

The Environmental Practitioner

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Environment Institute of
Australia and New Zealand Inc.

From the President

*Jon Womersley, FEIANZ
President, Environment Institute of Australia and New Zealand*

Members,

Much of interest has happened since I last penned a message to EIANZ Members and others who read "The Environmental Practitioner", and what has occurred bodes well for the environmental profession and the EIANZ. Here are some key things that I trust will be of interest to you all, and demonstrate why in 2015, being an environmental professional matters more than ever before.

Some Matters of Note

Dredging and Reefs

There have been some significant steps forward in the environment arena over the last few months. The campaign to more effectively manage the Great Barrier Reef World Heritage Area has seen a significant shift in the approach that governments are taking to the development of new port facilities and the consequential disposal of spoil from capital dredging. Governments of all political persuasions appear to be committed to preventing the disposal of such material in the World Heritage Area.

Disposal of spoil from capital dredging on land brings its own environmental challenges. It will be important that organisations that

regulate such activities, with the support of professional associations such as the EIANZ, develop science based good practice environmental management standards and guidelines. While such an outcome is desirable, it unfortunately leaves unresolved what will happen to the spoil from maintenance dredging. More importantly, these outcomes do not speak to the significant contribution that chemical and sediment loads from land uses in upland landscapes and rivers make to the degradation of the inshore reefs that are part of the Great Barrier Reef World Heritage Area.

Whether these renewed efforts by the Commonwealth and Queensland Governments will be sufficient for Australia to avoid the UNESCO World Heritage Committee placing the Great Barrier Reef World Heritage Area on the list of World Heritage Properties in Danger remains to be seen.

Circular Economies

There is a new language emerging around the environmental issues associated with waste management. It is the language of a 'circular economy'. Re-using, repairing, refurbishing, recycling and reprocessing existing materials and products can turn them from wastes to resources. Raw resources are not limitless nor always abundant, available and cheap to dispose of. Moving towards a circular economy is at the heart of a resource efficiency agenda for smart, sustainable and inclusive economic growth.

Three important things have recently occurred in Australia.

In the lead up to the New South Wales state elections, the Government has announced that it will, if re-elected, for the first time outside of South Australia, introduce a beverage container deposit scheme to facilitate the collection and recycling of these materials. While this is only one mechanism by which we can restructure the market place, to re-capture existing resources and reduce demand for new un-processed resources; it is a significant step forward in the development of a circular economy.

This was soon followed by the launch of a new globalised corporate entity that markets its point of difference as catering for the optimisation of the consumption of water resources, the recovery of wastes, and the development of innovative solutions for their treatment and re- use. This is part of a continuing journey for this entity. What is important is not the entity, but the recognition of the global nature and importance of conducting business in the circular economy.

The third thing to occur is the emergence of a strong campaign to deal with the challenge of global plastics pollution. Clearly evident in the flotsam and jetsam that washes ashore on the beaches of Australia and New Zealand, the best estimate is that 8 million metric tonnes of plastic go into the ocean each year, much of it from developing economies where waste management practices are poorly developed. The consequences for marine wildlife, seabirds and fisheries are significant and threaten some species.

It is easy to focus on assessment, approval and compliance systems as resolving environmental issues. Good practice environmental management of water and wastes needs to be a significant component of the emerging circular economy.

Indigenous Communities and Environmental Management

An indigenous speaker at the recent Australasian Oil and Gas Conference in Perth was reported in the press as being disappointed in the way that environmental campaigners had deprived the indigenous community in north - west Western Australia of the economic benefits that could have flowed from a project to process gas from the Browse Basin. This at a time when Commonwealth, State and Territory governments are debating the merits of sustaining remote indigenous communities.

I reflected on the importance for the EIANZ of differentiating good practice environmental management from campaigning for causes. Environmental professionals are the people who use scientific knowledge to develop good practice environmental management. Practice that lies at the heart of finding sustainable solutions to the changes in the environment that economic development and communities seek.

I reflected on the rights of indigenous people to share the economic and social benefits that come with economic development. Environmental professionals must be the facilitators and guides to ecologically sustainable development. We must be ready to raise the red flag when the environmental consequences of change will destroy the integrity and resilience of ecosystems and the services they provide. We ought, however, to be careful that the consequences of our advice and practices do not unreasonably rob indigenous communities of the benefits of economic and social development, while we continue to live in comfort and prosperity.

Professional recognition

Last month, the House of Representatives Standing Committee on the Environment released its report "Streamlining environmental legislation". The EIANZ represented the interests of environmental professionals to the Committee, and this can be seen in the evidence from the EIANZ that is relied upon and quoted in the report.

The report deals extensively with devolving decision making about matters of national environmental significance to State and Territory governments. Sadly it does not examine, in any depth, the measures that ought to accompany devolution of decision making to assure the Commonwealth Government that, when it comes to development projects that trigger assessment and approval, the State and Territory governments are consistently applying good practice environmental management standards in their decision making.

