SOUTH AUSTRALIAN RESEARCH & DEVELOPMENT INSTITUTE
PIRSA

OVERSEAS TRAVEL REPORT

For travel to Brussels, Belgium
22nd to 30th January 2017

Dr Stephen Pahl
Food Safety and Innovation
Livestock and Farming Systems

Executive Summary
Dr Stephen Pahl of SARDI Food Safety and Innovation from the Division of Livestock and Farming Systems travelled to Brussels, Belgium from 22nd January 2017 to 30th January 2017. The purpose of the trip was to attend the ECSafeSeafood Final Conference to exchange knowledge on emerging seafood hazards and develop opportunities for collaboration with European food safety experts. The trip was funded by SafeFish to assist the partnership develop knowledge and build capability to overcome emerging seafood hazards in Australia. The ECSafeSeafood project involved 18 partners from 10 countries and assessed food safety issues related to non-regulated contaminates present in seafood as a result of environmental contamination and evaluated their impact on public health. The principle research activates of the program focused on:

- developing new and effective tools to perform more effective seafood risk analysis and a more accurate risk assessment
- developing fast screening detection methods of contaminates in seafood
- development of common food safety, public health and environmental policies and measures
- improving the knowledge of priority contaminants in marine organisms, and the assessment on the potential impacts of these pollutants in the environment.

Dr Pahl also attended the 'Food Safety in the EU: Fostering Innovation and Securing Consumer Protection throughout the Agri-Food Chain' symposium. Nine speakers delivered high-level presentations which focussed on evaluating the European legislative framework on food and feed safety, towards more sustainable agri-food chain through reducing food waste and improving overall sustainability of production processes, fostering innovation in the agri-food industry, and exploring the scope of consumer protection and food controls in the EU.

A theme that was continually repeated across the sessions is that whilst there are some hazards associated with the consumption of seafood with potential to impact on human health, seafood is generally recognised as a nutritious, healthy and safe food. There is however, a need for continual development of robust risk-benefit analysis and to help manage against the human health impacts from environmental contaminates future assessments will need to assess mixtures of contaminates.

Dr Pahl gained a strong understanding of the current areas of research activity in the EU to help manage emerging seafood hazards and made valuable contacts for future collaboration and technical exchanges. Follow up work will include monitoring scientific outputs from the ECSafeSeafood program, strengthening networks with key EU contacts and investigating pathways to establish effective collaboration opportunities.

Introduction/Background

South Australia's Strategic Plan has a target of growing the contribution made by the food industry to $20 billion by the year 2020. This travel will contribute to achieving the South Australian Government's target as it allows for information exchange between PIRSA/SARDI, researchers and industry members and may help protect against emerging seafood hazards which can impact food safety and market access. The travel was supported by the Fisheries Research and Development Corporation through the SafeFish project.

Dr Stephen Pahl was requested by SafeFish to attend the ECSafeSeafood final conference. The aim was to exchange knowledge on emerging seafood hazards and develop opportunities for collaboration with European food safety experts. This follows Dr Pahl's involvement in a recent SafeFish review of emerging seafood issues and hazards and prioritisation of its technical work program in order to help provide the best outcomes for the Australian seafood industry. Dr Pahl also attended the Food Safety in the EU: Fostering Innovation and Securing Consumer Protection throughout the Agri-Food Chain symposium which contained presentations on topics of interest for the SARDI Food Safety and Innovation research program.

Opportunities and Value Assessment

Benefit to SARDI, PIRSA and SA from the travel

Aim:
This overseas travel has contributed to improving the scientific R&D capability and expertise of SARDI through investment in profession development of its workforce. Developing and retaining an innovative research community is a key platform in the State Strategic Plan

The knowledge gained through this travel has assisted in mitigating against emerging food safety risks of the States seafood resources and directly address objectives of the South Australian Strategic Plan, especially the Premium food and Wine from our Clean Environment aim. It contributes to the five blocks of the PIRSA corporate plan, namely:

- Building capacity, through staff development to support the seafood industry to produce safe and wholesome food
- Securing production through protection of trade and market access by ensuring international regulations are commensurate with risk in the Australian context
- Expanding markets, through investigation potential access to new markets, and alleviating unnecessary barriers
- Growing regions as most seafood production occurs in regional areas
- Performing well, the SARDI led SafeFish program is a national leader in food safety of seafood.

