SafeFish: Seafood Trade Expert Panel

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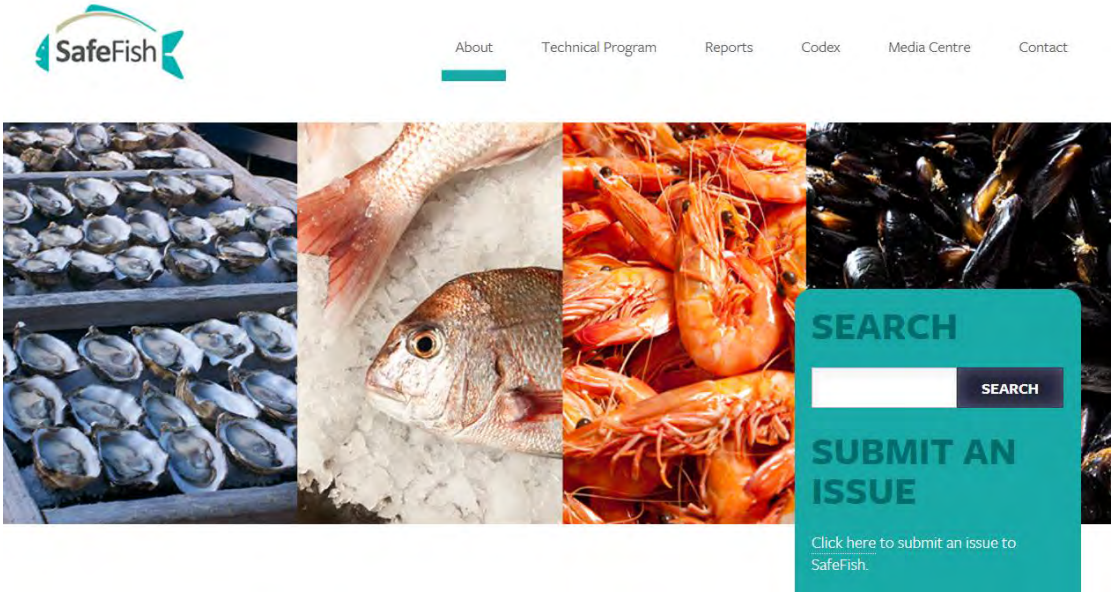

AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

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Table of Contents

Non-Technical Summary 4

1. Introduction and Background 12

1.1 Need 12

1.2 Objectives 12

2. Methods 14

1. Seafood Trade Expert Panel (STEP) also known as 'SafeFish' 14

2. Technical advice to overcome trade issues 15

3. Technical input and support of federal agencies at Codex 17

3. Results 19

Technical Representation and Input 19

Technical Reports 19

Codex Input 20

Capability Development 23

Emergency Incident Response Management 24

Seafood Safety Fact Sheets 24

FSANZ Incident Workshop 24

Technical Representation at International Expert Meetings 25

SafeFish Communication Efforts 25

4. Discussion 29

Codex 29

Raising the SafeFish Profile 29

Technical Reports 30

Emergency Incident Response 30

Australian Seafood Co-operative Research Centre input into SafeFish 31

5. Benefits and Adoption 32

6. Further Development 34

7. Planned Outcomes 35

Public Benefit Outcomes 35

Private Benefit Outcomes 35

Linkages with CRC Milestone Outcomes 35

8. Conclusion 36

9. References 37

10. Appendices 38

Appendix I: Intellectual Property 38

Appendix II: Staff 39

Appendix III: Business Model Proposal 40

Non-Technical Summary

2009/752-10 SafeFish: 'Seafood Trade Expert Panel'

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Project Objectives:

1. Support scientific input into the resolution of emerging and current technical barriers to trade by developing and implementing a 'Seafood Trade Expert Panel'
2. Support technical input into the development of Australia's positions on Codex standards and guidelines that impact on Seafood CRC participant businesses, including attendance at relevant Codex meetings and out of session working groups.
3. Support technical input into the development of Australian bilateral and multilateral trade negotiating positions to support the resolution of market access and food safety issues impacting on Seafood CRC participant businesses
4. Identify and facilitate research into emerging market access issues
5. Assist in the provision of technical information and advice to support emergency incident response management.

Abstract/Executive Summary:

SafeFish originated from the recognition by the members of the former Seafood Access Forum (SAF) (industry and government) of the need to provide coordinated, cohesive and robust technical advice to support Australian negotiators and delegations dealing with trade and market access issues related to food safety. While this expertise was variously available from different sources a more cohesive collaborative approach was required to bring together all relevant stakeholders (industry, scientists, government, and regulators) more collectively. This was the origin of the partnership approach known originally as the Seafood Trade Expert Panel which was then renamed SafeFish in 2011.

The aims of the project were to:

a) Ensure that the most appropriate technical expertise was available to support Australian trade negotiations relating to seafood

b) Coordinate robust technical advice for input to international trade fora such as Codex and bilateral and multilateral trade agreement discussions

c) Deliver a multi-disciplinary approach to often very complex trade issues and ensure that Seafood CRC participant business operations and practices were considered in developing Australia's negotiating positions

d) Foster open communication between Australia's technical trade experts and assist early detection of issues

e) Provide a forum for debate and discussion about technical trade issues and their impact on the CRC participant businesses

f) Create an international technical trade network and enable Australia's experts to identify and act on opportunities for national and international collaboration

g) Facilitate professional development of existing and new representatives with technical trade expertise.

The collaborative partnership approach taken by SafeFish, involving government, industry and regulators has been successful in addressing the identified needs.

Codex

SafeFish has provided technical input for forty-four technical submissions at Codex to support nine Australian delegations at meetings held from 2010 - 2014. Technical experts have been supported to also attend five of these meetings. A number of the positions that SafeFish provided in the technical papers have been adopted and incorporated into Codex standards at the 2011, 2012 & 2014 meetings. Examples of this success include:

- Achievement of risk based marine biotoxin standards for abalone at Codex rather than mandated across the board biotoxin testing, saving the abalone industry approximately $23 million in testing per annum.
- Acceptance by CCFFP of the 'performance criteria' approach for marine biotoxin methods. This will allow Australia to choose from a range of internationally accepted methods rather than the out-dated mouse bioassay which is no longer available in Australia for ethical reasons. The criteria approach allows flexibility to manage marine biotoxins in a cost effective and risk commensurate manner, underpinning risk management in the bivalve, abalone and rock lobster fisheries.
- Acceptance by CCFH that Vibrio testing should not be mandated across the board for shellfish, but should be based upon the inherent risk in a particular country.
- Acceptance by CCFH that virus testing should not be mandated across the board for shellfish, but should be based upon the inherent risk in a particular country.

These achievements have helped to save seafood CRC industry participant millions of dollars in unnecessary testing.

SafeFish support to the Australian delegates to Codex meetings has proven extremely successful, especially for the Codex Committee of Fish and Fisheries Products (CCFFP), as evidenced by the results obtained. Over the past three CCFFP meetings SafeFish has sent the same representative in order to progress the issues of marine biotoxins in abalone and the criteria for marine biotoxin analysis. This strategy proved highly successful, with Australia leading an in-house working group at the last meeting. The chair of the CCFFP now seeks

Australian input prior to and during meetings, and there is good opportunity for Australia to influence standards that are in development.

Relationships between SafeFish, Codex Australia, Department of Agriculture and FSANZ have been excellent in the Codex processes. Additional benefits to SafeFish from these relationships are that government agencies are committed to the SafeFish process, and include SafeFish in consideration of national meetings and agendas that may impact on seafood (e.g. the national incidence response network), and input into other areas that SafeFish is working on, such as reviewing SafeFish documents, and providing timely advice on issues of concern for SafeFish stakeholders.

Technical Reports

SafeFish has produced a series of technical reports, risk assessments and position papers in direct response to industry needs and requests. These issues were either identified as high priority issues by the former Seafood Access Forum (SAF) or were identified as high priority through two SafeFish prioritisation processes and workshops (held in May 2011 and June 2014) which involved an expert elicitation process with approximately 40 stakeholders.