The EIANZ put forward that the road to improving the standards of environmental assessment and decision making lies in improving the consistency of environmental regulation. Included here was the suggestion that documentation relating to environmental assessments and approvals be certified by accredited environmental practitioners, or 'suitably qualified and experienced persons'.

The Committee supported the development of a system of accreditation, and commented that such accreditation could give the community and government authorities greater confidence in the information being provided and in the process itself. The Committee recommended that "the Department of the Environment investigate methods of accreditation - including the relevant standards for accreditation - for environmental practitioners and

contractors to enable the establishment of a professional standards body".

This is a significant opportunity for the EIANZ to press for the mandating of requirements that Certified Environmental Practitioner status be the basis for credentialing documents that contribute to environmental assessments, approvals, monitoring and regulatory compliance. The engagement of environmental professionals in this way will ensure higher standards of practice and better environmental outcomes can be delivered. While not everyone may agree with this approach, it importantly leaves the responsibility for providing assurance to governments, industry and the community about proficiency and ethical practice, setting standards, and disciplining performance to a membership based professional organisation rather than governments. One of the hallmarks of a profession is that it accepts the burden of its own standards and discipline.

The EIANZ is well placed for this task. It has an established Certified Environmental Practitioner Scheme with specialties in ecology, impact assessment, climate change, and now contaminated land. It has an arm's length, impartial assessment process conducted by the Certification Board. It has a formal disciplinary process, exercised by the Disciplinary Committee, to deal with internal and external complaints of breaches of the Code of Ethics and Professional Conduct or the criminal law.

The EIANZ aspires to be the professional association of choice for environmental practitioners. In collaboration with the Certification Board, it will take up the recommendations of the House of Representatives Standing Committee on the Environment report with the Commonwealth Minister for the Environment, and, where opportunity permits, with relevant Ministers in State and Territory

jurisdictions. We will be seeking to facilitate the development of the profession.

Influence comes with numbers

Being a membership based organisation doesn't just mean that our business model is based on people paying to belong, though that is important. It means that for its activities and effectiveness, the organisation is dependent largely on the voluntary contributions of its members. One of the privileges of my role as President is that I get to see and appreciate how much our members contribute because they believe in the vision and values of the organisation, and that it can make a difference through the certification of environmental practitioners and the advocacy of good practice environmental management.

These voluntary contributions provide professional development and networking events, they contribute to governance across the organisation, they craft position statements and submissions, and they represent the organisation in the community. To be an effective organisation the EIANZ must actively grow its membership. We must each encourage others to join us as professional environmental practitioners.

Joining the EIANZ is a way of achieving recognition as an environmental professional; being able to point to a robust [*Code of Ethics and Professional Conduct*](#) as a discipline to practice, whether employed in government, industry, as a consultant, or in community organisations; and having access at member rates to continuing professional development.

If every one of us recruits just one new member in the next six months the EIANZ would double its membership and increase its influence as

a professional association for environmental practitioners. The Advisory Council is currently developing advice to the EIANZ Board about how we can grow the membership of the organisation. I encourage you to tell us what you think makes the EIANZ attractive to you as a member, what would make it more attractive to you, or make it easier to promote membership of the organisation to you colleagues.

Conferencing together in 2015

In October 2014 we had a very successful conference in Hobart, Tasmania. For 2015 we are holding the conference in Perth, Western Australia. The EIANZ conferences showcase the scientific knowledge on which ethical good practice environmental management is founded, and the practice itself.

This year's conference will be no exception. "Challenging the Status Quo – Excellence in environmental practice" is being held, on the west coast of Australia with its exposure to the Indian Ocean, in a biodiverse rich environment with challenging issues relating to water management, agriculture and grazing management, the environmental consequences of resource extraction, and an ever expanding tourism sector.

With the strong support of the Western Australian Division we are putting together an exciting program of field trips and headline speakers. The conference is being built around four areas of interest: biodiversity threats, conservation and resilience; water, land and landscapes; reefs, ports and sustainable access; and strategic assessment policy, practice and science. This will be a conference to challenge your thinking about the foundations of good practice

environmental management, and its application to real world problems.

Call for papers and posters will be announced shortly, seeking perspectives and experiences across all aspects of good practice environmental management and its underpinning science.

Join colleagues in the field and in conference for “Challenging the Status Quo – Excellence in environmental practice”. I look forward to seeing you there.



News, Views, Articles and Updates

What's in a List? The listing process for threatened species in Queensland

Dave Fleming, MEIANZ, Chair Ecology SIS

In December 2014, the conservation status of 150 species of plants and animals in Queensland was amended. This article aims to show why these species were re-classified seemingly without warning and provides background to the process of listing species as threatened in Queensland.

