film Professor Gardner, who holds qualifications in both biology and economics, delivers the scientific realities regarding marine conservation in Australia in an honest and matter-of-fact way which everyone can relate to.

Drawing The Line seeks to change public perception of the Australian seafood industry and to bridge a gap between the fishing industry and the customers who enjoy their seafood. The film enables audiences to see the true faces behind the fishing industry and the environmental values inherent in their plight. It is a warm, larger than life tale, of characters that are in a fight for the survival of their rapidly contracting industry. It is a story of champions, working for the betterment of the environment.

Screenings were being conducted throughout Tasmania in December 2013, and SARLAC is working to organise a South Australian screening in early 2014.

SARLAC's own footage for *Drawing The Line*, which was shot off South Australia's Limestone Coast in June 2013, can be viewed at www.sarlac.com.au and further details regarding screenings of the film can be found at www.drawingthelinemovie.com, the film can also be streamed in its entirety from the 'shop' section of the website.

Trans Tasman Rock Lobster Industry **Conference 2013**

Hosted by the New South Wales Rock Lobster Industry Association (NSWRLIA) the 8th biennial Trans-Tasman Rock Lobster Conference was held in Sydney 1-3 September. Building on the success of the 2011 event that was held in New Zealand the theme this year was 'Meeting New Challenges With Confidence'.

The NSW Rock Lobster Industry partnered with the New Zealand Rock Lobster Industry Council (NZRLIC) to host the conference. Scott Wesley and Peter Offner from NSWRLIA with the support of Belinda Lucas Manager Lobster NSW Dept Primary Industries and from NZRLIC Daryl Sykes along with Helen Regan and Fiona McKay all combined to organise the conference.

Dr Patrick Hone and Daryl Sykes

Dr Patrick Hone Executive Director FRDC delivered the official opening address titled "Turning Future Challenges into Opportunities". Patrick's address included some important take home messages, "those who cannot change their minds cannot change anything" and "if you always do what you've always done, you'll always get what you always got". Daryl Sykes Executive Officer NZRLIC who chaired the two day event was at his usual erudite best, introducing speakers, keeping the program on time and ensuring the questions time at the end of each presentation was used productively.

The mix of delegates attending the conference from both Australia and New Zealand was representative of all sectors across the Rock Lobster supply chain as well as other key stakeholders such as fishery management agencies, science, R&D providers and key bodies such as FRDC and the Seafood CRC. The speaker program was an excellent balance of papers presented on issues and challenges across the spectrum of fishery management, research science, technology, sustainability, addressing public perceptions, emerging issues (e.g. bio-toxin management) through to trade and market development and doing business in China.

Across the two days of the conference more than 30 individuals contributed to twenty different sessions. It would be difficult to comment on all the presentations in this one article and the following comments are very much about highlighting the diversity of the program and some of the key messages.

Often presentations at the conference can have a focus on topics relating to the larger producing fisheries associated with Southern Rock Lobster or Western Rock Lobster. Therefore a paper delivered by Dr Keith Sainsbury Titled; 'Management Success Lessons Learned the NSW Rock Lobster Fishery' was of particular interest. In 2000-2004 there was a collapse in all indicators of the spawning biomass of the Eastern Rock Lobster also known as 'Packhorse' crayfish. With the cooperation of all stakeholders (Scientists, management and industry) and implementing what Keith referred to as 'doing more than the minimum' has paid off with the 2013 commercial catch rates increasing 3 fold from the early 2000s.

Presentations were given on the status of stock and catch rates as well as the challenges and current issues of the rock lobster fisheries in South Australia, Western Australia, Tasmania and New Zealand. One notable item was that 2013 is the first year that WA has fished under a quota management system with a TACC of 5554 tonnes.

Dr Gary Morgan and Rodney Treloggen

Dr Gary Morgan and TRLFA CEO Rodney Treloggen gave a presentation on the role of Southern Rocklobster Limited (SRL) in managing and co-ordinating the investment of R&D in the fishery. Predominately R&D projects are supported with FRDC and Seafood CRC funds which are leveraged off the contributions from industry with matching government funding. They noted where the R&D investment has been focused and that there is little focus on marketing and promotion considering this issue to be a future challenge and focus for SRL.

There was large segment of the program on Science and Technology with the first presentation by Dr Geoff Liggins aptly titled; 'Fishermen from Mars and Scientists from Venus'. His presentation described how each profession is acclimated to its own planet's society and customs, but not to those of the other and the importance of improving the relationship to maximise effective communications. Other presentations in this segment looked at improving economic performance and using Bioeconomic models to identify profitable harvest strategies.

Introduced as perhaps the most important session of the conference the second day started with a Marine Biotoxin Workshop presented by a panel of 5 speakers. The various speakers presented an overview of biotoxin species, types of micro algae associated with marine algal blooms and distribution as well as public health concerns management in bivalves and food standards. The session also looked at the Tasmanian algal bloom in 2012-13 and associated fisheries management issues and market concerns and implications. The session also looked at what will be addressed in the Seafood CRC funded project 'Understanding and reducing the risk of paralytic shellfish toxins in Southern Rock Lobster' that SRL has negotiated with SARDI to undertake.

From South Australia Joel Redman and Kyri Toumazos gave presentations on the impact of new marine parks being introduced in that state and how SARLAC has responded, including the showing of the SARLAC documentary film 'Drawing The Line'. The South Australian Northern Zone fishery, already impacted by previous marine parks and TACC cuts, are set to be hit harder and lose further access to fishing grounds as a result of new State and Federal Government marine parks that will come into effect in 2014.

Wayne Hosking CEO of Geraldton Fishermen's Cooperative gave a very informative presentation on the first year of the western rock lobster operating under a quota management system with a TACC of approximately half of what had been caught as an input managed fishery. The impact of moving to a quota management has halved the number of boats, reduced costs and dramatically increased catch rates. Profitability in the fishery had been further increased by the ability to fish to the market, a result of the removal of most fishing season restrictions with the fishery now producing most of its product in one form (live) and selling to one market-China.

Across Australia and New Zealand rock lobster fisheries, a number of managers and key decision makers are women. With a panel of women representatives of Industry and Government Agencies there was spirited discussion in sharing individual perspectives on decision and policy making processes and general consultation with industry. The panel agreed that it was critical to have efficient industry peak bodies to consult with and the issues around resource allocation between sectors was an ongoing challenge.

Panel session at the conference of the women managers and key decision makers

Associate Professor Caleb Gardner

Associate Professor Caleb Gardner's thought provoking presentation looked at how sustainable are Australia's Marine Capture Fisheries, what our role is in global seafood security and where are the challenges and opportunities. This was followed by Professor Michael Harte National Manager Marine WWF Australia whose presentation titled 'Securing the Legitimacy to Fish' explored the key elements of Social Licence to Operate. Both these papers provided a strong reminder of the negative public perceptions that industry faces and the need to improve its image and work at getting the message out to the community on the sustainability of our fisheries.

Nathan Maxwell-McGinn

Positioning southern rock lobster as the premium luxury choice for wealthy consumers is part of the work being funded by the Seafood CRC and supported by the China Trade Industry Reference Group (CTIRG). Nathan Maxwell-McGinn, Vice Chair of the CTIRG, provided conference delegates with insight and advice on tapping into the hearts and minds of the most discerning consumers and provided details of the CTIRG (now changed it's name to Seafood Trade Advisory Group - STAG) which is a collaborative activity between the Australian Abalone and Rock Lobster industries aimed at presenting a consistent view to government on China trade access issues.

Andrew Harvey from Ngai Tahu Seafoods New Zealand provided an illuminating and most perceptive account of doing business in China. Key messages from Andrew's and Nathan's presentation were China is a unique volume and price leading market with its total demand for seafood increasing and that we are yet to realise the full potential in China.

The two conference presentations also highlighted the capacity of the China market to absorb an increasing tide of lobster products from the Americas, South Africa and the Asian continent. Australian Rock Lobster Fisheries generate a landed value in excess of AU$404 million, ranking as the most economically valuable of the Australian wild catch fisheries. New Zealand rock lobster exports generated an estimated NZ$220 million in 2012/13 and the rock lobster fisheries remain the most economically valuable of all New Zealand inshore fisheries. The significant majority of rock lobster production from both countries is exported and the price paid to fishermen for their catches is determined by the quality and status of spiny rock lobsters in the ever more competitive China market.

These events are always dependant on sponsors to ensure they are financially viable and this year the Principal Sponsors were Fisheries Research & Development Corporation and the NSW Department of Primary Industries and a number of

Catherine Barnett

State Rock Lobster Councils were also sponsors. There was also a display of equipment and technology by some of industry's leading product and service providers.

At the end of the conference it was announced that next of these biennial events will be held in Western Australia and co hosted by the Western Rock Lobster Council and the Geraldton Fishermen's Co-operative in either Fremantle or Perth in 2015. Our colleagues in the West can really put on a good show when it comes to fishing industry events and I am sure that just like this year's conference the 2015 Trans Tasman Rock Lobster Industry Conference will be a memorable and worthwhile experience.

For those who have never been to a Rock Lobster conference or have not attended one for some time, then the 2015 will be a great opportunity to change that. The better informed our industry is, the better equipped it will be to take on the challenges and opportunities, both current and in the future.

Acoustic Release **Technology**

From the adoption of technology perspective, an excellent presentation on the use of acoustic release technology by NSW Rock Lobster fishers at the Rock Lobster Congress 2013 was of great interest. The presentation by Dr Geoff Liggins Supervising Scientist – Rock Lobster Wild Fisheries program NSW DPI and Scott Wesley NSW Lobster Industry Association highlighted how the adoption and implementation of new technology addressed a number issues the NSW Lobster fishery was faced with.

With the support of FRDC funding a project titled: ***Industry-extension of acoustic release technology for at-call access to submerged head-gear in the NSW rocklobster fishery*** was undertaken. The objectives of the project were:

1. Install Desert Star ARC-1XD acoustic release system and integrate with on-board electronics on at least 3 vessels in the NSW lobster fishery
2. Provide training and support in the use and maintenance of the system for fishers who adopt this technology in 2012-13 & 2013-14
3. Produce documentation (manuals, diagnostic & problem-solving tools) covering installation, use and maintenance of the system
4. Broker changes/improvements to the acoustic release system's hardware, firmware and software with the manufacturer
5. Monitor the performance of acoustic release systems implemented in the NSW lobster fishery

Since the early 2000's the NSW Eastern Rock Lobster fishery has really taken its "hard medicine" and committed to rebuilding stocks. The efforts and investment by industry to better understand recruitment dynamics and to rebuild stock levels had paid off considerably however fishers were faced with a number of issues in regards to gear losses.

Figure 1

The deep-water component of the fishery operates on the mid- and outer-continental shelf in 100 – 200 metres of water and between 5-50 kilometers offshore. Initial trials of submerged head-gear & "at call" release technology on lobster traps during 2011-12 proved promising and led to the current project, in an attempt to address issues such as:

1. Reducing ghost fishing by reducing trap losses
2. Reducing opportunity for theft of gear & lobsters
3. Providing insurance against whale entanglements
4. Improving onboard OH&S

Through addressing each of these issues there were subsequent benefits through increased efficiency and improved economics. It was a true win/win outcome i.e. problems solved and efficiency & economic gains.

The causes of trap losses was due to using traditional float on the surface head gear that was regularly being damaged and lost by:

- Larger commercial vessels
- Other fishing vessels
- Recreational boats
- Entanglement with other types of fishing gear
- Vandalism

Acoustic release technology put simply is a system for managing the deployment and retrieval of seabed payloads. It consists of at least one release station (transponder/release unit) in this instance attached to a lobster trap and surface station hardware with software installed on the fishing vessel. The name 'acoustic release' implies the surface station communicates with the release station using acoustic (sonar) signals. The system chosen by NSW Rock Lobster fishers integrates with the vessel's on-board electronics including the GPS.

The release unit (**refer fig 1**) is attached to the outside of a heavy duty plastic mesh bag which contains ropes and head gear. The plastic bag is secured so that it floating just above the lobster trap. As the boat is approaching the GPS mark for the trap at the appropriate distance the surface station will activate a signal

Figure 2

to the release station. The transceiver component of the release station receives the signal and activates the release mechanism which deploys the release cord allowing the top of the bag to open enabling the head gear to travel to the surface. Once contact is made with the head gear the trap is hauled to the surface using the vessels winch system.

Importantly all components of the release station can be reset and reused in setting the lobster trap. The NSW fishers went through a considerable trial period in testing the acoustic technology they have chosen and the failure rate was minimal in mid shelf sets and higher in outer shelf sets. However, if the release unit failed there is a galvanic time release (GTR) attached to the release cord (**refer fig 2**) which operates as a trigger system after a given period of allowing the bag to open and release the head gear. The GTR is being replaced by new technology in the form of a back up time capsule which can be programmed by computer to release on a pre-determined time and date.

After 6 months of commercial fishing in a depth of 100–120m the conclusions were:

- ☑ Integrity of release unit at depth – no leakage
- ☑ Battery voltage longevity / power consumption ok
- ☑ Detection range is practical (with GPS)
- ☑ Electronics & release mechanism functional
- ☑ Minimal bio-fouling
- ☑ Rigging / release cord functional - no entanglements
- ☑ Loss rate of AR traps << GTR traps
- ☑ Lobster catch AR traps >> GTR traps

The fishers using the acoustic release equipment have already clearly identified benefits from investing in new and innovative technology. They still have a few minor bugs to rectify and are working through those. However, as they continue to become more familiar with the system and as the technology is updated, they should continue increasing the efficiency and economics of their fishing operations.

Successful pilot project investigating cost-effective methods **monitoring puerulus settlement**

For over two decades IMAS has been monitoring larval lobster settlers (puerulus) in shallow inshore waters on the east coast of Tasmania. This monitoring has provided valuable early indications of trends in future catches in the commercial fishery. For example, low larval settlement observed from 2003 to 2008 was reflected in a downturn in the fishery in recent times.

The Fisheries Research and Development Corporation (FRDC) funded IMAS project *Developing cost-effective industry based techniques for monitoring puerulus settlement in all conditions: trials in southern and western Tasmania* is investigating ways to enhance puerulus monitoring in Tasmania. Trials conducted under the first phase of this project have successfully shown proof-of-concept for a collector design for use in deeper exposed waters, and a camera system for observing puerulus settlement behaviour.

Puerulus DO settle in deep water!

Collectors used for sampling puerulus around the world have all been deployed in shallow water – mainly for ease of servicing by researchers. In Tasmania, these have been successful on the east coast, but have not stood up to the harsh sea conditions on the south and west coast where the majority of the Tasmanian lobster catch comes from. Consequently, IMAS has designed and built a fleet of "pot collectors" in consultation with the fishing industry.

In this design the collector substrate is located in a housing which incorporates a sieve to minimise loss of puerulus on hauling. Twelve of these housings were deployed at an inshore collector site at Bicheno where catch rates were found to be similar to adjacent routine puerulus collectors.

The pot collectors incorporate the collector housing in a standard steel lobster trap suitable for deployment and servicing by vessels from the commercial fleet. Twenty-four pot collectors were deployed in strings of three in September 2012 into depths from 57 to 102m on the Tasmanian south and southwest coasts.

The pot collectors were serviced by vessels from the Tasmanian commercial lobster fleet in December 2012, and again in February 2013 after soak times of 6 to 8 weeks. This involved hauling each of the 8 strings, removing the 'lid' under which the settlement substrate is suspended, collecting any pueruli resident on the substrate, re-fitting the lid and re-deploying the string to the seafloor. Servicing of each string was accomplished in around one hour and feedback from both skippers and crew was positive regarding the ease of servicing. Catch rates of puerulus were higher in the shallower depths (57 to 68m), but were also encountered in collectors at depths of up to 102m. Collectors also yielded other invertebrates (particularly shrimps and isopods) and juvenile red cod, gurnard perch and butterfly perch.

This is the first direct evidence of puerulus settlement in deep water.

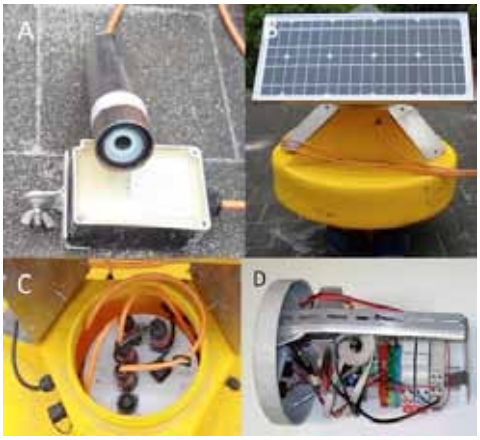
This trial has successfully demonstrated that:

- the puerulus pot collectors can be serviced easily by commercial lobster vessels
- puerulus are retained in the pot collector during hauling to the surface
- puerulus settle in deeper water
- collection rates between pot collectors and routine inshore collectors are comparable
- our pot collector design can withstand the adverse conditions typical of the south and southwest coasts of Tasmania

Puerulus cam – monitoring puerulus settlement from the comfort of your office!

IMAS scientists, in collaboration with CSIRO, have developed a prototype camera system for monitoring puerulus settlement and post-settlement behaviour. The camera system captures images at a pre-determined interval and transmits them in real time, using the 4G network, to a web server where they can be viewed on any computer with internet access.

The system is comprised of cameras and lights attached to the puerulus collector on the sea-floor, and connected to a surface buoy which houses a battery, solar charging system, single board computer, wireless 4G modem, analogue camera server, analogue to digital converter and relays. The computer can be accessed through the internet to adjust capture intervals, spontaneously capture images, and update or troubleshoot software. In an effort to reduce costs and simplify repairs and modification, the majority of the components in the camera system are inexpensive and readily available.



Components of the puerulus monitoring camera system. A: underwater bullet video camera and LED infra-red light array; B: buoy to house electronics and power systems; C: electronics pod mounted in the buoy; D: electronics pod.

In field trials the camera system delivered discernable images of southern rock lobster puerulus on artificial habitats, and the battery and charger system was able to support round the clock hourly capture and transmission of images. The camera system offers a cost-effective means to monitor puerulus settlement and, because of the frequency of images, allows us to monitor more precisely the timing of settlement, the retention of puerulus on the artificial habitat and the behaviour of newly settled puerulus, more comprehensively than the monthly diver-based servicing of the collectors.

