

# Program

## EIANZ Annual Conference

29–31 October 2014, Hotel Grand Chancellor, Hobart, Tasmania



## *Living on the edge*

21st century solutions  
for environmental practitioners



Environment Institute of  
Australia and New Zealand Inc.



COMMISSION ON  
LAND DEGRADATION  
& DESERTIFICATION

# Welcome to the 2014 EIANZ Annual Conference - *Living on the Edge.*

The next few days are an opportunity for people from the environment profession to explore 21st century solutions to complex environmental challenges; and hear from a thought-provoking range of speakers with different perspectives on environmental research, policy, and management practice.

It is an occasion to network with colleagues and make new connections with environmental practitioners from across Australia and New Zealand. The past year has seen significant changes to Government policy, and the realisation that we must continue working hard to ensure that environmental conservation, resilience, adaptation and sustainability remain the focus of the community's development agenda. Never before has there been a more important time for recognition of the role that environmental practitioners play in ensuring a sustainable future locally and globally.

The Institute's focus is on educating and assuring the community about the professionalism of environmental practitioners, setting standards for good practice environmental policy and management, and building a reputation as the leading body for accrediting and representing environmental professionals in Australia and New Zealand. Environmental professionals are committed to proficiency, practicing in accordance with a code of ethics, and promoting public good through accountability to those they serve and wider society.

If you aren't already a member – then get on board, enhance your career, and join the Environment Institute of Australia and New Zealand. Be recognised for your professional skill and become a Certified Environmental Practitioner. For more information visit the member centre at the conference or [www.eianz.org](http://www.eianz.org)

Thank you to all those many members of the Institute who volunteer their time and professional expertise to ensure its success. With recently changed governance arrangements, and on behalf of the new Board, I particularly thank the members of the former Institute Council for their service in the governance of the organisation and the shaping of its strategic direction.

Tasmania has been at the forefront of some of the great environmental challenges and breakthroughs in Australia and New Zealand. Find the time while you are here to explore and enjoy the rich environmental values of this part of Australia.



**Jon Womersley** FEIANZ, CEnvP, AFAIM, NMAS Accredited

President, Environment Institute of  
Australia and New Zealand

Thank you to our sponsors:



# Keynote Speaker Profiles



## Dr Nick Gales

*Chief Scientist, Australian Antarctic Program, Department of the Environment*

### **The importance of Antarctic and Southern Ocean research to understanding our region and to our wellbeing**

As Chief Scientist for the Australian Antarctic Program, Nick currently oversees Australia's scientific activities in Antarctica and the Southern Ocean. Previously, he has been responsible for technical and scientific aspects of the Australian Government's responsibilities in managing interactions between marine mammals and humans around Australia and Antarctica. Nick has been involved in marine mammal research and management for over 30 years and has published more than 120 scientific papers. His main area of interest is the conduct of applied research, its delivery into management and its impact in the development of public good policy. Nick has extensive experience in this field having also worked for the New Zealand Department of Conservation and the Australian Marine Mammal Centre. Nick led the Australian science delegation at the International Whaling Commission and for Australia's case on whaling at the International Court of Justice where he appeared as a witness. Nick is President of the international Society of Marine Mammalogy and serves on several Boards and professional committees.



## Anna Littleboy

*Resources, Community and Environment Program, CSIRO*

### **Resources and sustainability – who's in the room?**

Anna is a Research Director with the CSIRO where she leads research exploring the future of the Australian minerals sector given the trends shaping the world today. Anna is part of the Executive of CSIRO's \$100 million per year Mineral Resources National Research Flagship. With a background in geochemistry, Anna has more than 20 years research management experience studying risk for the water, energy and resources sectors. Her current focus is on assessing the social and environmental impacts of innovation to inform long term investment decisions. She has established influential initiatives at the interface where science informs policy and is currently working with the Queensland Government on ResourcesQ - a 30 year strategic vision for Queensland's resources.



## Prof. John Woinarski

*North Australian Hub of the National Environmental Research Program, Charles Darwin University, Darwin, NT, Australia*

### **Change and loss at the frontier: the past, present and future of biodiversity in remote Australia**

John has been involved in research, policy and management of Australian biodiversity for around 40 years, mainly in northern Australia. He has authored and edited six books and more than 200 scientific papers and book chapters. Much of this work has been on the ecology, biogeography and conservation management of mammals and birds, but also includes a broad range of other subjects such as reserve design, fire, fragmentation and mining. His work has been recognised with numerous awards including the Serventy Medal for life-time contribution to Australian ornithology in 2001, the Northern Territory Chief Minister's Award for Research and Innovation in 2008 and the Australian Natural History Medallion in 2011. John has had considerable involvement in policy development including for the national biodiversity strategy, the national forests policy statement, a 9-year period on the Threatened Species Scientific Committee, and membership of an Expert Working Group appointed by the Federal Minister to provide advice on conservation issues on Christmas Island.



## Keith Springer

*Project Manager, Macquarie Island Pest Eradication Project, Tasmanian Parks and Wildlife Service*

### **Pushing the envelope - increasing our capacity for managing pest species on islands**

Keith Springer has been managing the Macquarie Island Pest Eradication Project for the Tasmania Parks and Wildlife Service for the last eight years. He also spent a year on Macquarie Island leading the cat eradication team in 2000, and spent a year on the island as Ranger in Charge in 2005. Keith worked for 20 years as a forest and national park ranger with the New Zealand Forest Service and Department of Conservation, followed by several years with Antarctica New Zealand as program support manager.



## Prof. Peter Harrison

*Director, Marine Ecology Research Centre*

*Research Leader, Coral Reef and Whale Research Teams, School of Environment, Science and Engineering, Southern Cross University*

### **Blue Australia: fringe dwellers, fragmented management and increasing pressures**

Peter has been researching and teaching aspects of marine ecology and management for three decades. His interests span coral reefs to Antarctica and invertebrates to cetaceans, with additional work in estuarine, wetland and terrestrial habitats. Peter was a member of the JCU coral team that discovered the mass coral spawning phenomenon on the Great Barrier Reef. He was the UN Project Leader assessing the impacts of the first Gulf War on Kuwait's coral reefs, and has a coral species (*Porites harrisoni*) named after him. Peter has gained more than \$9 million in research grants, Antarctic support and consultancies, and produced more than 150 publications. He has been awarded multiple prizes for science research including a Eureka Prize. Peter has been an appointed member of the national Threatened Species Scientific Committee since 2005, Christmas Island Expert Working Group 2009-10, National Environmental Research Program Advisory Panel 2010, and on Expert Panels assessing commercial fishing.



## Hon. Mr Greg Hunt MP

*Minister for the Environment, Commonwealth of Australia*

### **New directions for Australian environmental policy**

Greg began his career as an articled clerk with Mallesons Stephen Jaques before becoming an Associate to the Chief Justice of the Federal Court. Greg then worked as a senior adviser to the then Minister for Foreign Affairs, Alexander Downer, where he was responsible for South East Asia, defence, human rights, trade and international law. Greg spent time as Chief Australian Electoral Observer in Cambodia before rising through the ranks of McKinsey and Co to become their Engagement Manager. Greg was elected as the Federal Member for Flinders in 2001. In 2004, he became Parliamentary Secretary to the Minister for Environment and Heritage and was later appointed Parliamentary Secretary to the Minister for Foreign Affairs. After the Federal election in 2007, Greg was appointed Shadow Minister for Climate Change, Environment and Urban Water. After the 2013 Federal election, Greg became Minister for the Environment, with responsibility for climate, environment, heritage and water. As the Member for Flinders, Greg has completed three 500km walks around his electorate to raise funds for Juvenile Diabetes and Autism Spectrum Disorder.





## Peter Cosier

*Wentworth Group of Concerned Scientists*

### **The making of a healthy, productive and resilient Australia**

Peter is a Director and founding member of the Wentworth Group of Concerned Scientists, a private institution established in 2002 to connect science to public policy. In recent years, the Wentworth Group has been active in native vegetation and water reform, climate change, promoting policies to optimise carbon in the landscape and trialling a system of regional scale, national environmental accounts. Peter is an environmental policy specialist with a background in science and has worked at all levels of Government and also in private business. Peter has numerous publications and is concerned with the challenges to environmental systems from climate change, land clearing and invasive species. Peter was Deputy Director General in the NSW Department of Infrastructure, Planning and Natural Resources, and spent 6 years as a Policy Advisor to the then Australian Environment Minister, Senator Robert Hill.



## Alvin Stone

*Media and Communications Manager for ARC, Centre of Excellence for Climate System Science*

### **Communicating Science- how to effectively get your science into the public domain**

Alvin is a public relations and communications expert who brings a strategic approach to building the communicators of the future. As Media and Communications Manager for ARC, Alvin works with young scientists, building their skills as clear, effective media savvy communicators ensuring that science and scientific experts have a voice in mainstream and social media platforms. Alvin started his career in journalism as an editor with Fairfax Community News and then News Local for over a decade before moving across to media communications. As a media communicator he has worked for World Wildlife Fund Australia and most recently Primary Communication, a boutique agency specialising in corporate clients in the energy, transport, IT and not-for-profit sectors.



## Simon Currant AO

*Chairman, Tourism Industry Council Tasmania*

### **Protection, sensitive area management and tourism development- definitely NOT strange bedfellows**

Simon is a leading tourism developer and operator, responsible for the development and management of many iconic destinations in New South Wales, Queensland and Tasmania. Simon runs a tourism consultancy specialising in remote and natural area tourism, consulting both nationally and internationally on tourism planning, infrastructure and experience development. Simon's developments have won 11 state and nine national tourism awards. He was recipient of a Churchill Fellowship to study tourism in remote areas subject to very short seasons, was state winner and national finalist in the 2004 Entrepreneur of the Year, and was the 2004 Tasmanian of the Year. In 2006 Simon was honoured with a Member of the Order of Australia Award for services to the tourism industry. Simon is Chairman of the Tourism Industry Council Tasmania, a board member of Tourism Tasmania, and was a board member of passenger and freight shipping company TT-Line for 14 years. Under the Federal National Long Term Tourism Strategy, he was the inaugural Chairman of the Tourism Quality Council of Australia.







## Vanessa Bleyer

*Principal Lawyer, Bleyer Lawyers  
Chairperson, Environment  
Tasmania Inc*

### **Balancing conservation, economics and law, a legal perspective**

In 2007 Vanessa established Bleyer Lawyers enhancing her work in environmental law whilst continuing as a commercial litigator. This union of environmental and commercial interests allowed her to develop a deep understanding of the need to balance conservation, economics and the law. Vanessa's focus within environmental law is forests, and the ongoing desire some have to log what is left of them. Her interest in this area began when employed at a criminal law practice representing individuals charged for protesting against logging. In 2003, she became the President of Lawyers for Forests (held for 5 years). In 2010, her law practice achieved the first Supreme Court injunction to restrain logging at Brown Mountain, East Gippsland due to presence of threatened species. Since that time she has run many Federal Court cases including challenging approval of the proposed Tamar Valley pulp mill (it has not proceeded), and proposed mining in the Tarkine (it is currently halted). Vanessa is Chairperson of Environment Tasmania (on the Board for 4 years). This put her in touch with the Forests Agreement negotiations and the subsequent, now eradicated, regulatory regime. Vanessa has learnt that environmental law is closely aligned with political agendas – a challenging domain in which to work. However, she has identified there always has been and continues to be opportunities in the law to conserve our native forests when aware of government and economic influences.



## Jon Womersley

*Principal, Womersley  
Environmental Management*

Jon has more than 30 years of practical experience in environmental management and community and stakeholder engagement. Jon is an independent consultant in the field of environmental management and is currently President of the Environment Institute of Australia and New Zealand. He has led environmental protection, cultural heritage and national park and natural resource management functions of government in several Australian jurisdictions. Jon's experience in regional Queensland focused on the assessment and environmental regulation of mining, mineral processing, heavy industry, port facilities, and general activities with environmental consequences. He oversaw a range of statutory and non-statutory regional environmental, coastal and natural resource management planning activities. Jon brings to his work a keen appreciation of the environmental context in which businesses and governments undertake activities, and a practical understanding of the environmental impacts of those activities and the mitigation or remediation of their impacts. Jon is a Fellow of the Environment Institute of Australia and New Zealand, a certified environmental practitioner (CEnvP), an Associate Fellow of the Australian Institute of Management, and a nationally accredited mediator and facilitator.