Ecologists are often asked by project proponents "Why is that plant/animal/community listed as threatened?" when confronted with a record of a threatened species on their development site. The occurrence of one or more species on the site may require the proponent to complete additional ecological surveys, alter their development plans, implement specific mitigation and management measures, and/or offset the proposed or likely impacts of their development to comply with the legislation governing threatened species – all of which costs time and money for the proponent.

This issue is compounded when the threatened species lists are amended, sometimes without warning, rendering a listed threatened species to 'common' status. Proponents can feel annoyed that resources have been expended on managing a species which is no longer defined as threatened or significant and community members may feel that these species have lost their protection under legislation or that industry has placed pressure on government agencies to

remove such protections. This is highlighted by the recent amendments to the threatened species lists in Queensland over the past few years reclassifying many species, particularly those previously listed as Near Threatened (NT), to Least Concern (LC) status.

The Queensland *Nature Conservation Act 1992* (NC Act) is the piece of legislation that establishes, amongst others, protection of all native flora and fauna species. The Act sets out the classes of wildlife (plants and animals) in which species can be placed into, and which have increasing levels of protection afforded to them relative to the risk of the species becoming extinct. The classes are currently; Extinct in the Wild (EX), Endangered (EN), Vulnerable (VU) and NT. Common species that are not at risk of extinction, are listed in the LC class. These classes are based on the framework set out by Version 3.1 of the International Union for the Conservation of Nature (IUCN) Red List of Threatened Species (the Red List). A description of the listing criteria used to place species in each class is provided at the end of this article.

The NC Act is supported by several Regulations including the *Nature Conservation (Wildlife) Regulation 2006* (Wildlife Regulation), which lists the species under the various classes described within the Act. When species have been assessed by the Species Technical Committee (STC) and species' experts requiring a move into a different class, the Wildlife Regulation is amended. The amendment of regulations is often completed without a public review period, and therefore changes to listing status can be unexpected. This is

particularly the case in Queensland where the species nomination process is conducted without public scrutiny and very little indication of which species have been nominated or assessed¹. This is in direct contrast with the Federal Government's (Department of the Environment) species listing process, which is comparatively transparent with relevant information on the nomination process available on their website. However, this is not to imply that the species listing process in Queensland receives no public input – on the contrary, species must be nominated before being considered for listing by the STC and for the most part, the public (including industry and government scientists) submit those nominations.

One may ask how does the STC assess a nomination for species listing? Once a nomination has been received the STC assesses the information contained in the nomination against the guidelines for each class (the guidelines are derived from the IUCN Red List guidelines). The STC also relies on experts on the species who may obtain additional data or evidence of how the species meets the criteria for inclusion in a class. Whilst the decisions are not made public, the first indication of a successful nomination is often the release of the updated Regulation.

The evolution of Queensland's threatened species listing process can also go some way to explaining the recent reclassifications. Prior to 2010, Queensland listed species under a 'Rare' category, which sat between the VU and NT categories. The Rare category contained species that were naturally rare in the landscape and those species that were rare and at risk of becoming vulnerable. This situation often led to confusion by industry and those working with

threatened species permits and approvals. The Rare category was abolished from the NC Act in June 2010, in part, to resolve the conundrum surrounding naturally rare species and species in danger of becoming vulnerable, and also to align the classification categories with those of the IUCN Red List to become the familiar EX, EN, VU, NT and LC2 classifications.

With abolition of the Rare class, species had to be moved into either the NT class or LC classes. Although the STC reassessed the classifications of over 250 species of plants and animals, almost 500 additional species were transferred into the NT category awaiting assessment. Over recent years there has been a gradual process of review of these nominally NT species into categories that more appropriately reflect their conservation status.

It is also important to remember that Queensland has recently experienced a resources boom and this has led to a veritable surge in ecological survey effort across parts of the State that have previously had very little or no biological surveys. This has provided a proportionally higher number of species records that have been submitted to the Queensland Department of Environment and Heritage Protection (EHP) for vetting and subsequent inclusion onto their biological database (WildNet in Queensland) than in the past. These data are used to support species nominations and reclassifications as was the case for recent reclassifications of raspwort *Gonocarpus urceolatus*, rough frog *Cyclorana verrucosa*, brigalow scaly-foot *Paradelma orientalis* and little pied bat *Chalinolobus picatus* for example.

¹ Anyone can apply to SpeciesTechnical.committee@ehp.qld.gov.au to request a copy of a submitted nomination form.

² The NC Act also provides classifications for International and Prohibited wildlife.

In conclusion, Queensland has an established and scientifically robust method to assess the conservation status of native wildlife and the recent changes to the Wildlife Regulation marks the end of a reclassification process that started in 2010. The ongoing function of the STC is important to provide an impartial process of species assessments and make decisions that accurately reflect the current body of knowledge of a species and the level of extinction risk. However, it can be argued that the process should be more open, transparent and with public input at all stages of nomination and assessment. The ongoing effort to align State and Commonwealth threatened species lists may provide the opportunity for this to happen.