On the basis of the success of these trials, IMAS is submitting a FRDC application to fund the 2nd and 3rd phases of this project. This will see the deep water collectors deployed at a number of locations around Tasmania which over time should provide state-wide insights into recruitment patterns and trends. It would also entail deployment of the camera system at routine puerulus monitoring sites which will allow assessment of the representativeness of monthly indices of settlement on existing shallow water collectors.

This project aims to provide industry and government with an increased ability to forecast fluctuations in future lobster catches around the state, allowing management to improve the economic and biological sustainability of the Tasmanian lobster fishery. It also enables the fishing community to become actively involved in monitoring their future. Collaborative projects such as this provide a great opportunity to utilise the skills, knowledge and experience of the fishing industry and demonstrate their commitment to a sustainable future.

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Australian Government
Fisheries Research and Development Corporation

FRDC Project Number 2012/511

New Government • **New Ministers**

As expected the election of a new Federal Government in September changed the landscape in Canberra in regards to key decision makers. While Rock Lobster fisheries are all managed under state legislation, being predominately a live export industry ensures more than a passing interest in the appointments of Ministers and other key roles.

A number of the new Ministers held the corresponding position as Shadow Minister in the same portfolios whilst in opposition. Therefore, the transition to their new roles and responsibilities should ensure they are already across most key issues.

What was the Department of Agriculture Fisheries Forestry (DAFF) is now the Department of Agriculture and the new Minister is the Hon Barnaby Joyce. Minister Joyce had been a strong advocate for agricultural producers across rural Australia before his appointment. Senator the Hon Richard Colbeck has been appointed to the important role of Parliamentary Secretary in the Department of Agriculture.

A Tasmanian Senator, the Hon Richard Colbeck was the Shadow Parliamentary Secretary when the Government was in opposition. He is already a strong supporter with a good understanding of the fishing industry and will have a key role in fishery matters. SRL has already had a meeting with Senator Colbeck to provide a briefing on key issues. There has also been an exchange of correspondence with Minister Joyce and he has indicated his keenness to work with and support the fishing industry.

There was a policy commitment that an elected Coalition Government would provide funding to support a national peak body and further detail to achieve this is eagerly awaited. Another policy is to provide funding to commercial fishing organisations to adapt to AMSA's new national marine safety standards and SRL is investigating into what can be provided by this commitment.

The Department of Foreign Affairs and Trade (DFAT) has two Ministers the Hon Julie Bishop Minister responsible for Foreign Affairs and the Hon Andrew Rodd Minister responsible for Trade and Investment. These two Ministers have key roles for negotiating the improvement to the trade barriers that affect Southern Rock Lobster in selling to its largest market, China.

As opposition Shadow Minister for Foreign Affairs, Minister Bishop gave a commitment to concluding Free Trade Agreement negotiations with China a high priority.

The alliance that has been formed in 2013 between Southern Rock Lobster and the Abalone Council Australian to establish the Seafood Trade Advisory Group (STAG) will continue to press the Government on the importance of reducing the barriers that impede direct trade with China.

The Minister for the Environment the Hon Greg Hunt has another important portfolio in respect to having the potential to impact on the fishing industry.

Some of the policies outlined in the lead up to the election included the Coalition Government commitment to restore confidence in the Australian Fishing Industry by returning scientific and commercial rigor to decision making regarding Marine Protected Areas (MPAs). Policy documentation stated "this would include immediate action to suspend and review the flawed management plans for MPAs that have been imposed without fair, adequate, or thoughtful consultation".

The new Government has made policy commitments to a number of key areas that would deliver benefits for Southern Rock Lobster and the seafood/fishing industry in general. Implementation and outcomes are what the government will be ultimately measured by.

Amendment to PIERD Act

One key piece of legislation that has been finalised since the new Government came into power is the passing of amendments to the *Primary Industry and Energy Research and Development Act 1989* (the PIERD Act). The amendment that is of specific interest to the fishing industry is the change that enables the Fisheries Research and Development Corporation (FRDC) to undertake marketing and promotion for its stakeholders. This would be subject to the individual fishery sectors agreeing to pay a marketing levy.

Australian Southern Rocklobster INDUSTRY

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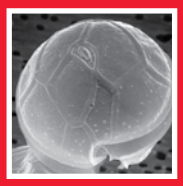
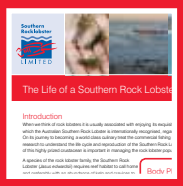



Australian Southern Rocklobster Industry

Retirement of an **Industry Legend**

Rodney Treloggen Tasmanian Rock Lobster Fishermen's Association (TRLFA) CEO has officially retired.

Rodney has been actively involved in the Tasmanian Rock Lobster industry for 30 years eleven of those years as a fishermen (originally as a scale fisherman) and nineteen years as the CEO of TRLFA. He also served as the Association's inaugural President for nine years from when it was formed in 1985 before taking on the role of CEO in 1995.

Rodney a larger than life personality in the Australian Rock Lobster and Seafood scene is a true legend of the industry and was recognised as such at the Seafood Directions Conference in 2011. It says a lot about a man that he is known throughout the Australian fishing/seafood industry by his first name. Mention the name 'Rodney' and everyone instantly knows to whom you are referring.

The TRLFA held a dinner on the 27 May where Rodney accompanied by his wife Christine was recognised for his outstanding contribution to the Rock Lobster industry both from a home state and a national perspective.

At the dinner in Hobart Rodney was lauded not just by his industry colleagues and TRLFA executive, but current and past Ministers, Politicians, Fisheries Department, Research Institutions, Fisheries Research & Development Corporation, New Zealand Rock Lobster Industry Council and there was even senior representation from the Tasmanian Police Force where he was a member before taking up fishing. No doubt over the years Rodney had given many of those who attended a hard time as he fiercely looked after the interests of his industry, but it was plainly obvious he had earnt a lot of respect in doing so.

Rodney's passion for the rock lobster fishing industry has been second to none. Firstly at a home state level, secondly at the tri-state arrangement that supports Southern Rocklobster Limited (SRL) and then at a national Trans Tasman level. His willingness to speak his mind (albeit colourfully at times) and be a strong advocate for his industry was always evident at any meeting or forum in which he participated.

On reflecting on his time in the industry Rodney identified the camaraderie among fishers as a highlight along the many and varied people you would meet at sea from lighthouse keepers to yachties. He also noted how communication has improved, comparing how difficult it was to get in contact with home when he first started compared to the technology that makes it so much easier now. Rodney remembers the decision for the Tasmanian industry to move to quota being controversial, but it would be a very different rock lobster fishery if it hadn't been made. Now to the best of his knowledge all rock lobster fisheries in the southern hemisphere operate under a quota system. Still having a successful fishery with 200 boats still participating and returning $70 million to fishers in this current year is a great achievement by industry.

In some of the changes that have taken place over the time Rodney has been involved he notes the different people in the industry now that includes investors from diverse backgrounds whereas it used to be only active fishers. An important change has been the improvement in science and the involvement from fishers with the scientific side of management.

In April 2013 I travelled to China with Rodney and two other industry representatives under the Australian Chinese Agricultural Cooperation

Agreement (ACACA) program. As guests of the Chinese Government we were accompanied by a 'full time' interpreter for 10 days who after a few days elevated Rodney to the status of "Uncle Rodney" while the other three of remained a respectful Mr Ross, Mr David and Mr Roger. What this clearly demonstrated was under that sometimes gruff exterior is a genuine sincere person who projects an engaging and entertaining persona and thoroughly enjoys meeting with people from all walks of life.

In retirement Rodney and Christine have added a new addition to the family albeit a four legged one, a Jack Russel called Mo who is proving to be a time consumer and a challenger. Rodney suggesting it's not like the grandkids you can't send this little "b...r" home. The travel Rodney and Christine are looking forward to will also include some of the places they have visited previously overseas, but now having more time to have a good look around.

May we all wish Rodney and Christine a long and happy retirement. Rodney genuinely deserves his true legend status.

Ross Hodge
Executive Officer SRL

Productivity and profitability in the Southern Rock Lobster Fisheries

We all know that, in most Australian rock lobster fisheries, the costs of fishing have been rising although these rises have been offset in recent years by prices also rising as a result of continuing strong demand for the product, particularly from China. These cost increases have resulted in the Australian rock lobster industry now having one of the highest costs of production per Kg of any rock lobster fishery in the world. For example, our production costs are about 7 times that of Cuba and even about 5 times that of American and Canadian clawed lobster.

This poses a number of medium-long term risks for the industry including being highly vulnerable to any reduction in beach prices and becoming uncompetitive on price in our major markets.

Importantly, increasing costs directly impact on the margins and profitability of individual fishing businesses and erodes the financial and economic benefits of the current high prices. And things are getting worse as the 'productivity' of the industry (essentially the gross income divided by the dollars spent to produce that income – a way of measuring gross margins) appears to have declined in some fisheries over the last few years.

But what can be done to address increasing production costs and to improve productivity? Unfortunately, there is a serious lack of information in most fisheries to answer this question with only South Australia regularly collecting economic data on their fisheries.

However, the way in which fisheries are managed and the regulatory 'red tape' that adds costs to the industry without contributing to revenues appear to be major factors.

As a result of the importance of this issue, SRL is in the process of developing a project that is aimed at collecting the essential data and to identify the reasons why productivity and profitability are declining at a time when prices are at record highs.

This will provide the essential facts that can, among other things, be used in discussions with Government regarding the business and economic impacts of current regulations and what alternative management arrangements might be considered that improves productivity and profitability while maintaining the sustainability of the resources.

Because improving productivity and profitability in the industry is a common goal across a number of fisheries, SRL is also in preliminary discussions with other rock lobster fisheries to join SRL in this project.

Further updates will be provided later but we look forward to working with the various industries in tackling this problem.

Dr Gary Morgan Chair SRL

Australia Week In China for Northern Zone rock lobster fishery in South Australia

In April the Hon Andrew Robb AO, MP, Minister for Trade and Investment led the biggest trade mission to ever leave Australia. As well as concluding Free Trade Agreements (FTA) with Japan and Korea (each of which included Rock Lobster) the trade mission was also timed to coincide with Australia Week In China (AWIC), held 8 to 11 April. AWIC involved a number of events to promote Australian premium food and wine including Southern Rock Lobster.

The Australian Seafood CRC's General Manager Trade and Market Development, Jayne Gallagher, ensured that Australian Rock Lobster, Abalone and Oysters featured at many of the Food & Beverage events that were held during the week. Featuring Australian premium seafood so prominently in these events provided the opportunity to successfully and positively raise Australia's seafood profile with importers and customers in China as well as with Chinese government officials. Just as importantly it raised the profile of the Australian seafood industry with Australian government officials, key Ministers and the Australian Media. It also keeps Rock Lobster and Abalone on the agenda for any future FTA negotiations between Australian and China governments.

The Abalone Council Australia (ACA) took the opportunity to launch their Australian Wild Abalone™ supply chain program in Shanghai during AWIC. The Australian Wild Abalone™ program establishes a supply chain quality standard (just like SRL's Clean Green™ program) was launched with the support of the China Cuisine Association which is a great endorsement for their product. The Seafood CRC and the ACA signed a MOU with the China Cuisine Association and this could prove to be a very important contact for Australian Southern Rock Lobster in the future. What could be achieved through having the best Chefs in the strongest market promoting the world's best rock lobster!

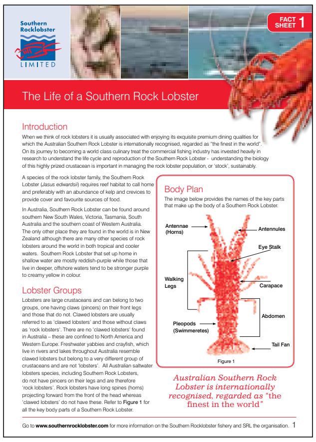
Positive feedback from the Chinese guests and speakers invited to the Food & Beverage events has been received and has set a strong foundation for discussing valuable opportunities, sharing insights and prospects of working together, as well as furthering business in China in the future.

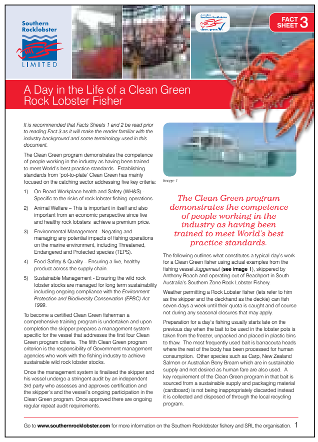
Display of Australian premium seafood at AWIC 2014

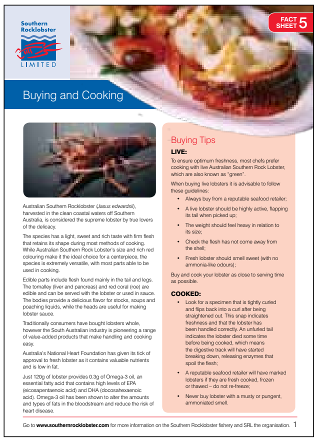
The Southern Rock Lobster supplied for display and tastings at the premier food and wine events during AWIC was provided by the Craig Mostyn Group who was represented by that company's Marketing Manager Nathan Maxwell-McGinn. SRL would like to express a note of appreciation to the Craig Mostyn Group and Nathan for 'flying the flag' for Australian Southern Rock Lobster at AWIC in what is our most important market. Their presence at AWIC and providing product for key events would have been at a considerable investment cost to their company and will ultimately provide benefits that will flow back to all stakeholders in the Southern Rock Lobster fishery.

New Fact Sheet Series

Part of the Communications and Extension project that delivers this SRL News publication includes the development of industry fact sheets. With the funding from the Fisheries Research & Development Corporation (FRDC) Southern Rocklobster Limited (SRL) has developed new fact sheets and updated older documents.







The combined material in the fact sheets is a great learning resource based on key aspects of the Southern Rock Lobster fishery providing a "pot-to-plate" story. The titles of the Facts sheets are:

1. The Life of a Southern Rock Lobster
2. Southern Rock Lobster – A Proud and Successful Fishery
3. A Day in the Life of a Clean green Fishermen
4. Bountiful Harvest Thriving Economy
5. Buying and Cooking
6. Exotic Lobster on a Shoestring

The fact sheets are educational, colourfully presented with relevant images and provide the opportunity to be proactive in improving public perceptions of the southern rock lobster and fishing and seafood industry in general. Southern Rock Lobster is one of Australia's most successful fisheries, it is managed responsibly, and proactively and is a fishery that has a good story to communicate.

Fact sheets 1 to 4 are based on factual material that describes the biology of the species, the history sustainable management, investment in R&D, commitment to Clean Green work practices, food quality & safety, animal welfare, managing environmental interactions as well as the economic contribution from export income and local/rural employment opportunities. Fact sheets 5 and 6 provide information on buying and cooking lobster as well as different recipes for preparing and serving.

In regards to displaying and accessing copies of the fact sheets, the SRL website (www.southernrocklobster.com) has a new 'Education Section' where the fact sheets can be found and downloaded from. Key stakeholders will be provided with laminated copies of the fact sheets to display at events that provide the opportunity to promote seafood and the fishing industry, e.g. The Port Adelaide Festival, the Wooden Boat Festival (Hobart). They documents are also suitable for displaying anywhere were seafood is sold or promoted and in schools that have a connection with rural and primary industries. Any other thoughts on displaying the facts sheets are welcome.

For further information on the fact sheets contact SRL's Executive Officer Ross Hodge on 0423 533 133 or rosshodge@southernrocklobster.com

Commercialisation of **Rock Lobster Translocation**

Translocation of rock lobsters involves shifting lobsters from places where they grow slowly to places where they grow faster – it's the same process that farmers use on land with droving of livestock. Translocation is a way of increasing production in the fishery because it increases the yield from our limited number of juvenile lobsters. The technique has been explored for several years through research projects at IMAS, supported by the Fisheries Research and Development Corporation (FRDC) and the Australian Seafood CRC. It has now moved from research into commercial operations run by the Tasmanian Rock Lobster Fishermen's Association.

Figure 1. Catch in one of the pots illustrating the large number of small, slow-growing and pale lobsters that were captured at the removal sites when escape gaps were closed. Catches of up to 6000 lobster per day were taken by the vessel that conducted the translocations.

Previous projects had shown that Southern Rock Lobster translocation could be used to address several problems that affect the Tasmanian Southern Rock Lobster fishery. Some areas of the fishery are "growth overfished", meaning that larger harvests would be sustainable if lobsters were able to grow to a larger size before being caught. At the other extreme, large areas in deep water off the remote west coast are under-fished because the animals grow slowly and the size limit is too large. These areas are however good areas for juvenile lobsters to settle from the plankton and grow as juveniles. Density of lobsters in these areas is extraordinarily high, with an average catch of over 30 per pot in our research sampling. Although lobsters are numerous, the contribution of the average individual to the harvest is less than elsewhere because their growth is slow.

In 2005, we moved 1000 tagged animals onto reefs that should have been productive but had been depleted by fishing. Within months fishers started catching tagged lobsters that had grown remarkably fast. Fishers were also excited because these lobsters had changed colour to become premium grade quality for markets. Larger scale translocations were conducted over the following years with 30,000 lobsters shifted to different locations around Tasmania. In each case lobsters increased their growth rate, usually by five-fold compared those at their original location. Growth of females was especially rapid and was often double that of local lobsters (we don't understand the physiology involved here).

Survival was high after release (indistinguishable from normal catch and release of undersize that occurs in the fishery), egg production was enhanced, and lobsters remained close to the release site establishing new home dens and foraging ranges. The enhanced populations made the ecosystem more natural because density was closer to the natural state. The effect of removing lobsters from the deep water reef was also examined with growth picking up slightly as density was reduced.

This project was a pilot scale step towards commercialisation and moved 160,000 lobsters over two years in a test of the governance and operational systems required to operate on a larger scale. Individual fishing businesses contributed funds to pay for vessel charter, which is required for ongoing commercial operations.