# Program



## 25-29 October

COMLAND FIELD TRIP  
Pre-Conference Field Trip, Tasmania

## Wednesday 29 October

9:30am – 4:00pm **EIANZ FIELD TRIP**  
Pre-Conference Field Trip, Hobart



6:00pm – 7:30pm **Welcome Function** Hotel Grand Chancellor, Harbour View Room



## Thursday 30 October

9:00am

### OPENING PLENARY

GRAND BALLROOM 3

Welcome

#### Presidential Address

Jon Womersley FEIANZ (President EIANZ)

#### The importance of Antarctic and Southern Ocean research to understanding our region and to our wellbeing

Dr Nick Gales, Chief Scientist, Australian Antarctic Program

#### Resources and sustainability – who's in the room?

Anna Littleboy, Research Director, CSIRO

10:30am

MORNING TEA

11:00am

### SESSION 1

GRAND BALLROOM 1

#### STREAM A:

##### Global trends in environmental practice

Graham Brown,  
Graham Brown & Associates

##### State of the tropics: is life in the world's tropical regions improving?

Mark Ziembicki,  
James Cook University

##### Gen Green 4 Australia – a national study of the demand for and supply of skills for sustainability

Dr Fabian Sack,  
Sustainably Australia

GRAND BALLROOM 2

#### STREAM B:

##### Caring or control: managing waterways and marine parks through values and uses

Helen Ross,  
University of Queensland

##### Multiple benefit conservation in Tasmania

Daniel Sprod,  
Tasmanian Land Conservancy

##### A modern approach to facilitate environmental management in business

Dr Manuel Seidel,  
ecoPortal

GRAND BALLROOM 3

#### STREAM C:

##### An Australian Government perspective on developing an outcomes-based environmental approval system

Melinda Lello,  
Department of the Environment

##### A legal perspective on the assessment of cumulative environmental impacts

Adam Beeson,  
Environmental Defenders  
Office, Tasmania

##### Industrial ecology- leading the way to the transformation of waste recovery

Tom Davies,  
Edge Environmental

12:30pm

LUNCH



1:30pm

## SESSION 2

GRAND BALLROOM 1

### STREAM A:

**Is there a role for qualified and experienced environmental practitioners to represent the interests of the environment on significant infrastructure projects across Australia?**

Richard Sharp,  
NGH Environmental  
Pty Ltd

### **Staff environmental Sustainability Pledge**

Chris Hill,  
Mater Misericordiae  
Health Services  
Brisbane Limited

**Social identity and the stakeholder mentality: a theoretical framework and some implications for praxis**

Rebecca Colvin,  
University of  
Queensland

GRAND BALLROOM 2

### STREAM B:

**Unintended long term environmental disturbances from estuary entrance breakwaters**

Kathryn Duchatel,  
MWH Australia

**Key learnings from ten years of monitoring and management interventions at the Bluff Point and Studland Bay Wind Farms: results of a review**

Chris Sims,  
Hydro Tasmania,  
Hobart

**History of land-use reconstructed for hydrologic modelling of Tarcutta Creek catchment**

Aleksandra Rancic,  
Office of Environment  
and Heritage, Wagga  
Wagga

GRAND BALLROOM 3

### STREAM C:

**Using ESIA to promote sustainable outcomes in project design and delivery**

Claire Gronow, Ashgrove  
Environmental

**A critical look at environmental performance during construction and the use of alternative communication platforms to demonstrate due diligence, reduce paper and improve compliance**

Alexandra Hare,  
Opus International  
Consultants Ltd  
Natalie Madden

**A practitioners guide to cost recovery under the Environment Protection and Biodiversity Conservation Act (EPBC Act)**

Victoria Press,  
Department of the  
Environment Australia

HARBOUR VIEW  
ROOM 2

### WORKSHOP

**Greening the health sector**

Fiona Armstrong,  
Climate and Health  
Alliance

3:00pm

AFTERNOON TEA

3:30pm

## PLENARY SESSION

GRAND BALLROOM 3

**Change and loss at the frontier: the past, present and future of biodiversity in remote Australia**

John Woinarski, National Environmental Research Program, Charles Darwin University

**Pushing the envelope – increasing our capacity for managing pest species on islands**

Prof. Keith Springer, Project Manager, Macquarie Island Pest Eradication Project, Tasmanian Parks and Wildlife Service

**Blue Australia: fringe dwellers, fragmented management and increasing pressures**

Prof. Peter Harrison,

Director, Marine Ecology Research Centre Research Leader, Coral Reef and Whale Research Teams,  
School of Environment, Science and Engineering, Southern Cross University

Wrap Up

5:00 – 6:00

FREE TIME

6:00pm

### **TMAG open**

The Tasmanian Museum and Art Gallery (TMAG) is open from 6:00pm exclusively for EIANZ gala dinner delegates (beverages and canapes available from 6:00pm)

7:00pm

## EIANZ Gala & Awards Dinner

10:30pm

Close

# Friday 31 October

8:30am

## PLENARY SESSION

GRAND BALLROOM 3

### Welcome

Jon Womersley FEIANZ (President EIANZ)

### New directions for Australian environmental policy

The Hon. Greg Hunt MP, Federal Minister for the Environment Member for Flinders

### The making of a healthy, resilient and productive Australia

Peter Cosier, Director and a Founding Member of the Wentworth Group of Concerned Scientists

### Protection, sensitive area management and tourism development - definitely NOT strange bedfellows

Simon Carrant, AO, Chairman, Tourism Industry Council Tasmania

10.30am

MORNING TEA

11:00am

## SESSION 3

GRAND BALLROOM 1

### STREAM A:

#### Collaborative governance and accountability

Prof. Bryan Jenkins, Waterways Centre for Freshwater Management

#### Risk and responsibility: a 21st century approach to environmental regulation

Glen Brown, Department of Environment and Heritage Protection, Queensland

#### Trusted counsellor or gun for hire: the legal principles which all expert witnesses need to know

Tim Mellor, Mellor Olsson

GRAND BALLROOM 2

### STREAM B:

#### Improving environmental leadership with resistance to change and behavioral change programs

Susan McLeod, GHD Pty Ltd

#### Environmental problem solving and organisational culture – working together to get the best outcomes

Jenn Batagol, Environment Protection Authority, Victoria

#### Analysis and synthesis centres: trans-disciplinary and trans-organisational facilitation for capitalising on existing information and knowledge

Alison Specht, University of Queensland

GRAND BALLROOM 3

### STREAM C:

#### Renaissance of light rail in Sydney – key environmental challenges, opportunities and solutions

David Gainsford, Transport for NSW

#### Assessment of radiologically contaminated land

Drew Watson, Queensland Department of Health

#### Lifting the veil of voluntary management standards – what is underneath? A case of dairy farming in Canterbury, New Zealand

Shannon Coghlan, Lincoln University

HARBOUR VIEW ROOM 2

### WORKSHOP

#### Exploring visions for the future of Landcare

Su Wild-River, Wild-River & Associates

12:30pm

LUNCH

1:30pm

## SESSION 4

GRAND BALLROOM 1

### STREAM A:

**Can regulatory requirements always be met? A case study examining indirect (disturbance) impact of wind farms on birds**

Cindy Hull,  
Hydro Tasmania

**Floods, droughts and...aquatic macro-invertebrates: The 'Australian Conundrum' in the sub-tropical Boyne River**

Mark Dahm,  
GHD

**Fish and connectivity in the regulated sub-tropical Boyne River, Queensland, Australia**

Mohammad Hassani,  
Glandstone Area Water Board

GRAND BALLROOM 2

### STREAM B:

**Evaluating materiality – multi-criteria environmental aspect and impact analysis**

Dr Manuel Seidel,  
ecoPortal, New Zealand

**A beginner's guide to the Carbon Farming Initiative and emissions reduction fund**

Su Wild-River,  
Wild River & Associates

**Tooling up policy**

Dr Jeremy Groves,  
Department of the Environment

GRAND BALLROOM 3

### STREAM C:

**Practical conservation at the landscape scale: Midlandscapes**

Daniel Sprod,  
Tasmanian Land Conservancy

**De-mystifying environmental management systems**

Ian Ackland,  
BSI ANZ Group

**The two forest certification schemes in Australia**

Suzanne Little,  
Australian Forestry Standard Limited

3:00pm

AFTERNOON TEA

3:30pm

## PLENARY SESSION

GRAND BALLROOM 3

**Balancing conservation, economics and law, a legal perspective**

Vanessa Bleyer, Principle Bleyer Lawyers, Chairperson, Environment Tasmania Inc

**Communicating Science- how to effectively get your science into the public domain**

Alvin Stone, Media and Communications Manager, Australian Research Council's Centre of Excellence for Climate System Science

**Closing Address**

Jon Womersley FEIANZ (President EIANZ)

5:00pm

Close



ENVIRONMENT PROTECTION AUTHORITY

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# Keynote Speakers

## Alvin Stone

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*Australian Research Council's Centre of Excellence for Climate System Science*

### Communicating science – how to effectively get your science into the public domain

**Abstract:** If you are serious about accelerating your career as an environmental science professional or bringing the importance of your area of research to the public domain, communicating your ideas broadly is a key skill. During this presentation you will see the significant career benefits that come with good media communication. We will explore, with real examples, how to deliver your message without distortion before presenting the fundamental tools needed to produce good media releases, handle interviews with aplomb, deliver your ideas to communication managers in a way that excites them, help policy makers understand your point and become an expert that media professionals trust.

## Anna Littleboy

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*Resources, community and environment Program, CSIRO*

### Resources and sustainability – who's in the room?

**Abstract:** A megatrend is a substantial shift in social, economic, environmental, technological or geopolitical conditions that may reshape the way society operates in coming decades. Megatrends are associated with the emergence of new markets, constraints to production processes and operating costs and with social and cultural change. They give rise to new paradigms in the way we operate and they are fundamentally interlinked. CSIRO has identified a set of megatrends shaping our future world (Hajkowicz, Cook and Littleboy, 2013<sup>i</sup>). The interactions between global megatrends present "wicked problems" for natural resource management into the future. The paper will examine the dichotomies for environmental managers working in the mineral and energy resource sector and the consequential challenges for sustainability. In particular, the paper will raise questions about what we are trying to sustain, for whom and for how long.

<sup>i</sup> Hajkowicz, S., Cooke, H., Littleboy, A.K. Our Future World: Global megatrends shaping the future. CSIRO 2013

<sup>ii</sup> "Wicked problem" describes a problem that is difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognize. Because of complex interdependencies, effort to solve one aspect of a wicked problem may reveal or create other problems

## Hon. Greg Hunt, MP

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*Federal Minister for the Environment, Member for Flinders*

### New directions for Australian environmental policy

**Abstract:** The Australian Government's Plan for the Environment rests on four pillars: Clean Air (Direct Action), Clean Land, Clean Water and Heritage Protection. This plan offers real outcomes for the environment, business and the community that will provide for a better, stronger Australia.

The presentation will outline each of the four pillars of the Government's plan for the environment with particular emphasis on the One-Stop Shop policy and the broader deregulation agenda. The presentation will illustrate how the One-Stop Shop will simplify environmental approval processes, lead to swifter decisions and improve Australia's investment climate, while also delivering benefits for the environment. This includes outlining the checks and balances that will ensure high environmental standards and regulatory arrangements that are durable and effective.

## Prof. John Woinarski

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*North Australian Hub of the National Environmental Research Program, Charles Darwin University*

### Change and loss at the frontier: the past, present and future of biodiversity in remote Australia

**Abstract:** The Australian Outback is one of the world's few surviving large natural areas, with extremely low human population density, largely intact environments, and relatively limited disruption of ecological processes. In parts it also has retained an effective and expert system of Indigenous land management. Such large natural places are extraordinarily valuable for biodiversity conservation, for the Earth's health and for our society's connection to nature. But – perhaps counter-intuitively – significant components of the Outback's biodiversity have declined or been lost altogether over the last 100 or so years, even in remote areas far from human settlements. The main drivers of this decline have been pervasive and insidious landscape-wide threats, of changed fire management and impacts of non-native plants and animals. These issues are not well resolved through existing policy or law, but the rapid expansion of the Indigenous Protected Areas system and Indigenous ranger groups has provided a major positive change in outlook for biodiversity (and social and economic issues), and should remind our society that we can – and need to – learn much about this land from Aboriginal Australians. But the future may hold very different threats to Outback environments, as the recurrent dreams of intensification of land use in northern Australia are revisited. The challenge is to try to plan more wisely than in previous attempts, to nestle increased use of the Outback within an approach that bolsters rather than impairs its internationally significant environmental values and that delivers benefits to the chronically disadvantaged Outback communities.

## Keith Springer

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*Tasmania Parks and Wildlife Service*

### Pushing the envelope – increasing our capacity for managing pest species on islands

**Abstract:** Biodiversity faces significant global challenges, including climate change, over-harvesting, habitat alteration, industrialisation, poaching, deforestation, global trade and the spread of invasive alien species. Daunting though these challenges are, mitigating responses can be achieved incrementally to protect biodiversity at local, regional and global scales. Invasive species management has gained momentum globally, and on islands biodiversity gains can be secured permanently with removal of pest species. Early attempts to remove pests from islands focused on small inshore islands using simple techniques. Gradually, evolving methodology and harnessing new technologies enabled larger, more complex projects to be successfully attempted. Even in recent years projects once considered impossible can now be considered feasible. For over two centuries the biota of sub-Antarctic Macquarie Island (12, 870 ha) has suffered significantly from invasive species including cats, ship rats, weka, mice and rabbits. Earlier management actions removed weka (1989) and cats (2000) and controlled rabbits (1978-2003). Precedents in larger scale rodent eradications from islands using GPS-guided aerial baiting techniques were instrumental in securing funding in 2007 of A\$24.7M to attempt removal of rabbits, ship rats and mice from Macquarie Island. This project was declared successful in April 2014, making it the largest island worldwide where these species have been removed. Early recovery of burrow and surface nesting seabirds, invertebrate abundance and dramatic recovery of vegetation has been observed. While the project has delivered significant conservation and biodiversity gains, and can be seen as the latest 'highest bar' in pest removal from islands; ideally it will inspire other larger and more complex island pest eradications perhaps currently considered unfeasible, and become a locus in a wider spectrum of such projects worldwide. Opportunities and challenges are found in larger, remote islands, often with multiple introduced species; and inhabited islands, where community support is a necessary prerequisite for management action.

## Dr. Nick Gales

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*Australian Antarctic Division*

### The importance of Antarctic and Southern Ocean research to understanding our region and to our wellbeing

**Abstract:** Australia and New Zealand are inextricably linked to Antarctica and the Southern Ocean through our geography and history. It was the biological riches to our south that drove early European industry and settlement. But it is the growing realisation of the degree to which this great southern ocean and continent drive our climate, our daily weather our environmental health and our own societal wellbeing that has brought Antarctic research into the spotlight.

The Southern Ocean links global oceans, sequesters enormous amounts of heat and carbon and drives the weather systems on which we and our economy rely. Changes in circulation patterns and the fluxes of heat and carbon can have profound but uncertain consequences on ecosystems and regional and global climate patterns. Antarctica itself holds unique climate records that go back more than a million years and holds in icy storage the largest source of global fresh water.