Further information

Department of Environment and Heritage protection (2015) *Wildlife reclassification process*. Website address <http://www.ehp.qld.gov.au/wildlife/threatened-species/category-changes.html>, website accessed 30/1/2015.

International Union for the Conservation of Nature (2015) *The IUCN Red List of Threatened Species, Version 2014.3*. Website address <http://www.iucnredlist.org/>, website accessed 30/1/2015.

In force legislation

<https://www.legislation.qld.gov.au/LEGISLTN/CURRENT/N/NatureConA92.pdf> and
<https://www.legislation.qld.gov.au/LEGISLTN/CURRENT/N/NatureConWiR06.pdf>

Species nomination form

http://www.ehp.qld.gov.au/wildlife/threatened-species/documents/species_nomination_form.doc



Rough frog Cyclorana verrucosa was reclassified from NT to LC in December 2014



Grey goshawk Accipiter novaehollandiae (white morph) was reclassified from NT to LC in December 2014

AJEM Update

The Institute's journal, the *Australasian Journal of Environmental Management*, is bringing out two special issues in early 2015, both celebrating landmarks in Australia's environmental policy and management. The March issue, guest edited by Giorel Curran and Robyn Hollander of Griffith University, celebrates 25 Years of ecologically sustainable development in Australia.

Each of the contributions to this special edition emphasise the critical role of leadership. For Curran, the absence of sustained elite leadership within the ranks of elected representatives inhibited the modernisation of political institutions and impacted the fortunes of ecologically sustainable development. Similarly, Hollander pointed to the absence of central government leadership in the intergovernmental arena. Pittock, Hussey and Dovers, and Macintosh also emphasised the criticality of political leadership and effective institutional design, with the former focusing on the design and implementation of specific programs and the latter pointing to the law. Finally, O'Faircheallaigh stresses the centrality of community participation and leadership to the realisation of the principles of ESD.

The June issue, called 'Future of an Icon: K'gari-Fraser Island, climate change and social expectations', is guest edited by Angela Wardell-Johnson and Gabriel Conroy, of the University of the Sunshine Coast. This special issue marks the current challenges to world heritage listing in Australia and the way in which society will contribute to decisions about world heritage sites in the future. It addresses the way in which transdisciplinary approaches may effectively identify socio-cultural and bio-physical values recognised in iconic national parks; potential and compounded threats due to changes in social values and

changes in climate; and conflicting values that have implications for use, management and planning in the world heritage context.

World heritage listing of K'gari-Fraser Island, nearly 25 years ago, has changed the way in which this iconic island is valued, used and managed. UNESCO's designation of World Heritage listing means that Australia has accepted the assignment of protecting the values of this landscape for the future (Dahlström 2003). The journey to listing recognises the natural and cultural heritage, shaped by deep time, and contemporary social and environmental influences that have raised the island's profile and stimulated tourist demand beyond the national context (Harrison & Hitchcock 2005). The values shaping the use and management of the island reflect past management history. Planning for a changed future must acknowledge dynamic global-scale processes that result in social and environmental changes. The consequences of these changes on the biophysical landscape are potentially far-reaching for the way in which the park is valued and managed.

In the special issue, the values associated with K'gari-Fraser Island are identified through synthesis and research papers integrating disciplinary approaches that include geomorphology, environmental engineering, coastal studies, ecology, conservation planning, geography, environmental sociology, cultural philosophy, eco-psychology, policy studies and cultural studies. This special issue demonstrates that physical and biological phenomena are subject to significant environmental and social interpretation; making it important to consider information within broader perspectives in contemporary social and policy contexts.

Dahlström, Åsa Nilsson. 2003. "Negotiating wilderness in a cultural landscape(predators and Saami reinder herding in the Laponian world heritage area)." Uppsala studies in cultural anthropology.

Harrison, David and Michael Hitchcock. 2005. "The politics of world heritage: Negotiating tourism and conservation." Channel View Publications.



The Australasian Journal of Environmental Management is published quarterly and is distributed to full and fellow members of the Institute.

Associate and student members, along with non-members may subscribe to the Journal. For more information [click here](#) or contact the Central Office team office@eianz.org

OPPORTUNITY FOR COMMENT:

EIANZ Position Statements

The EIANZ invite Members to provide comment on the following position statements drafted by the Policy and Practice Committee, in consultation with the Impact Assessment Special Interest Section and Climate Change Special Interest Section.

- **Position Statement: Incorporating Environmental Considerations Into Development Projects**
- **Position Statement: Climate Change**

To comment [click here](#)

ACT State of Environment Report 2015

Every four years, the ACT Office of the Commissioner for Sustainability and the Environment (OCSE) prepares a State of the Environment Report for the ACT. The reporting period for this year's report is 1 July 2011 to 30 June 2015, and the report will be delivered to the Minister on 21 December 2015.