The benefit of translocation was through increase in price and increase in productivity of the stock. Operations were highly attractive on a return on investment basis. The pilot scale translocations increased quota allocations by 5 kg per unit relative to the base allocation of 100 kg per unit at that time– there was thus a 5% increase in catch. The cost to quota owners for this increase was only $10 per unit (or $2 per kg of extra catch) which was used to pay for the vessel contracted to move the lobsters. This cost has risen to $3 for every extra kilogram of catch generated in 2014. This is still an extremely high return on investment as payment of $3 for each kilogram of extra catch can be recovered easily by catching or immediately leasing the additional allocation at around $30 / kg. Across the fleet, these operations led to an increase in the allowable commercial catch of 52 tonnes each year, allocated across all quota owners. This was an approximate increase in revenue of $6 million over the two years of the project, at the average market price of $60/kg during those years.

At the conclusion of the project the industry voted to continue commercial scale operations using the approach developed in 2012 and 2013, although they also voted against increasing the size of the operation, so the extra TACC allocation has remained at the pilot scale level of 5 kg / quota unit or an extra 52 tonnes of catch by the fleet. They will now collect funds and manage operations through an industry committee.

The project developed processes and governance for ongoing commercial operations. These will occur at a small scale for the next three years, producing 52 tonnes per annum of additional harvest (an additional 5 kg per quota unit). A decision making process has been implemented so that the total allowable commercial catch can be readily increased, should the industry want to increase production in the fishery at some point in the future.

Caleb Gardner, Klaas Hartmann and Bridget Green
Institute for Marine and Antarctic Studies, University of Tasmania

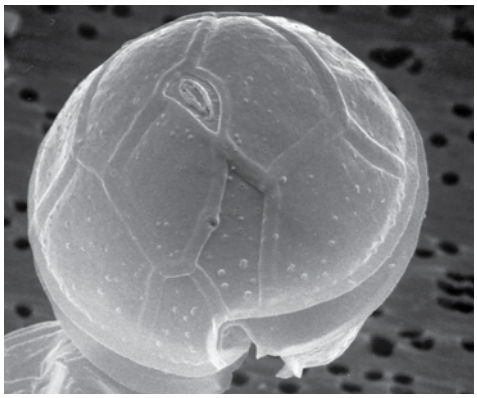
Figure 2. Translocated lobsters being released at night to reduce post-release predation by finfish. IMAS observers were present on all trips to tag a sub-sample and record data, in this case Chris McKinlay on the left.

Paralytic Shellfish Toxins in Rock Lobsters: **Understanding and Reducing the Risk**

An Australian Seafood CRC project is underway that is aimed at assisting industry to understand and reduce the risk of a new food safety issue for lobsters that caused serious disruptions to the Tasmanian rock lobster industry in 2012/2013.

Certain types of algae produce toxins that can be harmful to human health. When these naturally occurring algae bloom in the environment, the toxins can be accumulated in marine animals. The toxins are commonly known to accumulate in marine bivalves such as oysters and mussels; for this reason the toxins are usually referred to as shellfish toxins. These toxins can result in several distinct syndromes in humans that result in symptoms such as gastrointestinal illness or respiratory distress.

In October 2012 a bloom of Alexandrium tamarense occurred off the East coast of Tasmania; this algae is known producer of a toxin group call Paralytic Shellfish Toxins (PSTs) that produce a range of symptoms ranging from tingling of the fingertips through to severe respiratory paralysis that can result in death in extreme cases. The 2012 event was the first time A. tamarense had resulted in shellfish toxins in bivalves in Tasmania and it also impacted multiple fisheries including the Southern Rock Lobster fishery. Toxins were identified in the hepatopancreas of lobsters (a liver-like organ) in levels above the regulatory limit set for bivalves. The east coast lobster fishery was closed from October 2012 to February 2013 at an estimated economic loss to the industry of just under $2.9 million AU. Industry and regulators were plunged into a new situation where there was little information available, such as: how long would the toxins persist for; how should it be managed; what is the route of uptake; and importantly, are the toxins a concern if they are only present in the hepatopancreas. Preliminary risk profiling activities identified that this organ is consumed and may present a risk.



An electron micrograph of Alexandrium*; a harmful microalgae*

Southern Rock Lobster Limited together with the Australian Seafood CRC and the Fisheries Research and Development Corporation have funded a project to answer some of the basic issues that were treated as unknowns in the 2012/2013 event. The project is being undertaken as collaboration with the Cawthron Institute in New Zealand, who are recognised as world leaders in the field of biotoxin research. The project is undertaking a range of activities including sampling of wild rock lobster during harmful algal bloom events, tank-based contamination studies and undertaking a risk assessment to quantify the actual risk to consumers.

Wild-caught lobsters will be collected by diving at two sampling locations during bloom events, Maria Island and Scott Point (on the east coast and south east coast of Tasmania respectively). Results of toxin testing from these lobsters will be used to feed specific data into the risk assessment process to assist in demonstrating actual risk. In addition to the sampled lobsters, a range of other marine animals will be collected with the aim of identifying the route of uptake and potentially identify a suitable sentinel species that can be used by any future management programs to flag potential risk in lobsters. A tank-based study will also be used where lobsters will be fed toxic mussels to confirm the uptake rate and the amount of time that the toxins will persist for in the lobsters.

The risk assessment process results in a formal report that can be used in future negotiations with regulators here in Australia and also for market access negotiations that may arise when targeting foreign markets. Part of this process will involve an assessment of the product types available and the predominant consumption patterns both domestically and in China.

It is planned that the information generated throughout the project will reduce any technical barriers to trade for rock lobsters that may arise in key markets in the future. Also, that the information will be used to underpin suitable risk management practices. The project is due to be completed in August 2015.

Tom Madigan
Food Safety Research SARDI

Clean Green **Update**

As reported in the last edition of the Australian Rock Lobster Industry News, SRL has been engaged with Australian Maritime Safety Authority (AMSA) regarding recognition of the Occupational Health & Safety (OH&S) component of the Clean Green program to meet safety management system (SMS) requirements of the national vessel legislation. AMSA has advised SRL that Clean Green will be a recognised equivalent solution for the SMS, though some amendments are required.

In addition to AMSA's new legislative requirements there are also new national Workplace Health & Safety (WH&S) requirements, the implementation of which differs from state-to-state. You should also note that the terminology has now changed from OH&S to WH&S. In the past Clean Green has actually presented three variations of OH&S according the individual requirements of the various Safe Work Authorities of South Australia, Tasmania and Victoria. Now it can be rolled into one consistent WH&S package.

Justin Phillips, Executive Officer (EO) of SARLAC and Director of SRL, and SRL's EO, Ross Hodge, have undertaken a scoping process to identify all the changes required for Clean Green to become a WH&S program meeting the requirements of AMSA and State Safe Work Authorities. The next step is to update Clean Green program materials to correlate with the required changes. It is important to note that the current Clean Green material meets around 80% of the WH&S requirements of AMSA and Safe Work so we are not starting with a blank page, far from it. It is ten years since the program was developed so hopefully it will be right for at least that long again before requiring any revisiting.

Once the updated material is available, SRL will either conduct workshops where copies of updated material will be provided, or mail out with explanatory notes – workshop will be the favoured option, but time and resources will dictate this.

SRL was very pleased to receive a request from the South Australia Northern Zone Rock Lobster Fishermen's Association Inc to assist with ensuring all vessels in that Fishery have some level of Clean Green accreditation prior to the 2014-15 fishing season. There has also been considerable interest from the SA Southern Zone for boats to either rejoin or be trained to join the program in 2014/15r. At a recent TRLFA meeting in Hobart, there was also interest expressed in joining / re-joining the program. Clean Green will be a more efficient and cost saving option for complying with new SMS and WH&S legislative requirements than not being in the program.

It should be remembered that Clean Green is much more than workplace health & safety, it establishes best practice standards for food safety and quality, animal welfare, managing the environmental impacts of fishing operations and sustainability through compliance with the EPBC Act. It was the first standard of its type anywhere in the world for within the fishing/seafood industry and can be implemented across the total supply chain, not just 'on board'. Canada and Northern America (Boston) are going to be branding their product through a similar type of program to try and be more appealing and competitive in international markets. It will be a great day for Southern Rock Lobster when the rest of the supply chain takes up the program and the "The finest in the World" (lobster) is co-branded and delivered with world's best practice standards. The Abalone Council of Australia has done this with the launch of their Australian Wild Abalone™ program recently in China.

Clean Green Audits for 2014/15

It seems like we have just completed the 2013/14 audits and we are already arranging the 2014/15 inspection requirements. The majority were done in October/November 2013 however timing did not allow for the South Australian Northern Zone to be done until March 2014. For this coming year, and with a bit of earlier planning of the audit schedule, requirements will be met by the end of November.

It is the independent 3rd party auditing by SAI-Global which provides the Clean Green program much of its integrity. It is a considerable task to schedule all the dates/times for the required boats over the various jurisdictions/zones in South Australia, Tasmania and Victoria and the cooperation from the skippers is always appreciated.

A reminder the following is required as mandatory documentation when undertaking SRL Vessel Audit

- Current Vessel Lobster Fishing License
- Catch and Effort log book
- Skippers certificate (Master 5 or Coxswain) & Marine Engines Drivers (MED) qualification
- Current vessel's survey certificate
- Current 1st Aid certificate
- Clean Green Manual
- Clean Green or ship's log book
- Induction records for new crew/visitors
- Chemical MSDS
- Bilge rat in bilge
- On boat stickers attached (MARPOL Waste disposal sticker, Safety sticker for high risk tasks- ropes, hatches, winches and pot handling, Safety sticker for hearing protection required outside of the engine room)

It is recommended that all certification/ documentation, in addition to the Clean Green Boat induction manual required at an audit, should be presented in a folder with loose leave plastic inserts. This keeps the documents safe and dry allowing for easy and efficient inspection.

Anyone needing a log book or stickers please contact SRL's Executive Officer, Ross Hodge, on 0423 533 133.

Spatial and temporal research project for Northern Zone rock lobster fishery in South Australia

The South Australian Northern Zone Rock Lobster Fishermen's Association (NZRLFA) are working together with SARDI researchers and PIRSA Fisheries and Aquaculture in an industry-driven research project aimed at investigating alternative spatial and temporal management options in the fishery.

The Northern Zone fishery is expansive, covering at area of over 200,000 km2 and is currently managed under a single Total Allowable Commercial Catch (TACC) for the entire zone. The majority of the annual TACC is now taken within inshore grounds in the eastern region of the fishery. The fishing season extends from 1 November to 31 May of the following year, with a winter closure from June to October inclusive.

In discussions with PIRSA, the NZRLFA have articulated a need for changes in the spatial and temporal management of the resource.

Under a new FRDC funded project titled "Informing spatial and temporal management of the South Australian Northern Zone rock lobster (Jasus edwardsii) fishery" a number of spatial and temporal management options are being considered. From a spatial perspective, regional estimates of biomass across the fishery will be estimated to facilitate setting sustainable TACCs that take into account spatial information on lobster abundance, growth and recruitment.

Temporally, the project will also examine the potential of extending the fishing season through the winter closure to maximise profitability in periods of low supply and higher prices. This component of the research involves commercial fishing in each of four spatial regions in each month from June to October 2014 inclusive. SARDI researchers will be onboard vessels at all times recording both catch and bycatch composition. Results from the fishing trials will be presented through a series of workshops and media releases.

The project is set to conclude with results being disseminated to industry stakeholders at a workshop in March 2015. A final report due to be completed by August 2015.

New Zealand's fishing management regime **an example for Europe's bureaucrats**

The new world is helping the old world learn how to fish for more than compliments.

New Zealand's fishing management regime has been lauded as a model for the European Union to better manage its own fish resource, and in doing so help deliver enhanced economic, environmental and social benefits to its member countries.

Daryl Sykes (centre) with European Project Partners at the Rome Meeting.

The European Union introduced a new Common Fishing Policy at the beginning of 2014, stipulating that between 2015 and 2020 catch limits should be set that are sustainable and maintain fish stocks in the long term.

Dr Kare Nolde Nielsen of Norway's University of Tromso is part of an eight European country EcoFishMan project implemented in 2012. This has a results-based management focus which acknowledges that the EU clearly recognises that some of the region's fishing stocks are being overfished.

The 14 partners EcoFishMan project of universities, researchers, industry bodies, and NGOs extensively scouted the reset of the world's fisheries regimes to see what they could learn and apply for their own Atlantic Ocean, North Sea and Mediterranean Sea situations.

"New Zealand's rights-based model, in which the fishers themselves have a vested interest in maintaining and improving the health of their fishing resource was clearly the best model," says Kare.

"New Zealand's got it right, and we believe a similar model for the European Union would allow the further consolidation of financially viable fishing industries, while ensuring fish stock recovery and the continued prosperity of coastal fishing communities to help maintain the social fabric of those communities.

"I'm not sure that many New Zealanders appreciate the world-leading policies, regimes, scientific input and feedback mechanisms that are helping to ensure ever-more healthy fish stocks, but it is something of which they should be rightly proud."

A recognition of the admiration for the New Zealand fisheries management regime was seen recently when the NZ Rock Lobster Industry Council executive officer Daryl Sykes was invited as a keynote speaker at the 2nd International Conference on Fishery Dependent Information.

This Rome event's theme was sustainability, inclusivity and accuracy.

Daryl says that, within the limits of the time he had available, he was able to outline the tools and research that backs up the yearly determination of the Total Allowable Commercial Catch from each of New Zealand's nine fishing regions.

"The way that our entire rock lobster and other fish species industries cooperate to verify and maintain sustainable and healthy fish populations was a proof to Europe and others that with the right will and incentives, it can be done," he says.

"Some New Zealanders may grumble that we're over-exploiting our fish resources.

"But in actual fact it is the opposite. The fact we were invited to show Europe how illustrates that the old world is willing and able to learn new tricks to also revive their fish stocks."

For further information and contacts with local rock lobster fishermen, phone: Daryl Sykes, Executive, NZ Rock Lobster Industry Council: 021 415 032

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Australian Government
Fisheries Research and Development Corporation

FRDC Project Number 2012/511

Report: **Market Diversification** Opportunities for Southern Rock Lobster

At a workshop convened by SRL and the Seafood Cooperative Research Centre (CRC) for exporters in April 2012 there was a consensus of support for undertaking research into alternative markets for Australian Southern Rock Lobster (ASRL). The meeting highlighted a number of economic, regulatory and infrastructure problems impacting exports to existing markets in China.

With support to undertake a project a call for' Expression of Interest' document was prepared and sent to relevant parties with relevant expertise in market research leading to an interview process and the appointment of a Melbourne based company McKinna *et al*. The objectives of the project were to identify and profile opportunities for SRL products in three areas:

1. Markets outside of China and Australia
2. New markets within China
3. The Australian domestic market

A methodology successfully applied in other industries to sort and prioritise markets was used to assess and rank opportunities.

This is referred to as the 'Market Potential Index' (MPI) which, in simple terms, is an algorithm that scores markets on certain dimensions and attributes that are believed to have the biggest impact on potential demand and risk. In the case of the ASRL research, the model included six dimensions:

1. Demographics and economics
2. Culinary culture and preference for lobster
3. Market access
4. Competitive set and price sensitivity
5. Supply chain efficiency
6. Ease of doing business

The project makes a number of recommendations regarding China and alternative markets. As this project was supported and paid for from CRC funding contributed by the Southern Rock Lobster industries of South Australian and Tasmanian the final report is being treated as a confidential document to provide the exporters of those states the opportunity to consider its recommendations.

For further information please contact Ross Hodge SRL's Executive Officer on 0423 533 133.

2015 Rock Lobster **Industry Conference**

9TH ROCKLOBSTER CONGRESS

The 2015 Trans Tasman Rock Lobster Industry Conference to be hosted by Western Australia is scheduled next year for 28 - 30 April. This biennial event will be the 9th Rock Lobster Congress since the first was held in 1999 in Adelaide. It has become the most important event held in Australia for the Rock Lobster Industry and will be held over 3 days (registration late on the first day).

Planning is still in the early stages, but the magnificent Esplanade Hotel in Freemantle will be the venue for the 2015 9th Rock Lobster Congress. This location has hosted a number of major fishing/seafood events in the past and it is truly a sensational destination to showcase the most valuable Wild Catch Fishery in Australia. Apart from being held at a wonderful destination the 2015 Conference will also host a program of speaker presentations that promises to be enlightening, thought provoking and challenging addressing a range of topics across the total lobster supply chain.

When it comes to hosting successful events our colleagues in the West can serve it up as well as any of the Eastern and Southern Seaboard states. There is also the possibility of pre conference optional tours to the Abrolhos islands and Geraldton Fishermen's Coop. Theses optional tours will be confirmed as the conference program is finalised.

Some Rock Lobster fishers have attended every Rock Lobster Conference held since 1999, some have been to just 1 or 2, and there are some who have never attended any of these events. No matter if you have been to all or none this will be a very rewarding experience for anyone who has a vested interest in Australia's most valuable and important Wild Catch Fishery. The 2015 Rock Lobster Industry Conference will provide a great opportunity to mix business and pleasure. As more details on registration and accommodation becomes available it will be placed on the on the SRL website (www.southernrocklobster.com) and in the next edition of this NEWS.

Australian Southern Rocklobster INDUSTRY

ISSUE 28

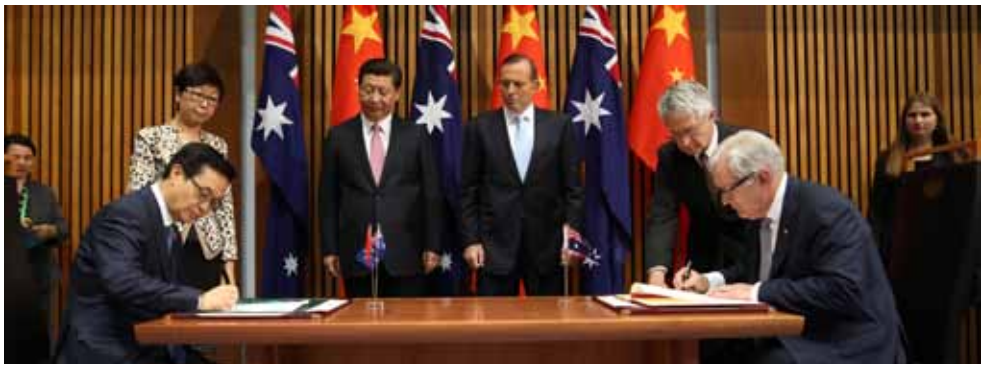
News March 2015




Australian **Southern Rocklobster** Industry

China **Free Trade Agreement**

The announcement that an agreement had been reached on a China – Australia Free Trade Agreement (ChAFTA) on the 18th of November was much welcomed by the Australian Seafood Industry and particularly by SRL and the producers and exporters of Southern Rock Lobster.