While Antarctic science is still popularised through discoveries about its more charismatic inhabitants – particularly the penguins and whales – it is the high latitude climate science that is perhaps most relevant to all of our daily lives. In this talk I will highlight what Antarctica has taught us of our past – a key by which current change can be contextualised and understood. I will then review recent discoveries of how things are changing to our south, and consider what such change might mean to Australians, New Zealanders and others. In so doing I seek to place potential change at decadal and century scales into a context through which it might inform environmental science, policy, management and law that are often more potentially influenced by shorter term drivers.

## Peter Cosier

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*Wentworth Group of Concerned Scientists*

### The making of a healthy, resilient and productive Australia

**Abstract:** We live in an era where the dominant goal of most nations is to pursue economic growth as a means of increasing the material well-being of people. The question as to whether economic growth is good or bad is actually quite irrelevant, because even today the consumption of natural resources is not sustainable. Ever since Rachael Carson published *Silent Spring* in 1962 we have been struggling with maintaining the benefits of economic development without causing long-term environmental damage. Our response has been to apply higher environmental standards and bring in pollution control laws. We have made significant progress in many areas, yet the environmental indicators keep getting worse. The problem is we keep failing to understand that small, almost imperceptible actions by many people can cause large scale, long-term damage. It is possible to create the long-term economic conditions that will grow the economy, create jobs and at the same time maintain environmental assets in a healthy condition. Creating such a future requires all of us - individuals, corporations and governments - to address the fundamental problem: internalising environmental degradation into everyday economic decision making.

## Prof. Peter Harrison, PhD

Director, Marine Ecology Research Centre

Research Leader, Coral Reef and Whale Research Teams,  
School of Environment, Science and Engineering,  
Southern Cross University

### Blue Australia: fringe dwellers, fragmented management and increasing pressures

**Abstract:** Australia is an island continent that is defined by its isolation and surrounding ocean. Australia's vast marine estate ranges from tropical to Antarctic latitudes and encompasses more than 11 million square km, which is considerably larger than its continental landmass. Our marine environments have vitally important environmental, cultural and economic values including unique biodiversity, and provide essential food and energy resources, critical ecosystem services and the 'blue economy' contributes more than \$40 billion each year. Most people live on or near the coast and therefore development pressures are increasing rapidly in coastal and nearshore zones. However, significant anthropogenic and environmental changes are also occurring further offshore in surrounding oceans. Expanding human populations and resource demands are increasing pressures on Australia's terrestrial environments in obvious ways, whereas most changes in our marine environments are hidden from view and tend to be overlooked. The EPBC Act and similar State and Territory legislation are designed to protect Australia's unique natural assets, however increasing pressures, inadequate monitoring and data deficiencies, and fragmented environmental management responses are resulting in ongoing erosion of our biodiversity leading to increasing lists of threatened species and ecological communities and declining ecosystem services. The near recovery of Australia's humpback whales represents one of the few conservation management successes in recent decades and this presentation follows their migration from Southern Ocean feeding grounds to their tropical breeding grounds in the Great Barrier Reef and examines the range of threats to whales and their marine environments along the blue highway. In contrast, most other marine species are inadequately known or studied with insufficient data on distribution and abundance, population size and trends and key threats to enable assessment of their conservation status. This data deficiency is an almost ubiquitous problem that prevents effective management of our marine environments.

## Simon Currant AO

Tourism Industry Council Tasmania

### protection, sensitive area management and tourism development—definitely not strange bedfellows

**Abstract:** History has shown that when a responsible tourism business decides to operate in and around sensitive natural environments a new generation of environmental preservationists are born. Those that experience the virtues of special environments become the next generation of advocates for their ongoing care. Modern tourism can operate in a way that leaves minimal or no negative impact and can actually improve the environmental management

outcomes of areas that require ongoing resources to keep pristine. Attacking responsible tourism and sensitive area management does not assist the cause of promoting the effective management of sensitive areas. It can have the opposite impact with the issue becoming a polarising one that results in no benefit for either point of view. Over time the hard line environmental movement has waged war on many proposed tourism developments. Some deserved criticism while others were obviously making a positive contribution to the region they operate in. Pumphouse Point is a good example of how environmental groups can become entrenched in illogical, philosophical arguments while ignoring the significant positive impact it will have. After years of tussle Pumphouse Point has emerged as a positive project supported by the vast majority of environmental groups. All can win with sensible commercialisation.

## Vanessa Bleyer

Bleyer Lawyers

### Balancing conservation, economics and law, a legal perspective

**Abstract:** Are we getting the balance right? Vanessa will share her experience and insights in balancing conservation, economics and law from a legal perspective. Find out what we can do to navigate this balance in our day-day environmental practice at both the national and local level?



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# Presenters

## Adam Beeson

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*Environmental Defenders Office*

### **A legal perspective on the assessment of cumulative environmental impacts**

**Abstract:** An assessment of cumulative impact requires consideration of the impacts from a range of sources. When considering a particular development, the impact on an environmental matter – such as threatened species – is most commonly assessed with reference only to the development in question. However, it is widely recognised that this approach can lead to irreversible harm to the environment via “death by a thousand cuts”. The paper will briefly review the literature on the importance of considering cumulative impacts, and the mechanisms to allow such considerations to be taken into account. EDO Tasmania acted for the Tarkine National Coalition in its appeal against a mine proposal in which the assessment of cumulative impacts was a central issue. The Tasmanian Resource Management and Planning Appeal Tribunal ruled that “there was no legal obligation upon the Board to consider cumulative impact [of three other proposed mines].” The lessons from that case will be set out in the paper. Since that time the Federal Court has ruled that the Federal Minister is not required “to take into account all ‘cumulative’ impacts of a proposed action”. In that same case, however, the Court held that, in the Tasmanian context, the state assessment agency is able to consider cumulative impact. The paper will analyse the EPBC Act from the perspective of assessing cumulative impact on matters of national environmental significance. The law in this area is complex and often inconsistent. This paper will seek to clarify judicial interpretation and application of the EPBC Act, and provide a solid conceptual basis for environmental practitioners to apply the notion of cumulative impact.

**Biography:** Adam Beeson, Environmental Lawyer, Environmental Defenders Office (EDO) Tasmania. Adam is a solicitor practising in the area of environment and planning law. EDO Tasmania is a non-profit community legal centre providing legal advice and representation on environment and planning law matters. EDO Tasmania also produces publications and contributes to state and Commonwealth law reform processes. Adam has previously worked in private practice and for the Tasmanian Environment Protection Authority as well as coordinating the legal defence of the controversial proceedings brought by Gunns Ltd in 2004, known as the “Gunns 20 case”. Adam also has a Bachelor of Science majoring in Environmental Management.

## Aleksandra Rancic

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*Office of Environment and Heritage*

### **History of land-use reconstructed for hydrologic modelling of Tarcutta Creek catchment**

**Abstract:** This poster provides history of dynamic changes in land-use since 1949 in the Tarcutta Creek catchment in New South Wales. The land-use reconstruction since 1949 has been done for the entire catchment of 170,000 ha, on a decadal basis and with pixel resolution of 1 ha required for the CATplus modelling. Reconstruction was based on aerial photography, satellite imagery and sequence of maps and spatial layers that provided information on advancement of pine plantation. Based on this reconstruction, and the intensive literature review it was evident that most of catchment was cleared during the nineteenth century, while twentieth century saw the extensive development of the tree plantation industries, especially Pinus species. Clearing extent reached the maximum of 67% of the catchment in the 1970s. After that, Pine conquest reversed the trend, reducing cleared area to 58%. Deforested area therefore reduced by 7% since 1950. Effect of pine plantations on catchment hydrology marginally changed it towards its original state, prior to European settlement. However, this introduced monoculture caused native forest habitat fragmentation and its reduction from 33% of the catchment to 22%, decreasing it by one third.

The current study represents the largest areal land-use reconstruction in Australia at 1ha resolution.

**Biography:** Water Engineering, university of Belgrade (5 year course with theses); after leading the team in Hydroengineering in Belgrade; research in Belgium in application of Expert systems and artificial intelligence on urban drainage design; With NSW government as water engineer/hydrologist for past 23 years; surface climate, groundwater, salinity and landscape modelling; Major contribution during NSW MDB salinity Audit – reconstructed groundwater hydrographs in fractured rock; With FFI during past five years – cooperation with Victorian team (Brendan Christy). PhD candidate at UNSW.

## Assoc. Prof. Alison Specht

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*University of Queensland*

### **Analysis and Synthesis Centres: trans-disciplinary and trans-organisational facilitation for capitalising on existing information and knowledge.**

**Abstract:** The days of relying on the advice of a chosen few, and expecting that a small team can deal with complex ecosystem challenges are long gone. Additionally, the reporting requirements of today’s world mean objectivity is vital, and critical review is an integral part of this. Over the past four years there has been an experiment running in Australia to test the utility of facilitated engagement of experts across disciplines, organisations and locations to accelerate our response to complex, geographically unbounded ecosystem challenges. The

Australian Centre for Ecological Analysis and Synthesis (ACEAS: [www.aceas.org.au](http://www.aceas.org.au)) has taken the best of the ideas from overseas, and matched them with Australian conditions to provide analysis and synthesis opportunities for time-pressed scientists, policy-makers and managers through support for virtual and face to face engagement, data and methodological support, and innovative ways to deliver the synthesised products of their work. ACEAS is one of a number of Synthesis Centres around the world (<http://synthesis-consortium.org/>). Unlike other Centres, ACEAS has had a science to policy to management focus and is associated with the major data repository, the Terrestrial Ecosystem Research Network ([www.tern.org.au](http://www.tern.org.au)). It has supported 39 groups of scientists, policy-makers and managers from across Australia and overseas to tackle topics around biodiversity, water, land and resource and data management. It has used an innovative outlets for the products—not just papers in science journals—including interactive data delivery through the web, mini reports, web 'stories' and social media links. The question remains whether this has provided a valuable service to the ecosystem science and management community and whether it is something that could be integrated into our practice, continued and expanded.

**Biography:** Since 2009 Alison has established and directed the Australian Centre for Ecological Analysis and Synthesis, the pioneering synthesis centre in the southern hemisphere. She has a passion for empowering others to better understand ecosystem function and to find innovative ways to overcome environmental challenges. She has 30 years teaching experience in environmental science and management (earning an individual Carrick Award in 2006 for her novel teaching approach), and a longer academic research career, publishing two books and many research papers in the fields of biodiversity, ecosystem function and social research in the environmental science, policy and management arenas. She has also had a very active consultancy career, training many graduates along the way, and establishing key long-term research sites. She has considerable knowledge and understanding of the ecosystems of Australia, and of the environmental science and management community in Australia and overseas.

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## Prof. Bryan Jenkins

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*Waterways Centre for Freshwater Management*

### collaborative governance and accountability

**Abstract:** Collaborative governance approaches to resource management involve different considerations in relation to accountability for the achievement of outcomes compared to traditional hierarchical approaches. Command and control systems (hierarchical control) have clear lines of accountability: the regulatory authority to the community through public reporting and election processes; the regulatory agency to their governing body; and consent (or permit) holders to the regulatory authority. This is referred to as "vertical accountability". In collaborative governance approaches accountability arrangements are more diffuse. While vertical accountabilities may remain, for collaborative governance "horizontal accountability" also exists between consent holders with each other, between consent holders and the community, and between the regulatory agency and the community. Accountability mechanisms from water management in the Canterbury region are described as examples of horizontal accountability arrangements to address collaborative governance approaches. Examples of vertical accountability are described first. Compliance with dairy farm consents is an example of accountability of consent holders to the regulatory agency. Regional environment reports, New Zealand's state of environment reports at the regional level, are an example of the regulatory authority's accountability to the community. Collaborative governance involves horizontal accountabilities. An example of collaborative management of water quantity during flow restrictions on irrigation is described for the Te Ngawai catchment. This involved more comprehensive monitoring for joint management among consent holders to maintain environmental flows. A second example is the Pahau catchment, a major contributor of nutrients to the Hurunui River. Additional monitoring was involved to assess the collective efforts of nutrient load reduction to reflect the accountability of consent holders to the community. The third example is the regulatory agency's accountability to the public when it is working in partnership with other agencies. This involved measuring the agency's contribution to community outcomes in its reporting to the public in its Annual Report.

**Biography:** Bryan Jenkins is Professor, Strategic Water Management at the Waterways Centre for Freshwater Management, a joint centre of the University of Canterbury and Lincoln University. The Centre provides undergraduate and postgraduate courses in water resources management and coordinates research across the universities in water resource issues. Prior to this appointment he was chief executive of Environment Canterbury for more than seven years. Environment Canterbury is the regulatory authority for natural resource management in the Canterbury region. During his tenure he introduced collaborative governance approaches to the management of water resources. Before coming to Canterbury, he was chief executive of the Department of Environmental Protection in Western Australia for seven years. 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 was a founding member and now a Fellow of the Environment Institute of Australia and New Zealand.

## Christopher Hill

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*Health Services Brisbane Limited*

### Shaping the future – broadening the knowledge, staff environmental sustainability pledge

**Abstract:** Engaging staff through awareness raising campaigns has been a key element of the integration of sustainable thinking at Mater Health Services (MHS) and it compliments a wide variety of initiatives (132 to date) that have been implemented to progress the sustainability strategy at MHS. These initiatives are aligned with the overarching framework of the organisation's ES Vision Plan, Communication Plan and Policy and have covered the key themes of Energy, Water, Waste, Procurement, Facilities Design and Transport. This presentation will focus on the development, implementation and staffing category outcomes from MHS' Environmental Sustainability Staff Pledge; a voluntary pledge that asked staff to select environmentally sustainable (ES) behaviours that they can engage in at work. The pledge focused on 17 behaviours used to increase awareness of behaviours available within the work environment and it was aimed to attract employees from all categories of staff and volunteers. A pre-launch research collaboration with Griffith University and the University of Queensland enabled us to identify and overcome a number of barriers. By implementing suggestions for improvement that arose from the research along with other enhancements, the pledge campaign has reached the target of 2500 staff pledges (33% of all staff). Complimenting this number of participants is the actual number of behaviours (more than 25,000) that support the promotion of one of the key aims for Sustainability at Mater that "Individual behaviours can make a difference". The behaviours also linked in with other campaigns including campaigns to reduce printing, reduce disposable cup usage in cafes, improve energy efficiency behaviour, and improve recycling and clinical waste segregation. This presentation will highlight the journey and uptake of the pledge and the mechanisms used to increase participation that enabled the target of 2500 to be achieved. Further research from this campaign will be developed in conjunction with University researchers with the view to utilise the key findings to assist the uptake of employees to participate in Pro Environment behaviours.