The objectives of the ACT State of the Environment Report are to:

- provide accurate, timely and accessible information to the community and government regarding the condition of the environment, underlying pressures, and sustainability trends.
- evaluate the effectiveness of community and government actions, policies, and initiatives in terms of progress towards sustainability.

- increase community and government understanding of environmental and sustainability trends and interactions.

The EIANZ (ACT Division) has been asked by the OSCE to coordinate peer reviews of each of the chapters of the report. The aim of the review process is to obtain constructive advice which validates and strengthens the content of the State of the Environment Report. Dr Su Wild-River, Vice-President of the EIANZ (ACT Division), is leading the peer review coordination.

This provides EIANZ members, and especially Certified Environmental Practitioners, with an excellent opportunity to utilise their professional skills and experience to play an important role in a public document. CEnvPs would be able to claim CPD points for this work. Peer reviewers are sought for the following chapters:

1. Drivers and Pressures: (a) Human Needs; (b) Climate (Weather and Climate Change)
2. How is our environment faring? This section includes the theme papers for the report, each theme includes an assessment of the state and trends and a report card assessment summary. Areas covered are (a) Air; (b) Land, (c) Water; (d) Biodiversity; (e) Heritage; (f) Fire; (g) Liveability
3. Assessment of the Effectiveness of Management Responses
4. Resilience and Ecosystem Services.

If you're interested in being involved, please contact Dr Su Wild-River at su@wild-river.com.au

The EIANZ (ACT Division) is planning on hosting an event in early 2016 following the release of the report or keep an eye out for the release of the report at:

<http://www.environmentcommissioner.act.gov.au/publications/soe>

Dave Fleming appointed as Chair, Ecology Special Interest Section (SIS)

Dave Fleming, Principal Ecologist, at Ecology and Heritage Partners Pty Ltd (Brisbane office) has been appointed Chair of the Ecology Special Interests Section (SIS) of the EIANZ. The Ecology SIS was established in 2009 with the aim of bringing together members of the Institute who share a passion of ecology.

Dave stated that 'he is delighted to have the opportunity to reinvigorate the Ecology SIS and is looking forward to reconnecting with members of the Institute previously involved with the SIS, and new members with an interest in ecology and keen to be involved.

'I am particularly passionate about engaging with the members to encourage active dialogue and participation in robust discussions around current and emerging trends, issues and challenges in the Ecology space. As the Chair of the Ecology SIS it is important for me to promote best practice and high ethical standards in ecological assessment, research and management, and to encourage relevant members to gain certification as an Ecology specialist in the Certified Environmental Practitioner (CEnvP) scheme'.

Further information relating to key discussion points and ways you can actively contribute to the Ecology SIS will be provided in future news alerts and in "The Environmental Practitioner".

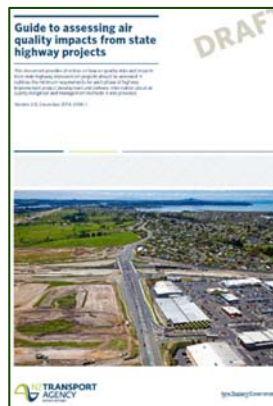
Any members in a position to actively participate in the Ecology SIS and support the continuation of this important role within the Institute are encouraged to contact Dave Fleming at phone 0407 512 176 or dfleming@ehpartners.com.au

NEW Air Quality Impact Assessment Guide for NZ

The Transport Agency has released a draft "Guide to assessing air quality impacts from state highway projects". The guide has been developed to encourage nationally consistent application of best practice assessment methods and is based on the Good practice guide for assessing discharges to air from land transport developed by the Ministry for the Environment.

While air quality is only one of many potential environmental impacts resulting from roads it can be a significant area of community concern. The Transport Agency is committed to acting in an environmentally and socially responsible manner which includes reducing the adverse air quality effects of vehicle emissions and state highway projects. The guide is one of the key tools the Agency's Environment and Urban Design team have developed to promote a consistent and effective approach for better management of air quality issues across the state highway network. The Guide sets out the minimum requirements for good practice but does not preclude higher standards being adopted for projects where the sensitivity of the environment or the scale of the project warrants greater attention.

The Guide is aimed at project managers, planners and air quality specialists but will also be useful for environmental managers and contract managers. It can be downloaded from the Transport Agency Air at www.air.nzta.govt.nz



NEW Ecological Impact Assessment Guidelines for NZ

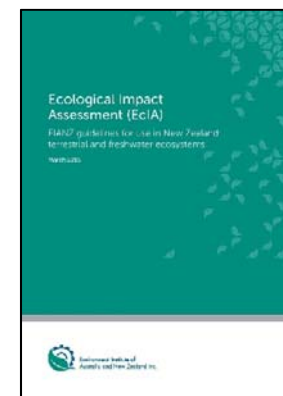
The Institute has just launched a comprehensive guidance document for ecologists undertaking ecological impact assessment in New Zealand's terrestrial and freshwater ecosystems – the first of its kind for professionals in New Zealand.