Trade Minister Andrew Robb signing ChAFTA documents with the Chinese Minister for Commerce Gao Hucheng, watched on by President XI Jinping and Prime Minister Tony Abbot

It is important to note that what took place in Canberra on 18 November was formal agreement by China and Australia of the contents of the ChAFTA. It was therefore the critical last step in the finalisation of lengthy negotiations to enter into a Free Trade Agreement between the two countries. The actual signing off on the formal ChAFTA document will be later in 2015 and that is when the first of the phased in Tariff reductions will commence.

SRL has been working with the Abalone Council of Australia (ACA) over the past few years on a dedicated project, funded through the Seafood Cooperative Research Centre (CRC) to address market access issues for rock lobster and abalone. Establishing a dedicated cross-sectoral group, the Seafood Trade Advisory Group (STAG), ensured that the profile and importance of our industry in trade negotiations was recognised by the Australian trade negotiating team and, as a result, specific attention was paid to our industry in the negotiating process.

The result has been a major success for rock lobster exporters with excellent outcomes for our industry in not only the ChAFTA but also in other Free Trade negotiations.

While the industry's ultimate goal for the ChAFTA would have been for an immediate reduction in the current Tariff to zero %, the agreed phased reduction from 17% to zero over 4-years is a great result and in line with what the best outcomes (in some instances better) were for other primary producing industries in the ChAFTA.

In its Media Release on the announcement of the ChAFTA, SRL recognised that it had been an outstanding performance by the Australian Government to finalise negotiations to secure FTAs with Japan, Korea and now China within a year. What seemed an overly ambitious goal when the time-frame and intent to finalise these FTA negotiations was announced last year by the present Government has been an outstanding achievement. We certainly express our appreciation to the Hon Minister Andrew Robb and his negotiating team. Thanks also to Senator the Hon Richard Colbeck Parliamentary Secretary to the Minister for Agriculture who provided his strong support for the inclusion of seafood in the ChAFTA.

One of the pleasing aspects of achieving the ChAFTA has been cooperation between the Abalone Council Australia (ACA) and SRL to establish the STAG with the support of the Australian Seafood CRC and Fisheries Research and Development Corporation (FRDC). With Rock Lobster and Abalone being Australia's most valuable fisheries exports, working constructively together on trade related matters represented a force and a combined Gross Value Product (GVP) that was difficult for government to ignore. In fact the Government has been very complimentary of STAG in the manner it has engaged in the FTA negotiations and the timely and detailed information that has been provided when required.

Both the CRC and the FRDC have provided great support in the advocacy work directed at the Government to include Rock Lobster and Abalone in liberalising and developing trade between Australian and China.

As Rock Lobster is already a successful export-orientated industry, the ChAFTA will allow exporters to work on market development activities and look for new opportunities. This includes providing the opportunity to engage with consumers which will result in driving the value of product.

It must also be recognised that the signing of the ChAFTA does not immediately solve all the issues around trading product into China. It does however unlock the door to resolving these issues and being on a level playing field with countries such as New Zealand and Chile who already enjoy full zero-tariff access to the China market.

Clean Green

As previously reported the Clean Green program was being updated to address the Australian Maritime Safety Authority's (AMSA) new legislative requirement for all commercial vessels to have a safety management system (SMS) as well as broader work, health & safety (WH&S) responsibilities. As always these tasks become much larger than anticipated, but pleased to advise that the revisions to the Clean Green On-boat Induction Manual have now been completed.

Attendees at the Clean Green training held at Australian Maritime & Fisheries Academy Port Adelaide.

All the amendments to Clean Green have been included in a new edition of the On-Boat Induction manual which is the key resource for program participants In updating the manual a number of sections have now been combined and key sections covering Vessel Good Manufacturing Practice (GMP-food safety & quality), Waste Management and Cleaning & Sanitation still have the same content apart from the inclusion of two additional material safety data sheets (MSDSs). SRL has had a number of new updated Clean Green On-Boat Induction Manuals printed with the finalisation of the revision.

In October the first Clean Green training that has been conducted for at least 6-years was held in the South Australian Northern Zone (SA-NZ). Two by 1-day courses where held in Port Lincoln and Port Adelaide respectively. The full Clean Green training is held over 2 days, however due to timing constraints half the training course was delivered focusing on the new SMS and WH&S components of the program. The SA-NZ were keen to start the season when it opened in November having been trained in the SMS and WH&S component of Clean Green so they could have the updated On-Boat manual and risk management documentation in place.

The second day of training will be held in the first half of this year to cover the components of the program that address GMP, animal welfare, waste management, cleaning & sanitation and managing the environmental impacts of fishing operations.

In the past SRL has utilised the exceptional skills and knowledge of Tanya Adams from Western Australia to deliver the WHS & SMS training requirements of the Clean Green program. Tanya has a very broad background in WH&S experiences across several industry sectors, including the WA fishing industry. Tanya assisted with the day's training in the SA-NZ and with her larger than life personality and a tendency to call a spade a spade ensuring what can tend to be somewhat of dry subject was delivered as an excellent learning experience for all attendees.

A number of expressions of interest (EOI) have been received from South Australia's Southern Zone (SA-SZ) and Tasmania from fishers who want to be trained and bring their vessels into the Clean Green program. SRL will provide a form to be circulated by the state associations to document EOIs to register interest and assist with planning additional Clean Green courses.

It is important for those who want to participate in the Clean Green program that they undertake the training when it is offered. Numbers are critical to ensure SRL can deliver the training cost effectively and courses can only be scheduled based on commitment from those wanting to attend. Training cannot be arranged delivered on an ad hoc basis.

The roll out of the new On-Boat Induction Manual to existing Clean Green participants is being planned and SRL work through the state Associations to advise how this will take place.

It is worth noting that Clean Green is actually a Product Standard and as such has ongoing compliance requirements to remain in the program. These compliance requirements include an initial audit once the skipper has been fully trained to ensure the On-Board manual has been appropriately completed to address the risk management needs of each vessel individually. Then SRL's contracted auditor SAI-Global (part of Standards Australia) undertakes an audit to officially recognise the vessel in the program. It is a requirement that at least 20% of the vessels in the program are audited annually.

This independent third party auditing is what gives the Clean Green program a lot of integrity and ensures ongoing compliance with the requirements of the product standard. It is however a costly annual expense for SRL in managing the program (covered by the Clean Green Annual Subscription), but it is required to ensure that on-boat best practice processes and procedures continue to be applied.

Since finalising the update of the On-Boat manual and conducting the training in for the SA-NZ a couple of further matters needing to be addressed have been identified. The Clean Green log-book will need some modifications, mainly to include some additional induction & training record keeping requirements. In updating the log-book, having it made available electronically will also be considered.

The other item is in the Cleaning and Sanitation Section where (hazardous) Material Safety Data Sheets (MSDS) are provided for advice on managing Chemicals stored on vessels. The training in the SA-NZ identified two additional MSDS's that should be provided in that section of the On-Boat for Chlori Clean and Monoethylene Glycol (Coolant) which are often stored on vessels. The MSDS sheets have been sourced for these additional chemical products.

It is important to remember that Clean Green is the Australian Southern Rock Lobster industry's own initiative. The program first launched in 2004 was developed over 8 years by lobster fishermen in response to serious challenges to work practices, environmental interactions and food safety issues in the 1990's. It is the industry vehicle to train and maintain the Southern Rock Lobster industry operations to world's best practice and demonstrates that industry can manage itself and be self-regulating. In fact it was a world first in the first fishing/seafood industry when developed and to the best of SRL's knowledge still is the only product standard of its type, i.e. a suite of standards addressing key requirements in the one standard.

Food **Fit for a President**

Following the G20 meeting in Brisbane and the day after addressing the Australian Parliament Chinese President Xi Jinping made a much publicised trip to Hobart. With seafood having been successfully included in the China Australia Free Trade Agreement announced the previous day President Xi Jinping got to see and taste the "World's Finest Lobster". This was arranged on the President's trip to a state that is also gaining international recognition for its locally produced cuisine.

As the commercial season was closed a bit of lateral thinking and planning was required to ensure the President was treated to the best. Tasmanian Rock Lobster Fishermen's Association (TRLFA) EO John Sansom and Associate Professor Caleb Gardner (both SRL Directors) from University of Tasmania & Antarctic Studies (IMAS) got together and hatched a plan to ensure lobster was on the menu for the President. The plan required that two of Caleb's team Mike Porteus and David Faloon would dive for lobsters to display for and feed the President. (see Photos)

As it turns out there is quite a good story to two of the lobsters as they were originally translocated from SW Tasmania as part of the FRDC / AS-CRC funded project.

One was a male that was translocated in 2005 in the first experiment. The other was a female translocated in 2007. This was interesting because she was tiny when moved (76 mm) and was from the classic region in deep water Maatsuyker Island where female virtually never reach legal size. She's now well over 1 kg, a size they never reach at the original location, and was served to the Chinese President at a dinner on a day when seafood trade was high on the agenda. She had never been recaptured until the day before the dinner which is remarkable given the many years of research potting at the site where released. The other translated lobster was a male and had been recaptured and released four times previously,

growing from 103 at first capture to over 150mm after translocation – again far larger than any lobsters reach at their original site.

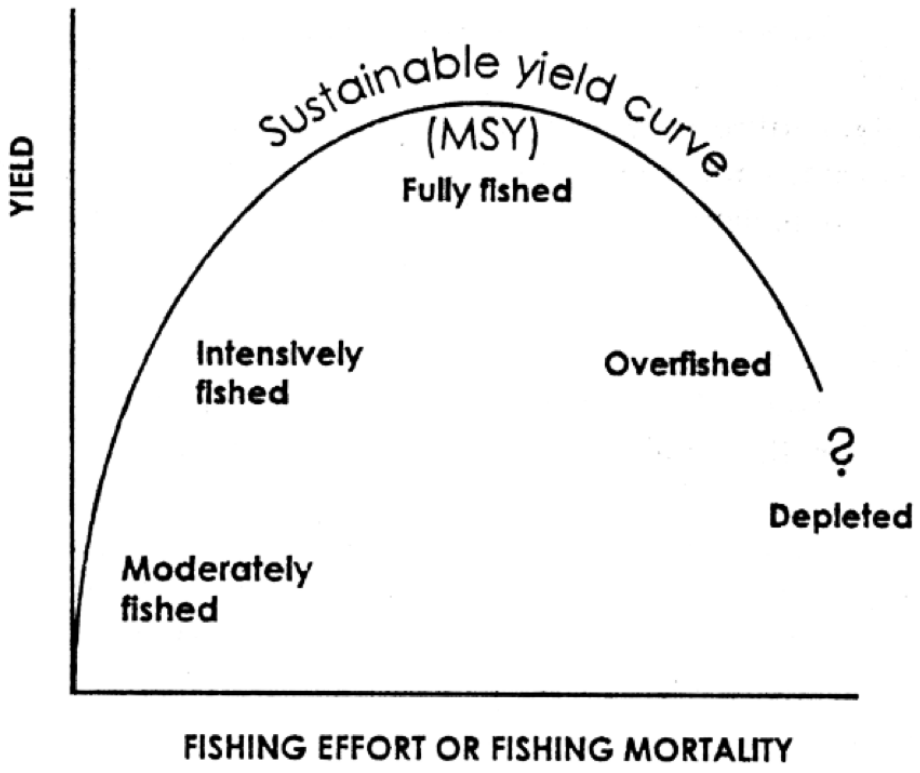
While this might not have been the traditional method of harvesting lobster to feed an important visiting dignitary such as President Xi Jinping, the opportunity to provide Southern Rock Lobster for such a significant occasion could not be passed up. Well done to all involved.

The following day the Presidential visit to Hobart there was business dinner attended by the Tasmanian Premier and Ministers, business delegates from China and local business executives, 600 attending in total. Lobster was once again on the menu supplied by the South Australian Lobster Company (SALCO) sharing the costs with the Craig Mostyn Group (CMG) and TRLFA. Thanks to SALCO, CMG and TRLFA for their support of this successful event.

Bioeconomics and the rock lobster fishery

Fishermen, including rock lobster fishers, often hear from fisheries managers, researchers and others about bioeconomics, the problems with maximum sustainable yield (MSY), the benefits of maximum economic yield (MEY) and so forth. Their first reaction is often to tell fisheries bureaucrats to butt out of their commercial business affairs and leave economics to fishermen who better understand the ups and downs of their own fishing operations. In this article, it is hoped that the role of economics, and in particular bioeconomics, will be made clearer and enable a more informed discussion of appropriate catch and effort settings in lobster fisheries to occur.

Bioeconomics is closely related to the early development of theories in fisheries economics, initially in the mid-1950s by Canadian economists Scott Gordon and Anthony Scott. Their ideas used achievements in biological fisheries modelling, which established a formal relationship between fishing activities and biological growth through mathematical modelling. Importantly, this modelling was supported by empirical studies (i.e. those based on observation and experience). These developments are illustrated in the diagram to the right, based on a simplified lobster fishery.



Prior to fishing, the number of lobsters entering a fishery each year (recruitment) is roughly equal to the numbers dying of natural causes. At this time there is a very large population, held back only by the ability of the environment to provide habitat, food etc. So in a virgin fishery we have no fishing, a large population and no so-called 'surplus production'. In reality, the population size changes from year to year for a variety of reasons even without fishing, particularly as a result of different levels of recruitment, which is often determined by varying environmental conditions. Environmental changes will also affect lobster populations by affecting survival and growth.

When fishing begins on that large population there are plenty of lobsters and catch (yield) increases more or less in proportion with increase in fishing effort. These are the early days of most fisheries when record catches are taken. During this stage some of the lobsters that would have died naturally are being caught instead. To a large degree, catch (fishing mortality) is just replacing fish dying of natural causes (natural mortality) without really adding to it.

As fishing effort becomes more intensive and expands further the catch no longer increases in proportion with the effort. During this phase, the increase in fishing mortality is still being absorbed by a reduction in natural mortality. However total mortality increases and the population size is reduced. Decline in the population is dampened (slowed down) because food and shelter resources are freed up, which means that productivity of the lobsters left in the stock increases.

Eventually a limit is reached and increasing effort does not lead to increases in catch. At this point the fishery is considered to be 'fully fished'. Now all the surplus natural mortality has been used up by fishing mortality. From now on any further increases in fishing effort will increase total mortality, instead of just replacing natural mortality as was happening before. The maximum point (top of the curve) is known as the Maximum Sustainable Yield (MSY).

If effort continues to increase, total catch will start to decline as productivity begins to suffer from overfishing. The loss in productivity usually commences because of growth overfishing, which occurs because yield from individual lobsters would be higher if they were allowed to grow larger. Productivity can also be reduced because the stock of breeding lobsters becomes so depleted that recruitment starts to decline. In rock lobster fisheries, this process of recruitment overfishing tends to be less important than growth overfishing.

Higher levels of effort in this fishery can still be sustainable and stable. The point on the fishery marked as 'overfished' results in a lower yield than would occur with lower effort, but the fishery is sustainable. Effort and thus employment or number of boats operating in the fishery is sustainably higher when the fishery is at this overfished point. 'Overfishing' doesn't mean the stock or harvesting sector is in crisis, it just means that potential yield is being foregone.

The curve in this simple diagram represents yield (catch) in weight or kg. But it can also represent the revenue (income) from the fishery by multiplying weight (e.g. kg) by price. This is the first step in our simple examination of bioeconomics – i.e. revenue increases up to a point (MSY) in a fishery and then declines as effort increases. Fisheries on

the right-hand, downward-sloping side of the curve have high employment and a large number of vessels but have lower overall revenue than is possible.

Fisheries to the right-hand side of the curve can also be unstable because they rely more heavily on yearly recruitment to maintain catches. If there is a period of poor recruitment, fishers need to work harder to maintain catches, which drives the population and catch rates lower.

Most lobster fisheries in Australia have informally tried to target MSY in the past. So, is MSY, with the associated yield of lobsters at some theoretical maximum (e.g. by setting the TAC at MSY), a good place for a fishery to be? Experience in lobster fisheries in Australia and elsewhere has shown the answer to this is a resounding NO, chiefly on the following grounds:

1. The actual level of catch and effort that delivers MSY is not stable through time but varies from year to year due to variations on recruitment. This means that the fishery is vulnerable to shifting to an overfished state whenever recruitment falls below average.
2. It considers only the benefits or revenue, not the costs, of harvest which means that it may not be the best outcome in terms of profit.
3. It is too sensitive to political pressure from those more interested in maximising catch than profitability

Seeking to maximize catch is important for fisheries where the community relies on them as a source of food but for luxury food like lobsters the objective should be to maximize profit, not catch/revenue. There is little point in taking a large catch, only to lose most of the benefit in the costs of taking that catch (fuel, pots, bait). A smaller catch, taken at very high catch rates and low costs can often result in more profit.

At the level of the individual fishing business, fishers work hard to manage costs in taking their allocated (or leased) quota. Bioeconomics is not about business level economics and suggesting, for instance, about how many pots are optimal for a certain operator, or which engine or propeller combination to use. Bioeconomics is about helping managers and industry arrive at management decisions at the level of the fishery, such as TAC and size limit setting and is an improvement on the now outdated MSY approach. It's very important to make the distinction between the use of economics by individual firms and government's responsibility to manage overall harvests so as to enable the fishery as a whole to get the best returns from a fishery resource.

So how can bioeconomics help?

