

Australian Seafood Industry Response to a Carbon-Based Future Summary

MISA Symposium at AMSA 2009 National Conference - 9 July 2009

Symposium Abstract

The Australian Seafood Industry needs to respond to the emerging Climate Change agenda, providing both challenges and opportunities. Industry needs to ensure it identifies the climate change drivers and future "landscapes" that will impact on it and how to best respond in the areas of mitigation, adaptation and opportunities. The 2007 COAG endorsed National Climate Change Adaptation Framework and draft National Climate Change and Fisheries Action Plan seek to establish the policy framework to address these issues. The MISA sponsored symposium seeks to advance and facilitate coordination of the available science required to inform this framework.

Summary

At the Australian Marine Science Associations National Conference, seven of Australia's leading researchers met at the MISA sponsored Symposium and discussed the many challenges presented by climate change and the tools and knowledge being developed to help industry adapt. The Symposium brought together some of the available science that can assist in identifying the climate change drivers and future 'landscapes' in which seafood industries will potentially be operating. The impacts on seafood industries and strategies for responding to them in the areas of mitigation, adaptation and future opportunities were also discussed.

Key-note speaker, **Professor Anthony Cheshire**, who's talk entitled 'Sea change in response to climate change: impacts, risk and opportunities for industry in a carbon-constrained future' said that finding opportunities with a carbon-constrained market place may well provide the edge that seafood businesses need to survive. The seafood industry needs to refine and, in some cases, redefine production systems. It also needs to develop a clear understanding of the international, national and local context of both climate change and the business rules of a carbon-constrained market place. Pressure will come in the short term from issues such as a direct cost on carbon emissions and the use of non-tariff trade barriers such as carbon labelling where producers are required to document the carbon footprint of their products on packaging. This will have a direct impact on market access and consumer acceptance. In the medium to longer term, industry has to respond to the physical impact of climate change, not only on their own business operations but also on their markets and suppliers.

In the next presentation, **Associate Professor John Middleton**, the inaugural MISA scientist, reminded us that although oceans dictate climate, little is known about ocean currents and the fundamental planktonic ecosystems they support and which sustain our valuable fisheries and aquaculture industries. In his talk 'The biophysical landscape of the southern Australian shelves: measurement, modelling, climate and climate change', John discussed the progress being made in a world-leading study using the Southern Australian Integrated Marine Observing System (SAIMOS). This national initiative is now providing data to understand the climate of ocean biophysical systems and

thus has the capacity to monitor the effects of climate change. Scientists from SARDI Aquatic Sciences and Flinders University are now developing a hydrodynamic and biogeochemical modelling facility to put this data to work to provide scenario studies of possible climate change and impacts on both the shelves and gulfs for the SA region and eastern Victoria.

Dr Gretta Pecl, the 2009 Tasmanian Fulbright Tasmania Scholar, is a Research Fellow leading several projects within the Climate Change Theme at the Tasmanian Aquaculture and Fisheries Institute, and a Research Fellow on the Adaptation Research Network for Marine Biodiversity and Resources. Gretta presented an overview of the potential impacts of climate change on Australia's fisheries resources, and highlighted some of the challenges unique to this sector before emphasising some key messages from a recent case study that have broad relevance on a global scale. In her presentation 'Climate change impacts and the challenges associated with developing adaptation options for Australia's fisheries' Gretta said that our understanding of the current and potential impacts of climate change, particularly in the marine context, has not moved at the same rapid pace as increasing public awareness and acceptance of climate change as a major issue. Gretta emphasised the need for effective knowledge exchange between industry, researchers and policy makers, giving an example of REDMAP, an interactive website where commercial, recreational fishers and scuba divers report sightings or catches of species outside their normal distributions.

The next presentation was given by **Peter Fairweather**, Professor of Marine Biology at Flinders University and a quantitative ecologist with more than 30 year's experience. His research interests span the ecology of coastal environments and, in particular, the assessment of human impacts on biotic assemblages. Using an example of a fishery from the Coorong in his presentation 'Predicting changes to seascapes under future climate, with the Coorong as a case study', Peter emphasised that the need for well informed managerial decisions, such as the allocation of fishing effort, will be vital if the seafood industry is ready to adapt to climate change before its impact reduces the industry's sustainability. Using models produced for the Coorong Lower Lakes and Murray Mouth ecology program to describe the ecosystem states of the Coorong and Murray Mouth, the likely implications of a range of climate change and management scenarios to highlight the potential impact on commercial fishing opportunities were predicted. They showed that over the next 20 to 50 years, tropical elements will expand in range but cold-temperate communities will contract or disappear altogether from South Australia.