**Biography:** Chris Hill is the Director of Environmental Sustainability for Mater Health Services Brisbane. He has extensive hospital management experience, and has worked for Mater in a wide variety of roles, and was appointed to oversee the Environmental Sustainability platform in March 2010. Chris has a Masters of Environment with the education for sustainability specialisation and a Graduate Certificate in Sustainable

Enterprise both from Griffith University. He also holds diplomas in sustainability and project management. Chris believes top management support and staff engagement are the keys for organisational uptake of Sustainability, and to date Chris has led the implementation of over 130 initiatives at Mater around key themes of Energy, Water, Waste, Procurement, Facilities Design, Transport and Stakeholder Engagement. Chris has collaborated with Griffith University and University of Queensland on a number of Environmental Behaviour studies at Mater, and he is a member of the Environmental Institute of Australia and New Zealand and a member of the Business South Bank sustainability committee.

## Chris Sims

*Hydro Tasmania*

### Key learnings from ten years of monitoring and management interventions at the Bluff Point and Studland Bay Wind Farms: results of a review

**Abstract:** The Bluff Point and Studland Bay Wind Farms (formerly, the Woolnorth Wind Farm) was approved by Commonwealth and State regulators in 2001 and commenced operations in 2002 and 2007, respectively. A suite of monitoring and management actions have been in place at these wind farms since operations commenced. During 2010 an extensive review of all the monitoring and management actions contained in relevant Environmental Management Plans (EMPs) was undertaken by Roaring 40s (owner of the wind farms at the time), personnel from the Tasmanian EPA and Department of Primary Industry, Parks, Water and Environment. The purpose was to examine the effectiveness and utility of each program and management action. We will outline the process: a collaborative, structured risk assessment that has allowed us to take an evidence-based approach to the current EMPs. The process was simple, effective and broadly applicable to other projects. It found some monitoring programs were completed and cessation was recommended. Others had not adequately targeted key risks or were unlikely to achieve their objectives and were modified or ceased. The process enabled gaps in knowledge to be identified and surveys designed to target these gaps. The outcome of this

review was that the new EMPs addressed the agreed risks at the sites, and combined compliance monitoring and research to build knowledge and adaptively manage risk. This talk will also detail the surveys and programs identified as successful, and those that required modification or cessation. The key learnings were that: assumptions about risks on site should be carefully evaluated and tested; objectives of surveys need to be clearly defined; survey design must be robust and follow scientific best practice; management actions must be informed by evidence or sound logic; and processes such as adaptive management and evidence-based principles are integral to the management of the sites.

**Biography:** Chris Sims completed an Applied Science degree at the University of Tasmania between 1995 and 1997 with majors in Physical Geography and Plant Biology. His passion for academia ended there and since has worked with various companies and government departments in the fields of agriculture and forestry in both advisory and operation roles. Chris has been involved in all aspects of environment and safety management of wind farms at Roaring 40s and Hydro Tasmania. Chris' current role involves regulatory compliance, stakeholder management, risk management and general improvement of the management of the company's wind farms environment and safety programs. As part of this role, Chris has managed a range of environmental issues ranging from flora and fauna, soil and water, cultural heritage, noise and everything in between. He has also experienced the full range of project regulation from local municipal planning approvals with little regulation through to projects with local, state and commonwealth approvals.



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## Cindy Hull

*Hydro Tasmania*

### Can regulatory requirements always be met? A case study examining indirect (disturbance) impact of wind farms on birds

**Abstract:** Permitting authorities often require that indirect impacts of wind farms on birds be monitored, but they are difficult to define and measure. We review key approaches used to investigate indirect impacts of wind farms on birds across the world, including studies at the Bluff Point (BPWF) and Studland Bay (SBWF) Wind Farms in NW Tasmania, and the Musselroe Wind Farm (MRWF) in NE Tasmania. Ten years of before/after bird studies at BPWF (545 surveys, comprising 73,817 flights) and SBWF (854 surveys, comprising 128,446 flights), and two years of before surveys at MRWF (post-construction surveys commenced in 2014) are presented. Although the data set from BPWF and SBWF was large, the inherent variability in species counts and small sample sizes for some species prevented assessment of species-level effects, although this was of interest to the regulators. Gradual declines in species richness and diversity were detected which predated the wind farms' construction, but the data set was of little utility because causal effects could not be definitively determined. Changes in farming practices, likely population changes due to climate change and impacts on the East Asian-Australasian Flyway in the 10 year period between before and after studies at MRWF, will limit the ability to separate wind farm effects from other causative factors. Better definition of terms, determination of what is being measured, definition of the levels of impact that are biologically important, control of confounding effects and the use of robust scientific practices will better enable some of these regulatory requirements to be met.

**Biography:** Cindy Hull holds a Bachelor of Education (Environmental Studies), a Bachelor Science (Honours) in Zoology and a PhD in Zoology (Avian Ecology). Following the completion of her PhD she undertook a Post-Doctoral Fellowship at Simon Fraser University in Canada studying the ecology and breeding biology of Marbled Murrelets. Since returning to Australia 13 years ago, she has been working on the issue of birds and wind farms, both at Roaring 40s and Hydro Tasmania. Her primary role is to design, conduct and manage studies into potential impacts of wind farm projects on birds, and monitor the impacts once the wind farms are constructed and operating. This work involves detailed reporting to regulators, compliance with permit conditions and the implementation of actions in management plans. A number of studies into the effects of wind farms on birds and bats have now been completed at the Tasmanian sites and the results have recently been published in the scientific literature. Cindy was part of the organising Committee Wind Energy and Wildlife Impacts Conference held in Melbourne in 2012

## Claire Gronow

*Ashgrove Environmental*

### Using ESIA to promote sustainable outcomes in project design and delivery

**Abstract:** Environmental and social impact assessment (ESIA) was fundamentally conceived as a tool to inform decision making by identifying the future consequences of an action, whether current or proposed. As such ESIA procedures have been incorporated into decision making processes by governments and the private sector across the world. Practitioners are well aware that there are a number of more substantive benefits that can be realised through the ESIA process that can enhance the contribution of ESIA to more sustainable development. For example, research indicates that the ESIA process often leads to minor and moderate changes to projects design and delivery methods that enhance the sustainability of outcomes (Oosterhuis, 2007, Cashmore, Gwilliam, Morgan, Cobb, & Bond, 2004; Sadler, 1996). Examples have also been provided that demonstrate that preparation of an EIS that meets the regulatory and procedural requirements is not in itself enough to ensure sound environmental and social outcomes and that the rigidity of statutory processes may actually be a constraint to consideration of broader sustainability issues in the ESIA process (McKillop & Brown 1999; Audouin & de Wet 2012; Brown & Hill 1995). While the research indicates the potential for ESIA to enhance the sustainability of projects, little has been written about the conditions under which sustainability can be enhanced at the project level. A preliminary survey of a group of experienced practitioners has therefore been used to explore some of the factors that may influence the extent to which the ESIA process can be used to promote sustainability at the project level. This in turn may assist proponents and ESIA practitioners to create the right conditions within project teams to promote sustainable decision making at the project level.

**Biography:** Claire Gronow is an environmental scientist with 24 years' experience in environmental impact assessment and management in Australia and overseas. Claire is a former President of the SEQ Division (2004-2009), a Fellow of EIANZ and a Certified Environmental Practitioner. Claire was awarded the Certified Environmental Practitioner of the Year award for 2013 by the EIANZ. Claire has conducted statutory and voluntary EIAs for major projects mining, industrial development, water supply and water treatment, road and rain infrastructure, port infrastructure, coastal development, tourism and recreational development. A particular focus for Claire is working closely with wider project teams to integrate the environmental assessment component into overall project delivery frameworks and schedules. Claire also has considerable experience across the project cycle having been involved in environmental management during construction and operations activities. This has sharpened Claire's focus on the effectiveness and practicality of impact mitigation measures. Claire has also delivered training and capacity building in a number of locations, and is currently developing and delivering the

environmental risk and impact assessment component for EIANZ's STEPS program. Claire is a strong advocate for best practice environmental impact assessment. She holds a Bachelor of Science and Masters in Environmental Studies, both from University of Melbourne.

## Daniel Sprod

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*Tasmanian Land Conservancy*

### Practical conservation at the landscape scale: Midlandscapes

**Abstract:** Midlandscapes is an on-going approach to biodiversity management on private farming land in Tasmania. Based in the Open Standards for the Practice of Conservation, the program has successfully engaged key landholders in building a landscape scale approach to managing strategic biodiversity assets using a conservation enterprise model, leveraging philanthropy via a perpetual fund. Payment for stewardship was indicated as the best approach from both economic modelling and from farmer aspirations. Performance based payments have fostered ecological understanding and adaptation. The program encompasses management of existing native vegetation for plants and the animals, restoration of degraded vegetation by reintroduction of missing elements and revegetation of cleared lands. Tracking landscape health at the regional scale is proving difficult, but is aided by remote sensing, sampling, modelling and on-ground measurement.

### Multiple benefit conservation in Tasmania

**Abstract:** An innovative global partnership between Conservation International and BHP Billiton has facilitated the conservation and ongoing management of 11,000 hectares of land in the Tasmania's Central Highlands, by the Tasmanian Land Conservancy (TLC) in a project called the Five Rivers Conservation Project. This project creates a world class, financially sustainable, effective nature conservation management model at a landscape scale and in doing so contributes towards achieving Aichi Target 11. Substantial areas of the land are in and adjacent to the Tasmanian Wilderness World Heritage Area and adjacent to an existing landscape-scale private protected area owned and managed by Tasmanian aboriginal people. The Five Rivers Conservation Project landscape features open grassland valleys, old-growth forests and woodlands, native grasslands, cushion plants, endangered sphagnum moss beds and five river systems. It is habitat for endangered wildlife including the iconic Tasmanian devil and Tasmanian wedge-tailed eagle and important endemic species not found in any other region on earth. A critical component of the project is the establishment of an efficient but effective long term ecological monitoring program. This program has been designed to gather scientific data to inform conservation management using simple, repeatable and robust methodologies. In the future, the Five Rivers Project Area will become one of a network of national sites for long term ecological monitoring across Australia. BHP Billiton has provided financial support for the long term conservation management of the properties through establishing an endowment fund for the area and through supporting the development of the carbon project.

Income from the endowment fund and carbon project provides employment and engagement opportunities for local communities. The Five Rivers Conservation Project area will be added to Australia's National Reserve System. It will contribute to meeting Australia's international obligations and Aichi Target 11.

**Biography:** Daniel Sprod is landscape ecologist with the Tasmanian Land Conservancy. He bridges the gap between theory, science and on-ground outcomes through effective planning processes and implementation as part of a team that features deep levels of collaboration. He has worked in conservation in business, government and the NGO sector for 20 years, much of this based in Tasmania.

## David Gainsford

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*Transport for NSW*

### Renaissance of light rail in Sydney – key environmental challenges, opportunities and solutions

**Abstract:** The NSW Government released the Sydney's Light Rail Future document in December 2012 (Transport for NSW, 2012) detailing projects to support a renaissance of Light Rail in Sydney. The first project was completed in early 2014 with the opening of the 5.6km Inner West extension to the existing Leichhardt to Central Light Rail line. Planning approval has now been granted to construct the \$1.6 billion 12km CBD and South East Light Rail (CSELR) line and in June 2014 the NSW Government committed \$400 million for investigation for a Parramatta Light Rail network. Light rail projects are also proposed in other major Australian cities, including Newcastle and Canberra. Light rail projects improve service reliability and capacity in denser urban areas and provide opportunities for urban renewal and improved urban amenity. On CSELR, environmental challenges have been identified across the construction and operational stages including: competition for finite road space; utilities relocation; impacts on existing traffic; reduced access to public land and parks; significant tree removal; noise impacts; non-Aboriginal heritage impacts; visual screening; and privacy concerns. Through consideration of these key challenges during the environmental impact assessment process, opportunities and solutions have been identified including: improving the urban domain around stations; incorporating heritage interpretation into public art; noise mitigation; offsetting vegetation; identifying sustainability initiatives. The CSELR has also been the catalyst for investigating transport and access arrangements in the Sydney CBD. Under the CSELR project a one kilometre section of George Street will be pedestrianised and the remaining section will have limited traffic flow, with buses redirected to alternative routes. The paper will explore these challenges, opportunities and solutions and how these can be applied to future light rail projects and inform urban renewal plans.

**Biography:** David Gainsford is the Technical Director of Planning and Environmental Services within Transport for NSW. David has undergraduate degrees in Applied Science (Economic Geography) from the University of NSW and a Master's degree in Urban and Regional Planning from



the University of Sydney. David has 20 years' experience in the environmental impact assessment of major infrastructure projects in NSW. He has worked in private consultancy, as an assessor and regulator for the NSW Department of Planning and over the last eight years as the proponent of a number of public transport projects in Sydney including the Epping to Chatswood Rail Link, the North West and South West Rail links and the Northern Sydney Freight Corridor. David leads a team of town planners, environmental scientists and environmental engineers in Transport for NSW with responsibility for the environmental impact assessment, environmental management and sustainability of a large number of rail, light rail, ferry, bus and pedestrian projects being developed and delivered by the Transport Projects division of Transport for NSW. Recently, David was instrumental in the finalisation of the environmental impact assessment of the CSELR, which culminated in the Minister for Planning approving the project on 4 June 2014 under Part 5.1 of the Environmental Planning and Assessment Act 1979. He was also involved in the delivery of the Inner West extension to the existing Light Rail network.