Bioeconomic modelling, as daunting as the term sounds, is an important tool in managing fisheries. It is necessary to determine appropriate harvesting to achieve beneficial economic returns from a fishery, in line with management objectives. It achieves this by combining the underlying ***biological*** stock dynamics of the lobster fishery with fishing effort (as described in the diagram above) and the ***economic*** costs of harvest and economic value of the catch.

Such models can help improve many aspects of fisheries, including how quickly a fishery can be rebuilt in terms of being sufficiently confident that stocks are increasing, while ensuring a level of harvest to maintain employment and markets. Bioeconomic models are most commonly used to help maximise the economic yield (MEY) from the fishery by determining values for catch and effort that deliver this outcome.

Using bioeconomic models to target MEY explicitly considers the interests of the harvesters in addition to the necessary biological dynamics by including a harvest (i.e. fishing) function that translates fishing effort into catch. This function, and the resulting measure of net economic value of the resource, is considered crucial at the policy level. In contrast, the MSY does not account for the costs of harvest, which are often stock dependent (high stocks = high CPUE and vice versa). This is why most economists and an increasing number of quota owners advocate for consideration of MEY by policy makers.

Put simply an MEY approach not only improves the overall revenue from a fishery, but is more likely to result in a more stable fishery, with higher stock abundance and good catch rates. Fisheries that target MEY are more able to withstand the levels of fluctuation in recruitment that are common in lobster fisheries and have had major impacts in recent years. While MSY as a target theoretically allows more catch to be taken, it occurs with lower profits and lower stability of businesses.

The concepts in this short article are complex. To assist further with understanding the use of economics in lobster and other fisheries, the Seafood CRC has commissioned a project that will produce a short video and accompanying notes. This project is close to completion and further details will be posted when complete.

Ian Cartwright and
Associate Professor Caleb Gardner

State **Round Up**

In response to many issues we often refer to the Southern Rock Lobster Fishery. However, as Southern Rock Lobster is managed under the boundaries of three separate jurisdictions (plus zones) the issues can be both common and varied within the individual state borders. This article has been prepared with input from the key people who look after the industry's interests in each state to share a few of the matters that absorbs their time and resources in representing their members.

SOUTH AUSTRALIA

Justin Philips EO South Australian Rock Lobster Advisory Council Inc (SARLAC) and South East professional Fishermen's Association inc (SEPFA)

Rock Lobster MAC

From a fishery management perspective, the industry in South Australia is currently dealing with the pending abolishment of the Rock Lobster Fishery Management Advisory Council (RLFMAC). Despite the RLFMAC's function being acknowledged by Government and the industry fully funding and driving the establishment of this Ministerially appointed, expertise-based advisory body, it will be abolished later in 2015 as a result of the South Australian Government's recent review of all boards and committees.

In order to deal with and be ready for this change, the industry in South Australia is currently working towards finalising a new and refined independent decision making framework for generating credible [rock lobster] fishery management advice in the absence of the current RLFMAC.

Importantly, the RLFMAC had recently administered a process to review management plans and harvest strategies for both Zones in South Australia (Southern and Northern) and a decision is pending regarding the final form of those harvest strategies which will be used to set TACCs for the 2015-16 season.

Marine Parks

South Australia's network of marine parks has now been implemented in full, with some of the most productive lobster fishing grounds being 'locked up' in sanctuary zones. The impacts of these zones are particularly significant in the SA Northern Zone.

While the industry is pleased there was a process implemented to remove displaced rock lobster fishing effort (this did not occur in the Victorian process), we stand by our position that an insufficient volume was removed and that negative biological and economic impacts will result from the effects of increased fishing in more marginal areas of the fishery.

The industry will now fully pursue the issue of compensation for those remaining fishery participants who are already experiencing these negative impacts within their businesses.

Electronic Catch Reporting

The Southern Zone Rock Lobster Fishery continues to move towards the integration of a fully electronic solution for catch reporting, with the full-scale implementation of the Deckhand iPad application expected to occur across all vessels in the 2015-16 season. The application is currently being used on board 73 Southern Zone vessels and we hope to increase that to 96 before the end of the season, subject to funding. iPads have now been trialled in the SA Northern Zone and we hope to have some available for trial in Tasmania in the near future.

TASMANIA

John Sansom Executive Officer Tasmanian Rock Lobster Fishermen's Association (TRLFA). John who had previously been President of TRLFA took over the EO's role in mid 2014.

Changes to the TRLFA

The implementation of recommendations from an independent review of the Association is now complete. After consultation with the Minister for Primary Industries and Water The Hon Jeremy Rockliff, a ballot of all Fishing (rock lobster) Entitlement Holders was conducted resulting in the Minister approving the collection of a levy from all entitlement holders for membership to the organisation. The transition from a voluntary organisation has included a change in the Board structure from an entirely area based representation to a now area based and skills based appointments. The voting structure has also been amended to reflect the ownership of the fishery. With the financial base of the TRLFA now secure, voting rights amended and Board re structure complete the TRLFA looks forward to meeting future challenges and representing the fishery at the highest standard.

East Coast

The catch cap for the east coast was triggered in January ending fishing in the Catch Cap Area and part of the adjacent assessment areas. This is the first year of the stock rebuilding strategy and has been a learning experience. A number of issues have arisen that will be assessed for next year. The primary concern for fishers appears to be the uncertainty of trying to balance quota levels with available catch in the catch cap area and how much of the adjacent areas will be open. This will compound in the future as the rebuild strategy takes effect, catch rates improve and the cap triggered earlier. While this is good for the stock, it will certainly create operational issues for fishers. A review will be undertaken to identify any refinements or changes that may assist in improving the system.

Wooden Boat Festival

The TRLFA in conjunction with the Tasmanian Seafood Industry Council and other sector groups had a site at the latest Wooden Boat Festival in Hobart from the 6th to the 9th February. The theme for the seafood sector was "Proud Past, Exciting Future". The site was manned by an enthusiastic group intent on presenting the fishing industry as a "good news story" with a modern professional approach.

The focus was on sustainable fisheries and renewable resources while displaying memorabilia, traditional pot making and Cray boat tours. The Southern Rock Lobster Fact Sheets that SRL has produced over the past year were also displayed to promote a broader understanding of the industry. Cooking demonstrations and tastings were appreciated by those who attended .The bi-annual festival is now an international event attended by a staggering 200,000 people over the 4 days.

VICTORIA

Markus Nolle, President Victorian Rock Lobster Association (VRLA) and Board Member of Seafood Industry Victoria (SIV).

In the past year the Victorian Rock Lobster Association (VRLA) has come become operational again after several years of being inactive. Apollo Bay industry member Markus Nolle who has been instrumental in getting VRLA operative again has taken on the role of President and sharing with other committee members a number of the responsibilities

that an Executive Officer would normally undertake.

Following the change of Government at the Victorian 29 November State elections has seen the Hon Jaala Pulford appointed as the new Minister for Agriculture and the Minister for Regional Development. VRLA and SIV look forward to meeting and working with the Minister Pulford to resolve some of the key issues impacting on the State's Rock Lobster fishery.

Management Plan Review

A review of the RL management plan is now underway. An EOI was sent to all licence holders to support the appointment of Members to the Steering Committee overseeing the review. The appointed Industry representatives are Markus Nolle, David McCarthy, Gary Ryan, Glen Pettigrove (all from VRLA) and Mark Peychers (from SALCO). VRLA has been pushing for the inclusion of "true" independent Chair and Scientist on this panel and are pleased to advise the appointment of Richard Stevens (Chair) and Caleb Gardner, UTAS (scientist).

Key issues to be addressed in preparing a new management plan will include:

- Overly aggressive rebuild target that is not endorsed by the majority of industry
- Harvest strategy/decision rules that are not endorsed by the majority of industry
- High cost of "research" services
- Overly complex analysis/ standardisation/modelling

State Government Cost Recovery Program

Finally, after months of battling, VRLA had a breakthrough in a significant reduction in the cost of Compliance (Inspections). VRLA will do further modelling on the revised figures but they are certainly more in the right "ball park". The revisions on the compliance costs have seen savings (per annum) of $276,000 in the Western Zone and $83,000 in the Eastern Zone. The next big ticket item of concern in Cost recovery is the contract with SARDI (currently $637,000 per annum) to provide catch & effort data management, research and modelling. VRLA is of the view that this figure is outrageously high. It is a priority for VRLA in all future negotiations with State Government Departments to make research, management and compliance costs reasonable and affordable to industry.

PrimeSafe

Following VRLA representation to the office of the State's Red-Tape Commissioner a proposal to the Government was made to have wild catch Rock Lobster removed from PrimeSafe management. Despite the recommendation from the Parliamentary Committee Inquiry held in 2012-13 into the impact of food safety regulations on farms and other Businesses to remove rock lobster as it was a live and low risk product, the government chose not to implement this advice. A subsequent risk assessment review of seafood by PrimeSafe further identified the low risk of Rock Lobster and again the government did not provide an acceptable response.

With the Government not responding appropriately, the matter was taken up with the Red-Tape Commissioner as it became apparent to VRLA the cost burden being carried by the Rock Lobster industry for PrimeSafe management had more to do with Government department budget recovery than implementing appropriate regulation and expense to industry. With the change of Government there should now be an opportunity to revisit this matter.

VRLA appreciates the support from SRL in making a submission to the initial Parliamentary Committee Inquiry, correspondence to the relevant Minister and participation in the PrimeSafe Risk Assessment review. Hopefully this unnecessary and costly burden on industry will be lifted in the not too distant future.

Trans Tasman Conference 2015
Adapt to Thrive

The 9th Rock Lobster Congress in Association with a Trans Tasman Rock Lobster Industry Conference is being hosted in Western Australia 28 – 30 April 2015. The event organisation is being shared between Western Rock Lobster Council and Geraldton Fishermen's cooperative and being held at the renowned International Esplanade Hotel Fremantle.

The theme for this year's event "Adapt to Thrive" builds on the successful 2013 conference in Sydney which addressed industry adapting to new challenges and opportunities in order to grow. The combination of the topics, the presenters and the venue will combine to ensure a very beneficial and worthwhile experience for all the delegates that attend.

The 2015 Rock Lobster Industry Conference will provide a great opportunity to mix business and pleasure. In the heart of the historical and charming port city of Fremantle, the Hotel is within easy walking distance to the Central Business District, tourist attractions, art galleries, cinemas, museums, markets, bars/restaurants and much more. Regardless if you have been to every Rock Lobster Congress or none, this will be a very rewarding experience for anyone who has a vested interest in Australia's most valuable and important Wild Catch Fishery.

Please go to the **www.wrlc.com.au** for registration and accommodation details.

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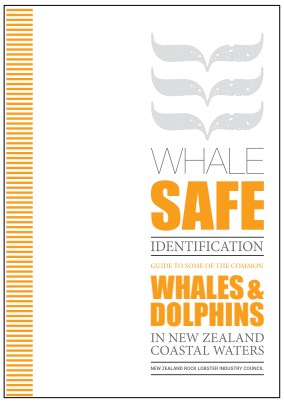
FRDC Project Number 2012/511

Marine Mammal Interactions

Rock Lobster industry initiative to avoid and mitigate cetacean entanglements.

The NZ Rock Lobster Industry Council has recently distributed a guidebook and launched a smartphone application to assist rock lobster vessel skippers and crew to avoid and mitigate problems with marine mammals. These two initiatives come under the auspices of the NZ RLIC *Whale Safe* programme which was established on the back of a regional project commenced by the CRA 5 lobster industry in 2012.



In every season the numbers of whales migrating from and returning to the Southern Ocean is increasing. Whale interactions have been reported in Otago, Kaikoura, Cook Strait, Hawkes Bay, Wairarapa, The Bay of Plenty and the Bay of Islands. Humpback whales returning south have been observed in large numbers off the Fiordland coast. Dolphin and orca entanglements, whilst unusual, also do occur and the New Zealand rock lobster industry acknowledges that it needs to be seen to be pro-active in avoiding such events.

There is a risk from rock lobster gear entanglements to whales, dolphins, and orcas and the NZ RLIC initiatives inform and assist skippers and crew to enable them to avoid and/or mitigate cetacean interactions. New Zealand lobster fishermen are being encouraged to actively adopt the mitigation practices and to report whale observations as outlined in the *Whale Safe* procedures.

The NZ RLIC smartphone recording and reporting tool to collect accurate information on whale sightings and any other incidents whilst at sea is simple and efficient. The new system is called *Ocean Snap*. Using the camera in any smartphone which has location services and email functions, fishermen can record visual observations immediately and report them when they get into 3/4G or wireless coverage.

The smartphone images contain a range of meta-data which pinpoint the time, date and location of every recorded observation. Images and any additional comments are emailed to snap@oceansnap.co.nz and from the files received the NZ RLIC compiles a database of industry observation and incident reports. In addition to marine mammal or seabird interactions the *Ocean Snap* system enables fishermen to report fish thieving, vessel incidents and navigation hazards – all of which will be logged and recorded in the industry-owned database and referred to the relevant agencies as required.

Interactions between marine mammals and commercial fisheries have occurred worldwide for centuries but in the absence of commercial whaling, stocks of all the large whales in the southern hemisphere are increasing at rates ranging from about 7% to 13% annually; a trend likely to continue.

In Australia and North America whale entanglements in commercial fishing gear are increasingly a problem and in 2013 the western rock lobster industry had its export license extended for two years on the condition it took further steps to reduce whale entanglements. Twenty two whales in the 2012 season were reported as tangled in fishing gear on Western Australia's Mid West coast.

The WA lobster industry has a well-established code of practice for mitigating whale interactions and it was that which in part guided the New Zealand industry group CRAMAC 5 to develop a protocol for use by rock lobster fishermen in the Kaikoura region (east coast South Island). The CRAMAC 5 initiative was expanded in consultation with international cetacean expert, Dr Martin Cawthorn and the New Zealand Department of Conservation and the NZ RLIC *Whale Safe* and *Ocean Snap* programmes were subsequently developed for wider industry use.

The *Whale Safe* publication has been produced particularly for rock lobster industry vessel operators and crew but is a useful guide for all marine users. *Ocean Snap* can be used by any commercial or amateur vessel operator – and the data base system protects the privacy and commercial sensitivity of all fishing operations. Additional information on these two programmes is available on request to the NZ RLIC office – lobster@seafood.co.nz

NZ Rock Lobster Industry Council
January 2015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FACT SHEET 1

The Life of a Southern Rock Lobster

Introduction

When we think of rock lobsters it is usually associated with enjoying its exquisite premium dining qualities for which the Australian Southern Rock Lobster is internationally recognised, regarded as "the finest in the world". On its journey to becoming a world class culinary treat the commercial fishing industry has invested heavily in research to understand the life cycle and reproduction of the Southern Rock Lobster - understanding the biology of this highly prized crustacean is important in managing the rock lobster population, or 'stock', sustainably.

A species of the rock lobster family, the Southern Rock Lobster (*Jasus edwardsii*) requires reef habitat to call home and preferably with an abundance of kelp and crevices to provide cover and favourite sources of food.

In Australia, Southern Rock Lobster can be found around southern New South Wales, Victoria, Tasmania, South Australia and the southern coast of Western Australia. The only other place they are found in the world is in New Zealand although there are many other species of rock lobsters around the world in both tropical and cooler waters. Southern Rock Lobster that set up home in shallow water are mostly reddish-purple while those that live in deeper, offshore waters tend to be stronger purple to creamy yellow in colour.

Lobster Groups

Lobsters are large crustaceans and can belong to two groups, one having claws (pincers) on their front legs and those that do not. Clawed lobsters are usually referred to as 'clawed lobsters' and those without claws as 'rock lobsters'. There are no 'clawed lobsters' found in Australia – these are confined to North America and Western Europe. Freshwater yabbies and crayfish, which live in rivers and lakes throughout Australia resemble clawed lobsters but belong to a very different group of crustaceans and are not 'lobsters'. All Australian saltwater lobsters species, including Southern Rock Lobsters, do not have pincers on their legs and are therefore 'rock lobsters'. Rock lobsters have long spines (horns) projecting forward from the front of the head whereas 'clawed lobsters' do not have these. Refer to **Figure 1** for all the key body parts of a Southern Rock Lobster.

Body Plan

The image below provides the names of the key parts that make up the body of a Southern Rock Lobster.

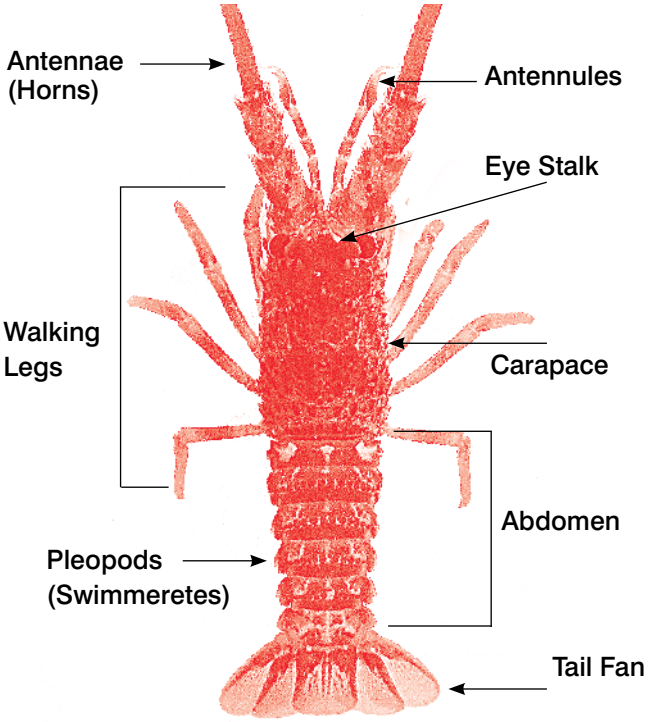

Figure 1

Australian Southern Rock Lobster is internationally recognised, regarded as "the finest in the world"

The Life of a Southern Rock Lobster

Reproduction

From a tiny egg being carried under the tail of a female lobster to a mature sized adult involves a long and complex journey in both time and distance.