The Guidelines provide a reference source, founded in ecological science, that describe what Ecological Impact Assessment is, how it should be carried out, and what is specifically considered good practice. They aim to improve the scientific rigour, objectivity and consistency of Ecological Impact Assessments; and in doing so, raise the standard of practice and decision-making on environmental matters in New Zealand. They are useful for ecologists undertaking assessments in private practice and local or central government, as well as for decision-makers in the environmental management area, and for students.

The Guidelines also contain a section on Professional Practice which addresses some of the ethical and practice issues that may be faced by ecologists undertaking or reviewing Ecological Impact Assessment.

The Guidelines were written by ecologists in the New Zealand Chapter for ecologists, and will be updated regularly in response to testing by professionals and feedback.

The New Zealand Chapter is seeking comment and feedback from anyone using the guidelines. Please contact the Chapter by email newzealand@eianz.org



The Importance of Networks of Marine Protected Areas and How to Achieve Them

Graeme Kelleher. AO. MEIANZ

Introduction

This paper summarises strategic lessons learned over a forty year period in the establishment and management of marine protected areas in many different bio-geographical areas of the world and in varying cultural and economic environments. The psychological and socio-economic bases that I believe underlie these lessons are briefly examined.

This paper does not deal with issues at the detailed or day-to-day level, because what works in one country at this level may not be successful in another country with different historical, social, economic and ecological attributes. However, at the strategic level, successful policies and methods tend to be common.

"How complex and unexpected are the checks and relations between organic beings, which have to struggle together in the same country?" (Charles Darwin, 1882)

Charles Darwin was referring to living organisms, but his observation is equally applicable to the checks and relations between human political and administrative organisations which the world is seeing early in the 21st Century.

We are at last realising that everything is connected to everything else and that the natural and political worlds operate as complex systems with characteristics which ensure that they will function

chaotically. That is to say, precise predictions of events and states (and economies) a long time ahead will not be possible.

The best reaction to such a situation is to proceed strategically - that is, to adopt objectives and policies that will put us in advantageous positions from which to take specific actions which will contribute to us attaining our overall goal. That overall goal is, of course, ecologically sustainable use of the biosphere by humans.

My aim in this paper is to suggest strategies which should contribute to this goal in relation to the establishment and successful management of networks of marine protected areas. In doing so I shall draw on experiences from around the world that demonstrate which approaches usually work and which ones usually fail. The ubiquity of these lessons in social and natural sciences and management reflect the apparent commonality of human attributes in all societies.

Background

Particularly in developing tropical countries, many local communities depend on coastal marine areas for food. These areas are subject to stresses from direct use and the effects of land-based human activities. Setting up marine protected areas in these circumstances is difficult. Strong support and ownership from local users is essential and socio-economic factors often determine the success or failure of attempts to develop and establish marine protected areas, hence the focus of this article.

A universal definition of a protected area was adopted at the World Conservation Congress in Barcelona in 2008 as *"a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term*

conservation of nature with associated ecosystem services and cultural values."

The primary goal of the marine program of the International Union for the Conservation of Nature (IUCN) is *"To provide for the protection, restoration, wise use, understanding and enjoyment of the marine heritage of the world in perpetuity through the creation of a global, representative system of marine protected areas and through the management in accordance with the principles of the World Conservation Strategy of human activities that use or affect the marine environment"*. In this paper I discuss these lessons in relation to attainment of this goal, which has determined all the strategies that I and my colleagues have adopted within the work plan of the World Commission on Protected Areas (WCPA) over the past four decades.

The conclusions and lessons have deliberately been drawn from different bio-geographic and socio-political areas and can be considered to apply generally. They all contain elements of experience which are likely to be met in establishing a network of marine protected areas in any bio-geographic or socio-economic area, regardless of the Category of Protected Area in which they best fit.

Lessons from experience

1. BEFORE AN MARINE PROTECTED AREA IS ESTABLISHED, ITS GENERAL AND SPECIFIC OBJECTIVES SHOULD BE CLEARLY DEFINED. The physical, chemical, biological, social and economic attributes that define those objectives should be identified; and a monitoring program should be designed that will measure those attributes as a foundation against which to measure later changes.

Management should be adaptive, meaning that it is periodically reviewed and revised as dictated by the results of monitoring and research. Modern management recognises that it is not possible to assess performance without identifying measurable objectives and overtly measuring the attainment of those objectives. Regular reviews and their incorporation in revised plans of management are essential.

2. SOCIO-ECONOMIC ISSUES ARE CRITICAL. They often determine the success or failure of marine protected areas and should be addressed from the outset in identifying suitable sites for selecting and managing marine protected areas. Nevertheless, it is essential that ecological considerations are central in the process of identifying potential sites for successful marine protected areas.