Outcome:
This travel has provided valuable insight for Dr Pahl into the food safety issues of priority contaminants present in European seafood and their potential impacts on public health. The travel has allowed Dr Pahl to begin building networks with several European researchers which may lead to effective collaboration between SARDI Food Safety and Innovation and European research organisations.

Value from attending the Food Safety in the EU: Fostering Innovation and Securing Consumer Protection throughout the Agri-Food Chain symposium

Nine high level presentations were delivered by senior European policy advisors, researchers, industry representatives and a parliamentarian on European legislative

framework on food and feed safety, sustainable agri-food production, fostering innovation and consumer protection. A summary of the presentations are below.

Dr Ladislav Miko, Deputy Director General for Food Safety, DG SANTE, European Commission

Key points

- 88 million tonnes of food are wasted annually in the EU, estimated at 143 billion Euro. Target 12.3 of the Sustainable Development Goals lead by the United Nations is by 2030 to halve per capita global food waste at retail and consumer levels and reduce food losses along production and supply chains.
- EU Platform on Food Losses and Food Waste was launched on 29 November 2016. Initiative aims to reduce food waste at each stage in the supply chain, monitor food waste levels and report back on progress. Guidelines needed to facilitate food donations, optimise the safe use of food in feed, and promote better undertaking and use of date markings.
- European Commission have recently released the foresight study report "Delivering on EU Food Safety and Nutrition in 2050 – future challenges and policy preparedness". The EU legislative framework is considered robust and appropriate, however greater use of risk-benefit approaches and proactive early warning systems for emerging hazards should be considered.

Dr Tobin Robinson, Head of Unit – Scientific Committee and Emerging Risks, European Food Safety Authority (EFSA)

Key points

- Provided overview on EFSA and how it operates and its mandate to provide food and feed safety advice to its principle partners, stakeholders and the public at large in a clean and accessible way.
- Summary of new challenges and threats, including the evaluation of the safety of new products (e.g. novel foods), antimicrobial resistance, chemical mixtures/combined toxicity of substances in food, and hazards linked to globalisation (e.g. plant pests, animal diseases, vector-borne diseases)

Ms Hélène Simonin, Director Food, Environment & Health, European Dairy Association

- Provided overview of the European Dairy Association's strategy on improving sustainability and reducing food waste.

Mr Pekka Pesonen, Secretary General, Copa Cogeca

- Copa Cogeca represents a large number of European farmers and agri-cooperatives. Mr Pesonen spoke about market requirements, avoidable and non-avoidable waste and losses, and provided an overview on initiatives being undertaken by several members to reduce food waste and loss.

Ms Maeve Howe, Sustainability Policy Adviser, European Community of Consumer Cooperatives (Euro Coop)

- Provided overview on Euro Coop and why retailers have a significant responsibility in improving sustainability.

Ms Kate Trollope, Editor, EU Food Policy

- Spoke about European policy on novel foods and GMOs.

Mr Jim Bracken, Sustainability Director, GSI

- Provided insights into how data-based technologies can be used for product traceability, support sustainability and efficiency within the supply chain.

Dr Renate Sommer, Member of the European Parliament

- Provided information of some of the current food labelling issues or concerns, including allergens, unintentional contaminates, country of origin and presentation of products nutritional information.

Mr Guilherme Serodio, Project Manager, Consumer Revolution (CoRe)

- Provided information on CoRe; a start-up organisation that aims to provide a platform (mobile app) that collects information from a variety of sources and develops customise alerts for users on themes that they care about (i.e. nutritional, social, environment etc.).

Value from attending the ECSafeSeafood final conference

Two day conference consisted of an international stakeholder event that provided an overview of the main achievements from the ECSafeSeafood project and scientific presentations from six keynote and 24 oral speakers, and 23 poster presentations. The ECSafeSeafood project involved 17 institutions from nine European member states (Belgium, Denmark, France, Ireland, Italy, the Netherlands, Portugal, Solvenia and Spain), and one associated country (Norway). Further details available from http://www.ecsafeseafood.eu/. The principle research activities of the ECSafeSeafood project focused on:

- developing new and effective tools to perform more effective seafood risk analysis and a more accurate risk assessment
- developing fast screening detection methods of contaminates in seafood
- development of common food safety, public health and environmental policies and measures
- improving the knowledge of priority contaminants in marine organisms, and the assessment on the potential impacts of these pollutants in the environment.

