

# How good is science!?

EIANZ ANNUAL CONFERENCE

ONLINE 9, 10, 16 & 17 November 2021

## DAY FOUR | ROOM ONE

### HOW GOOD IS SOCIAL SCIENCE?

How good is 'Social Science'? Integration of social impact considerations can add considerable value to a project in business case development, planning, construction, operations, and into closure and transition phases where relevant. Social science practitioners recognize that, through the application of rigorous social research approaches and methods, improved project outcomes can be achieved that more closely meet community needs, align with community values, and result in better social outcomes and benefits at local and regional levels. This session draws on the perspectives of a range of social practitioners across Australian and New Zealand who are applying rigorous practices to improve the integration of social data and insights. These practices include innovative mechanisms and processes to enable the voices of stakeholders and communities to genuinely influence the identification, assessment, monitoring and management of social issues. If you are interested in participating in the session, please outline your objective and purpose – what was your key challenge? Please describe and reflect on how you have used social science approaches and processes to facilitate key project, operational, and social outcomes.

### SPEAKER BIOGRAPHY



#### **DR SHERIDAN COAKES** Social Scientist

Dr Sheridan Coakes is a Social Scientist with a PhD in Psychology and has over 25 years' research and applied experience in the areas of social impact assessment, stakeholder engagement and community involvement. As a leader in her field, Sheridan has developed and refined a comprehensive approach to Social Impact Assessment practice that has been applied in numerous large-scale public and private sector development projects across Australia, in diverse sectors such as forestry, mining (open cut and underground), quarrying, oil and gas, renewable energy and linear infrastructure development. In the mid-1990s, Sheridan held a key role with the Commonwealth Government in the application of SIA in resource policy development. In 1997, she established Coakes Consulting, a specialist consultancy developed to address social and community issues within a resource management context. She currently holds the position of National Social Practice Lead with Umwelt Australia and is also a Convener of the SIA Community of Practice for EIANZ. Sheridan has a deep knowledge of planning legislation and policies and has worked in a range of planning contexts. She has a strong understanding of the 'public interest' and frameworks for integrating social evidence and issues into decision-making. In April 2021, Dr Coakes was appointed to the Independent Planning Commission on a three-year term.



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#### THE LIMITATIONS OF SCIENCE IN CUMULATIVE IMPACT ASSESSMENT

**AUTHOR:** Bryan Jenkins

Three case studies from water management in Canterbury are considered where there were limitations of science in assessing whether further development would exceed sustainability limits. The Lynton Dairy consent application for water from the Rakaia-Selwyn Groundwater Zone represented about 2% of total water consented in the Zone which was considered fully allocated. The allocation limit was based on flow reductions in groundwater-fed streams. However, the Council's decision to decline was challenged in the Environment Court which granted the consent on the basis that flow measurements have an uncertainty of +/- 5%, thus there was no "probative evidence" of an adverse effect. The nutrient loading of land use intensification in the Ahuriri catchment affected the trophic status of Lake Benmore. Initial modelling indicated a catchment load of 173 tN/y compared to a limit of 256 tN/y for the lake to remain oligotrophic, i.e., implying some capacity for further intensification. However refined data used in later modelling revealed a nitrogen load of 253 tN/y and lake modelling was underpredicting nutrient concentrations, thereby indicating no capacity for further intensification. A cap on the annual nitrogen load for the Hurunui catchment was set at the current annual-average-load of 693 tN/y to manage periphyton growth in the river. However, there was a large annual variation (between 445 and 981 tN/y) and periphyton growth was not only related to nitrogen load but also the period between flushing flows in the river. Historically, the greatest periphyton cover occurred when the annual load was only 521 tN/y. To address the limitations of science, Canterbury introduced collective management responsibility for outcomes of cumulative effects. Farmer collectives need an approved Environmental Management system that defines water quality outcomes which are translated into individual Farm Environment Plans. Measurements of performance in relation to EMS outcomes and FEP actions are independently audited.