Eleven reports have been directly funded by SafeFish, and a further 12 reports have had technical input and/or partial funding by SafeFish. The reports are available on the SafeFish website (http://safefish.com.au/), and cover a range of seafood topics (e.g A risk ranking report of hazards affecting Australian seafood (2011), An appraisal of the current situation regarding ciguatoxins in finfish and validation of Australian risk management procedures (2012), A semi-quantitative risk assessment report of harmful parasites in Australian finfish (2012), and Exposure assessments on mercury in Australian seafood to support altered advisories and regulatory limits (2013)) and fisheries specific topics (e.g. Improving the Management of the Risk of Human Enteric Viruses in Shellfish at Harvest (2013), Risk assessment of cadmium in Australian wild-caught prawn muscle tissue (2014),and A risk assessment of sulphites in Australian canned abalone (2011)).

Several technical reports produced have supported industry to argue with trading partners for improved market access, for example, the initial report into paralytic shellfish toxin uptake by abalone supporting the re-opening of trade with the European Union in 2010. Prior to removal of access in 2007, this trade was valued at AU $7million per annum. Reports for other fisheries are available should trade become an issue, e.g. the risk assessments for Cadmium in prawns, parasites in fish, and marine biotoxins in abalone. Some reports are currently in use to inform industry response to incident management (e.g. exposure assessment of paralytic shellfish toxins in rock lobster) or to potential negative publicity campaigns (e.g. Mercury in Australian Seafood).

The reports have also enabled SafeFish to provide strong input to the Codex process (e.g. marine biotoxins in abalone, viruses in shellfish). Other reports have been helpful for incident management and review (e.g. exposure assessment for paralytic shellfish toxins in rock lobster, a review of the east coast *Alexandrium tamarense* event in Tasmania) or for informing the broad seafood industry of food safety risks during events of national significance (e.g. the fact sheets from the Guideline for Seafood Packaging being used in the recent broadcasts in response to the scromboid fish poisoning event in Sydney and the Hepatitis A in berries event).

Raising the SafeFish Profile

SafeFish has been developed to service the research and technical needs of the seafood industry as a whole. In order to do this effectively the industry needs to be aware of SafeFish aims, activities, and achievements and to have input into these. The seafood industry is very diverse, with little co-ordinated representation across fisheries. Thus there are many key stakeholders and communication is an essential and significant activity for the program. Key components of this that have shown benefit, particularly in the last few years are:

- The Secretariat offering a diverse range of communication methods and maintaining stakeholder relationships proactively.
- Travel and representation at industry meetings to both raise awareness, report on outcomes and garner information for determining future priorities
- News articles in FRDC and ASCRC publications
- SafeFish website
- Strong relationships with cross-fisheries organisations where they exist, for example the Seafood Access Forum (when it existed) and the current Seafood Trade Advisory Group.

Engaging an independent chair has also helped raised the profile of SafeFish both internally and externally. The independent chair has brought better governance, and linkages to external stakeholders with a common food safety focus.

The ASCRC has played a central role in the success of SafeFish, and in raising the profile with the seafood industry. The ASCRC has provided the strategic overview of the seafood industry and directed SafeFish towards important contacts politically and technically. It is envisaged that the FRDC will play a similar role in the future.

Improved Capability in Australia

A significant benefit from the program has been the development of capability in Australia. As a direct result of SafeFish the Australian seafood industry now has:

- An ability to influence international standard development for food safety issues related to seafood
- Laboratory capability for analysing the main four groups of marine biotoxins in all seafood, viruses in shellfish, pathogenic vibrios in seafood
- Improved research capability to address food safety issues domestically and those that impact on trade and market access
- Networking between all stakeholders, resulting in improved relationships between industry and regulators, and between fisheries.

SafeFish has also been working closely with the bivalve shellfish industry through the Australian Shellfish Quality Assurance Program. We have supported the Chair of the Australian Shellfish Quality Assurance Advisory Committee, organised science days between industry, regulators and researchers, provided advice for policy development and funded attendance at an international workshop on sanitary survey. SafeFish was a key supporter enabling Australia to host the International Conference of Molluscan Shellfish

Safety in Sydney in 2013. This support strengthens the ASQAP, encouraging world's best practice for this high risk seafood group, underpinning domestic production, and market access for exports.

Emergency Incident Response

The seafood industry currently has no active, co-ordinated response plan for incident management. Whilst SafeFish cannot cover this large and complex area entirely, it has been able to contribute significantly to individual groups and events through the provision of technical advice and through co-ordination of effort.

The relationship that SafeFish has developed with both regulators and industry resulted in it being able to act as a trusted broker between the two during difficult phases of incident management. In recent times there have been two large incidents relating to seafood safety and market access in Australia.

1. Between October and February 2012/2013 a harmful algal bloom affected the east coast of Tasmania resulting in a range of seafood being contaminated with paralytic shellfish toxins.
2. In March 2013 there were ~400 known human cases of gastroenteritis related to consumption of Tasmanian oysters contaminated with norovirus.

SafeFish provided technical advice to a range of stakeholders during both of these incidents. SafeFish produced technical documents to support both events, and played a significant role in providing technical advice to DAFF, state government and industry to management of this event.

In response to broader food safety incidents that occurred, SafeFish developed two question and answer packages (one for Hepatitis A Virus and one for Scombroid Fish Poisoning) to provide information to help the Seafood Industry understand more about the issues, how they would affected their business practices and to provide them with background knowledge in case they were approached by the media. These were made publicly available on the SafeFish website, was distributed widely to all seafood sectors via email, and where necessary posted to individual processors.

The Future of SafeFish

SafeFish has examined potential future models of operation, and canvased stakeholders as to whether or not the program should continue in the future, and if so in what form. A review of potential business models was commissioned and examined three possibilities. The recommendation was for SafeFish to transition to a commercialised business model of operation where key stakeholders contributed to the program and the FRDC matched this contribution and added additional funds for the public good component.

Industry partners have been supportive of a continuation, and have pledged financial support through the FRDC process. SafeFish will continue from 1 July 2015 as an FRDC project, and may need to adapt further due to the changed funding arrangements to meet industry needs into the future. SafeFish will also need to adapt to the changing political landscape in the seafood industry, and looks to work more closely with the Seafood Trade Advisory Group, the New Zealand seafood industry and the seafood importers association in the

future. Key strategies however will continue, particularly strong communication with stakeholders, and a coordinated approach to trade and market access issues.

Outcomes Achieved:

- Significant level of Australian input into the Codex process for developing food standards related to seafood
- Re-opening of EU market access for abalone, and maintenance of market access for the seafood industry through addressing hygene, contaminants, food additives, and processing standards at Codex
- Improved laboratory capability for toxin, viral and vibrio analysis in Australian seafood
- Avoidance of large scale and expensive monitoring programs for market access where risks are low
- Forum created to address food safety trade and market access for seafood for domestic and exported product

List of Outputs Produced:

- A governance document detailing SafeFish roles, relationships, and modus operandi
- A national process for determining and prioritising current and emerging food safety issues for Australian seafood
- A website highlighting Australian research related to food safety in seafood
- A series of scientific reports related to risk analysis and trade and market access for Australian seafood
- A series of technical briefs for Codex delegates on food safety issues related to seafood
- A number of communication and promotional materials produced to advertise SafeFish and to highlight the research relating to food safety in seafood (SafeFish brochure, Hazards in Seafood fact sheets/brochure, articles in ASCRC Seafood & FRDC Fish magazines)

Acknowledgments

Throughout the project SafeFish has worked collaboratively with many partners;

Federal Governments & Regulators

- Codex Australia
- Food & Animal Bi-products Section & Residues and Food, Export Standards Branch of the, Commonwealth Department of Agriculture (DoA)
- National Residue Survey, DoA
- Food Standards Australia, New Zealand (FSANZ)

State Governments & Regulators

- Biosecurity South Australia
- Department of Health, Tasmania
- Department of Primary Industries, Parks, Water and Environment, Tasmania
- Fisheries Victoria
- New South Wales Food Authority (NSWFA)
- Northern Territory Government
- NSW Department of Primary Industries
- Primary Industries & Regions South Australia (PIRSA)
- SA Department of Health
- SafeFood Queensland
- Victorian Department of Primary Industries
- WA Department of Health