## Drew Watson

Queensland Department of Health

### Assessment of radiologically contaminated land

**Abstract:** Contaminated land assessments range from routine to complex tasks in accordance with the contaminants and their interaction within the environment. This is particularly true where the (or a) contaminant is radioactive. Radiological contaminants can vary significantly; they can be bulk quantities of low specific activity material or high activity discrete sources; they can be robust and insoluble, or soluble and highly mobile. As such, the radionuclides present and their physical or chemical form are significant to their detection and measurement, as well as their behaviour in the environment, and most importantly potential radiological exposures. Moreover interpretation and application of relevant regulatory governance and radiation protection practices can be unique to each radiologically contaminated site. This presentation discusses examples of sites with radioactive contaminants, such as heavy mineral sands with enhanced concentrations of natural radioactivity. These examples are addressed with a focus on the importance of input from a Health Physicist or radiation professional in the assessment of radiological contaminants.

**Biography:** Drew Watson completed a Bachelor of Applied Science in Environmental Science in 1999 and an Honours degree in Applied Physics in 2002, both at Queensland University of Technology. Since then Drew has worked at the Queensland Department of Health, Radiation & Nuclear Sciences Unit as a Senior Health Physicist, where his responsibilities involve the provision of ionising radiation measurement and monitoring services to address public health concerns. Primary duties include: environmental monitoring of radionuclides; the assessment of radiologically contaminated land; decontamination and decommissioning of radiation facilities; personal radiation dosimetry assessments; radiation safety assessments; and radiation protection advice.

## Dr. Fabian Sack

Sustainably Australia

### Gen Green 4 Australia – a national study of the demand for and supply of skills for sustainability

**Abstract:** Since 2009 Australian governments have been implementing an agreement that embeds skills for sustainability into vocational education and training, despite scant information about the actual levels of demand for, and supply of these skills. This study provides evidence on the actual depth and breadth of the take-up of these skills within Australian training organisations and workplaces. In this research, skills for sustainability are broadly conceived as including skills for social, economic and environmental sustainability – a triple bottom-line approach. The demand studied in this research is that expressed by the primary consumers of Australian Vocational Education and Training (VET) services, students who engage in VET studies, this is known in the literature as social demand for education. VET students and teachers responded to two survey instruments that explored the sustainability values, behaviours, learning and teaching of Australian apprentices, trainees and their teachers. The results of this study show 'a social demand' for skills for sustainability. In summary, the results show that:

- Apprentices, trainees and their teachers cared a great deal about social, economic and environmental sustainability;
- Supply was closely aligned to social demand for skills for sustainability so that demand for skills for sustainability from VET students was almost entirely met;
- There are important differences in the teaching, learning and utilisation of skills for sustainability that are related to gender and age; and
- In-class learning of environmental skills has increased over time and now slightly outweighs learning of these skills at work, however community learning of these skills outweighs both.

VET students and their teachers have unique insights into the supply of and demand for skills for sustainability, and this viewpoint can contribute, now and in the future, to the further development of skills for sustainability in Australia.

**Biography:** Fabian Sack led Sydney Water's sustainability change management program for a decade. Since then he has held senior private and public sector roles building capacity in the infrastructure and energy sectors. He now freelances, providing independent sustainability and governance advice and training. His area of special interest is social sustainability, in particular the evolution of skills for sustainability. Fabian is an associate of the University of Sydney Integrated Sustainability Analysis unit and has contributed to books and journals on ecological footprinting and skills for sustainability. He teaches environmental management and sustainability at Northern Sydney Institute of TAFE. Fabian is a Past President of the NSW Divisional of the EIANZ and currently sits on the EIANZ Policy and Practice committee. He also sits on the Total Environment Centre Management Committee.

## Fiona Armstrong

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*Climate and Health Alliance*

### Workshop - greening the health sector

**Abstract:** This workshop will share insights from the healthcare sector, including from a global network of sustainable hospitals, about how the sector is transitioning to low carbon and environmentally responsible practices and contributing to the health and well being of humans and the regeneration of ecological systems. It will present case study examples as well as provide an introduction to the Global Green and Healthy Hospitals network, its resources and its 'connective tissue' - an online collaborative platform that is helping sustainable healthcare professionals around the world connect, learn and share with one another.

The workshop will run for one and half hours to incorporate the following: a symbiotic relationship: living on the edge of extinction; Global Green and Healthy Hospitals: What this network can offer hospitals in Australia (Fiona Armstrong); two case studies on sustainable healthcare practice in Australia; practical steps to transform healthcare services into sustainable, healthy and low carbon operations; and EIANZ: Building links between sustainable health care and environmental practitioners.

**Biography:** Fiona Armstrong is a registered nurse, with postgraduate degrees in journalism, politics and public policy. She has a background in health reform advocacy, and is the founder and convenor of the Climate and Health Alliance, a national coalition of healthcare stakeholders working to promote climate action and sustainability in healthcare. The Climate and Health Alliance is the Australian partner of the international organisation, Health Care Without Harm, founders of the Global Green and Healthy Hospitals Network. Fiona is the author of the report, *Our Uncashed Dividend: The Health Benefits of Climate Action, and Shifting from Fear to Hope*, a chapter in the book: *More Than Luck: Ideas Australia Needs Now*. She is the producer of the film *The Human Cost of Power* which explores the health and climate impacts of fossil fuels and the health imperative to transform our energy systems.

## Graham Brown

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*Graham A Brown & Associates*

### Global trends in environmental practice

**Abstract:** The environment, legislation and community expectations are changing constantly and rapidly. Environmental practice must also change to meet these needs. While there is always a requirement for subject experts such as air quality, water management, noise, ecology (both natural and man-made), mine rehabilitation, heritage, marine etc, there is a growing and important need for environmental management on a broader basis. Globally we are seeing the emergence of new legislation covering the environment, many new and revised national and international environment-related standards and new challenges such as climate change

requiring different skills. Some of these challenges require multi-skilled practitioners. This paper will canvass the global changes as well as those happening in Australia. In particular it will address the concept of sustainability, and the broadening of 'environment' to include community relations, supply chain management, poverty, child and slave labour, conflict minerals, energy management and environmental security among many others. Corporate social responsibility, responsible and transparent business management, minimising negative environmental impact and maximising positive impact will be addressed. The tools that are already available for environmental practitioners to use will be assessed and the trends discussed. This will include the revision of ISO 14001:2004, to be published in 2005 with many important changes that will affect every organisation with EMS certification. In addition, tools for managing the carbon economy will be discussed, including many new international standards to help measure, manage and audit carbon emissions. To achieve all of this, credible practitioners are required. The EIANZ's Steps program and the UK-based IEMA's Skills Map will be compared. Certification schemes for environmental practitioners and environmental auditors internationally will be reviewed to provide a vision for the future of the environmental industry.

**Biography:** Graham Brown has been a pioneer in the environmental management field. He became the first full-time, independent environmental consultant in Australia in 1970 and at that time, one of the first in the world. He pioneered environmental impact assessment in NSW (advising the NSW government); the Commonwealth (reviewed major EISs including Ranger Uranium Mine); Queensland – conducted the first major EIS (for the Queensland phosphate project); Western Australia (conducted the first EIS in WA for the Telfer gold mine); and the United Nations Environment Program (UNEP in Nairobi – advised on the development of environmental impact assessment techniques). He pioneered environmental auditing in Australia in 1975, including the development of audit protocols and reporting techniques. He conducted the first environmental auditor training in Australia starting in 1994 and continuing today through the Environmental Auditor Certification Workshops accredited by Exemplar Global, delivered internationally as both public and in-house courses. He pioneered the development of environmental management systems in Australia and internationally, and has developed over 50 EMSs including integrated management systems (EMS, OHS, quality, community relations etc) internationally, most of which have been certified to ISO 14001. He has been heavily involved in the development of greenhouse gas and energy auditing and management. He is accredited as a Greenhouse and Energy Auditor by the Commonwealth Clean Energy Regulator; as a Lead Environmental Auditor in Australia; as a Certified Professional Environmental Auditor in USA; as a Principal Environmental Auditor in the UK; and is a Lead Auditor for the International Cyanide Management Code. He is the author of The Environment Series consisting of The Environmental Audit Guidebook (1993 continuing); Environmental Awareness and Obligations (1994-2013); The Environmental Management Systems Guidebook (1996 continuing); and the Waste Management and Minimisation Guidebook (2001-2013); all published in loose leaf format by Thomson Reuters Australia and updated every six months.

## Helen Ross

*The University of Queensland*

### Caring or control: managing waterways and marine parks through values and uses

**Abstract:** We know very little about how people value waterways, including marine spaces, what they mean in their lives, and people's activities in marine spaces. This information is important for management, demonstrating voter support for the protection and restoration of waterways, the extent of voluntary stewardship, and the public's priorities. A river, or marine park and its coastline may incorporate a wide range of 'behaviour settings', from good places for walking, reflecting, canoeing, surfing, fishing, hang-gliding, jet-skiing, bird watching, meditation, to having wedding photos taken. Different cultural groups, ages and genders may relate to these places in different ways. People may value marine and waterways spaces in multiple ways including through capture and use of their resources, through feelings of affection and care, in aesthetic appreciation and inspiration, for learning and exploration, in spiritual reverence, or for physical and mental challenges. This presentation considers how knowledge of people's values towards and interactions with waterways can contribute to the management of marine parks and their catchments. Our case study focuses on Moreton Bay Marine Park, adjacent to Brisbane, Queensland, and the rivers and streams which flow into it. Moreton Bay supports a diverse range of habitats, including wetlands of international significance, as well as populations of rare and endangered marine species. This area, however, is under serious threat from rapid urban and rural development, and from multiple uses impacting upon it. We are conducting semi-structured interviews and observations to identify the full spectrum of ways both non-Indigenous and Indigenous people relate to the waterways. Insights gained will contribute to the monitoring and evaluation of the rivers and Moreton Bay Marine Park, alongside biophysical and economic monitoring studies, and offer our project partners - the Queensland Government, HealthyWaterways, SEQ Catchments, and Indigenous traditional owners - a basis for their communications and management practices.

**Biography:** Professor Helen Ross manages social sciences in the School of Agriculture and Food Sciences, the University of Queensland. She is an interdisciplinary social scientist (environmental psychologist and anthropologist) specialising in social aspects of sustainable rural development. In research she focuses particularly on people-environment relationships, sustainability and resilience, and collaboration processes for natural resource management and rural development. She also conducts research on social aspects of water management, and climate change adaptation. She is a member of HealthyWaterways Scientific Experts Panel, the Australian Psychological Society's Climate Change Reference Group, and UNESCO's International Experts Group on Urban Futures. She is also Co-editor of the Australasian Journal of Environmental Management, a board member of Architectural Science Reviews and International Perspectives on Psychology, and a former editorial board member of Society and Natural Resources.

## Ian Ackland

*BSI ANZ Group*

### De-mystifying environmental management systems

**Abstract:** Implementing and maintaining an Environmental Management System (EMS) is a useful tool to enable an organisation to achieve and meet its environmental objectives and its obligations, both socially and legally. ISO 14001 is the internationally recognised standard for an EMS, providing guidelines for creating the EMS in a systematic fashion, which can be subsequently certified against the standard, by a third party certification body, if so desired. An organisation may choose to do this as a means of demonstrating, and seeking recognition of, its environmental responsibility and credentials. The objective of this presentation is to provide a brief exposition of what the standard is all about by discussing the requirements and how they might be achieved in a simple and straightforward fashion. In the author's experience, too many organisations have constructed overly complicated and excessive EMS's which are virtually unworkable and as such not very usable. For this reason, taking a simple approach to begin with is recommended. A revision of

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the current 2004 version of the standard is currently in progress, with the expected release of a new version in 2015. This presentation will touch briefly on some of the changes proposed.

**Biography:** Ian Ackland holds qualifications in Chemical Engineering, Environmental Engineering and an MBA. He commenced his career as a Combustion Engineer at Port Kembla Steelworks then followed this with several years of secondary maths and science teaching. From there he worked at Sydney University as a Research Assistant in alternate energy generation, and then spent 15 years with NSW SPCC, which became the NSW EPA. This was followed by nearly 8 years in the NSW Rail Sector carrying out environmental and safety audits and investigations, several years of short consultancy contracts, and then he joined NCSI (a certification body) in 2008. The work here is certification and auditing of environmental, safety and quality management systems. Last year, NCSI was acquired by BSI. Ian has been extensively involved with Engineers Australia as a volunteer officer for over 18 years, and was a member of EIANZ NSW Division Committee for over 10 years. Ian has been a Board Member of the Certification Board for Environmental Practitioners (CEnvP) since its inception in 2004. Ian Ackland BE ,Dip Env Eng, MBA, FIEAust, CPEng, CEnvP, MEIANZ, MSIA

## Jenn Batagol

*Environment Protection Authority*

### **Environmental problem solving and organisational culture – working together to get the best outcomes**

**Abstract:** Traditional approaches to complex environmental problem solving are often not effective. There are substantial challenges with problem refinement, organisational ownership and delivery of interventions through non-traditional methods. Solving complex environmental problems need a different approach and EPA Victoria has tackled this by applying an environmental problem solving framework. This has provided us with a structured approach to solving environmental problems that are not getting fixed by routine or conventional efforts. It is a straight-forward information driven process, which is meant to be taken step-by-step. In applying this approach, we have had environmental successes in tackling targeted environmental problems. Examples include:

- Contamination of stormwater by electroplating industry - turning thousands of water quality data points into a blitz on electroplaters
- Illegal Dumping at Quarries – using strategic intelligence to assess the spread of quarries across Victoria, and identifying potential vulnerabilities these present as illegal landfills.
- Tackling stockpiles of end-of-life tyres – assessing scale and fire risk to drive market support.