Mating usually occurs in April to July when the male transfers a packet of sperm to the female which is attached to the underside of the body between the last pair of legs. Straight after mating the female begins to spawn eggs through openings at the bases of the third pair of walking legs with fertilization occurring externally.

Depending on the age and size of a female lobster the fertilized eggs can number anywhere from 100,000 up to 1,000,000 and are attached to the pleopods, or swimmerets, under the tail of the female. The female rock lobster carries these eggs for 4-6 months. The female lobster is referred to as 'in berry' or' berried' during this time and cannot be harvested by commercial or recreational fishermen in any State.

The eggs eventually hatch and metamorphose into larvae and begin their complex journey to become a juvenile lobster at an unknown destination in 9-24 months time. The first stage after hatching only lasts a few hours and is called the nauplisoma. These larvae are active swimmers that make their way to the surface of the ocean where they reach the next stage termed phyllosoma larvae.

the fertilized eggs can number anywhere from 100,000 up to 1,000,000

The ocean currents disperse the phyllosoma larvae widely and this phase can last between 12 and 24 months. This stage is spent far out to sea beyond the continental shelf so ocean currents can carry phyllosoma hundreds or even thousands of kilometers from where it left the female lobster. At the end of this phase of being carried by the ocean currents phyllosoma larvae moult and metamorphose into a puerulus larvae. Refer to **Figure 2** for an overview of the life cycle for a Rock Lobster.

Puerulus larvae are transparent, resembling miniature lobsters in shape but still live in the water column. They can swim forwards and travel up and down in the water column coming near to the surface at night and swimming deeper in the daytime. The puerulus don't feed and their job is to travel from the deep ocean areas into the coastal reef where they'll live as an adult lobster. They swim towards shore at night and the fortunate ones eventually find reef habitat. Finding reef triggers them to moult again turning at last into pigmented juvenile lobsters that live on the bottom and look identical to adults. Refer to **Figure 3** for a pigmented juvenile lobster.

Figure 2

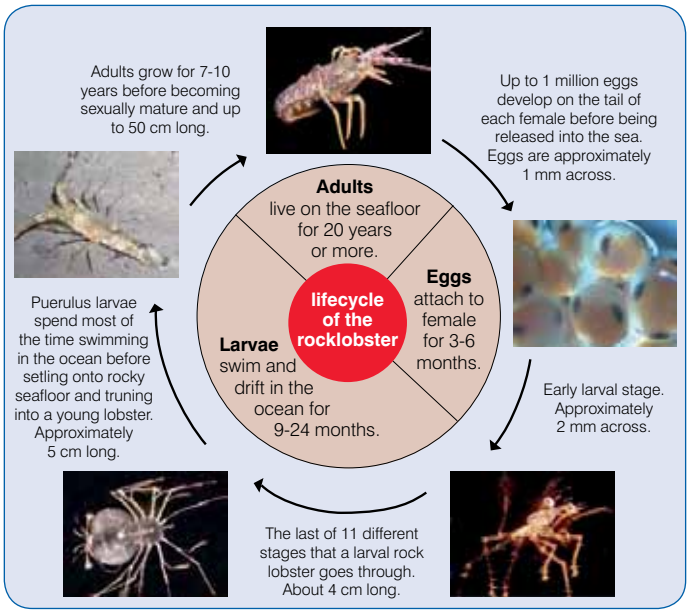

Figure 3

This settlement of puerulus is very important and is monitored using specifically designed collectors placed in many locations around southern Australia. Only a very small number of the naupliosoma larva released actually reach the stage of settling as puerulus – and very few of these puerulus survive to become adults. By measuring the annual settlement of puerulus, fisheries scientists gain an indicator of future stock levels. From settling on the reef area as a puerulus, growth rate is slow because of the cool waters in which the rock lobsters live. Growth is also variable between regions so that it takes at least three years but sometimes more than 10-years to reach the legal minimum size a lobster can be harvested at. Being able to get advance information on changes in lobster stocks based on puerulus settlement helps in managing lobster stocks sustainably.

Adult Southern Rock Lobster

Once the puerulus has settled they tend to stay in the same region although this varies with more movement in some areas than others. Some Southern Rock Lobsters have been tagged and recorded moving more than 80 kilometers and from inshore to deeper offshore reefs. However monitoring in many locations has indicated there is more typically little movement by adult Southern Rock Lobsters. **Figure 4** - A Southern Rock Lobster at home on its ledge on a reef off the coast of Tasmania.

Southern Rock Lobster are mature enough to start breeding when their carapace length is 60-70 mm long and are able to breed before reaching the minimum legal size in most parts of the fishery. They have been known to live beyond 20 years of age with carapaces growing up to 23 cm in length and weighing in excess of 10 kg.

Feeding mostly at night Southern Rock Lobsters are omnivores eating bottom dwelling invertebrates such as mussels and abalone (molluscs), crustaceans (crabs), sea urchins (echinoderms), worms and algae (seaweed).

Of course Southern Rock Lobsters are more than popular fare with not just us humans, but also have many underwater predators such as sharks, octopus and reef fish species like wrasse and ling.

Adult lobsters also shed their shells once or sometimes twice per year and this is referred to as moulting and is the way a lobster grows.

They have been known to live beyond 20 years of age with carapaces growing up to 23 cm in length and weighing in excess of 10 kg.

There are several physical characteristics that distinguish male and female rock lobsters; the fifth walking legs (counting from the front to the back) on the female ends in a small claw, which is used to clean and tend the eggs when she is carrying them. The males do not have this claw. The pleopods (swimmerets) under the lobster's back tail also differ with the male having four pairs of single swimmerets whereas the female has swimmerets divided into inner and outer lobes that are larger and used to carry eggs. Refer to **Figure 5** for a "berried" female lobster with eggs.

Figure 4

Adult lobsters also shed their shells once or sometimes twice per year

Figure 5

Acknowledgements:

SRL would like to recognise the support of the Australian Government through the Fisheries Research and Development Corporation to develop this publication.

Australian Government
Fisheries Research and Development Corporation

SRL would like to express its appreciation for the provision of the images used in this publication:

Figure 2 – Pecl G, Frusher S, Gardner C, Haward M, Hobday A, Jennings S, Nursey-Bray M, Punt A, Revill H, van Putten I (2009). The east coast Tasmanian rock lobster fishery – vulnerability to climate change impacts and adaptation response options. Report to the Department of Climate Change, Australia

Figure 3 – National Institute of Water and Atmospheric Research – New Zealand

Figure 4 – Ivan Hinojosa

Figure 5 – Primary Industries and Regions SA

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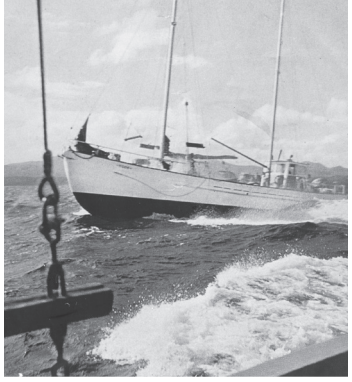

FACT SHEET 2

Southern Rock Lobster - A Proud and Successful Fishery

The Southern Rock Lobster Fishery encompases the states of South Australia, Tasmania and Victoria. The early 1870's saw South Australian locals begin catching Southern Rock Lobsters with hoop nets in shallow costal waters. Fishermen sold these rock lobsters in the state capital, Adelaide and Kingston in the State's south-east, where they were expected to ask no more than two shillings a dozen off the jetty. Meanwhile, in Tasmania the Southern Rock Lobster fishery has been contributing to the State's fishing industry since the 1860's.

The Lobster Vessel Mollie R tied up at Constitution Dock, Hobart in the 1950's

Victoria's commercial industry also dates back over 100 years. The introduction of beehive shaped pots early in the 20th century replaced the hoop nets. This then lead the way for Victorian fishers to expand their operations into deeper waters further offshore and to islands in the treacherous Bass Straight and later the East coast of Tasmania.

In South Australia the first commercial pots were used in 1899, and from the turn of the century, small industries emerged in different parts of the State at Kingston, on Kangaroo Island, and in the now famous fishing port of Port Lincoln - the unofficial capital of Australian Seafood.

Management of the fishery effectively commenced in the late 1800's with a Royal Commission on fisheries in Tasmania in 1882, which lead to the introduction of the Crayfish Act 1885 (Winstanley 1973). This Act introduced the first size limits and prohibited the taking of spawning female Southern Rock Lobster in the state.

In January 1945 a group of 28 Southern Rock Lobster fishermen from Kingston, in South Australia agreed to form the South Australian Fishermen's Cooperative Ltd (SAFCOL). Not long after this, a factory was opened at Beachport to process rocklobster tails for export to America. This was perhaps the single most important development in the history of the industry, leading to rapid growth and substantial investment in gear, boats and onshore facilities including slipways and transport.

Through the fifties the importance of managing the stocks of lobster became apparent and statistics on catches began to be collected.

In the years after World War II there was a rapid expansion in the overseas markets for frozen tails and whole cooked lobsters and as a result, the industry continued to develop. Vessels became more sophisticated with the addition of radios, echo sounders and pot haulers increasing their efficiency and safety.

Through the fifties the importance of managing the stocks of lobster became apparent and statistics on catches began to be collected. However, there were no restrictions on the number of vessels that could operate in the fishery and it wasn't until the late 1960s that fisheries managers begun promoting the idea of 'limited entry' where the numbers of fishing licences would be restricted. The move to the then-novel idea of 'limited entry' occurred in both the Southern Rock Lobster and the Western Australian Rock Lobster fisheries at about the same time and these fisheries were among the first in the world to adopt such a practice. It was these visionary managers, led by Bernard Bowen in Western Australia and 'Mick' Olsen in South Australia that provided the necessary basis for sustainable fisheries that we take for granted today.

Southern Rock Lobster - A Proud and Successful Fishery

Within the limited entry framework, the fisheries also started to be managed through regulations designed to control fishing effort, referred to as 'input' controls. These included setting a maximum number of pots that can be used in a fishery, closed seasons, and total protection (no-take) of female lobsters carrying eggs (known as 'berried' females).

The Vessel Zena mored at the Gulch, Bicheno (TAS) in the 1950's with Caufs and pots in the foreground.

Around the turn of the century fisheries management began to not only utilize input controls, but also began to introduce 'output' controls.

In the latter half of the 20th Century participants in the rock lobster fishery began to appreciate the importance of research to better understand the biology of Southern Rock Lobster. Fishermen began paying levies based on the Gross Value of Production (GVP) of the fishery and matched with government funding have seen a substantial investment in research to better understand the breeding and life cycle of Southern Rock Lobster. Understanding the 'how, what & when' of rock lobster reproduction is very important to managing lobster stocks, as it is for all marine species that are commercially fished.

Around the turn of the century fisheries management began to not only utilize input controls, but also began to introduce 'output' controls. Output controls are better known as quota management where a Total Allowable Commercial Catch (TACC) is set for the fishery. The TACC is broken into units of weight e.g. 1 unit = 5.5kg. These units are known as individual transferable quota units (ITQ) and are owned or leased by licensed commercial rock lobster fishers. As output controls become more widely used, the need for retaining many of the input controls is being examined since, if the quantity taken is directly controlled by catch limits, the need for many input controls becomes redundant. This process of re-examining the way in which the fishery is best managed to ensure sustainable lobster stocks is another phase of the evolution of fisheries management and, in this case, recognizes the need for management arrangements that support flexible fishing practices and hence enhances the economical viability of operators. However, the critical issue of ensuring the biological sustainability of the rock lobster stocks is always at the heart of any management arrangements.

Making beehive pots out of teatree saplings at Bicheno in 1952.

Speaking of rock lobster pots (other countries call them traps) the type in the southern rock lobster fishery are a domed shape (known as 'beehive'), constructed with a metal frame with strips of timber such as tea tree saplings, or wire or mesh netting, on the sides and top . There is a neck at the top of the pot where the lobster can enter and across most fishing jurisdictions escape gaps are used on the sides close to the bottom where undersize lobster and other unwanted species (called by-catch) can escape from. When fishing in areas where seals are prominent, steel rods that protrude into the neck area of the pot are inserted to deter nosy seals looking for a quick and easy feed of lobsters.

Trade in live exports of rock lobster has been growing since the early 1980's and now accounts for the majority of shipments out of Australia. Direct flights and being kept in a controlled temperature environment enables rock lobster to be landed in premium condition at international destinations, mostly in Asia.

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FACT SHEET 2

Southern Rock Lobster - A Proud and Successful Fishery

Getting gear ready for the start of the fishing season in the 21st century.

The 1990's saw the introduction of the term Ecological Sustainable Development (ESD), defined as *'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'*. Fisheries management agencies based their policies, programs and legislation to protect and conserve the natural environment (and resources) so as to promote and support ESD. Each of the States previously noted have very detailed management plans for their rock lobster fisheries that are reviewed regularly.

With the Commonwealth as well as State and Territory Governments committed to managing their fisheries based on ESD principles and guidelines Australia has become highly regarded internationally for the ability to manage fish stocks sustainably. To be able to export any marine species out of Australia, fisheries must be able to demonstrate compliance with the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999.*

Moving into the 21st Century Southern Rock Lobster has become regarded internationally as one of, if not the, premium fine dining seafood experience, deserving its title as the *'the Finest in the World'*. Chefs from the leading restaurants of Asia, Europe and the USA praise it for its unique attributes of firm texture, sweet and delicate white flesh. In China, where Southern Rock Lobster is described as "having much fame", it is paid the highest compliment by being called the 'Dragon Shrimp'.

From the 'pot to the plate' the Southern Rock Lobster industry treats this premium seafood with the greatest of care. The ultimate financial return is paid for a healthy and live product and all handling, transport and storage procedures are based on quality assured best practice procedures.

The Australian Southern Rock Lobster underscores, what is by any standard, a highly successful fishery, it is in fact, a fantastic good news story based on a sustainable and renewable resource.

Using a winch and pot tipper makes for safe and efficient fishing operations.

Annually the fishery generates in excess of $200 million in export income for Australia. It generates thousands of jobs in regional Australia and not only across the supply chain (harvest, process and export) but in all the ancillary businesses that provide services to the industry.

The Australian Southern Rock Lobster underscores, what is by any standard, a highly successful fishery, it is in fact, a fantastic good news story based on a sustainable and renewable resource.

Acknowledgements:

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SRL would like to thank the Tasmanian Archives and Heritage Office (TAHO) for the use of the early history photos used in this Fact Sheet.

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FACT SHEET 3

A Day in the Life of a Clean Green Rock Lobster Fisher

It is recommended that Facts Sheets 1 and 2 be read prior to reading Fact 3 as it will make the reader familiar with the industry background and some terminology used in this document.

The Clean Green program demonstrates the competence of people working in the industry as having been trained to meet World's best practice standards. Establishing standards from 'pot-to-plate' Clean Green has mainly focused on the catching sector addressing five key criteria:

1) On-Board Workplace health and Safety (WH&S) - Specific to the risks of rock lobster fishing operations.

2) Animal Welfare – This is important in itself and also important from an economic perspective since live and healthy rock lobsters achieve a premium price.

3) Environmental Management - Negating and managing any potential impacts of fishing operations on the marine environment, including Threatened, Endangered and Protected species (TEPS).

4) Food Safety & Quality – Ensuring a live, healthy product across the supply chain.

5) Sustainable Management - Ensuring the wild rock lobster stocks are managed for long term sustainability including ongoing compliance with the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*.

To become a certified Clean Green fisherman a comprehensive training program is undertaken and upon completion the skipper prepares a management system specific for the vessel that addresses the first four Clean Green program criteria. The fifth Clean Green program criterion is the responsibility of Government management agencies who work with the fishing industry to achieve sustainable wild rock lobster stocks.

Once the management system is finalised the skipper and his vessel undergo a stringent audit by an independent 3rd party who assesses and approves certification and the skipper's and the vessel's ongoing participation in the Clean Green program. Once approved there are ongoing regular repeat audit requirements.

Image 1

The Clean Green program demonstrates the competence of people working in the industry as having been trained to meet World's best practice standards.

The following outlines what constitutes a typical day's work for a Clean Green fisher using actual examples from the fishing vessel *Juggernaut* (**see image 1**), skippered by Anthony Roach and operating out of Beachport in South Australia's Southern Zone Rock Lobster Fishery.

Weather permitting a Rock Lobster fisher (lets refer to him as the skipper and the deckhand as the deckie) can fish seven-days a week until their quota is caught and of course not during any seasonal closures that may apply.

Preparation for a day's fishing usually starts late on the previous day when the bait to be used in the lobster pots is taken from the freezer, unpacked and placed in plastic bins to thaw. The most frequently used bait is barracouta heads where the rest of the body has been processed for human consumption. Other species such as Carp, New Zealand Salmon or Australian Bony Bream which are in sustainable supply and not desired as human fare are also used. A key requirement of the Clean Green program in that bait is sourced from a sustainable supply and packaging material (cardboard) is not being inappropriately discarded instead it is collected and disposed of through the local recycling program.

A Day in the Life of a Clean Green Rock Lobster Fisher

The next day around 3.30am after an early breakfast the skipper Loads the bait onto the vessel from his tender dinghy. *Juggernaut*, a 50 feet purpose built vessel for lobster fishing, is powered by a V-10 820 HP MAN diesel motor. It has ample cabin space that houses a great deal of modern technology that includes GPS plotters for tracking where the lobster pots (the trap-type gear used to commercially fish for lobster) are set and sounders for measuring depth and indicating the type of ocean bottom to identify suitable fishing grounds for setting the pots (**see image 2**). *Juggernaut* has a huge open deck for stowing lobster pots, bait crates, bins for live lobsters and the winch and pot tipper required for retrieving and setting the lobster pots.

Image 2

Steaming out to the fishing grounds can take up to a couple of hours and during this travel time the deckie cuts up the bait. A personal flotation device (self-inflating PFD) and wet weather gear is also donned by the skipper and the deckie to ensure they remain dry and safe which is important when both are busy undertaking what is very physical work. They also apply lots of sunscreen.