Funding Organisations

- Australian Seafood Cooperative Research Centre (ASCRC)
- Fisheries Research and Development Corporation (FRDC)
- Department of Further Education, Employment, Science and Technology (DFEEST)
- South Australian Premiers Research & Industry Fund (formerly the Premiers Research & Science Fund)
- Seafood Export Consultant Committee (SECC)
- DoA – Ministerial Task Force (MTF) funding

Industry & Industry Bodies

- Abalone Association of Australasia (AAA)
- Abalone Council of Australia (ACA)
- Abalone Fisherman's Co-Op
- Australian Aquaculture Council
- Australian Barramundi Farmers Association (ABFA)
- Australian Council of Prawn Fishers (ACPF)
- Australian Prawn Farmers Association (APFA)
- Australian Seafood Exporters
- Australian Shellfish Quality Assurance Advisory Committee (ASQAAC)
- Dover Fisheries
- Ferguson Australia
- Indian Ocean Fresh Australia
- Industry representatives from mussels, oysters, salmon, barramundi, tuna, yellowtail kingfish, prawn, abalone, and rock lobster sectors.
- Kalis Group
- Lonimar Processors
- New South Wales Farmers Association (Oysters Section)
- Oysters Australia
- SA Oyster Growers Association (SAOGA)

- Seafood Trade Advisory Group (STAG)
- Simplot Australia
- Southern Rock Lobster Limited
- Stehr Group
- Sydney Fish Market (SFM)
- Tasmanian Salmonid Growers Association (TSGA)
- Tasmanian Shellfish Executive Council
- Tasmanian Seafood Industry Council
- Tuna Boat Owners Association (TBOA)
- The Seafood Importers Association of Australia (SIAA)
- Western Australian Fishing Industry Council (WAFIC)

International Collaboration

- Environmental and Food Virology New Zealand (ESR)
- Ministry of Agriculture & Forestry (MAF) New Zealand
- New Zealand Food Safety Authority (NZFSA)
- New Zealand Seafood Industry Council (NZSIC)
- Seafood Safety Assessment

National Researchers

- Advanced Analytical (AA)
- Aquatic Sciences Division, SARDI
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Department of Agriculture and Fisheries Queensland
- Department of Employment, Economic Development and Innovation Queensland (DEEDI)
- Food Safety & Innovation Division, The South Australian Research and Development Institute (SARDI)
- Food Safety Risk Consulting
- South Australia Pathology (Formerly IMVS)
- M&S Food Consultants
- Queensland Forensic and Scientific Services
- Shoalhaven Marine and Freshwater Centre

Universities

- Curtin University
- Flinders University
- University of Adelaide
- University of NSW
- University of Queensland
- University of Tasmania

1. Introduction and Background

The members of the former Seafood Access Forum (SAF) (industry and government) recognised the need to provide coordinated, cohesive and robust technical advice to support Australian negotiators and delegations dealing with trade and market access issues related to food safety. While this expertise was variously available from different sources a more cohesive collaborative approach was required to bring together all relevant stakeholders (industry, scientists, government, and regulators) more collectively. This was the origin of the partnership approach known originally as the Seafood Trade Expert Panel which was then renamed SafeFish in 2011.

1.1 Need

The SafeFish project was implemented to:

h) Ensure that the most appropriate technical expertise was available to support Australian trade negotiations relating to seafood

i) Coordinate robust technical advice for input to international trade fora such as Codex and bilateral and multilateral trade agreement discussions

j) Deliver a multi-disciplinary approach to often very complex trade issues and ensure that Seafood CRC participant business operations and practices were considered in developing Australia's negotiating positions

k) Foster open communication between Australia's technical trade experts and assist early detection of issues

l) Provide a forum for debate and discussion about technical trade issues and their impact on the CRC participant businesses

m) Create an international technical trade network and enable Australia's experts to identify and act on opportunities for national and international collaboration

n) Facilitate professional development of existing and new representatives with technical trade expertise.

1.2 Objectives

Objectives specified in original 'Participants project agreement' February 2010

1. Establish the SafeFish by June 2010 and develop at least 2 position papers or technical reviews each year for input into the resolution of high priority current technical barriers to trade.
2. Provide technical guidance and support to Australia's delegations to at least 2 Codex meetings per year that potentially impact on Seafood CRC participant businesses

Objectives specified in variation request 2; ‘Deed of Amendment No 1’, March 2015

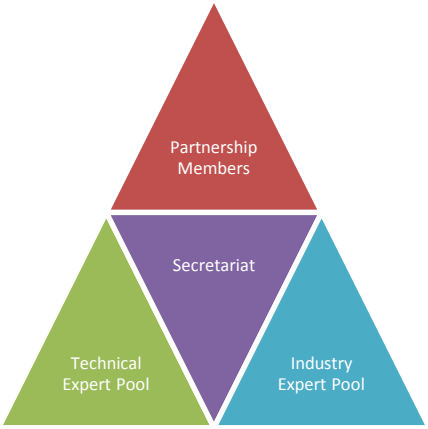
3. Provide update report including discussion on potential ways to achieve industry commitment to ongoing support once the CRC finishes.
4. Provide rapid technical support during food safety incidents relating to seafood. Note, this objective was included by the PI in the last milestone due to additional activities over and above the original scope of the SafeFish project.

2. Methods

1. Seafood Trade Expert Panel (STEP) also known as 'SafeFish'

The Seafood Trade Expert Panel (STEP), renamed SafeFish in 2011, was formed to create a partnership of seafood safety and market access experts, with the aim of assisting the Australian seafood industry resolve technical trade impediments, especially in relation to issues that arise associated with the safety and hygiene of their products.

The SafeFish initiative was developed to comprise of four groups, the secretariat body, the technical and industry expert pools, and the partnership members group who all work together to deliver the outputs and objectives of the program effectively (see schematic below).



The Secretariat (comprised of an executive officer, program manager and chair) coordinates and facilitates the day to day operations of SafeFish including the provision of the following core functions:

- Liaising with and providing consultation between the seafood sector stakeholders that comprise SafeFish.
- Coordinating the process of identifying food safety and trade issues that may threaten individual Australian seafood sectors or the industry as a whole.
- Driving the process to prioritise food safety and technical market access issues according to scientific, political, social, environmental and economic factors.
- Engaging stakeholders to identify, prioritise and provide input and technical advice on issues that are identified.
- Facilitating the collation of technical information, peer reviewing of the information followed by the dissemination of the advice generated to appropriate parties and stakeholders for further action.
- Communicating outputs and outcomes produced by SafeFish to stakeholders and other relevant parties.
- Facilitating technical input into high priority Codex policies, and coordinating the attendance of SafeFish technical experts at relevant Codex meetings to assist the Australian delegation.

The partnership members group provide general oversight and assist in the identification of emerging issues. They also assist in communicating the technical outputs of SafeFish through the appropriate channels in Australia and overseas to facilitate the resolution of issues. As of 2015 the partnership members include:

- Independent Chair, SafeFish
- Food & Animal Bi-products Section, Export Standards Branch of the, Commonwealth Department of Agriculture (DoA)
- Australian Seafood Cooperative Research Centre (ASCRC)
- Fisheries Research and Development Corporation (FRDC)
- Food Standards, Australia and New Zealand (FSANZ)
- Food Safety & Innovation Division, The South Australian Research and Development Institute (SARDI)
- Australian Shellfish Quality Assurance Advisory Committee (ASQAAC)
- Seafood Trade Advisory Group
- The Seafood Importers Association of Australia
- Sydney Fish Market

The Technical experts pool are called upon by the Secretariat to provide scientific advice to resolve technical barriers to trade and assist in providing input into the development of Codex standards. The experts within this group have knowledge and skills in a range of disciplines including residues, microbiology, viruses, natural toxins, risk assessment, epidemiology, economics, trade, public health and Codex. Australian expertise was also supplemented by internationally based expertise where necessary.

The Industry expert pool is called on by the Secretariat to provide industry perspective and practical implementation advice on technical barriers to trade and Codex standards under development. The Pool consists of members from each key seafood industry sector, in addition to other representatives with industry experience.