While the application of the environmental problem solving approach sounds quite straightforward in principle, we have also found that the culture of the organisation is of critical importance to the success of the approach. Particularly we

have found the importance of facilitating the formation of the teams of the “right” people to form, take ownership of the intervention and its delivery and ensuring people feel they have permission to get involved and act. This requires a cultural commitment from the broader organisation to work differently, allowing staff time to participate and be recognised for their efforts in delivering innovative interventions to solve complex environmental problems.

**Biography:** Jenn Batagol is a Program Leader in Operations Strategy at EPA Victoria. Ms Batagol’s background has a strong waste focus, with her early career focused on product stewardship of wastes of national interest and grown to include policy development in waste and climate change. More recently she has been focused on enabling EPA Victoria to think differently about how it tackles complex environmental problems strategically, with particular interests in developing EPA Victoria’s intelligence program. Ms Batagol is currently leading one of EPA’s 6 environmental problem focus area programs on Illegal Waste Disposal.

## Dr. Jeremy Groves

*The Department of the Environment*

### **Tooling up policy**

**Abstract:** Within the scope of a project for the Great Barrier Reef strategic assessment a framework and toolset have been developed to delineate conservation values in relation to Matters of National Environmental Significance (MNES) as listed under the EPBC Act. ERIN leveraged methods established under the National Environmental Research Program (NERP) to develop a spatial priority model for the Fitzroy catchment Queensland. The scenarios were developed using 106 MNES species and 11 Threatened Ecological Communities (TEC) for the whole catchment and coastal zone which show target conservation areas that are important for long-term viability of MNES. A key intent in establishing this project was to establish a framework and tools to support a range of departmental business activities from policy design to program delivery. A model can now quickly be developed delineating high priority areas within any management area across Australia in relation to MNES. From this base further development of the scenarios can be undertaken to response to specific requirements. What made this project work was high level need and support for such a model, close ties with the relevant researchers through the NERP hubs and the internal technical ability supplied by Environmental Resource and Information Network (ERIN).

**Biography:** Jeremy Groves works in the ERIN branch (Environmental Resources and Information Network) leading the spatial prioritisation team for the Department of the Environment. Previously he has undertaken research investigating riparian restoration practices, fluvial seed dispersal and sediment loads in relation to land-use practices.



## Kathryn Duchatel

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MWH

### Unintended long term environmental disturbances from estuary entrance breakwaters

**Abstract:** A by-product of a 1970s study into expanding fishing port facilities at Forster-Tuncurry NSW was the discovery that the entrance channel of Wallis Lake was in an “unstable scour mode”. Piles supporting the road bridge connecting Foster to Tuncurry had been compromised by the scour and required major rectification works. Scouring commenced shortly after the northern breakwater was completed in 1969 and the tidal range in Wallis Lake began to increase markedly. It was theorised that these effects resulted from the entrance breakwaters improving the hydraulic efficiency of the entrance by reducing significantly the hydraulic energy loss over the entrance bar. Calculations indicated these effects could continue for centuries. Over the ensuing 30 years the early predictions have proven correct. Subsequent studies at Lake Macquarie, Lake Wagonga and Lake Illawarra where entrance breakwaters and training walls have been constructed have identified the same phenomena occurring there. As a consequence of the enhanced entrance efficiency, scour migrates upstream, dislodging sediments and eroding habitat. The tidal ranges within the lakes are increasing progressively, resulting in greater penetration of salinity into the estuaries and their tributaries, potentially modifying the extent of estuarine macrophytes (seagrass, mangrove, saltmarsh) and, hence, altering faunal communities. While the hydrology has been well detailed, some of the follow-on ecological disturbances have been identified but not quantified. Of particular interest is how the responses of these estuaries to increasing tidal height might predict the effects of future rise in sea level.

**Biography:** Kathryn Duchatel has over 18 years’ professional experience in environmental assessment, planning and management, with a particular focus on wetlands and waterways. Her experience for the most part was cultured under the guidance of Australian wetland authority and technical publisher, Geoff Sainty (Sainty and Associates Pty Ltd). During this time Kathryn was exposed to, and worked alongside, an enviable range of Australian specialists in the fields of botany, ecology and biodiversity (from government, academic and private sectors). For the last 10 years’ she has worked with global engineering and environmental firms including Earth Tech Engineering and AECOM and is presently a Principal Environmental Consultant with MWH. Raised on the northern beaches of Sydney, Kathryn has a keen interest in the future of estuarine and near shore ecosystems. In late 2012 she visited the Gulf of Mexico where she researched initiatives and responses to sea level rise, post hurricane(s), and the Deep Horizon oil-spill (such as living shorelines and reef restoration in Florida, Louisiana and Texas). Since this time Kathryn has investigated the effects of permanently opening estuaries on estuarine ecology and recently contributed two chapters to the Sydney Olympic Park Authority’s eBook “Workbook for Managing Urban Wetlands in Australia”.

## Dr. Manuel Seidel

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ecoPortal, New Zealand

### A modern approach to facilitate environmental management in business

**Abstract:** Environmental managers in many organisations struggle to effectively engage staff and create momentum in their corporate sustainability and environmental management initiatives. Generally they use standards such as ISO 14001 and/or programmes like the Eco-Management and Audit Scheme (EMAS) as guidance and tools to develop and implement an Environmental Management System (EMS) in their organisation. However, many traditional ‘folder on the shelf’ systems are only good for ‘getting the tick from auditors’ and often fail to facilitate significant reductions in environmental impact. To engage staff and generate effective progress towards corporate sustainability the focus needs to be on effective collaboration and culture development rather than bureaucracy. This paper introduces the ecoWheel framework – a visual environmental management and sustainability strategy tool. The ecoWheel framework was developed on the basis of research and consulting experience to help organisations overcome the typical barriers that they face when implementing environmental improvements. The ecoWheel framework involves three elements which progressively take an organisation on a journey from a ‘defensive’ approach to an ‘integrated’ maturity level. Each element of the ecoWheel framework involves specific tools and principles to overcome the challenges that organisations face at their respective level of environmental sustainability maturity. The paper concludes by introducing a web-based environmental and sustainability management system ‘ecoPortal’ which brings together the three elements of the ecoWheel framework and facilitates effective communication and collaboration within organisations.

### Evaluating materiality – multi-criteria environmental aspect and impact analysis

**Abstract:** An understanding of an organisation’s material environmental issues should be the basis upon which an environmental management strategy is developed. Traditional approaches for evaluating significant aspects and impacts are based around risk assessment (magnitude and likelihood) methodologies that are often subjective and do not usually take into account other important business factors. Many organisations struggle to effectively evaluate the issues that are important to their stakeholders and the environment because they do not use an appropriate framework. This problem can lead to a dilution of resources available to environmental and sustainability managers since these are often spread across multiple initiatives due to a lack of focus on the issues that matter most. This paper introduces a multi-criteria environmental aspect and impact analysis methodology which can be used to effectively evaluate an organisation’s material issues. The five criteria used to evaluate significance are: volume/quantity, severity, legal/market, financial implications and controllability. The weightings of the five criteria can be manipulated to suit the individual priorities and maturity

level of specific organisations. For example, a company or practitioner may decide to put a higher emphasis on financial implications while they are at a 'defensive' stage and review the weightings once they have reached a 'proactive' or 'managed' sustainability maturity level.

**Biography:** Dr. Manuel Seidel is an engineer with a background in environmental management and sustainability consulting. He is a co-founder of ecoPortal, an online tool that simplifies the management of sustainability issues for organisations. During his PhD research and consulting experience he founded the ecoWheel framework, an environmental management and sustainability strategy tool for business. The ecoWheel serves as the central interface of a environmental management programme, allowing stakeholders of the organisation to understand and contribute to the improvement activities of the organisation. Dr Rainer Seidel is a co-founder and director of ecoPortal and an academic at the University of Auckland, and has been involved in environmental management for more than a decade. He is passionate about supporting organisations, particularly Small and Medium sized Enterprises (SMEs), to innovate by helping them adopt sustainable business practices, generate innovative new products, and develop and implement competitive business strategies.

## Mark Dahm

GHD

### Floods, droughts and...aquatic macroinvertebrates: The 'Australian Conundrum' in the sub-tropical Boyne River

**Abstract:** Floods and droughts are key drivers of the high variability of Australian freshwater habitats and can significantly alter macroinvertebrate community composition.. Monitoring of the Boyne River below Awoonga Dam has been carried out for over 10 years as part of the Boyne River Basin Water Resources Operations Plan. Aquatic macroinvertebrates have been continuously sampled in the freshwater reaches through 6 stages: 1) 2004-9 (low flow, drought period with abundant macrophytes), 2) 2010 (higher rainfall but no over topping events), 3) Autumn 2011 (Flood and overtopping event with loss of all macrophytes), 4) Spring 2011 – Spring 2012 2011-13 (moderate flows and partial recovery of macrophytes), 5) Autumn 2013 (Major 1 in 1800 year flood and loss of all aquatic macrophytes), 6) Spring 2013 – Autumn 2014 (moderate rainfall and flows and partial recovery of macrophytes). These variations in flow and macrophyte cover have caused significant changes to the aquatic macroinvertebrate community and highlight the extreme variability that can be experienced in Australian



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rivers. What is particularly valuable in this case is that we have a continuous long term data set that spans periods of both floods and droughts. This has enabled comparisons in macroinvertebrate community composition between low flow conditions with abundant macrophytes; and periods of high flow/flood conditions with no macrophyte coverage. An additional and valuable component of this study is the potential to develop specific river health guidelines for the Lower Boyne River based on this extensive data set rather than rely on broad scale indices that often lack relevance at the local scale.

**Biography:** Mark Dahm is an aquatic ecologist who has had a lifelong interest in aquatic life and specialises in the study of aquatic macroinvertebrates. He achieved his Master's at the University of New England looking at macroinvertebrate community composition of microhabitats within riffle zones in the Hunter River NSW. Mark has presented conference talks throughout Australia and New Zealand and is currently working with Mohammad Hassani of the Gladstone Area Water Board in the production of journal papers on the presented data. He has worked with a variety of tertiary, government and private organisations and is presently a member of the GHD Water Sciences Group in Brisbane. Mark took over the monitoring of the Lower Boyne River in 2010 and has managed the project since then including through the major floods of 2011 and 2013. He has skills and achievements in all aspects of macroinvertebrate surveys including experimental design, quantitative and rapid assessment sampling, identification of macroinvertebrates to family/genus/species level, GIS skills incorporating GPS data, data analysis (both univariate and multivariate) and organisation and logistics of remote field trips. In addition to macroinvertebrates Mark has also carried out a wide range of aquatic surveys and projects including platypus surveys, fish surveys, water quality surveys, and stygofauna surveys.

## Mark Ziembicki

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*James Cook University*

### **State of the Tropics: Is life in the world's tropical regions improving?**

**Abstract:** Over the past half-century the Tropics has emerged as an increasingly important region. More than 40% of the world's population live in the Tropics, the region's economy is growing 20% faster than the rest of the world, it hosts more than 80% of the world's biological diversity and it includes some of the world's most culturally diverse regions. Rapid population and economic growth mean it is a region whose influence is set to rise dramatically in coming decades. The nature of this influence will depend on how the region addresses its many challenges, and whether it realises its potential and opportunities. The range and significance of shared issues facing nations and territories in the Tropics suggests it is timely to examine the characteristics and challenges facing the tropical region as an entity in itself. State of the Tropics is a multi-disciplinary project that has brought together key research institutions across the Tropics to

answer a nominally simple question: "Is life in the Tropics improving?" Recognising shared connections and issues, while acknowledging variable responses between regions, we report that across a broad range of environmental, social and economic indicators, the region has made extraordinary progress in recent decades. Life is indeed improving on several fronts. However, the region is at a critical juncture. The resources required to sustain larger populations and economic growth are putting significant and increasing pressures on the natural environment; poverty remains prevalent in many areas; many nations suffer from poor health and educational outcomes; and, in some cases, political and economic instability and poor governance are major constraints that limit development. In this presentation we outline the project's vision, its key findings and their implications in view of continuing improvement towards a prosperous and sustainable future for the Tropics worldwide.

**Biography:** Mark Ziembicki has over 15 years experience in applied ecological and conservation research and management. Much of this work has focused on the biodiversity of northern Australia and the tropical Asia-Pacific region. In recent years he has worked increasingly at the interface between ecological and social systems reflected by a keen interest in community-based conservation and the integration of Indigenous knowledge systems in contemporary natural resource management and conservation practice. He is also passionate about effective science communication and has particular interests in photography and film-making. Mark is currently lead researcher on the State of the Tropics project – an international, inter-disciplinary collaboration between leading research institutions across the tropics. The project assesses a broad range of social, economic and environmental indicators and examines linkages between them to address the many opportunities and challenges faced by this increasingly important part of the world.

## Miranda Lello

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*Department of the Environment*

### **An Australian Government perspective on developing an outcomes-based environmental approval system**

**Abstract:** Globally, the approach to environmental regulation is changing, with an increasing move towards outcomes-based regulation. Outcomes-based regulation offers a tailored approach rather than 'one size fits all'; encourages innovation, with businesses able to develop their own solutions to deliver an outcome; provides potentially faster and/or simpler assessments and approvals for proponents; and enables the private sector to be utilised to collect environmental information through baseline surveys and ongoing monitoring. The Department of the Environment has investigated how a more outcomes-based environmental approval system could benefit business and the environment, including conducting an outcomes-based approval trial with a group of trusted proponents in the context of federal environmental

approvals. Outcomes-based approvals would change the focus of regulation from processes such as management plans and specified management techniques to a focus on achieving measurable outcomes for protected matters. This would allow for approval holders to implement more adaptive management systems and focus more resources on monitoring progress against outcomes. Any outcomes-based system needs to manage risks to the environment, business and regulators, particularly risks arising from uncertainties about impacts. Good relationships between business, regulators and the public would be key to managing risks and creating trust in the system.