### SPEAKER BIOGRAPHY



**BRYAN JENKINS** Sustainability Strategist

Bryan is a sustainability strategist. He is an adjunct Professor at the University of Adelaide. Previously he was Professor, Strategic Water Management at the Waterways Centre for Freshwater Management, a joint centre of the University of Canterbury and Lincoln University. He was chief executive of Environment Canterbury which is the regional council whose responsibilities include natural resource management. Before coming to Canterbury, he was chief executive of the Department of Environmental Protection in Western Australia. Prior to that, he had more than 20 years' experience in environmental management consulting throughout Australia, South East Asia, India and China. He

has a PhD in environmental planning from Stanford University, a masters and first-class honours degrees in civil engineering from Adelaide University and a master of administration from Monash University. He is the President of the Environment Institute of Australia and New Zealand.



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### THE INTERSECTION OF INEQUITY: THE INTERSECTION OF SCIENCE AND POLICY

**AUTHOR:** Gareth Rees

The intersection of science and policy is an interesting space - often contested and conflicted. Issues and problems can at face value appear obvious and clearly defined and understood, at least defined enough to warrant the consideration of tweaks to existing or the development of new policy to correct the malady. Oftentimes there is available scientific evidence, analysis, and reason available to policymakers to inform their decisions. There are examples, both in the recent past and more historically, of where the convergence of science and policy has been timely. Equally, there are examples where the convergence did not occur optimally, and even more sadly, not at all. One can contrast the policy response to the Coronavirus pandemic to that of climate change to examine the successfulness and timeliness of the intersection of science and policymaking. An intersection is an apt analogy for the challenges to a convergence of science and policy, with different paths and routes in and out; representing the different forces, factors, and path dependency that can affect the way policy can be arrived at successfully, or not as the case may be. A flourishing and sustainable society requires robust and trusted science, good governance and the implementation of policy for society and the environment for our collective benefit. This paper will examine potential and actual convergences of science and policy, identifying barriers to policy success, opportunities for improvement in the integration of science in policy development, as well as considering the positive and negative impacts for the community where policy and science does or does not converge.

## SPEAKER BIOGRAPHY



### **GARETH REES**

Gareth Rees is a certified environmental practitioner with more than 15 years working in the delivery of infrastructure in Queensland and New South Wales. Throughout his career, Gareth has worked hard to understand the complex environmental, social and sustainability issues that are present in the delivery of projects. With a strong conviction for the protection of the environment, an empathetic approach to engagement with people and a curious mind to go beyond and look for the hidden side of things, Gareth is always looking to incorporate and implement different ways of managing and solving problems.



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#### PRACTICE, SCIENCE, AND POLICY: EXPLORING THE ISSUES

**AUTHORS:** Dr Mark Breitfuss and Patricia Dale

Science aims to enlighten ignorance or lack of knowledge. This is an issue in environmental management where, albeit innocent, lack of knowledge has the potential to lead to adverse effects because of ignorance. To reduce uncertainty, strong interrelationships are needed between three components of environmental management: science, policy, practice. Science is often considered the start of that sequence, perhaps because knowledge underlies all. The traditional science-to-policy pathway is often hampered by conflicting time scales, multiple jurisdictions, and semantics. Science is itself often hampered by lack of sufficient and timely resources to pursue the knowledge required by practice. It will be argued that a more environmentally sustainable result will be achieved if practice is at the start of the sequence driving the practical need for knowledge and providing support for achieving it. From the ground up, practice needs to be informed by science and so science needs to know what is needed by industry (practice). Practice also needs to be aware of policy and regulations, and regulatory bodies need to understand the practical issues of implementing policy. The final link is the science that can be relied on by policy makers who have been convinced by evidence that science-led outcomes are good bases for policy. We propose that better and more sustainable environmental management will result when practice (including industry) identifies the science needed to underpin practice and drives the process of acquiring the information by providing support and funding. This will establish direct efficient and effective links between science and practice. It also has the potential to provide information that will guide policy, thereby completing the connections between science, practice and policy. This presentation discusses the topic with reference to examples and proposes a panel-style discussion to convey the issues and promote debate.