2. Technical advice to overcome trade issues

To provide the seafood CRC industry partners with advice on current and potential trade barrier issues, position briefs were developed for critical issues via the SafeFish processes described in this section.

Prior to the closing of Seafood Services Australia in June 2013, when a current or potential technical trade barrier, or a Codex related issue was raised at the Seafood Access Forum (SAF), the SAF Executive would prioritise these issues based on multiple factors. If technical input was required on high priority issues the SAF Chair would refer the issue to the Chair of SafeFish and seek specific technical advice.

The SafeFish Chair would select appropriately skilled person/s from within the secretariat, or from the industry/technical expert panels to prepare a response. The terms of engagement were determined based on the issue at hand (this involved identifying the services to be performed, a time frame for the services to be completed within and a price to undertake the

work). If the proposed resolution was costed at > $20,000 the issue was referred to the Seafood CRC for potential development as a full Seafood CRC project. If the proposed resolution was costed at < $20,000 the issue was included in the SafeFish prioritisation process which determined the SafeFish work program for the following 12 months.

To undertake the prioritisation process a knowledge creation strategy was implemented which included a systematic approach to capturing/identifying issues (existing and emerging), prioritizing the issues, and undertaking technical work to provide potential solutions to overcoming the technical issues. This process ran as follows:

1. Identification of Emerging Issues

The following sources of information and data were scrutinized by the Secretariat to identify emerging issues and gather background information on these potential problems:

- Recently published scientific and regulatory literature;
- Trade databases containing statistics on rejections/detentions of seafood from key trading partners;
- International human illness outbreaks related to seafood consumption;
- Advice from industry trade groups (e.g. Seafood Trade Advisory Group STAG)
- Advice from industry and regulatory stakeholders (i.e. issues derived via the SAF process);
- Advice through Codex forum and new international seafood risk management policies.

Using this information as a knowledge base, the following was then undertaken:

- A brief description on each emerging issue was generated.
- A running list of emerging issues was collated which was sent to the SafeFish partnership members every 12 months for their feedback and advice as to whether these issues posed a significant threat to trade.
- Based on advice from the partnership members high priority emerging issues were included in the annual prioritisation process for future work (as detailed below).

2. Prioritisation Process

A prioritisation process was coordinated by the SafeFish secretariat every 12 to 18 months and involved the following:

- An independent consultant undertaking a risk ranking process on issues identified which considered the likelihood of the issue to impinge on trade and the consequences (severity) if the issue occurred.
- The Secretariat liaised with the Technical and Industry Expert Pools to scope the issue and establish whether it was feasible that technical input could assist in resolution of the problem.
- Based on feedback from the consultant and technical and industry pools the Secretariat formed a short list of issues that could be addressed by technical work.

- A prioritisation workshop involving key stakeholders (partnership members, technical & industry expert/(s), panel members and other relevant parties) was held to discuss the potential progression of the short listed issues. This workshop also allowed stakeholders to provide input to the shortlist of issues and to suggest alterations to this list.
- Following the prioritisation workshop, a technical work programme was generated containing the issues that SafeFish would develop technical advice for to assist in their resolution.

Once the position briefs were developed for the issues that formed the SafeFish work program, a peer review process (in some cases internal but in most cases both internal and external) was undertaken to provide assurances on the robustness of the information generated. Following this process, the information was then either provided directly to the relevant government and industry trade negotiators to assist in discussions to overcome barriers to trade, or communicated to relevant stakeholders.

3. Technical input and support of federal agencies at Codex

Codex standards and guidelines drive seafood safety legislation domestically and internationally. The Codex process is also a key mechanism for the utilization and adoption of CRC trade and market access research. Because of this it was critical that the Australian Seafood CRC participants were (and are) involved in the Codex process and where appropriate were technically represented. To ensure that the Australian position on the Codex agenda items addressed industry concerns, SafeFish followed a formalized process to provide technical briefs to support the Australian delegation. This process ran as follows:

- Scope issues of relevance to the Australian seafood sector from the Codex agenda of upcoming meetings;
- Elicit feedback from industry and technical experts on high priority draft Codex papers associated with the Codex agenda (particularly for CCFFP and CCFH);
- Develop a draft SafeFish technical brief on key agenda items;
- Liaise with Codex Australia and DAFF on the draft brief and incorporate government feedback;
- Provide the draft SafeFish briefs to industry and expert stakeholders for review and comment;
- Incorporate comments into the SafeFish briefs where possible/feasible;
- Discuss the SafeFish briefs and any unresolved issues at the Codex Panel meeting;
- Finalise the briefs and submit to Codex Australia.

SafeFish had limited funding to support the attendance of technical experts at relevant Codex meetings and working groups that were held throughout the project. Technical experts were selected by the SafeFish partnership members based on their experience and knowledge around the issues that were being discussed. In addition to attending the meetings, the expert was also heavily involved in the drafting process for the technical briefs that were developed as well as providing input into out of session working groups and meetings.

The key meetings where technical representation was provided were:

- The Codex Committee on Food Hygiene (CCFH). This related to CCFH work programmes in key areas of concern to the seafood CRC industry participants, namely: Risk Assessment, Vibrios and Viruses.
- The Committee on Fish and Fishery Products (CCFFP). This was to ensure that the Australian position on a number of commodity based trade issues was conveyed.
- Codex or WHO/FAO expert Working Group of high relevance to the seafood CRC industry participants (e.g. working group meetings to develop codes of practise for vibrios and viruses in seafood, fish and fishery products etc.).
- Attendance at the CCFH and CCFFP briefing and debriefing meetings in Canberra to ensure technical input and feedback generated a continual improvement approach to technical trade and market access issues.

While technical representation was not provided, in most cases technical input was compiled instead for the following meetings: Codex Committees on: Methods of Analysis and Sampling, Contaminants in Food, Food Labelling, Residues of Veterinary Drugs in Foods, and Food Import and Export Inspection and Certification Systems.

The decision to send a technical representative to a particular Codex meeting was made in accordance with:

a. The relevance of the meeting content to the seafood CRC industry participants and SAF priorities.

b. The relevance of the meeting to current Seafood CRC projects and potential for utilisation of CRC research results to underpin the seafood CRC industry participant position.

c. Endorsement by the federal agency (e.g. Department of Agriculture, FSANZ, Codex Australia) responsible for heading the Australian delegation.

d. Agreement by the Program Manager Product and Market Development (ASCRC).

e. Relevant skills and expertise of the technical representative in relation to the meeting or issues on the agenda.

3. Results

Technical Representation and Input

SafeFish maintains a list of seafood experts with various expertise, who can be called upon for technical input when required. In addition to this, an industry expert pool is also maintained to be called upon to provide advice on the real-life industry situation and practicality of research or implementation of proposed regulations.

Technical Reports

SafeFish has produced a series of technical reports, risk assessments and position papers in direct response to industry needs and requests. These issues were either identified as high priority issues by the former Seafood Access Forum (SAF) or were identified as high priority through two SafeFish prioritisation processes and workshops (held in May 2011 and June 2014) which involved an expert elicitation process with approximately 40 stakeholders. The following is a list of reports that have either been directly funded by SafeFish, and others that have had technical input and/or partial funding by SafeFish:

Directly funded by SafeFish:

- A risk ranking report of hazards affecting Australian seafood (2011)
- A risk assessment of sulphites in Australian canned abalone (2011)
- An appraisal of the current situation regarding ciguatoxins in finfish and validation of Australian risk management procedures (2012)
- A semi-quantitative risk assessment report of harmful parasites in Australian finfish (2012)
- Improving the Management of the Risk of Human Enteric Viruses in Shellfish at Harvest (2013)
- Exposure assessments on mercury in Australian seafood to support altered advisories and regulatory limits (2013)
- SafeFish comments: 'EFSA scientific opinion on marine biotoxin regulatory levels' (2013)
- A risk ranking report of hazards affecting Australian seafood (2014)
- A Seafood Safety Brochure containing a collection of informative fact sheets for a number of food safety hazards that may affect seafood in Australia (2015)
- Mercury in Australian seafood: Exposure assessment (2015)
- Monitoring seafood for arsenic in Australia (2015)