The conference was opened by Dr António Marques (ECsafeSEAFOOD Coordinator and senior researcher from the Portuguese Institute of the Sea and the Atmosphere), Dr Tobin Robinson (Head of the Scientific Committee and Emerging Risks Unit, European Food Safety Authority (EFSA)) and Dr Frank Swartenbroux (DG Health and Consumers, European Commission). During the opening remarks it was stated that the benefits from consuming seafood are widely undisputed and often need reinforcing. It was also highlighted that existing chemical contaminate legislation are predominantly based on assessments undertaken on individual substances; although there is increasing concern about the potential adverse effects when multiple chemicals are present. Chemicals can act independently, synergistically or antagonistically and consequently robust risk-benefit assessments are needed.

It was also stressed that projects such as the ECSafeSeafood provide expert scientists in the relevant fields. Through the ECSafeSeafood project a number of seafood safety resources have been developed including three safe seafood guides for consumers, industry and policy makers, a seafood contaminants database and FishChoice, an interactive online tool that provides risk-benefit information. Other major outcomes from the project include validated rapid detection methods for marine biotoxins (azaspiracids and tetrodotoxins), antibiotics (sulphonamides) and tetrabromobisphenol A. Numerous scientific articles have been published as a result of the research including special issues in Environmental Research (2015; Vol 143 Part B) and Food and Chemical Toxicology (2017; Vol 104).

The following summarised a number of presentations.

Occurrence of flame retardants in European seafood and consumer risk assessment

Oscar Aznar-Alemany, Institute of Environmental Assessment and Water Research, Spanish Council for Scientific Research

- Provided summary of findings from study that investigated the concentration of various flame retardants from 42 fish samples representing 10 species. Details of the findings are published in Food and Chemical Toxicology (http://dx.doi.org/10.1016/j.fct.2016.12.034)

EUToxRisk and development of integrated testing strategies for chemical safety assessment
Bob van de Water, Project Coordinator, EU-ToxRisk

- The €30M EU-ToxRisk project funded through the EU Horizon 2020 program that aims to deliver testing strategies to enable reliable animal-free hazard and risk assessment of chemicals. Focus is on the assessment of repeated dose toxicity using human cell lines, and developmental and reproductive toxicity.

Bioaccessibility of contaminants of emerging concern in raw and cooked commercial seafood species: insights for food safety risk assessment
Ricardo Alves, Portuguese Institute for the Sea and Atmosphere

- Provided summary from a preliminary assessment of the bioaccessibility of contaminants of emerging concern, including perfluorinated compounds, brominated flame retardants, pharmaceuticals and personal care products from a number of seafood species available in the European market. It was reported that it is the first know research where the effects of steaming on the bioaccessibility of these contaminants had been investigated. Bioaccessibility was variable depending on the contaminant, seafood type and if the seafood was raw or cooked (steamed). Details of the findings are published in Food and Chemical Toxicology (https://doi.org/10.1016/j.fct.2017.01.029).

Risks to shellfish food safety from Tetrodotoxins in the UK
Andrew Turner, Centre for Environment, Fisheries and Aquaculture Science, UK

- Presented findings from 2013-2016 shellfish screening program from around the inshore waters in the UK Presence of tetrodotoxin potentially linked to presence of *Vibro parahaemolyticus*. Intention that future research will investigate detection and impacts of Vibros more regularly.

The influence of microplastic inclusion in feed on carryover of environmental pollutants from feed to seabass and salmon
Kit Granby, National Food Institute, Technical University of Denmark

- Investigation completed under very controlled conditions which may not be translational. Studied the uptake and elimination of the brominated flame retardants (hexabromocyclododecanes, polybrominated diphenyl ethers) and polychlorinated biphenyls (PCBs). Experimental setup allowed a long time for the diffusion of the chemical contaminants into microplastic particles. Diets contained 2% microplastics. Short exposure time during ingestion by the fish may limit diffusion out of the microplastics. Expected that in nature the chemical transfer from microplastics ingested by fish will be overwhelmed by background levels from natural feed and water.

Effects of cooking on levels of contaminants of emerging concern in commercial seafood
Vera Barbosa, Portuguese Institute for the Sea and Atmosphere

- Presented summary of findings from a preliminary assessment of the concentration of contaminants of emerging concern. Concentration of contaminates generally increased after cooking. Analyses has not considered the changes in water content. Most detection levels were near the limit of quantification. The extent of changes in the contaminate concentrations were dependent on species and contaminant.