### SPEAKER BIOGRAPHIES



#### DR MARK BREITFUSS

Dr Mark Breitfuss graduated with a PhD in ecology in 2004 from Griffith University. His research was multidisciplinary, covering a range of ecological topics focussed on intertidal wetlands and environmental impacts. Since then, he has worked in the applied field of science and environment and is currently one of the Managing Directors at Epic Environmental. Epic began in 2015 to provide high-quality, specialist services to clients and it has continued to grow since then. Much of Marks' work is focused on the regulatory interactions between government and industry, particularly in the resources, water, energy and environmental sectors. Mark has been and is an active member of EIANZ. He has a

range of experience in the successful implementation of strategies required to gain regulatory approvals, improve performance, manage risk and deliver success to provide quality outcomes for clients.

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#### PATRICIA DALE

Patricia Dale is a member of the Griffith School of Environment and Science at Griffith University, Queensland, Australia. Pat is committed to interdisciplinary research and its application to environmental management, with collaborations spanning a range of discipline areas over 35 years. Pat's major research focuses on saltmarsh and mangrove ecology and management. Her focus is on mosquitoes and their management and sustainable wetland management. Pat's research outputs include over 100 peer reviewed publications and a similar number of reports and conference proceedings. She has received numerous grants from National, State and Local agencies.



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#### ADDRESSING THE 'IMPLEMENTATION LAG' BETWEEN RESEARCH AND PRACTICE

**AUTHOR:** Dr Alan Chenoweth

The time-lag between the publication of research findings and implementation by practitioners in the field has been the subject of investigation and discussion in many fields and professions. In agricultural extension, it has long been recognised (since the American 'Dustbowl' era) that there are five 'adopter categories' – innovators, early adopters, early and late majority, and laggards; and this framework is still useful and used today with respect to IT adoption. However recent experience in the environmental disciplines (particularly climate change) indicate that a sixth 'Luddite' category may be appropriate for reactive 'resister/denialists'! For the professions of medicine and engineering (and related disciplines), there are considerable public safety benefits in quickly translating published research and conference papers into accepted practice as adopted by the profession, although lags may occur with respect to products (such as drugs, or scaling-up procedures and manufacturing to commercial level) or regulatory requirements. Additional delays are caused where practice is largely dependent on changes in government policy, because considerable time lags are involved in the progression from research and publication to policy then practice. Examples will be given, drawn from planning and environmental practice, where the implementation lag has been reduced (generally when the science is widely accepted and public safety may be affected), or frustratingly exacerbated because the science has been disputed or politicised, or there is little imperative to translate research into policy. This paper also examines the role of the environment profession, the importance of continuing professional development and up-to-date standards, and other implications for ethical competent practice.

### SPEAKER BIOGRAPHY



**DR ALAN CHENOWETH** PhD CEnvP RegLA FAILA FEIANZ FAIH FPLA MPIA

Dr Alan Chenoweth PhD CEnvP RegLA FAILA FEIANZ FAIH FPLA MPIA is a Brisbane-based environmental planner, landscape architect and ethicist with more than 40 years experience in coastal zone ecology, design and site planning, national park management, land development, horticulture, landscape evaluation and impact assessment. He is a Life Member of EIANZ and holds qualifications in agricultural science, planning and landscape architecture, a PhD in the ethics of professional environmental practice and a Churchill Fellowship in social housing. Alan's career has included consultancy, teaching and public sector roles, and also professional institute governance and certification schemes. His

particular expertise includes methods of landscape evaluation and GIS mapping of the 'green base' (conservation and scenic significance) for land use and open space planning, for which he and his previous consultancy firms have won several State and national awards. Currently semi-retired, Alan continues to contribute to landscape and visual impact assessment (LVIA) methodology, as well as Court-related expert witness roles, as an EIANZ Board member and as Co-Chair of the Indigenous Engagement Working Group.



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