SafeFish input (technical/part funding) provided:

- Uptake, distribution and depuration of paralytic shellfish toxins in Australian green-lip abalone, Haliotis laevigata (2010)

- Semi-quantitative risk assessment of paralytic shellfish toxins in canned Australian abalone (2010)
- Food safety risks associated with prawns consumed in Australia (2011)
- An exposure assessment on Marine Biotoxins in Rock Lobster (2012)
- Safe Packaged Seafood Guide (2013)
- Review of Foodborne Viruses in Shellfish and Current Detection Methodologies (2013)
- SafeFish Review: The 2012-2013 Paralytic Shellfish Toxin Event in Tasmania (2013)
- A Guide to the Identification of Food Safety Hazards and Determination of Shelf-life of Packaged Seafood (2013)
- Assessment of methodologies for the enumeration of pathogenic Vibrio species in Australian prawns (2014)
- 2012-13 Survey of Australian wild-caught prawns for analysis of cadmium and selenium (2014)
- Risk assessment of cadmium in Australian wild-caught prawn muscle tissue (2014)
- Development of a risk management plan for marine biotoxins in Tasmanian abalone
- A risk assessment of marine biotoxins in abalone (2014)

Codex Input

SafeFish has provided technical input for forty-four technical submissions at Codex (see list below) to support nine Australian delegations at meetings held from 2010 - 2014 (Codex Committees meetings on: Fish & Fishery Products (CCFFP), Food Hygiene (CCFH) and Contaminant in Foods (CCCF)). Technical experts have been supported to attend five of these meetings (CCFFP 2011, 2012, 2013, 2014 and CCFH 2010). A number of the positions that SafeFish provided in the technical papers have been adopted and incorporated into Codex standards at the 2011, 2012 & 2014 meetings. Examples of this success include:

- Achievement of risk based marine biotoxin standards for abalone at Codex rather than mandated across the board biotoxin testing.
- Acceptance by CCFFP of the ‘performance criteria’ approach for marine biotoxin methods. This will allow Australia to choose from a range of internationally acceptable methods rather than one pre-determined method, allowing flexibility to manage marine biotoxins in a cost effective and risk commensurate manner.
- Acceptance by CCFH that Vibrio testing should not be mandated across the board for shellfish, but should be based upon the inherent risk in a particular country.
- Acceptance by CCFH that virus testing should not be mandated across the board for shellfish, but should be based upon the inherent risk in a particular country.

These achievements have helped to save seafood CRC industry participant millions of dollars in unnecessary testing.

The technical briefs that SafeFish have prepared to support Australian delegations at Codex can be found below.

In 2009-2011, SafeFish has developed positions for the following papers:

- November 2009 – Comments on the 'Proposed Draft Annex on the Control Measures for Vibrio parahaemolyticus and Vibrio vulnificus in Bivalve Molluscs (Step 3)'.
- September 2009 – Comments on the 'Proposed Draft Code of Practice on the Processing of Scallop Meat (Section X.2.1.1 Marine Biotoxins)' & 'Proposed Draft Standard for Quick Frozen Raw Scallop Adductor Muscle Meat (Section 5.2)'.
- September 2009 – Comments on the 'Proposed Draft Code of Practice for Crabs (Step 6)'.
- August 2009 – Comments on the 'Proposed Draft Guidelines on the Application of General Principles of Food Hygiene to the Control of Viruses in Food (Step 3)'.
- July 2009 – Comments on the 'Proposed Draft Standard for Live Abalone and for Raw, Fresh, Chilled or Frozen Abalone for Direct Consumption or for Further Processing (Step 3)'.
- September 2011 – Feedback on Guidelines on the Application of General Principles Viruses in Food (Step 3)'.
- September 2011 – Feedback on of Sampling and Testing in International Food Trade'.
- April 2011 – Feedback on the Revision of 'Draft Principles and Guidelines for the Establishment and Application of Microbiological Criteria for Foods'.
- March 2011 – Comments on the Determination of Biotoxins in the Standard for Live and Raw Bivalve Molluscs
- March 2011 – Comments on the Fishery Products (Section on Smoked Fish)'.
- March 2011 – Comments on the Flavoured Fish and Smoke
- March 2011 – Comments on the General Principles of Food Hygiene to the Control of Viruses in Food at Step 3 (Appendix IV)'.
- December 2010 – Comments on the Abalone (Haliotis spp)'.
- December 2010 - Feedback on the Determination of Biotoxins in the Standard for Live and Raw Bivalve Molluscs (Step 2/3)'.
- November 2010 - Feedback on Electronic Working Group '2nd Draft List of Methods for the Determination of Biotoxins in the Standard for Live and Raw Bivalve Molluscs (Step 2/3)'.
- November 2010 – Comments on the 'Priority list of Veterinary Drugs requiring evaluation or re-evaluation'.
- October, 2010 - Comments on the 'Proposed Draft Guidelines for the Establishment and Application of Microbiological Criteria for Foods at Step 3'.

- October, 2010 - Comments on the 'Proposed Draft Guidelines on the Application of General Principles of Food Hygiene to the Control of Viruses in Food'.
- September, 2010 - Comments on the 'Draft List of Methods for the Determination of Biotoxins in the Standard for Live and Raw Bivalve Molluscs (Step 2/3)'.

In 2012-2013, SafeFish has developed positions for the following papers:

- April 2013 - Comments on Discussion Paper on Histamines prepared by the CCFFP out of session electronic working group (eWG)
- December 2012 - Comments on the Second draft from eWG on Methylmercury in fish
- October 2012 - Report from the 32nd meeting of the Codex Committee on Fish and Fishery Products
- September 2012 - Comments on the Proposed Draft Performance Criteria for Screening Methods for Marine Biotoxins
- September 2012: Comments on the Draft Performance Criteria for Reference and Confirmatory Methods for Marine Biotoxins
- September 2012 - Comments on the Guidelines for Control of Viruses in Food
- September 2012 - Comments on Appendix VII Proposed Draft Standard for Quick Frozen Scallops
- September 2012 - Comments on Appendix VIII Proposed Draft Code of Practice on the Processing of Scallop Meat
- September 2012 - Comments on Appendix X Proposed Draft Abalone Standard
- August 2012 - Collation of industry opinion on Optional Final Products

In 2014-2015, SafeFish has developed positions for the following papers:

- January 2014 - Comments on the 'Code of Practice for Smoked fish products'.
- September, November & December 2014 and April 2015 - Comments on the 'Guideline for quick processing and freezing of scallop adductor muscle meat'
- January 2015 - Comments on the 'Guideline on method criteria for marine biotoxins'
- January 2015 - Comments on the 'Guideline for fresh/frozen and live abalone'
- February 2015 - Comments on the 'Development of the standard on food additives'
- November 2014 and February 2015 - Comments on 'Methyl mercury limits in fish'
- December 2014 - Comments prepared on the 'Proposed Draft Guidelines on the Application of General Principles of Food Hygiene to the Control of Foodborne Parasites'.
- February 2015 - Inclusion of Optional final product guidance in the Code of Practice for Fish and Fishery Products
- February 2015 – Facilitated industry response on a survey on GPFH & HACCP systems in processing facilities.

- April 2015 – Facilitated industry review of the JECFA Draft Priority List of Veterinary Drugs.
- November 2014 – Facilitated data collection from industry for the 'Shellfish Call for Data - Elaboration of best practice guidance on the development of shellfish sanitation systems'.

In addition to the technical input at codex meetings, SafeFish also provides considerable input into expert group meetings that are held to further progress the issues nationally. Examples of these can be found below:

- An expert working group was convened by SafeFish in February 2013 to address the issue of Ciguatera in Australian seafood. Ciguatera poisoning is the leading cause of illness associated with Australian seafood, but is extremely difficult to address due in large part to a lack of appropriate, affordable testing methodologies. Current management in Australia is via a management plan developed by the Sydney Fish Markets, but never verified. Experts in ciguatera research, epidemiology and risk management in Australia were brought together to discuss the Australian situation. A research plan was developed to verify this risk management strategy, however a suitable funder for the work has not been identified.
- An expert working group was convened on the 14th October 2014 to address the Codex Discussion paper on Histamine risk management. The working group included representatives from the seafood industry, researchers and regulators in Australia and New Zealand. A response to the Histamine paper was prepared covering maximum levels, sampling plans, and alternative means of risk management.