Any marine protected area will not be successfully established without general community support – especially support and some sort of ownership from local communities, whether in developing or developed countries. Enforcement measures alone will be insufficient to establish and manage a marine protected area successfully and voluntary compliance by the majority of users is essential, reinforced by enforcement that ensures that the minority non-compliers will not get all the benefits, or negate the good will and commitment of the majority compliers.

Local communities must be involved in the preliminary scoping phase of establishing a marine protected area, but also during and after establishment and management of a marine protected area.

3. TIME SPENT IN PREPARATION IS AN ESSENTIAL INVESTMENT that will be repaid many times over. Proponents of marine protected areas have to show demonstrable benefits for stakeholders, and this takes time and diplomacy. To date, there still seems to be some scepticism

in fisheries agencies about the benefits of marine protected areas. However, there is a wealth of information available on the successes of marine protected areas globally. Never assume that people are fully aware of these examples.

4. LOCAL PEOPLE must be deeply involved from the earliest possible stage in any marine protected area that is to succeed. This involvement should extend to them receiving clearly identifiable benefits from the marine protected area. Lack of participation by local people is the most common cause of failure, for no government can manage effectively an marine protected area without community support. Effective participation calls for restraint on the part of marine protected area managers, who must ensure that the local communities “own” the marine protected area intellectually and emotionally. Continued community involvement in management (including monitoring and enforcement) increases this sense of ownership and greatly decreases the overall cost of management.

An important attribute of human behaviour is to be suspicious of proposals by others, in the development of which they have not been involved from the start. This suspicion is often justified. All of us have had experiences where proposals have been deliberately held secret so as to minimise the ability of those who will be adversely affected by the proposals to oppose them. I believe that this human attribute may be so fundamental to survival that it is genetically programmed.

The work involved in converting a person full of suspicion to an ally is immense. Sometimes it is impossible. While the early involvement of potential opponents in the process of developing and establishing a marine protected area takes a lot of time and effort (and maturity),

the global experience is that this investment is essential. It will produce dividends of much greater magnitude later on in the development phase. Conversely, haste in the development phase, often in order to remove opportunities for opposition, will usually result in future costs many times greater than the apparent savings.

5. THE MOST IMPORTANT ATTRIBUTE OF AN MARINE PROTECTED AREA MANAGER IS INTEGRITY. Many managers have made the mistake of believing that they can fool some of the people some, or even all, of the time. The consequence of this is that the manager appears to win a series of battles, but he or she loses the war because of the accumulation of enemies and loss of trust. This eventually leads to failure.

6. DESIGN AND MANAGEMENT OF MARINE PROTECTED AREAS MUST BE BOTH TOP-DOWN AND BOTTOM-UP. A common feature of western thought, which many Asians find amusing, is the “either-or” mentality. This is demonstrated in the adversarial legal systems which prevail in many western countries and by the tendency to think in black and white terms.

The debate about the relative merits of top-down and bottom-up approaches exemplifies this problem. Except in effective dictatorships, pure top-down methods will never work. Equally, attempts by local communities to establish protective measures without the support of appropriate levels of government will often end in their rules being broken by outsiders. Therefore, in developing marine protected areas, it is necessary to obtain the formal support of both local communities and government.

7. SUSTAINABLE FINANCING NEEDS TO BE BUILT IN FROM THE BEGINNING. In many countries government budgets for conservation

are declining, and under present economic circumstances are likely to continue to decline in real terms. Protected area managers are having to be increasingly creative in finding ways of paying for protected areas once the initial grants and aid support run out. Alternative income generating activities should be planned from the beginning, not when the grants run out. One strategy is to create a Trust Fund to be financed by users, national and international organisations, governments and donors. Only interest from the Fund should be used in management- not the capital unless a major improvement in infrastructure is involved.

Ecotourism is often the best source of continuous funding, particularly when the local community runs the tourism enterprises and therefore receives the economic benefits. The requirement for tourists to pay for their use of the marine protected area should be included in legislation. The revenue should be used only in management of the marine protected area.

The coordination of the programs of organisations involved in management is essential because it reduces duplication, conflict and costs, and increases efficiency. Development, research, agricultural, fisheries, enforcement and environmental organisations should each contribute to an overall, integrated management program. A single coordination organisation with overall responsibility and power, such as the Great Barrier Reef Marine Park Authority, is arguably the best solution.

Involvement of locals in monitoring and enforcement reduces costs and leads to more efficient operation.

8. ALMOST ALL MARINE PROTECTED AREAS CONTRIBUTE TO SUSTAINABLE FISHERIES, because they invariably contribute to the

maintenance or restitution of both biological diversity and productivity. One of the problems commonly encountered in setting up marine protected areas is conflict between those who wish them to be established purely for the sake of biological diversity and those who emphasise their contribution to human welfare. This conflict is not only unnecessary, it is destructive of both objectives. There are always opponents to the development and establishment of marine protected areas and it is essential that those in favour of them collaborate. Ecologically, marine protected areas inevitably contribute to the maintenance and restoration of biological diversity and also to biological productivity.