Effects of depuration on metal levels of bivalves species
Patrícia Anacleto, Portuguese Institute for the Sea and Atmosphere

- Studied the effectiveness of depuration on the concentration of mercury, cadmium, lead and arsenic in three bivalve species (*Ruditapes philippinarum*, *Mytilus galloprovincialis* and *Scrobicularia plana*). The effectiveness of depuration is dependent on the duration of the depuration process, metal and bivalve species. Depuration was effective in reducing concentrations of lead in all three species. Details of the findings are published in Food Control (https://doi.org/10.1016/j.foodcont.2014.07.055).

Travel Objectives

The objective for Dr Pahl to attending the ECSafeSeafood final conference and the Food Safety in the EU: Fostering Innovation and Securing Consumer Protection throughout the Agri-Food Chain symposium was achieved. Dr Pahl gained information on the priority research areas, methodologies, initiatives and key findings from research undertaken within the European Union. Dr Pahl spoke to numerous leading scientists and representatives from food safety agencies regarding the emerging seafood hazards.

Trip Details, Activities and Key Observations

Date	Nature of activity	Comment
22/01/2017 23/01/2017	Travel to Brussels, Belgium	ADL-DXB-BRU
24/01/2017	Attended the Food Safety in the EU: Fostering Innovation and Securing Consumer Protection throughout the Agri-Food Chain symposium	High level presentations from European policy advisors, researchers and industry representatives on European legislative framework on food and feed safety, sustainable agri-food production, fostering innovation and consumer protection.
25/01/2017	Attended day 1 of the ECSafeSeafood conference	International stakeholder event which highlighted the main achievements from the ECSafeSeafood project and detailed scientific presentations that focused on consumer interactions, and developments in detection and prediction of marine toxins
26/01/2017	Attended day 2 of the ECSafeSeafood conference	Detailed scientific presentations that focused on toxicity and modelling tools, development of rapid detection systems, identification and characterisation of contaminants and emerging

		approaches for future seafood safety.
27/01/2017	Annual leave day	
28/01/2017	Weekend	
29/01/2017	Return travel to Adelaide	BRU-DXB-ADL
30/01/2017		

Action Details

- Stephen Pahl to share a copy of the program and biographies of presenters from the Food Safety in the EU: Fostering Innovation and Securing Consumer Protection throughout the Agri-Food Chain with other staff from SARDI Food Safety and Innovation.
- Stephen Pahl to share a copy of the book of abstracts from the ECSafeSeafood final conference with other staff from SARDI Food Safety and Innovation.

Contacts

Dr Ladislav Miko
Deputy Director General for Food Safety,
DG SANTE, European Commission

Dr Tobin Robinson
Head of Unit – Scientific Committee and Emerging Risks
European Food Safety Authority (EFSA)

Ms Hélène Simonin
Director Food, Environment & Health
European Dairy Association
hsimonin@euromilk.org

Mr Pekka Pesonen
Secretary General
Copa Cogeca
pekka.pesonen@copa-cogeca.eu

Ms Maeve Howe
Sustainability Policy Adviser
European Community of Consumer Cooperatives (Euro Coop)
mhowe@eurocoop.coop

Ms Kate Trollope
Editor
EU Food Policy
Kate.Trollope@Eufoodpolicy.com

Mr Jim Bracken
Sustainability Director
GSI
jim.bracken@gs1.org

Dr Renate Sommer
Member of the European Parliament

renate.sommer@europarl.europa.eu

Mr Guilherme Serodio
Project Manager
Consumer Revolution (CoRe)

Dr António Marques
ECsafeSEAFOOD Coordinator
Portuguese Institute of the Sea and the Atmosphere
amarques@ipma.pt

Dr Frank Swartenbroux
Administrator, DG Health and Consumers
DG SANTE, European Commission

Oscar Aznar-Alemany
Institute of Environmental Assessment and Water Research
Spanish Council for Scientific Research
oaaqam@cid.csic.es

Bob van de Water
Project Coordinator, EU-ToxRisk
Leiden University
water_b@lacdr.leidenuniv.nl

Ricardo Alves
Portuguese Institute for the Sea and Atmosphere
ricardo.alves@ipma.pt.

Andrew Turner
Principle Chemist
Centre for Environment, Fisheries and Aquaculture Science, UK
andrew.turner@cefas.co.uk

Kit Granby
National Food Institute
Technical University of Denmark
kgra@food.dtu.dk

Vera Barbosa
Portuguese Institute for the Sea and Atmosphere
vera.barbosa@ipma.pt

Patrícia Anacleto
Portuguese Institute for the Sea and Atmosphere
panacleto@ipma.pt

Approved by Manager
(date)