SafeFish provides significant support to the Australian Shellfish Quality Assurance and Advisory Committee each year. Shellfish are a high risk seafood, require a significant level of food safety risk management. SafeFish ran a Shellfish Quality Assurance Science day on the 15th October 2014, supporting two New Zealand speakers to attend. A series of seminars on the latest science and risk management strategies was presented to a mixed audience of researchers, students, regulators and industry.

Capability Development

SafeFish has played a significant role in developing seafood food safety capability in Australian, by supporting research (as shown above) and through the development of laboratory capability.

SafeFish was instrumental in bringing all Australian marine biotoxin stakeholders together to commission a study on the viability of developing marine biotoxin laboratory services in Australia. Prior to this work there was no laboratory in Australia capable of analyzing seafood for all four toxin groups, and no laboratory in Australia capable of analyzing seafood other than shellfish for any of the toxin groups. Following this study a tender was generated, and a laboratory service created in Sydney. This service is now used by shellfish, rock lobster and abalone fisheries in all Australian seafood producing states and has been critical in managing several incidents involving marine biotoxins

SafeFish has also supported the development of a method for the detection of viruses in shellfish, previously unavailable in Australia at the SARDI laboratories and the development

of a pathogenic library of *Vibrio* species at the same laboratory. This library can be used to determine if any *Vibrio* species detected in seafood are dangerous to consumers.

Emergency Incident Response Management

In recent times there have been two large incidents relating to seafood safety and market access in Australia.

3. Between October and February 2012/2013 a harmful algal bloom affected the east coast of Tasmania resulting in a range of seafood being contaminated with paralytic shellfish toxins.
4. In March 2013 there were ~400 known human cases of gastroenteritis related to consumption of Tasmanian oysters contaminated with norovirus.

SafeFish was heavily involved in the provision of technical advice to a range of stakeholders during both of these incidents. SafeFish produced technical documents to support both events, and played a significant role in providing technical advice to DAFF, state government and industry to management of this event.

Seafood Safety Fact Sheets

In response to food safety incidents that occurred, SafeFish developed two question and answer packages (one for Hepatitis A Virus and one for Scombroid Fish Poisoning) to provide information to help the Seafood Industry understand more about the issues, how they would affected their business practices and to provide them with background knowledge in case they were approached by the media. These were made publicly available on the SafeFish website, was distributed widely to all seafood sectors via email, and where necessary posted to individual processors.

FSANZ Incident Workshop

SafeFish program manager Alison Turnbull was invited to attend and contribute to the National Food Incident Response workshop that was convened by Food Standards Australia, New Zealand and the New South Wales Food Authority on the 25th November 2014. The goal of the workshop was to develop an understanding of the incident management framework, particularly the linkages and identify the established response processes and plans and communication channels across Australia and between industries.

The workshop gave an overview of the Government incidence response policy (Local, State and Commonwealth), and the readiness of each food industry. The importance of strong collaborative networks, identified key contacts, and rapid response was highlighted. Some industries, such as the meat are well prepared, with a clear protocol for action and communication, including identified roles and responsibilities. Since the cessation of Seafood Services Australia the seafood industry does not have an incident response plan, despite two recent events in Tasmania highlighting the potential impact of food incidents and the need for well executed and practiced response plans.

SafeFish highlighted the lack of national food incident response capability at the Seafood Exporters Forum in Canberra on the 26th of November. There was considerable discussion around the need, recent examples of impact, and the importance of a strong reputation for

food safety for both enabling market access and providing market advantage. The forum agreed that a national incident response capacity is necessary to protect our trade – both domestic and export. The Seafood Trade Advisory Group, who hosted the forum have listed the response gap as a priority for their next work plan.

Technical Representation at International Expert Meetings

On occasion, SafeFish was able to provide sponsorship funding for researchers and/or technical representatives to attend meetings, workshops or training events that were of particular interest to SafeFish and had the ability to provide the Australian Seafood Industry with valuable international linkages, information and research. Examples of these can be found below:

UNESCO/IOC Taxonomic Training in Identification & Enumeration of Harmful Algae:

In August 2014, SafeFish provided part-funding for Dr. Ruth Erikson (IMAS) to attend and report back on a training session on 'Taxonomic Identification & Enumeration of Harmful Algae' held in Denmark at the UNESCO/International Oceanographic Commission (IOC) Science and Communication Centre on Harmful Algae. A summary and report of the course was presented to the Australian Shellfish Quality Assurance Advisory Committee in Hobart on the 16th October 2014, and provided the basis for consideration of the requirements for a National proficiency testing program for algal identification services provided to shellfish quality assurance programs.

International Workshop on Shellfish Harvest Area Classification

The 42nd International workshop on shellfish harvest area classification was held in Newport, USA, on the 24th to the 28th September 2012. SafeFish provided funding to support the attendance of Mr. Anthony Zammit – Manager, NSW Food Authority Shellfish Program as a technical expert. A summary and report of the workshop was presented to the Australian Shellfish Advisory Committee to support world's best practice risk management strategies in Australia. The workshop also allowed Australia to have input to the current push internationally to combine both major methods of shellfish quality assurance (water based and shellfish meat based) into one internationally acceptable system.

SafeFish Communication Efforts

Throughout the life of the project, the SafeFish secretariat has coordinated a number of communication efforts to demonstrate and update its stakeholders and the general public of the outcomes and outputs of the research it has undertaken. These are as follows:

Updates and news articles

- Regular updates were provided to the Seafood Access Forum (prior to its closure)
- Regular updates were provided to the Seafood Trade Advisory Group via a quarterly newsletter
- The following articles were published in the Fisheries Research & Development Council Fish Magazine:
    - Algal toxins have little impact on Abalone' (Vol 23, No 1, March 2015)

- ‘Expertise underpins safe fish trade’ (Vol 23, No 1, March 2015)
- ‘Nutrition data to boost consumer confidence’ (Vol 21, No 2, June 2013)

- The following articles were published in the Australian Seafood CRC Seafood Magazine:
  - ‘Pipeline – Straight facts on seafood hazards’ (Issue 11, March 2015)
  - ‘Pipeline – New SafeFish chair’ (Issue 10, October 2014)
  - ‘SafeFish manages industry risks’ (Issue 10, October 2014)
  - ‘Your guide to safe packaged seafood’ (Issue 9, July 2014)
  - ‘SafeFish online’ (Issue 7, September 2013)
  - ‘Super seafood…by the book’ (Issue 6, April 2013)
  - ‘It’s what’s inside that counts’ (Issue 5, October 2012)
  - ‘Keeping the playing field level’ (Issue 5, October 2012)
  - ‘Comprehensive technical advice’ (Issue 4, May 2012)
  - ‘No risk Aussie prawns’ (Issue 3, February 2012)
  - ‘Improving market access after a disaster’ (Issue 3, February 2012)
  - ‘SafeFish – A new resource for the Australian seafood industry’ (Issue 1, June 2011)

Masterclasses, workshops & meetings

- June 2011 – Abalone Expert Consultation Meeting: To provide scientific advice to industry and AQIS regarding the marine biotoxin events in Tasmania.
- June 2011 – Seafood Shelf-Life & Safety Predictor Master Class: A Master Class focusing on teaching Industry, authorities and scientists how to use the computer software such as ComBase, Seafood Safety and Spoilage Predictor and the Oyster Refridgeration Index to manage seafood quality and safety was facilitated in Adelaide, Hobart & Sydney.
- June 2011 – SafeFish Prioritisation Meeting: A technical work programme for SafeFish was developed through extensive consultation with industry, regulators and scientists. This programme was presented to the Partnership members and Technical and Industry expert members of SafeFish and the issues were prioritised in order of importance for progressing.
- October 2011 – Shellfish Safety & Trade Workshop
- November 2012 – ASQAAC presentation: A presentation on Food-borne viruses in shellfish was presented to the ASQAAC committee and participants at the November 2012 meeting. (Cath McLeod, Lina Landinez and Valeria Torok)
- October 2012 – High Pressure Processing Research to Reduce Infectivity of Viruses masterclass: A seminar by NoroCore, University of Illinois, US was held on the 12th of October to present the experiences on shellfish processing to minimize virus infectivity.