Associate Professor Corey Bradshaw is a conservation ecologist who uses mathematics and biological data to examine and understand the ways in which species respond to changing environments. A Research Director at the University of Adelaide's Research Institute for Climate Change and Sustainability, Corey is a joint MISA appointment with SARDI Aquatic Sciences. In his presentation 'Predicting impacts of climate change on south Australian aquaculture: risk

assessment, business susceptibility and ecological assays', Corey asked what are the real and potential effects of climate change on aquaculture in southern Australia? To this end Corey is developing a world-first document that draws together information about physiological tolerances of the most susceptible life stages of farmed species to changes in temperature, salinity, pH, chemistry and nutrients. Corey said the coastal and inshore waters of south-eastern Australia have experienced some of the greatest changes in recent years in the Southern Hemisphere. The knowledge that will be gained from this project extends well beyond aquaculture in Australia. It has major implications for understanding the response of wild fishes and for marine biota in general.

Dr Rick Fletcher, Principal Scientist Marine Policy, gave a presentation entitled 'Use of risk assessment within an ecosystem-based fisheries management framework to provide practical advice on the management priorities generated by climate change'. In it, Rick described methods to assess the potential long term risks of climate change facing marine ecosystems, habitats and target fisheries species that have been developed by the Department of Fisheries, Western Australia. He discussed how these risks can be integrated into leading edge Ecosystem Based Fisheries Management systems. Western Australian trials are looking to ensure that ecological, social and economic needs will be met as climate change takes hold.

The final presentation was given by **Dr Peter Hayman**, who leads SARDI's Climate Applications Unit which is highly regarded as a pioneer in climate applications science and leading-edge training and marketing of climate applications tools. Peter and his team work closely with decision makers in grains, viticulture and natural resource management to help them assess and manage climate risk in agricultural systems. Peter's presentation 'Applying Techniques for Climate Change in Agriculture to the Sea', shared insights from this dynamic field, including dealing with uncertainty, the difficulties in identifying key vulnerabilities and impacts and the dangers of over-estimating or under-estimating future adaptive capacity. Peter said there was much to be learned from how we are already managing current climate variability for future change, particularly within the wine and farmland industries.

The Symposium finalised with a 40 minute open discussion pane session involving all speakers. There were plenty of questions from the audience.

Post Symposium Comments

Comment 1:

"I found the session very interesting, informative, terrifying but was disappointed in the attendance, particularly for the panel at the end. The room should have been packed; obviously folk had other sessions to attend but this issue should have attracted a full house.

There was also no discussion/resolution as to next steps. One of the biggest questions is how do we communicate what is without doubt the most important issue of our



Presenters at Symposium: (back row) John Middleton, Gretta Pecl, Rob Lewis, Peter Fairweather, Anthony Cheshire; (front row) Peter Hayman, Corey Bradshaw, Rick Fletcher.

time to the general public. We can have all the "in-house" discussions we like but if there is no plan to get it out there amongst the voters and thence to the politicians, then we are wasting our breath. What is the plan from here? Perhaps get the speakers and other interested parties around a table and thrash out a national strategy which might include:

1. Get and maintain the general public's attention: A Climate Rescue Roadshow? Not a one-off stunt but a continuing program of talks and discussions with the general public throughout Australia.
2. A website along the lines of the Tasmanian effort? With attached blog and links to critical information.
3. Both of the above?"

Comment 2:

"The symposium was quite informative and the spectrum of speakers was quite appropriate given the broad range of influences this topic has. The information provided during these lectures was quite informative in that it gave me an understanding of the likely issues that will face us and also the scope of these issues from various perspectives. It was also useful that this information was quite interconnected between the various speakers as this gave an understanding that the information provided would bring out the big issues and we could then take this information away knowing that it has been identified on several levels. I now know what the impacts associated to our industry will be and I guess the next part will be adapting to these changes and managing our industry accordingly. It will be very useful to be informed and involved if possible with any approaches or movements that result from this campaign as things progress as I am sure they will be very beneficial to our division."

Further Information

Visit www.misa.net.au

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