The plotter directs the vessel towards where the pots have been set which can be visually located when getting close by the specially marked head gear (buoys) floating on the surface which is marked to assist in identifying the vessel it belongs to. Modern vessels such as *Juggernaut* have a wheel and controls on the outside of the cabin to operate the vessel during the retrieving and setting of the pots which allows the skipper and the deckie to communicate and work effectively as a team (**see image 3**).

Arriving at the first set of head gear the deckie will grapple the rope attached to the buoys with a long pole and vessel hook and pull them on board ensuring the buoys are put aside so as not to become entangled in the rest of the rope that is attached to the pot. Once there is several metres of rope on board it is looped through the winch being operated by the skipper who can control the speed at which the pots are hauled up. The pot is hauled up to the pot tipper which is positioned so it tilts over the side of the vessel. With the use of foot controls (also a safety mechanism) the pot, still on the pot tipper, is then brought from the side of the vessel onto the deck and positioned to tilt downwards and at a suitable working height above the deck also keeping it stable on an often heaving deck (**see image 4**).

The pots can be set over a considerable distance which can be many kilometres from first to last.

Once the pot is on board any lobsters are unloaded into a bin and if there is any by-catch (non-target species), this is quickly returned to the water alive. The lobsters are checked for size using a specially designed gauge and any undersize or berried females (those carrying visible eggs) are quickly returned to the water while those of legal size are placed in a re-circulating holding tank with a number of separate crates, plenty of fresh seawater being circulated and with a lid to keep them out of the sunlight. While the skipper is sorting through the catch the deckie re-baits the pot using a wire mesh and a plastic container that is fixed to the inside of the pot. The skipper records the catch each pot including the number of returned undersize and berried females.

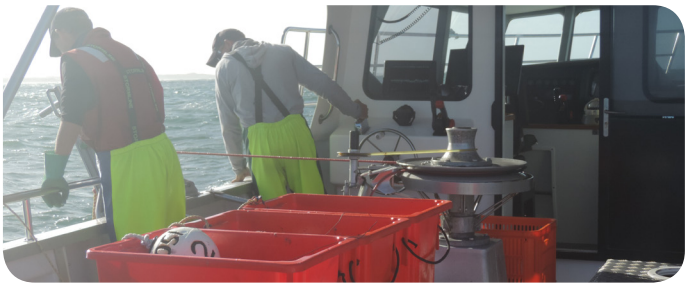

Image 3

With the pot re-baited it is time to re-set the pot. The skipper looks for 'good bottom' on the sounder, checks for tidal flow, swell etc, and makes an assessment of where to drop/set the pot to ensure it lands on good bottom and gives the deckie a signal to let it go. The deckie tips the pot off, ensuring he is clear of uncoiling rope and throws the buoys/'headgear' over at the end when practically all the rope is back in the water. The timing of this procedure is important to ensure there are no rope entanglements, the deckie keeps his feet clear of the rope loops and planted firmly on the deck as the rope uncoils back into the water. As the fishing grounds can be anywhere from 20 to 75 metres in depth (some grounds are over 100 metres),

A Day in the Life of a Clean Green Rock Lobster Fisher

the use of the winch and the pot tipper is very important from both a fishing efficiency and a workplace health and safety (WH&S) perspective as the retrieval and setting can be undertaken up to 100 times per trip.

Image 4

This attention to keeping the catch live and healthy from the time they are caught to the time they arrive in the export processor's tanks ensures the very highest standards of product quality.

Once all pots have been checked and re-set it is time to head for port. During the trip back all the gear and deck is thoroughly washed down, another requirement of the Clean Green program (**see image 5**). Should any cleaning chemicals be used on board the vessel there are strict procedures for storage and use.

The first task upon returning to port is for the skipper to complete important paperwork required under fisheries legislation starting with part A of the Catch and Disposal Record (CDR) which records the skippers licence number, date and time, total numbers of lobsters and bin tag numbers. Part B of the CDR is completed when the catch is weighed at the electronic scales back on shore. This is done under video surveillance with the skipper using his own iButton to log on as recording the day's landed catch weight is also an important fisheries legislative requirement. The scales provide a print out of the remaining quota to be caught once that day's catch is deducted.

Once the day's catch is weighed and recorded the skipper delivers the catch to a buyer who is usually waiting at the port with a refrigerated vehicle to take the lobster to an export processing facility where they are quickly placed in seawater holding tanks. This attention to keeping the catch live and healthy from the time they are caught to the time they arrive in the export processor's tanks ensures the very highest standards of product quality.

Image 5

As part of the Clean Green program, fuelling the vessel and changing oil all have procedures to be followed so as to minimise the potential for any spills or leakages. This Fact Sheet describes the operations of a Clean Green Fisher who operates from their home port on a daily basis. However some rock lobster fishers can stay out at sea for up to seven days or even longer). Longer trips are required to deal with longer distances to fishing grounds which make it both impracticable from a time perspective and unviable from a financial perspective to travel to and from a home port every day. Referred to as multiple day trippers (or camping), these Clean Green fishermen are subject to all of the same program requirements as that of a day tripper described in this Fact Sheet. The only real difference is that they do not unload their catch as frequently.

A log book specifically developed for the program is used by all Clean Green skippers to ensure a record is kept of a range of activities associated with good manufacturing practice (GMP). These include maintaining the vessel, any interactions with protected species, any minor accidents or incidents and crew inductions.

Australian Southern Rocklobster clean. green.

World's best practice Clean. Green. Rocklobster fisher

Acknowledgements:

Southern Rocklobster limited would like to acknowledge the support of Anthony Roach and the use of his vessel *Juggernaut* to make observations of fishing activities to prepare the information for this Fact Sheet.

SRL would like to recognise the support of the Australian Government through the Fisheries Research and Development Corporation to develop this publication.

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FACT SHEET 4

Bountiful Harvest Thriving Economy

Australian rock lobster is the most valuable wild caught fisheries product in Australia and second only to farmed salmon in value of overall seafood production. In 2011/12, the industry landed about 8,657t of rock lobster valued (at producer, or 'farm gate' prices) at around $AU384 million or 17% of all Australian seafood production.

A number of rock lobster species are captured around the vast Australian coastline including tropical and cold water species as well as small quantities of shovel nosed lobsters or 'bugs' (*Thenus orientalis*).

But by far the most important commercial species are the large red Australian southern rock lobster (*Jasus edwardsii*) which is fished in the clear, cold southern ocean waters off South Australia, Tasmania and Victoria and the smaller, sub-tropical western rock lobster (*Panulirus cygnus*) which is found off the mid Western Australian coast from about Kalbarri to south of Fremantle.

Australian Rock Lobster is the most valuable wild caught fisheries product in Australia and second only to farmed salmon in value of overall seafood production.

These two species comprise over 90% of the total Australian rock lobster catch with the eastern rock lobster (*Jasus verreauxi*), taken off the New South Wales coast and several species of tropical rock lobsters that are caught in northern Australian waters (including Torres Strait) making up the rest.

The southern and western rock lobsters are also the most economically important species with southern rock lobster production from the three producing States of South Australia, Victoria and Tasmania being around $177 million in 2011/12, or 46% of the value of all Australia's rock lobster fisheries. Co-incidentally, the value of production from the western rock lobster fishery was also $177 million or 46% of the total Australian rock lobster production. A summary of Australian production by State in 2011/12 is as follows:

Table 1: Production and Value of Australian rock lobster by State, 2011/12

State/Jurisdiction	Production (t)	Value ($AU million)	Main species
Western Australia	4880	$177	Western rock lobster
South Australia	1550	$96	Southern rock lobster
Victoria	301	$18	Southern rock lobster
Tasmania	1098	$63	Southern rock lobster
New South Wales	142	$8	Eastern rock lobster
Queensland	159	$6	Shovel nosed and tropical rock lobsters
Commonwealth, including Torres Strait fisheries	527	$16	Tropical rock lobsters
Total	**8,657**	**$384**	

Bountiful Harvest Thriving Economy

All Australian rock lobster fisheries are managed by State and/or Commonwealth authorities to ensure long term sustainability of the resource and minimum impact on the marine environment. These strict management procedures have seen permitted production (usually managed by annual quotas for each fishery) fall during the decade since 2001/02 so that long term sustainability of the resource is not affected by fishing. While the largest declines in permitted production have been in the western rock lobster fishery, the southern rock lobster fishery has also reduced production by about 1,200 t during this time to the current level of 2950 t.

Despite the economic importance of the Australian rock lobster fisheries, Australia is only a small producer by global standards. World production of rock lobsters (i.e. not including clawed lobsters which are found in the US, UK and Canada) is approximately 77,443 t of which the Australian production of 8,657 t is about 11%. However, being dominated by the prized cold water species, being close to the important Asian markets and with a well-deserved reputation for high quality and sustainable fishing practices that guarantee consistent supply, Australian rock lobster commands a significant premium in the global market.

Therefore, not surprisingly, there is a large and growing demand in international markets for Australian rock lobster that has resulted in much of the annual production being exported. Of the 8,657 t production in 2011/12, 6,916 t or 80% of the total catch, was exported, worth approximately $387 million. This figure is even higher for the highly sought after southern rock lobster with about 84% of production, or 2,477 t being exported.

In accordance with market demand, the vast majority of Australian rock lobsters are now exported live, by air, to markets in Asia. Of the total 6,916 t exported in 2011/12, 6,290 t, or an astonishing 91%, of those exports were live product. This is a significant change from a decade or more ago when exports were dominated by whole frozen product or tails. The industry is conscious of the responsibilities it has for exporting live product and the southern rock lobster industry operates to a strict code of conduct, under the 'Clean, Green' product standard, that ensures the rock lobsters are treated humanely at all stages of production and transport.

China is the largest market for Australian rock lobsters with exports to China, either directly or indirectly, accounting for 85% by volume of total exports worth around $303 million per annum with almost all of these exports being live. Japan (6.1% of exports), USA (3.8%), Thailand (1.8%) and Taiwan (1.9%) are other significant markets.

In accordance with market demand, the vast majority of Australian rock lobsters are now exported live, by air, to markets in Asia.

The Australian rock lobster industry provides the majority of China's rock lobster supply and is therefore important in overall food commodity trade between the two countries - in 2011/12, Australian rock lobsters accounted for over 10% by value of all Australian food exports to China, significantly more than either the Australian wine ($240 million) or dairy ($233 million) industries.

Australian southern rock lobster is highly prized as a banquet centrepiece for its dramatic looks and premium taste, so it's little wonder that the vast majority are exported whole – either live, fresh or chilled.

Bountiful Harvest Thriving Economy

The southern rock lobster industry, like other rock lobster industries in Australia is also the economic backbone of many regional, coastal towns in Australia. The economic importance of the southern rock lobster industry to regional economies has been measured for the past decade in South Australia, the largest producer of southern rock lobsters, although data is generally lacking for other States.

In South Australia, the southern rock lobster industry contributed around $120 million per annum to regional economies in 2011/12 and about $55 million to regional household incomes. It generated over 1100 jobs and is often a significant employer in regional communities. It has been estimated that across the three States of South Australia, Victoria and Tasmania, the Southern Rock lobster industry creates nearly 3400 full-time jobs, and generates a similar number of jobs in the service and supply sectors.

The industry is represented by State industry bodies with national co-ordination of research and development of the southern rock lobster industry being undertaken by Southern Rocklobster Ltd (SRL) in partnership with the national Fisheries Research and Development Corporation.

Key summary statistics for the southern rock lobster industry are as follows:

Table 2: Economic and industry indicators for the Australian southern rock lobster industry, 2011/12

	South Australia	Tasmania	Victoria	Total
Catch (t)	1550	1098	301	2,949
Value of catch ($ million)	$96	$63	$18	$177
Number of licensed vessels	249	312	116	677
Export quantity (t)[1]	1380	527	350	2257[2]
Export value	$92.0	$33.5	$21.9	$147.4
Full time jobs	1130	Est. 1350	Est. 416	2896

Footnotes

1 *Rock lobsters are often exported from a different State than the State in which they are caught. For example, rock lobsters caught in Tasmania may be exported from Melbourne, Victoria because of better international air freight facilities.*

2 *Some product is exported from States such as New South Wales that are not included in this table. Therefore this figure is the total exports from these three States and not necessarily the total export quantity or value.*

Data sources:

Australian Bureau of Agricultural and Resource Economics and Sciences, Australian Fisheries Statistics, 2012, Canberra, November 2013

EconSearch, Economic Indicators for the Commercial Fisheries of South Australia, summary report, 2011/12 Adelaide, October 2013

Food and Agriculture Organisation of the United Nations (FAO) World capture fisheries landings and trade statistics, Rome, April 2014

Southern Rock Lobster Ltd, unpublished industry statistics

Acknowledgements:

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FACT SHEET 5

Buying and Cooking

Australian Southern Rocklobster (*Jasus edwardsii*), harvested in the clean coastal waters off Southern Australia, is considered the supreme lobster by true lovers of the delicacy.

The species has a light, sweet and rich taste with firm flesh that retains its shape during most methods of cooking. While Australian Southern Rock Lobster's size and rich red colouring make it the ideal choice for a centerpiece, the species is extremely versatile, with most parts able to be used in cooking.

Edible parts include flesh found mainly in the tail and legs. The tomalley (liver and pancreas) and red coral (roe) are edible and can be served with the lobster or used in sauce. The bodies provide a delicious flavor for stocks, soups and poaching liquids, while the heads are useful for making lobster sauce.

Traditionally consumers have bought lobsters whole, however the South Australian industry is pioneering a range of value-added products that make handling and cooking easy.

Australia's National Heart Foundation has given its tick of approval to fresh lobster as it contains valuable nutrients and is low in fat.

Just 120g of lobster provides 0.3g of Omega-3 oil, an essential fatty acid that contains high levels of EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid). Omega-3 oil has been shown to alter the amounts and types of fats in the bloodstream and reduce the risk of heart disease.

Buying Tips

LIVE:

To ensure optimum freshness, most chefs prefer cooking with live Australian Southern Rock Lobster, which are also known as "green".

When buying live lobsters it is advisable to follow these guidelines:

- Always buy from a reputable seafood retailer;
- A live lobster should be highly active, flapping its tail when picked up;
- The weight should feel heavy in relation to its size;
- Check the flesh has not come away from the shell;
- Fresh lobster should smell sweet (with no ammonia-like odours);

Buy and cook your lobster as close to serving time as possible.

COOKED:

- Look for a specimen that is tightly curled and flips back into a curl after being straightened out. This snap indicates freshness and that the lobster has been handled correctly. An unfurled tail indicates the lobster died some time before being cooked, which means the digestive track will have started breaking down, releasing enzymes that spoil the flesh;
- A reputable seafood retailer will have marked lobsters if they are fresh cooked, frozen or thawed – do not re-freeze;
- Never buy lobster with a musty or pungent, ammoniated smell.

Buying and Cooking

Australia's National Heart Foundation has given its tick of approval to fresh lobster as it contains valuable nutrients and is low in fat.

Cooking Guidelines

Industry standards in preparing lobsters for cooking ensure humane handling and guarantee the flesh retains the best flavour and texture.

To avoid stress and achieve best eating qualities Rock Lobster should be humanely killed before cooking and this can be done by freezer chilling the lobster in air at deep freeze temperatures of - 13°C (5°F) for approximately 30 minutes.

To cook the flesh, plunge the lobster into boiling salted water (35g salt to four litres of water) for about 10 minutes for a 500g lobster (15 mins - 1kg. 18 mins - 2kg. 25 mins - 3-4kg). Fishers prefer to use natural seawater. Seasonings such as bay leaves, thickly sliced lemon, fresh dill and a few black peppercorns can be added.

Once cooked, pierce a small hole in the head and drain. Take the tail section off and pull away from the head in one piece. While lobster flesh is translucent when raw, cooked flesh is white and opaque with orange tinges, and the outer shells turn red. Be careful not to overcook or the flesh will become tough and leathery.

If you are using Australian Southern Rocklobster as a centrepiece, take care to keep the legs and head intact during handling.

Acknowledgements:

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Sources: South Australian Research and Development Institute (SARDI) and FRDC/QDPI Catering Manual

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FACT SHEET 6

Exotic Lobster on a Shoestring

Lobster has always been considered a luxury item, but is it really? To prove a point, a 1kg live lobster is used to make three different dishes, each enough for two people. Six magnificent meals, and given the sense of luxury for about $14 each (cost may vary due to seasonal availability) it hardly seems extravagant.

For the following recipes the first step is to humanely kill the lobster by freezer chilling in air at deep freeze temperature of -13°C (5°F) for at least 30 minutes. Working over a bowl, cut through from the underside, open out the body and twist out the tail meat. Place it on a plate, cover with a damp cloth and refrigerate. Remove the leg and joint meat and set them to one side and, using a sharp knife, roughly cut up all the remaining body and head.

Hot Sour Lobster Soup

Serves two

- 500g small, very ripe tomatoes
- All of the lobster body juices, broken-up head shells and any scraps
- 250g brown onion, roughly chopped without peeling
- 1 stem of lemon grass, roughly chopped without peeling
- Small knob of green ginger, roughly chopped without peeling
- 3 kaffir lime leaves
- 1/2 tsp whole white pepper
- 1 birdseye chilli, finely chopped
- 1/2 of the lobster legs and joints

To finish the soup

- 2 tbsp rice wine vinegar
- 5g sweet pickled julienned ginger (available from Chinese grocers)
- 10cm piece of taro stem, peeled and cut into eight pieces
- About 50g palm sugar
- 1 slice of very ripe fresh pineapple, peeled, cored and finely sliced
- 10 mint leaves
- 10 rau ram leaves (Vietnamese coriander)

Select the three best tomatoes, seed and skin them, julienne the largest pieces and put them with the ingredients used to finish the soup. Reserving the seeds and skin, roughly chop the remaining tomatoes. Put the tomatoes, body pieces, onion, lemon grass, ginger, lime leaves, pepper and half of the chilli into a saucepan, add two litres of cold water and place it on very low heat. Bring the stock to the boil, skimming any scum that rises to the surface, then simmer gently for 30 minutes.

Turn the heat off, add the legs, pushing them under, and allow them to remain in the stock just long enough to change to a bright red. Remove with tongs, then, when cool enough to handle, remove the meat and return the shells to the stock. When the stock has stood for an hour, carefully ladle off 600ml and strain it through your finest sieve into a clean saucepan. Strain the remaining stock through a course sieve and set to one side. This, plus half of the leg joint meat, is reserved for the soufflé dish.