- July 2013 - Seafood Packaging Master-Class: The packaging master-class was held on the 24th of July at Multivac's state of the art test facility in Melbourne. The event was well attended by members of the seafood industry who had the opportunity to get their hands dirty using the latest packaging equipment that ranged from entry level machines through to those with automatable high throughput capability. A combination of short presentations and extended practical sessions made the day an enjoyable and useful experience for the attendees.
- June 2013 – Review of the 2012 PST incident in Tasmania: National implications: SafeFish is committed to facilitate constructive discussion on the Australian Shellfish Quality Assurance Program (ASQAP). This meeting comprised state regulators, DAFF and industry. It focused on the recommendations for all Australian regulatory shellfish quality assurance programs from the recently commissioned review of the 2012/13 paralytic shellfish toxin incident in Tasmania.
- May 2013 – Harmful Algal Bloom (HABs) Research Priorities Workshop: SafeFish presented at a meeting held at IMAS Taroona on the 14th May 2013. It was facilitated by Tasmanian Seafood Industry Council to determine priorities in marine biotoxin research for all fisheries in Tasmania.
- May 2013 – Overview on international policy, science, methodology and limitations for foodborne virus testing in shellfish: A meeting was held between SafeFish, industry partners and regulators following the gastroenteritis outbreak associated with shellfish in Tasmania, at Hobart on the 31st May 2013. SafeFish presented information on Norovirus, shellfish related Norovirus outbreaks and management of Norovirus internationally, test methods and limitations. The meeting was attended by over 30 industry members, many of whom had been directly impacted by gastroenteritis outbreaks.
- March 2013 – 9th International Conference on Molluscan Shellfish Safety: SafeFish assisted to facilitate ICMSS in Sydney in March 2013. The conference was attended by over 200 international and national delegates including researchers, regulators and industry. SafeFish work was showcased through a number of presentations.
- March 2013 – International experiences in food-borne viruses in shellfish: A seminar and workshop was held at SARDI from the 25th to the 28th of March to review international practices and methodologies for food-borne viruses in shellfish. Experts from France and Chile presented.
- February 2013 - Ad hoc expert group meeting on Ciguatera Fish Poisoning: SafeFish facilitated an expert meeting in February 2013 to to discuss the document: "A proposal for prospective sampling and analysis of high-ciguatera-risk fish to assess the validity of upper size limit Australian seafood ciguatera risk management guidelines" and to identify other knowledge gaps and research imperatives that can inform ciguatera risk management decisions in the long term.
- October 2014 – Australian Marine Biotoxin Partnership workshop: SafeFish was tasked by ASQAAC to compile a Terms of Reference (ToR) to reinvigorate the AMBP. In the initial program (facilitated by ASQAAC in 2011), the laboratory capability component was achieved; however, the other functions envisaged for the group were not completed. Given that this was identified as a priority in the 2014

SafeFish research program, SafeFish agreed to progress this work and provided draft ToR for comment at the science day. The ToR were received with mixed debate; however ASQAAC supports SafeFish to continue progressing the work by distributing a survey to the science day participants to develop and further define the ToR.

SafeFish Website

The SafeFish website was launched in 2013 to provide easy and free access to food safety and trade information for stakeholders. The website includes access to the following information:

- the vision for SafeFish, key functions it undertakes and core stakeholders
- a description of the technical program, including past reports and current issues
- A media page documenting updates, magazine articles, industry fact sheets, and upcoming events
- an explanation of the international food standards setting process through the Codex Alimentarius Commission, how Australia contributes, and the current standards and guidelines under discussion
- links to other resources on food safety for seafood.
- Visit SafeFish at www.safefish.com.au

4. Discussion

Codex

SafeFish support to the Australian delegates to Codex has proven extremely successful, especially for the Codex Committee of Fish and Fisheries Products (CCFFP), as evidenced by the results obtained. Over the past three CCFFP meetings SafeFish has sent the same representative in order to progress the issues of marine biotoxins in abalone and the criteria for marine biotoxin analysis. This strategy proved highly successful, with Australia leading an in-house working group at the last meeting. The chair of the CCFFP now seeks Australian input prior to and during meetings, and there is good opportunity for Australia to influence standards that are in development.

Industry input into the Codex process is essential, but often difficult to obtain. Issues can be highly technical, and the Codex process is drawn-out and complex. Key to achieving an adequate level of industry input is demonstrating the value of Codex involvement to industry. Thus it is important to maintain good communication and explain the benefits accrued from the process. Maintenance of good databases for key industry contacts, website communication, and offering a wide range of formats for input has shown benefit.

Relationships between SafeFish, Codex Australia, Department of Agriculture and FSANZ have been excellent in the Codex processes. It is essential to invest time in this area. Additional benefits to SafeFish from these relationships are that government agencies are committed to the SafeFish process, and include SafeFish in consideration of national meetings and agendas that may impact on seafood (e.g. the national incidence response network), and input into other areas that SafeFish is working on, such as reviewing SafeFish documents, and providing timely advice on issues of concern for SafeFish stakeholders.

Raising the SafeFish Profile

SafeFish has been developed to service the research and technical needs of the seafood industry as a whole. In order to do this effectively the industry needs to be aware of SafeFish aims, activities, and achievements and to have input into these. The seafood industry is very diverse, with little co-ordinated representation across fisheries. Thus there are many key stakeholders and communication is an essential and significant activity for the program. Key components of this that have shown benefit, particularly in the last few years are:

- The Secretariat offering a diverse range of communication methods and maintaining stakeholder relationships proactively.
- Travel and representation at industry meetings to both raise awareness, report on outcomes and garner information for determining future priorities
- News articles in FRDC and ASCRC publications
- Strong relationships with cross-fisheries organisations where they exist, for example the Seafood Access Forum (when it existed) and the current Seafood Trade Advisory Group.

Engaging an independent chair has also helped raised the profile of SafeFish both internally and externally. The independent chair has brought better governance, and linkages to external stakeholders with a common food safety focus.

Further improvements in communications are likely to arise from recent changes to the SafeFish model of operation that will see better use of FRDC communication channels, and broader representation of the partnership members group.

The ASCRC has played a central role in the success of SafeFish, and in raising the profile with the seafood industry. The ASCRC has provided the strategic overview of the seafood industry and directed SafeFish towards important contacts politically and technically. It is envisaged that the FRDC will play a similar role in the future.

Technical Reports

The co-ordination of the seafood industry has changed over the life span of the SafeFish program, resulting in the need for SafeFish to adapt accordingly. The Seafood Access Forum used to provide advice on prioritisation of projects and help with the dissemination of results. Since their demise SafeFish has run larger prioritisation processes, whilst trying to balance the budget requirements of this and other project needs. A full prioritisation process is currently run every two years, and results used to determine research priorities for the intervening two year period.

The combined use of SafeFish funds for small project work, and the application for grants from outside the SafeFish core budget for larger research projects has allowed SafeFish to achieve a significant volume of research outputs since its inception. These outputs have successfully contributed to the development of industry responses to trade restrictions (e.g. re-opening the EU market following restrictions due to their policy on marine biotoxins in abalone) and have enabled SafeFish to provide strong input to the Codex process (e.g. marine biotoxins in abalone, viruses in shellfish). Other reports have been helpful for incident management and review (e.g. exposure assessment for paralytic shellfish toxins in rock lobster, a review of the east coast *Alexandrium tamarense* event in Tasmania) or for informing the broad seafood industry of food safety risks during events of national significance (e.g. the fact sheets from the Guideline for Seafood Packaging being used in the recent broadcasts in response to the scromboid fish poisoning event in Sydney and the Hepatitis A in berries event).