**Biography:** Miranda Lello is an Assistant Director in the Regulatory Reform Taskforce established in the Department of the Environment to implement the Government's One-Stop Shop reform. She is currently working on developing and designing policies to improve environmental regulation in Australia. Miranda has worked in the Department of the Environment for two years, providing policy advice to decision makers on the Environment Protection and Biodiversity Conservation Act 1999. She has worked on other environmental reforms, including the implementation of water resources as a matter of national environmental significance in relation to large coal mining and coal seam gas developments. She previously worked for the Australian Government Attorney-General's Department. Miranda's academic background is in law and humanities, specialising in administrative decision making and review.

## Mohammad Hassani

GHD

### Fish and connectivity in the regulated sub-tropical Boyne River, Queensland, Australia

**Abstract:** Awoonga Dam is a major water supply dam located on the Boyne River approximately 25 km south-west of Gladstone, Australia. Legislative requirements for the management of Awoonga Dam include releases for the environment in the form of daily "base flows" and, following periods of high rainfall and inflow, "trigger flows". The intention of trigger flow releases is the re-establishment of connectivity between freshwater and estuarine habitats to provide passage for diadromous fish species past Mann's Weir that would generally not occur under low flow or base flow conditions. The trigger flow releases, and natural floods that occurred since 2008 (including a one in 1800 year event) have resulted in significant changes in habitat composition downstream of the dam and the fish communities, particularly with respect to diadromous species. These findings have important implications for the management of regulated rivers that rely on environmental flow releases to promote connectivity between habitats particularly those that have significant environmental, social, and economic values. These systems require the river to sea connection to guarantee a "healthy" river. This paper represents a summary of the findings from a long term study which has run continuously from 2004 until 2014 which includes yearly monitoring of fish population and species.

**Biography:** Mohammad Hassani studied Water Engineering and expanded his knowledge through undertaking a Graduate Diploma in Integrated Water Management. He then focused more in depth on the impact of land use changes on riverine ecosystems for his Masters' honours. He has an in depth knowledge of catchment management across Queensland and has been working for Gladstone Area Water Board for the past two years. One of his central roles is the successful application of the Boyne River Water Resource Plans and the Boyne River Resource Operation Plan.

## Alexandra Hare & Natalie Madden

Opus International Consultants Ltd

### A critical look at environmental performance during construction and the use of alternative communication platforms to demonstrate due diligence, reduce paper and improve compliance

**Abstract:** Beginning at due diligence assessment for CSG-LNG megaproject development and following through pre feasibility, feasibility, to environmental impact assessment, final design and construction, environmental practitioners iteratively gather field data and refine management and mitigation measures. The purpose is to comply with legal obligations and other requirements and commitments, to offset risk of environmental harm, and avoid impacting significant environmental values (SEVs). Post-construction, operational teams are responsible for monitoring and maintaining environmental controls throughout production and decommissioning and rehabilitation phases. Phasing is not linear and therefore the ability of each mitigation measure to be effectively implemented, handed over and executed in the field becomes a communication question. Without assessing the SEVs or impacts, mitigation and management measures themselves, we instead take a critical look at the platforms in which environmental practitioners communicate with site engineers and the construction workforce. In a similar vein to the safety professional's "Golden Rules", how can we nominate the core values and key strategies for our field teams without asking them to absorb 500+ reports and 2000+ environmental conditions? We intend to present key lessons learnt and provide a range of innovative tools as alternative communication platforms. We challenge current thinking about environmental performance in terms of measurable objectives, due diligence record keeping, to better inform construction teams about SEVs and risks by delivering an environmental programme fit for the purpose of the intended audience.

**Biography:** Alexandra Hare is an experienced environmental practitioner, particularly within the management of multidisciplinary scientific teams delivering projects for the resource, energy and urban development sectors. Alexandra's key expertise and passion is in the ability to present environmental risk and information in innovative ways that engage projects teams, communities and broader company personnel. Alexandra's key technical project experience has extended from project and environmental management

of environmental assessments for the CSG industry in Queensland and offshore oil development Western Australia, Assessment of Environmental Effects (AEE) for geothermal operations in New Zealand (NZ), EIS performance management for a gas exploration program and copper mine development in Papua New Guinea, and environmental and social impact assessment (ESBS and EIS) for the development of Southern Iraq Oil-fields, in the Middle East. Complimenting Alexandra's role in the resources and development industry is her role as a mentor for environmental practitioners in several University programs, and women in mining and resources. Alexandra has also held a chairwoman position for KEA, a not for profit, and is proactively involved in the relationship between New Zealand and Australia in the environmental, resources and energy sectors.

**Biography:** Natalie Madden holds Bachelors and Masters Degrees in Environmental Science specialising in ecological sampling and census techniques and cross-cultural communications learned from Yolgnu Aunties in Arnhem Land. Nat has 16 years' experience in the construction industry and was recognised by the Premier's Communities and Reconciliation Awards in 1999 for her part as Environmental Project Manager in the Awoonga Dam Environmental Performance and Indigenous Land Use Agreement. Natalie's leadership skills were identified by Rio Tinto Aluminium by the Frontline Leadership and later she was invited onto the Operational Leadership Development Program as a Business Leader. Natalie has learned from, and shared experiences with colleagues from diverse occupations such as: controlling weeds on White Eagle Station in the Northern Territory; driving 150t dump trucks in the Pilbara; relining and gunning cement kilns in Tasmania; asbestos microscopy and stack emission testing in Gladstone and designing one of the first CSG-LNG projects in the world. Natalie has worked in the cement, asbestos removal, gold, coal, aluminium, water, medical and shipping industries and as a work health and safety inspector, on the prosecutions team and in the Gladstone EPA researching the air shed and bathymetry of Gladstone Harbour. Natalie has mentored and lectured at several schools and Universities and also worked as a Pre-school Environmental Educator at the Botanical Gardens in Gladstone.

## Omar Ameer

*Department of Environment and Heritage Protection*

### **Risk and responsibility: a 21st century approach to environmental regulation**

**Abstract:** In the 20-30 years since modern environmental legislation came into force across Australia, our understanding of environmental challenges – and of the measures, techniques and strategies for managing risks to the environment – has grown significantly. This growing environmental maturity, as well as other factors such as contemporary attitudes to regulation, has implications for the ways in which environmental regulators approach their task. The Queensland government's Department of Environment and Heritage Protection (EHP) has begun a fundamental shift in the way in which it regulates activities that impact on the environment. Its 'regulatory strategy' signals a shift from an assessment-centric approach to managing environmental risk (where the principal risk management tools are prescriptive licence conditions), to an approach based around monitoring the environmental performance of its regulated community and responding to that performance. Importantly, the strategy is based on the premise that responsibility for environmental performance sits with the person carrying out an activity rather than the regulator. So too does the risk of poor performance. Under EHP's approach, the regulator is responsible for setting the environmental outcomes an operator must achieve, and it is then for the operator to determine how best to achieve those outcomes. In this way, the regulated community has more freedom and flexibility to develop innovative, least-cost solutions to their environmental management challenges. Approvals are obtained more quickly, reducing the cost to operators of starting or upgrading their operations. But the quid pro quo is a stronger enforcement capability and a reduced tolerance for operators who fail to meet the standards expected of them. Not only does EHP's approach mark a new era in environmental regulation in Queensland, it presents new challenges and opportunities for environmental consultants. With the focus now being on operators' performance against the environmental outcomes set by the regulator, their professional advisors take on a critical role in helping them to understand and manage the environmental risk associated with their operations.

**Biography:** Omar Ameer is a director with the Queensland Government's Department of Environment and Heritage Protection. Omar's unit develops the operational policies, procedures and other support material for officers assessing applications for approvals under the Environmental Protection Act, as well as for customers needing to make applications for approvals. Omar is also responsible for the development and oversight of the department's regulatory strategy. Before joining the department in 2007, Omar had practised as a solicitor.



## Rebecca Colvin

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University of Queensland

### Social identity and the stakeholder mentality: a theoretical framework and some implications for praxis

**Abstract:** Public participation and stakeholder engagement represent a vital component of environmental decision making (EDM). With ecologically sustainable development (ESD) as a broad goal for EDM, the participation of the public in decision making is not simply due to the deliberative democratic processes of Australian society, but also as participation in decision making is a principle of ESD. Deliberative participation is therefore critical to both sustainable process and outcome in Australian EDM. Through formalised engagement processes and informal public deliberations, sense is made of the wicked social dimension of EDM by organising individuals and groups in society into stakeholder categories. Regularly in EDM, it is found that the stakeholder groupings emerge as the "usual suspects": communities, (environmental) NGOs, government, and the private sector. While the purpose of organising the social dimension of EDM into stakeholder groups is to assist with understanding the range of values, beliefs, preferences, and competing demands at play, there has been little evaluation of the impact of this 'stakeholder mentality' on the way society engages with EDM. Viewing these social processes through a social identity lens presents some insights into how this stakeholder mentality carries embedded implications for the relationships between, and conduct of, individuals and groups engaged with EDM. Significantly for the social dimension of EDM, social identity has been found to influence inter- and intra- group behaviour, evaluation of new information, and extremism (or moderation) of leadership. Through construction of a model of stakeholder engagement and public participation in EDM, the trigger points for key social identity processes are identifiable. This model provides insights for understanding the consequences of current theory and practice in the social dimension of EDM, and offers opportunities for informing practice to achieve more positive and constructive public deliberations in EDM.

**Biography:** Rebecca Colvin is a PhD Candidate with the School of Geography, Planning and Environmental Management at the University of Queensland. Rebecca's research interrogates the assumptions which underpin the way individuals, groups, communities, and sectors within society interact with the environment. Her PhD project integrates environmental management practice with sociological theory to guide an understanding of the social dimension of environmental management, with a particular focus on land use conflicts; the intersection of agriculture, mining, and conservation in the Australian landscape sets the context for the enquiry. The broad aim of Rebecca's project is to contribute to a strategic, conciliatory, and sustainable future through the alleviation of dysfunctional conflict in environmental and natural resources management.

## Richard Sharp

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NGH Environmental Pty Ltd

### Is there a role for suitably qualified and experienced environmental practitioners to represent the interests of the environment on significant infrastructure projects across Australia?

**Abstract:** This paper aims to highlight that there is a role for suitably qualified and experienced environmental practitioners to represent the interests of the environment on significant infrastructure projects across Australia. The paper draws attention to a standard that is applied in NSW to the approval of significant infrastructure projects and describes how this approach, with a minor modification thereby giving recognition to Certified Environmental Practitioners, is perhaps one of the best standards available to improve the efficiency and effectiveness of environmental regulatory frameworks in Australia. The paper also proposes that this NSW standard has the potential to become a cross-jurisdictional standard for all environmental approvals, provided that it can be incorporated as an amendment to the Australian Government's recently published Standards for Accreditation of Environmental Approvals under the Environment Protection and Biodiversity Conservation Act 1999.

**Biography:** Richard Sharp has over 30 years of experience as an environmental professional and holds qualifications in law, science and engineering. In 1990, Richard joined the Environment Institute of Australia and New Zealand and in 2005 became a Certified Environmental Practitioner in recognition that his professional skills and knowledge. Today, Richard continues to meet the standard required for a registered environmental professional and performs his work with considerable independence in approach, demanding a considerable degree of originality, ingenuity and judgement across more than one field of expertise. Richard has numerous professional attributes which includes the ability to coordinate impact assessment and environmental compliance monitoring work for significant infrastructure projects and provide on-site advice on environmental protection controls that are needed during the construction of significant infrastructure.

## Shannon Coghlan

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Lincoln University

### Lifting the veil of voluntary management standards – what is underneath? A case of dairy farming in Canterbury, New Zealand

**Abstract:** Internationally, there are increasing concerns regarding the significant environmental impacts associated with intensive dairy farming. However, few studies have determined the characteristics of these approaches in the agricultural industry, or their effectiveness for reducing environmental impacts. This study examines voluntary dairy schemes adopted by Canterbury dairy industry in New Zealand against schemes' desired attributes identified by scholarly literature. Eight environmental dairy schemes



were reviewed and six key dimensions forming an effective scheme were identified. These are Environmental, Socio-Economic, Goals & Objectives, Monitoring & Measurement, Incentives & Support, and Communication. The study strives to assess consistency of voluntary schemes design through focus on scheme's rigour to mitigate environmental impacts associated with dairy activities. This is achieved by using content analysis, utilising NVivo 10 software and evaluating the extent assessed scheme defines its focus, extent the scheme provides farmers with specific end-goals, and the extent targeted goals are measured. Furthermore, the study assesses supporting dimensions that provide participants with support and incentives and examines means that govern the schemes. This study has the propensity to inform the policy makers on design of an effective voluntary scheme for the dairy industry. Although the study cannot be generalised, aspects of this study may be relevant to other dairy regions in New Zealand or other industries that use voluntary schemes to address environmental and social issues, such as wine industry and others sectors in agriculture.

**Biography:** Shannon Coghlan earned her bachelor's degree in Environmental Management & Planning at Lincoln University in 2011. She continued studying at Lincoln University towards a Master of Natural Resource Management & Ecological Engineering. Before writing her thesis, she spent a semester abroad in Vienna, Austria as part of her Master's requirements. Through her studies, she grew interested in the voluntary environmental actions that businesses were undertaking which is reflected in her thesis looking at the voluntary schemes used by the dairy industry.

## Dr. Su Wild-River

*Wild-River & Associates, and Australian National Centre for the Public Awareness of Science*

### A beginner's guide to the Carbon Farming Initiative and emissions reduction fund

**Abstract:** The Carbon Farming Initiative (CFI) allows farmers and land managers to earn carbon credits by storing carbon or reducing greenhouse gas emissions on the land. The credits are called Australian Carbon Credit Units (ACCUs) and each ACCU represents one less tonne of carbon dioxide contributing to the global greenhouse effect. ACCUs can be sold to people or businesses wishing to offset their greenhouse gas emissions. Despite uncertainties about the future of Australia's carbon emission reduction strategies, the CFI continues to receive bipartisan support and to deliver emission reductions. At the time of writing, nearly 5 million Australian Carbon Credit Units (ACCUs) had been issued for 118 projects. Of these, 83 per cent were in the waste sector, nearly 17 per cent were for sequestration (forestry) and less than half a percent were in agriculture. This paper aims to explain to non-experts, the compliance and regulatory framework for this successful Australian greenhouse gas emission reduction program. It aims to empower environmental practitioners from different areas of expertise with essential knowledge for making sense of carbon markets. It will:

- give a simple, plain English introduction to carbon accounting, carbon markets and the CFI.