Just before serving the soup, return the stock to the heat and on low heat bring it to a simmer, but do not allow it to boil. Add the vinegar, ginger and taro stems, then add sufficient palm sugar to give it a pleasing sweet/sour taste. Add more chilli if necessary. Divide the reserved tomato julienne, pineapple and half of the leg and joint meat between two large bowls, then add the soup, garnish with the leaves and serve immediately.

To truly appreciate the flavour of this style of soup, it should be warm but not scalding hot, as extreme heat masks the intense and diverse flavours.

Exotic Lobster on a Shoestring

Lobster Souffle

Makes two soufflés in dishes sized 10.5cm base diameter and 5cm high.

For the base

- 100ml lobster stock, reduced by half to 50ml
- 40ml cream
- 20g butter
- 15g plain flour
- Freshly grated nutmeg
- Pinch of sea salt
- Freshly ground white pepper
- 2 extra large (61g) egg yolks

To finish the soufflé

- 20g shallots, peeled and finely chopped
- 20g unsalted butter plus about 1 tbsp very soft butter
- 5g tiny Italian capers, well drained
- Remaining joint and leg meat, roughly chopped
- 50g Gruyere cheese, freshly grated
- Few sprigs of chervil, stalked and finely chopped
- 140g egg white at room temperature

Combine the reduced lobster stock and cream. Put the butter into a small saucepan and place it on medium heat. When the butter starts to foam, whisk in the flour, cook for one minute, then whisk in the cream and stock. Remove from the heat, season with nutmeg, salt and pepper and, while it is still hot, whisk in the egg yolks.

Measure the weight of a mixing bowl. Scrape the base mixture into the bowl and immediately cover with plastic. Pierce a few small holes in the top to allow steam to escape. Check the weight of the base – it should be very close to 130g. If you have more, remove it before proceeding.

Sauté the shallots in the 20g butter until they are just softened. Using the additional very soft butter, grease the souffle dishes, paying particular attention to the rims. Add the capers, lobster and half the cheese to the soufflé base.

Preheat the oven to 175 degrees. Whisk the egg white until it forms soft peaks and gently fold into the mixture. Fill the soufflé dishes to the line, top with the remaining cheese and chervil and cook until golden and puffed.

Grilled Lobster Tail with Garlic Olive Oil and Herbs

Serves two

- Reserved lobster tail
- 4 cloves of garlic
- 1/2 tsp sea salt
- 100ml South Australian extra virgin olive oil
- Freshly ground black pepper
- Fresh dill, chopped

Using scissors or poultry shears, cut the underside shell of the lobster tail, then cut through the top side with a knife and separate the two halves, but do not remove the flesh from the shell. You may like to use a little rock salt to hold the halves level on a baking tray.

Peel the garlic, split in half and remove the core. Macerate to a paste with sea salt, then whisk through the olive oil. Add to the oil some freshly ground black pepper and a little fresh dill.

Preheat the oven to 200 degrees. Spoon half of the infused oil over the lobster tails and bake for five minutes. The success of your dish hinges on the oven being properly heated and the time. Prolonged cooking at lower temperatures dries out the flesh.

Serve with mashed potato and a green salad – because the cooking time is so short, everything else must be ready before you put your lobster tails in the oven.

Put the potato into the centre of each plate, sit a half on top and divide the remaining infused oil over and around the lobster and serve immediately.

Exotic Lobster on a Shoestring

Over-cooked lobster meat is tough and rather dry, so taking the effort to get the best out of it is certainly rewarded.

Cooking your own Rock Lobsters

Boiled crustaceans are an oddly Australian custom, because in most other countries in the world they are bought live or at the very least green (raw). It must be said that there is absolutely nothing wrong with buying a fresh, cooked lobster but, because they are prepared in such quantity, they are rarely as perfect as when cooking just one or two.

Lobsters are frequently boiled in huge cauldrons, the lobsters should be chilled in a freezer for 30 minutes and then loaded into heavy wire baskets and dunked into the boiling salted water. The chill of the lobster immediately cools the water, which means that the lobsters closest to the source of heat will cook sooner than those towards the top.

Over-cooked lobster meat is tough and rather dry, so taking the effort to get the best out of it is certainly rewarded. You can cook a whole lobster in boiling salted water, but you need to be careful not to overcook it.

The legs dunked as described remain exquisitely moist and the meat easily slides from the shells. As for the body, the flavours go completely into the stock and it is an easier method to get that utterly clear stock. For plain cooked lobster tail, don't split the entire tail open but cut through the belly shell with scissors and then make an incision about half way through for about one-fifth of its length. Drop into gently simmering salted water, and remove when you can still see a little raw flesh in the centre, which should be about one-quarter of the thickest part. Allow to stand for a further five minutes and it will be perfect.

Acknowledgements:

SRL would like to recognise the support of the Australian Government through the Fisheries Research and Development Corporation to develop this publication.

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**Source: © text and recipes: Ann Oliver, Food Writer, The Advertiser, 28/1/1998.*

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Interesting facts about
Australian Southern Rock Lobster

The Southern Rock Lobster is an amazing marine animal that supports a very successful commercial fishery creating important employment and income for rural coastal communities in south east Australia. There is a total supply chain industry based on this species that generates significant export income for Australia.

The following are some interesting facts about this wonderful species of crustacean, including breeding cycle, the industry it sustainably supports, management of the fishery, research and the excellent cuisine it is so highly regarded for.

1 Southern Rock Lobster (*Jasus edwardsii*) is only found in the waters of southern Australia and New Zealand.

2 Southern Rock Lobsters are large crustaceans and belong to the group that do not have claws, instead they have strong front legs with spines that they use in the same way.

3 Lobsters reproduce from tiny eggs that are carried by females under their tails for around 5 months until they hatch. **Female lobsters carrying eggs are referred to as "in berry" or "berried" and cannot be harvested**.

4 A large female Southern Rock Lobster **can carry up to 1 million eggs**. When the eggs hatch the larvae (called phyllosoma, which is Greek for 'leaf-like') swim upwards and then drift in the ocean for up to 24 months going through 11 different stages of development making Southern Rock Lobster one of the longest larval developments known for any marine creature.

5 The drift of Southern Rock Lobster larvae in the ocean has been well studied and tends to be **mainly from east to west across southern Australia** and also circulates in two large current systems off the eastern coast of New Zealand.

6 Environmental processes like **current strength and water temperature only explain a small part of the success of larvae in surviving their ocean journey** and returning to the coast. It seems that biological processes like algal blooms may be more important.

7 From the millions of larvae annually produced by each adult lobster, **only two on average survive** to become adult lobsters.

8 The final larval stage is referred to as a puerulus and looks like a juvenile lobster except that it's completely transparent. This stage doesn't feed and swims towards shore searching for reef where it will live the rest of its life.

9 If the puerulus successfully finds reef it stops swimming and begins life where movement is mainly by walking. **It moults (up to 20 times in first year of life) and turns into a pigmented (coloured) juvenile lobster**.

10 Adult lobsters continue to **moult at least once a year** and this is the way they grow.

11 Southern Rock Lobsters generally only move small distances once they settle onto reef although this varies between areas. In South Australia they often move into deeper water as they grow larger. In North Eastern Tasmania the females move northwards to release their larvae upstream of main currents. **They move less than one km per year in most areas.**

Interesting facts about
Australian Southern Rock Lobster

12 A Southern Rock Lobster is usually at least 5-6 years of age before it reaches the minimum size and can be legally harvested. They **can live beyond 20-years of age and grow in excess of five kg** although size is not always good indicator of age (many of the oldest lobsters are also very small).

13 Commercial Rock Lobster fisheries have operated **sustainably in Tasmanian, South Australia and Victoria for over 150 years**.

14 Australian Rock Lobster fisheries were one of the first in the world to adopt 'limited entry' that limit the number of commercial rock lobster fishers, the number of boats and also the total number of pots in the fishery.

15 There are Fisheries Acts, Regulations and Managements Plans that govern the fishing activities of Australian Rock Lobster fisheries making them the **most highly managed fisheries in the world**.

16 The catch in all commercial **Australian Rock Lobster fisheries is controlled by quota management** (also called output controls). Each quota owner has a set amount of catch each year, based on scientific research, and they cannot harvest more than they are allocated.

17 Catch in Southern Rock Lobster fisheries in Australia are currently set at conservative levels to promote stock rebuilding and increase profitability. This is very different to farming operations where producers normally increase profits by increasing production.

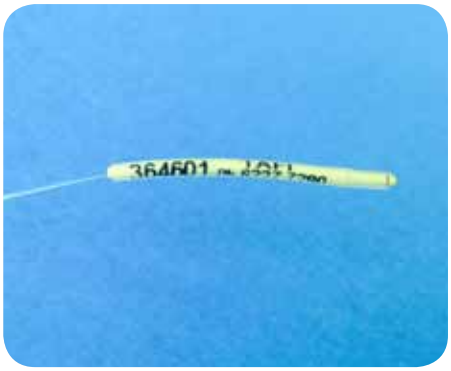
18 Management of lobster fisheries is assisted by detailed data collected by commercial fishers who record information about **each day's catch such as the location, number of lobsters caught, and the weight**.

19 Volunteer programs are also run with **over 20% of fishers participating in measuring a portion of the lobsters they catch each day**. This includes the undersize lobsters that are then released. This data enables scientists to track the health of lobster stocks, including checking that the number of undersize is adequate to support future catches.

20 Observer programs are run across the fisheries. These involve staff from **research organisations going to sea with commercial fishers to record details of their catch**, such as any by-catch of fish or other species to enable monitoring and management of interactions with the ecosystem.

21 Research organisations also monitor the health of the fishery by having many set locations around the coast where they set pots each year to monitor change. **One of the benefits from these programs is that it will enable scientists to detect any change in the biology of lobsters through time**, such as whether they are growing faster or slower than they did in the past.

22 Tagging programs have been run in Southern Rock Lobster fisheries since **the late 1980s with almost 1 million lobsters tagged and released**. This rich data set provides scientists with detailed information on growth, movement and stock size and is used to help set annual quotas.



23 With so many lobsters tagged you may well encounter one. The tag is usually yellow and is inserted under the tail. It has contact details listed so you can send details of your lobster to the fishery scientists. There are also usually some good prizes involved!

Interesting facts about
Australian Southern Rock Lobster

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24 Southern Rock Lobster fisheries occasionally interact with threatened, endangered and protected species. This includes any seabird, turtles, and marine mammals. Examples include whales becoming entangled with ropes or seals taking bait from pots. Although entanglements are very rare at around one per decade, plans are in place to manage and respond to this. Fishers use sealion exclusion devices to mitigate risks to Australian Sealions. **All fishers are obliged to report any interactions, this is monitored by observers, and there's also an effective voluntary system through the Clean Green program**.

25 The key to the **successful management of Southern Rock Lobster in Australia as a sustainable and renewable resource is applying the principles and guidelines for Ecologically Sustainable Development** (ESD). ESD is defined as *'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'.*

26 Most fishermen use domed (known as beehive) shaped pots to harvest Southern Rock Lobster and these are made with metal frames and covered in wood or wire. The pots have a neck at the top to allow the animals to crawl in and out of and have gaps in the bottom to let juveniles and by-catch species escape.

27 Once on-board the fishing vessel **lobsters are measured and undersized are returned to the water.** Those being kept are stored out of the sun in tanks designed to circulate aerated sea water to ensure a live, healthy premium product.

28 Rock Lobster fishermen have invested tens of $ millions in research to understand the biology of rock lobster and the impacts of fishing operations so-as-to manage this valuable resource sustainably.

29 Australian Southern Rock Lobster Fishermen were the first in the world to implement a third party audited certification system for their fishery. **The Clean Green Program sets minimum standards for environmental management, work health & safety, food safety and quality, animal welfare and sustainability**.

30 The taste and texture makes **Southern Rock Lobster a feature of many of the World's outstanding cuisines**. This was not always the case as in the first half of the twentieth century many families depended upon the hunting and fishing skills of a family member to supply food for the table, this would include Southern Rock Lobster for those who lived in coastal areas.

31 To avoid stress and achieve best eating qualities Southern Rock Lobster should always be humanely killed before cooking and this can be done by freezer chilling the lobster in air freeze temperatures of -13°C (5° F) for approximately 30 minutes.

32 Highly regarded for its light, sweet and rich taste with firm flesh, Southern Rock Lobster can be prepared by chefs in many creative ways. However, **in Australia we often tend to enjoy our lobster "*au naturel*"** by cooking in boiling salted water and then serving cold with a bit of lemon juice and some seasoning or a little favorite seafood sauce.

33 Australia's **National Heart Foundation has given its tick of approval** to fresh lobster as it contains valuable nutrients and is low in fat. Just 100 g of Southern Rock Lobster tail meat contains more essential Omega-3 than seven chicken fillets and it is also a good source of phosphorus and the anti-oxidant, Vitamin-E.

34 Southern Rock Lobster has become **regarded internationally as one of, if not the, premium fine dining seafood experience, deserving its title as the '*the Finest in the World*'**. In China, where Southern Rock Lobster is described as 'having much fame', it is paid the highest compliment by being called the 'Dragon Shrimp'.

35 The Australian Southern Rock Lobster underscores, what is by any standard, a highly successful fishery, it is in fact, a fantastic good news story based on a sustainable and renewable resource.

Acknowledgements:

Australian Government
Fisheries Research and Development Corporation

SRL would like to recognise the support of the Australian Government through the Fisheries Research and Development Corporation to develop this publication.

More details information on Australian Southern Rock Lobster can be found in the series of (6) Fact Sheets that can be downloaded from the Education "tab" on **www.southernrocklobster.com.au**

Southern Rocklobster LIMITED

the finest in the world

Southern Rocklobster Limited (SRL)

SRL's core activities are based on the organisation's project agreement with Fisheries Research & Development Corporation (FRDC) for Southern Rock Lobster National Research Development & Extension (R D & E), Planning and Management. This project agreement builds on the Industry Partnership Agreement (IPA) that sets out the arrangements for the implementation of a Southern Rock Lobster R D & E Program.

The industry partnership that is SRL is unique in the Australian seafood industry and brings together producers of southern rock lobster across Australia to pursue the common goal of a sustainable fishery that produces the world's finest rock lobster.

SRL has also produced and co-ordinates the delivery of the program associated with the Clean Green Product Standard which is the industry's vehicle to train and maintain industry operations at world's best practice standards. When introduced it was, and still is, to the best of SRL's knowledge the only third party accredited and audited fishing/ seafood product standard of its type in the world.

Australian Southern Rocklobster clean. green.®

Southern Rock Lobster - The finest in the world

Clean Green Product Standard

Recommended Guidelines - Managing Live Australian Southern Rock Lobster (Chinese version also available)

Copies of any of these documents can be made available by contacting the SRL Executive Officer Ross Hodge

Email: rosshodge@southernrocklobster.com or **Telephone: +61 423 533 133**

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Key Documents

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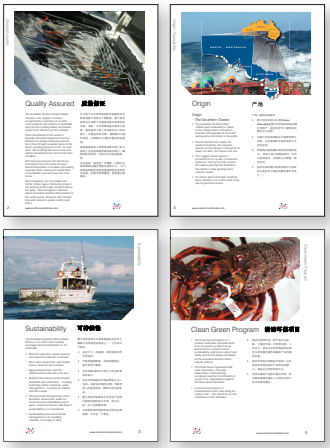
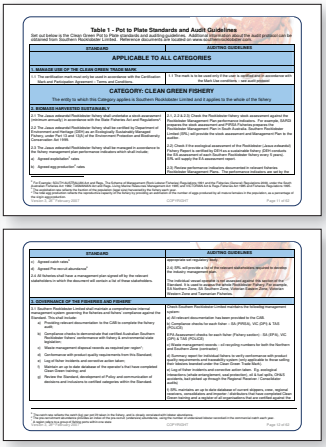


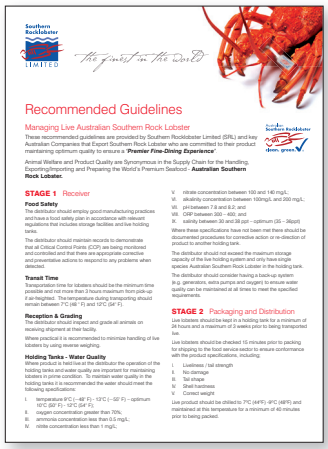
Southern Rock Lobster - The finest in the world

This document with its Chinese translation has been developed to promote all the qualities that underpin the supply of Southern Rock Lobster that sets it apart from all other lobsters as truly “the finest in the world”. The document describes the culinary & eating attributes, quality handing procedures, fishery sustainability, origin of capture as well as best practice guidelines for receivers of shipments of Southern Rock Lobster to ensure a quality product. It is the ideal document for those companies that export Southern Rock Lobster and want promote and differentiate their product from all other Lobster species as the ‘Premier Fine-Dining Experience’.



Clean Green Product Standard

The Clean Green program is a world first Rock Lobster supply chain management strategy. It is actually a suite of standards contained in one product standard that incorporates ‘pot to plate’ best practices in environmental management, animal welfare, food quality/safety and work place safety is accredited by independent 3rd party auditing. Developed under the stringent requirements of Standards Australia, the Clean Green program is supported by extensive and detailed support material including training packages and audit protocols.



Recommended Guidelines - Managing Live Australian Southern Rock Lobster (Chinese version also available)

As Southern Rock Lobster is predominantly traded live, ensuring animal welfare and product quality across the whole supply chain is critical to delivering a ‘Premier Fine-Dining Experience’. These recommended guidelines set out the requirements for the importers and receivers of Southern Rock Lobster to maintain optimum quality. The information is based on the best practices procedures in the Clean Green Product Standard and provides information as well on humane killing procedure. It is a most suitable document for exporters to include copies in their shipments of rock lobster.

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World’s best practice Clean. Green. Rocklobster fisher

Copies of any of these documents can be made available by contacting the SRL Executive Officer Ross Hodge

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