Emergency Incident Response

The seafood industry currently has no active, co-ordinated response plan for incident management. Whilst SafeFish cannot cover this large and complex area entirely, it has been able to contribute significantly to individual groups and events through the provision of technical advice and through co-ordination of effort.

The relationship that SafeFish has developed with both regulators and industry resulted in it being able to act as a trusted broker between the two during difficult phases of incident management. At present this is an unfunded component of the SafeFish program that requires consideration for future events.

SafeFish would like to see development of a broader industry response plan that includes but is not limited to food safety issues.

Australian Seafood Co-operative Research Centre input into SafeFish

The ASCRC has been central to the success of SafeFish. They have promoted SafeFish to industry and provided guidance over several processes to strengthen the program. In particular, Jayne Gallagher has had substantial input, and has mentored SafeFish members to improve capability in the area of trade and market access. Len Stephens and Emily Mantilla have also assisted in developing an understanding of the seafood industry and through extending the reach of SafeFish into the industry.

5. Benefits and Adoption

The planned outcomes and benefits across the seafood industry from SafeFish have been met as originally proposed. SafeFish has been able to influence international standards to ensure they are risk commensurate and not unnecessarily costly by:

- Avoiding mandated monitoring requirements for marine biotoxins and bacteria in abalone, estimated to cost the abalone industry in excess of AU $23 million per annum for biotoxins alone,
- Avoiding mandatory viruses and vibrio monitoring in bivalve shellfish. Estimates have not been made as to the impact of mandatory testing for viruses and vibrios on the shellfish industry. The shellfish industry is worth approximately AU $1 million per annum. Mandatory testing for viruses alone would significantly severely curtail export from a number of harvest areas in Australia – testing is approximately $3.5k in analysis per test, monthly testing (proposed frequency was unknown) would incur additional $42k in analysis costs alone per harvest area.
- Acceptance of a criteria approach for determining methods of analysis for marine biotoxins, allowing Australia to choose methods that are suitable for our situation. Prior to this standard, only the mouse bioassay was acceptable for marine biotoxin analysis. Australia no longer allows mouse bioassay for regular monitoring due to ethical reasons. Additionally, mouse bioassay analysis in Australia was only available for paralytic shellfish poisons in bivalve shellfish (limited service). Other toxin groups and other seafood species could not be measured locally and had to be exported to New Zealand for analysis. Acceptance of the criteria approach has protected our trade and market access for bivalve shellfish, abalone and rock lobster, worth a combined value of AU $750 million per annum.
- SafeFish has had input into standards that influence international trading requirements for many fisheries, ensuring those standards are representative of Australian practices and therefore do not create trade hurdles for exporters (e.g. the Standard and Code of Practice for smoked fish, the Standard and Code of Practice for Scallops, Food additives, and Histamine control).

Several technical reports produced have supported industry to argue with trading partners for improved market access, for example, the initial report into paralytic shellfish toxin uptake by abalone supporting the re-opening of trade with the European Union in 2010. Prior to removal of access in 2007, this trade was valued at AU $7million per annum.

Reports for other fisheries are available should trade become an issue, e.g. the risk assessments for Cadmium in prawns, parasites in fish, and marine biotoxins in abalone. Some reports are currently in use to inform industry response to incident management (e.g. exposure assessment of paralytic shellfish toxins in rock lobster) or to potential negative publicity campaigns (e.g. Mercury in Australian Seafood).

A significant benefit from the program has been the development of capability in Australia. We now have:

- An ability to influence international standard development for food safety issues related to seafood

- Laboratory capability for analysing the main four groups of marine biotoxins in all seafood, viruses in shellfish, pathogenic vibrios in seafood
- Improved research capability to address food safety issues domestically and those that impact on trade and market access
- Networking between all stakeholders, resulting in improved relationships between industry and regulators, and between fisheries.

SafeFish has also been working closely with the bivalve shellfish industry through the Australian Shellfish Quality Assurance Program. We have supported the Chair of the Australian Shellfish Quality Assurance Advisory Committee, organised science days between industry, regulators and researchers, provided advice for policy development and funded attendance at an international workshop on sanitary survey. SafeFish was a key supporter enabling Australia to host the International Conference of Molluscan Shellfish Safety in Sydney in 2013. This support strengthens the ASQAP, encouraging world's best practice for domestic production, and underpinning market access for exports.

SafeFish products are also available on the web for industry and public use. Recent statistics have shown that there has been good visitation to the site (on average 50-60 hits per week) and the reports and resources that are available have been very popular.

6. Further Development

SafeFish has examined potential future models of operation, and canvased stakeholders as to whether or not the program should continue in the future, and if so in what form. A review of potential business models was commissioned and examined three possibilities: a wholly owned entity of government, a commerciall partnership between government and the seafood industry, and a full commercial fee-for-service model. The recommendation was for SafeFish to transition to a commercialised partnership model of operation where key stakeholders contributed financially to the program and the FRDC matched this contribution and added additional funds for the public good component. The business model review is attached as Appendix 3.

Industry partners have been supportive of a continuation, and have pledged financial support through the FRDC process. SafeFish will continue from 1 July as an FRDC project. It will continue to take a partnership approach, working with state and federal government agencies, industry and researchers to meet industry and public health needs into the future. The new business model will result in SafeFish working closely with key industry bodies that are funding the program, and with other industry representative groups such as the Seafood Trade Advisory Group, the New Zealand seafood industry and the seafood importers association.

7. Planned Outcomes

Public Benefit Outcomes

- Increased stakeholder relationships leading to better food safety outcomes
- Increased market access for seafood
- Increased capability for seafood food safety response and research

Private Benefit Outcomes

- Decreased individual business risk by addressing food safety issues as a collective approach
- Decreased regulatory cost due to unnecessary regulation and testing

Linkages with CRC Milestone Outcomes

- Milestone 2.2.4: Diagnostic technologies and capabilities developed for at least one chemical or residue hazard to support technical market access of Australian seafood.
- Milestone 2.2.6: Technology and capability developed to support industry access to timely diagnostic services underpinning quality and integrity claims.
- Milestone 2.4.3: Integrated health benefit and risk assessment methodology accepted internationally and available for use with standard-setting, market access negotiations and “clean and green” claims and for differentiating Australian product in premium price markets.
- Milestone 2.4.4: Additional completed, internationally reviewed, integrated health benefit and risk assessments available for market access negotiations and for consumer risk advisories

8. Conclusion

In conclusion, SafeFish has met and exceeded all of its original objectives and milestone directives. The list of outputs is significant and the planned outcomes have been achieved in full. We have provided technical information and research that has underpinned improvement for domestic production, current market access and improved access to new markets for Australian seafood.

SafeFish has been able to achieve a high level of input into Codex processes to ensure the Australian position is reflected during standard and policy development. This input has resulted in significant savings to the Australian seafood industry through the avoidance of mandatory testing for several food safety issues, and ensured continued market access in other areas.

The benefit to industry is well recognised. This is evidenced through on-going industry support and funding pledges into the future through the FRDC process. As the new business model of SafeFish emerges, SafeFish will need to adapt, with a new governance model and potentially a new modus operandi. Key strategies however will continue, particularly strong communication with stakeholders, and a coordinated approach to trade and market access issues.

9. References

SafeFish website: http://safefish.com.au/

10. Appendices

Appendix I: Intellectual Property

Not applicable

Appendix II: Staff

- Dr. Anne Astin, Independent Chair

SARDI Food Safety & Innovation

- Alison Turnbull, Program Manager
- Natalie Dowsett, Executive Officer
- Navreet Mahli
- Jessica Tan
- Dr. Stephen Pahl
- Dr. Tom Madigan
- Dr. Valeria Torok
- Dr. Kate Hodgson
- Dr. Cath McLeod (ex staff member)
- Dr. Andreas Kiermeier (ex staff member)
- Dr. Andrew Pointon (ex staff member)
- Lina Landinez (ex staff member)
- Dr. Ian Stewart (ex staff member)
- Sutasinee Antantanawat (ex staff member)

Appendix III: Business Model Proposal

- SafeFish Business Model Review can be found on the FRDC website here: http://www.frdc.com.au/project/2009-752_10