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For more information, please visit [www.CEnvP.org/apply](http://www.CEnvP.org/apply).

- address the enduring controversies about off-setting strategies compared with emission reduction actions and make a case for continuation of offset programs.
- outline the challenges faced by global systems such as the Clean Development Mechanism, Gold Standard and others,
- summarise the CFI and its achievements to date, the technical and institutional challenges facing the system and
- describe the current outlook for the CFI including the likely impacts of the removal of an Australian price on carbon.

### Workshop - Exploring visions for the future of Landcare

**Abstract:** The Australian Landcare movement celebrates its first 25 years in 2014. Landcare has many achievements to celebrate. Landcare has helped to build communities, restore degraded landscapes, reduce riverbank erosion, improve water quality, protect endangered species, raise awareness about natural resource management and much more. Landcare is demonstrably one of the most successful environmental movements in Australia. Landcare's 25th anniversary is an opportunity for reflection on the past and imagining the future. There are many challenges to consider. The Australian government has announced reduced funding opportunities. Many state government agencies that support Landcare are in flux. And Landcare 'Health Checks' often show a decline in Landcare group membership, projects and activities. Landcare members are also aging, and there are relatively few young members, new members or new groups, compared with the Landcare heydays of the 1990s. Despite these challenges, there remains an increasing urgency for Australian (and New Zealand) communities to pro-actively manage landscapes for sustainable natural resource management. This workshop will use an interactive 'future search' format to harness delegate's ideas about the way forward for Landcare. The future search format uses a long-term perspective to explore the best possible realistic future for a movement, and then works backwards to identify what needs to change now for the vision to be achieved. This approach is a useful way to encourage creativity and build consensus. Results from the workshop will be fed back into the Upper Shoalhaven Landcare Council, the New South Wales South East Landcare network, and through those networks to the Landcare movement more generally. The workshop will also provide training for delegates in the use of the future search method. This is a robust facilitation technique with wide potential applications.

**Biography:** Dr. Su Wild-River is an environmental consultant, Landcare facilitator, researcher, lecturer and permaculture land manager. She is Vice President of EIANZ ACT Division and is writing and delivering the professional writing modules for the EIANZ Steps Program foundation year. She teaches carbon accounting at The Australian National University and established and ran internal systems for statutory emission reporting under the National Greenhouse and Energy Reporting System from 2009 until 2013 and managed parallel projects to report comprehensive greenhouse gas emissions beyond the statutory requirements. Su is currently completing a CFI Methodology Development

Project on passive landfill gas drainage and biofiltration. This project is being undertaken for the Australian government's CFI Methodology Development Program. Su's blog on Writing plain English science into legislation: or Compost Eats Methane gives a brief project overview and also explains Su's commitment to making this methodology as clear and readable as possible. Su's experience with carbon accounting has led her to believe that it's fundamentally not very difficult. However the systems we have developed for carbon accounting are often complex and unwieldy, making it difficult for non-experts to make sense of. This paper is another chapter in Su's efforts to demystify carbon accounting and so assist with greenhouse gas emission reductions.

## Susan McLeod

*GHD, Australia*

### Improving environmental leadership with resistance to change and behavioural change programs

**Abstract:** All environmental practitioners are involved in the process of influencing people as a means of encouraging the uptake of sustainable practices and more environmentally friendly behaviours...but of course some environmental practitioners are better at leading effectively than others. Leadership is usually described in terms of personality traits observed in "leaders", the position held in an organisation, the process which is taken to achieve results and the results that are achieved. This presentation will assess elements of environmental leadership with an emphasis on the on the process taken to achieve results, rather than particular personality traits or a position within an organisation. The presentation will explore the concept of using "resistance to change" and planned behavioural change programs as a means of achieving improved results. The author will share their own observations and experiences with resistance to change and behavioural change programs and provides an assessment of the pros and cons of these as a means of achieving sustainable change and improving the effectiveness of your environmental leadership.

**Biography:** Susan McLeod is a Senior Environmental Consultant with GHD Pty Ltd in Tasmania providing environmental services to a range of industries. Prior to Tasmania, Susan worked in consulting and the food industry in Melbourne. Her work has included 7 years as an Environmental Manager in a large food manufacturing company and 3 years in a similar role with the Melbourne Metropolitan Fire and Emergency Services Board. Whilst in these roles, Susan had firsthand experience developing and implementing behavioural change programs. Susan has encountered her fair share of resistance to change whilst trying to secure business support for environmental initiatives or simply trying to change work practices. Susan has undertaken Masters research on Resistance to Change and remains committed to unlocking the secrets to other people's success. It continues to be work in progress.



## Suzanne Little

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*Australian Forestry Standard Ltd*

### The two forest certification schemes in Australia

**Abstract:** There are two forest certification schemes in Australia and they are so similar that it is difficult to tell the difference. When the Check-Out television program on ABC filmed a segment on buying paper and wood in July 2014, it said both schemes were credible. However it went on to check its sources and asked environmental groups which was better. The answer was that FSC had better checks on the ground. The ABC took this at face value and featured the FSC logo and how it is used by retailers and consumers in their televised report. While the difference between the two schemes might have been lost on the viewing public, it raises the question as to whom journalists and communicators should go to for advice on environmental schemes in general. Is it advocacy groups like WWF, Wilderness Society and Planet Ark? Or is it the practitioners like EIANZ? Or is it one of the numerous industry umbrella bodies that represent producers of the products? In this case study of these forestry schemes, there is no dispute about both pursuing sustainable forest management and the chain of custody of wood & paper products. The presentation compares the subtle differences between Australian Forest Standard Ltd and the Forest Stewardship Council. It compares their not-for-profit status, origin, international affiliations, customisation to Australia, their Boards, the committee who sets criteria for audits, area and scope covered by certification, who do the audits, and how a standard differs from a set of principles and criteria.

**Biography:** Suzanne Little is a pioneer of the environment profession and was the environment director for Sydney's Olympic Games. During her long and ongoing contribution to the Environment Institute of Australia & New Zealand she was NSW Councillor and Vice-President, Australia. She has been the environment manager of 3 of the nation's big corporations: AGL, SAI Global and Vodafone Australia. Currently she is on 3 Boards and has been a non-executive board director for 10 years. Her committee work includes Chair of a standards-setting committee that drafts environmental standards. A comprehensive career as an environmental practitioner, employed by 15 organisations, led to her directorship of standards-development organisations: Australian Forest Standard Ltd; Australian Land Management Group; and National Standards Development Organisation Ltd. Suzanne champions natural resource management by writing articles for quarterlies, such as 'The Environmental Practitioner' (EIANZ) and 'Procurement Professional' (CIPSA). Her writing has won two awards: The 1996 Australian Gas Association award for an Environmental Impact Statement of a pipeline; and the 2010 CIPSA Essay Competition for an analysis of the difference between price and cost. Last month she graduated with her second master degree. This one is in Arts, specialising in non-fiction writing. With this she hopes to communicate science and sustainability to a broader audience.

## Tim Mellor

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*Mellor Olsson*

### Trusted counsellor or gun for hire: the legal principles which all expert witnesses need to know

**Abstract:** This paper addresses the Conference theme of "Shaping the Future". It considers an issue relevant to professional development of environmental practitioners. It also addresses one of the Conference topics "Broadening the knowledge and skills". It is an examination of an important aspect of effective communication. After its formulation, the actual application of environmental policy and regulation often involves proceedings in and consideration by courts and tribunals. Those bodies often require the assistance and rely upon the evidence of environmental expert witnesses. It is essential that the environmental practitioners giving that evidence understand their role and are able to communicate that evidence in a way which is not just technically, but also legally, effective. A failure to appreciate the legal issues lying behind those matters may result in the evidence being diminished in its value or, in some cases, disregarded altogether. The court room setting is a very public and exacting forum. Professional reputations can be made or lost in this context. This paper sets out in simple and direct terms the legal principles which all expert witnesses should know and understand. A compendium of the rules and practice directions in various jurisdictions is provided. The paper deals with recent judgments across all Australian jurisdictions on this issue. It provides a practical guide to all environmental practitioners who may find themselves in this role.

**Biography:** Tim Mellor has been a partner of Mellor Olsson, a major South Australian legal firm, for more than 30 years. He has developed an extensive practice particularly in the areas of planning, development and environmental law, including as counsel in many such matters in the SA Environment Resources and Development Court and in appeals to the Supreme Court and the High Court. Tim also acts in native title claims in the Federal Court. These areas of practice, and his work in general commercial litigation, have involved Tim in dealing with government at all levels, and in court appearances in all State and Federal Courts. In the course of this work, Tim has been involved in assisting many environmental practitioners and experts in their preparation for the process of giving evidence. Tim has been a member of the EIANZ since 2004. He has been a member of the Council of the Law Society of South Australia for the last 10 years and, during that time, has served as an Executive Member. He is also the Chairman of the Planning Environment and Local Government Committee and a member of the Aboriginal Issues Committee of the Law Society. Tim has been actively involved in the National Environmental Law Association over many years, including periods as President of the South Australian branch and as National President. His early experiences as an outdoor education instructor have led to a deep and abiding love of wilderness and all outdoor activities. Tim is the father of 7 children, which soaks up any other recreational time.

## Tom Davies

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*Edge Environment*

### Industrial ecology – leading the way to the transformation of waste recovery

**Abstract:** Industrial ecology is a fundamental environmental principle that utilises one industry's waste as a feedstock for another industry. By optimising material and energy flows, industrial ecology closes the material loop of industrial systems. Edge Environment is establishing the Sydney Industrial Ecology Network to divert thousands of tonnes of waste from landfill and popularise the concept of industrial ecology, making it a business as usual process. The Sydney Industrial Ecology Network will bring businesses together across NSW to foster reuse of commercial and industrial waste. The Sydney region offers an opportunity to tap into more than 2.5 million square metres of office fit out material that is currently made redundant each year, including metal and timber desks, chairs, partitions and computer equipment. Working with office churn has the potential to return 3,000 to 4,000 tonnes of metals, timber, glass and plastics to the productive economy each year. Additional opportunities are available in the fast-food industry to look at ways of reducing waste associated with both the preparation and sale of large volumes of food in Sydney. Edge Environment has been awarded a grant from the NSW Environment Protection Authority (EPA) to establish and run the Sydney Industrial Ecology Network. This program is part of the Waste Less, Recycle more initiative to fund the transformation of waste and recycling in NSW. This initiative will build on several years of research and engagement that Edge Environment has carried out across multiple industries and businesses. This approach to resource recovery will transform the way industry sees waste and will lead the way to more sustainable resource production.

**Biography:** Tom is a founding Director and Chairman of Edge Environment. Tom is a chemist by training, and following a career as a British Army officer Tom came to Australia to study an Environmental Management Masters Degree at UNSW. Since 2003 Tom has been contributing to the development of the Environment industry and profession in Australia with leadership and application of knowledge and skills. Tom was the first Sustainability Manager for the Timber industry; established a Building Research team in Australia for BRANZ, established the Environmental Professionals Forum; was President for the NSW Division of the Environment Institute of Australia and New Zealand (EIANZ); founded Edge Environment, has established a specialism to train Environmental Professionals in Climate Change, established Learning to Adapt as a training course to train environmental professionals and contributed to the set-up of the Industrial Ecology Network in NSW amongst other things. Tom has a long history practicing Industrial Ecology; in 1995 Tom established a company in the UK that processed tyres and textiles into consumer products and has carried on to make many by-product synergies over the course of a decade. Many of these are used as case studies today and work led to the establishment of a formal Industrial Ecology Network.

Tom has well established business networks in Australia, and particularly good in Sydney, which he has used to deliver valuable projects that have resulted in optimal environmental outcomes.

Tom is an environmentalist, businessman, leader, change-maker, connector, scientist, and is a passionate believer in industrial ecology as part of the solution to sustainable production and consumption.

## Victoria Press

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*Department of the Environment*

### A practitioner's guide to cost recovery under the Environment Protection and Biodiversity Conservation Act (EPBC Act)

**Abstract:** On 14 May 2014 the Australian Government introduced legislation into Parliament to facilitate the one stop shop policy and to allow for cost recovery for environmental assessments under the Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act). This represents a significant milestone in the implementation of the reforms to improve the efficiency of environmental regulation while maintaining high environmental standards. The introduction of cost recovery for environmental assessments under the EPBC Act will mean that each person proposing to take an action that will have or is likely to have a significant impact on a matter of national environmental significance will pay for the services required to assess their application. The presentation will provide an outline of the cost recovery arrangements, including who cost recovery will apply to, what actions cost recovery will apply to, how fees will be calculated and more broadly how cost recovery fits into the broader reforms of environmental regulation.

**Biography:** Victoria Press is a Director in the Environment Assessment and Compliance Division, responsible for implementing many of the policies of the reform agenda, mainly cost recovery. Victoria has also been involved in a range of environmental impact assessments in the Department of the Environment as well as other Commonwealth and State departments throughout her career. Victoria was also involved in the Australian Government's Water for the Future initiative, implementing State Priority Projects and election commitments for irrigation infrastructure upgrades in several States. Victoria's academic background is in environmental science and urban and regional planning.



Welcome Function music provided by:

**The Friends' School**

**Musicians**

Lily McCann, Maxwell Parr,  
Wilhelmina Johnson, Eliza Reynolds  
Teacher: Christine Akerman

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