9. THERE HAS BEEN A LONG HISTORY IN ALMOST ALL AREAS OF THE WORLD OF CONFLICT AND LACK OF COOPERATION BETWEEN ENVIRONMENTAL AND FISHERIES MANAGEMENT AGENCIES. This lack of joint action inhibits progress in establishing marine protected areas and managing them wherever it is manifest. Individual marine protected areas and systems plans should be designed to serve both sustainable use and environmental protection objectives, and relevant agencies should work together in planning and management. Anyone who is familiar with government in any democratic country (and perhaps in non-democratic ones) will have encountered the natural human tendency for officers of one agency to compete with officers of other agencies. This occurs particularly where, as in the case of fisheries and environment agencies, the objectives will overlap or appear to be in conflict. This is an example of the truth of Charles Darwin's conclusion that I mentioned earlier—"How complex and unexpected are the checks and relations of organic beings, which have to struggle together in the same country." This applies to human organisations, as well as to living organisms.

If this natural human tendency is to be overcome, it will require deliberate action by the agencies concerned to identify the problem and to set up systems to overcome it. Perhaps the most effective system is the establishment of joint working parties to deal with the development of strategies and action plans that address the primary objectives of both agencies. Clear roles and responsibilities can be set out in a Memorandum of Understanding, or agreement between agencies. Failing this, at least regular face-to-face meetings with officers from different departments should occur.

An alternative approach that has been shown many times to avoid this conflict is to have a primary agency (or Authority) that has the power and motivation to ensure cooperation in avoiding this usually unnecessary and destructive conflict.

10. IT IS BETTER TO HAVE A MARINE PROTECTED AREA THAT MEETS THE PRIMARY GOAL BUT WHICH IS NOT IDEAL IN AN ECOLOGICAL SENSE THAN TO STRIVE VAINLY TO CREATE THE "PERFECT MARINE PROTECTED AREA". We all have seen dedicated scientists and others spending their lives attempting to convince governments to establish marine protected areas in areas which are ideal from the viewpoint of biological diversity but which are not appropriate from a socio-political viewpoint.

However, it is usually possible to find potential sites for marine protected areas which are satisfactory from a biodiversity (ecological) viewpoint and which can also be seen to contribute to the welfare of local communities. The establishment of marine protected areas in these sites will immediately begin contributing to the maintenance of biodiversity. In contrast, environmental degradation will proceed as long as proponents of marine protected

areas expend their energies in futile attempts to establish marine protected areas where socio-political forces will ensure their failure.

11. IT IS USUALLY A MISTAKE TO POSTPONE ACTION on the establishment of a marine protected area because biophysical information is incomplete. There will usually be SUFFICIENT EXISTING INFORMATION to indicate whether the marine protected area is justified ecologically and to set reasonable boundaries.

The involvement of local users in identifying ecological attributes can serve two functions – first, the efficient collection of information gathered over many years by people highly familiar with the target area; second, the generation of support from these local users for the proposed marine protected area. A person is much more likely to support a proposal if he or she has been involved in information collection and in decision-making in relation to that proposal.

12. THERE IS A GLOBAL DEBATE ABOUT THE RELATIVE MERITS OF HIGHLY PROTECTED MARINE PROTECTED AREAS AND LARGE, MULTIPLE USE MARINE PROTECTED AREAS. Much of this dispute appears to arise from the misconception that it must be one or the other. In fact, nearly all large, multiple use marine protected areas encapsulate highly protected zones that have been formally established by legislation or other effective means. These zones can function in the same way as a network of individual highly protected marine protected areas. Conversely, a network of highly protected marine protected areas in a larger area subject to integrated management, can be as effective as a large, multiple use marine protected area.

This debate is another example of the either/or arguments in which we Westerners seem to excel. These debates are destructive. They fail to recognise that the ideal form of management is variously

labelled integrated ecosystem management, bio-regional planning etc. This ideal constitutes an integrated system which includes highly protected areas as well as a suite of controls in other areas that ensure ecologically sustainable development.

13. RELATIVELY SMALL MARINE PROTECTED AREAS WILL RARELY SUCCEED UNLESS THEY ARE CONNECTED BIOLOGICALLY IN A NETWORK THAT CONSTITUTES AN INTEGRATED ECOSYSTEM MANAGEMENT REGIME. This is because of the highly connected nature of the sea, which efficiently transmits substances and forcing factors. Therefore, a relatively small marine protected areas cannot easily be insulated from destructive influences arising from outside its boundaries. The Biosphere model is a recognition of this fact.

Many scientific and management studies have shown that the optimal proportion of a marine ecosystem that should be included in no-take or highly protected marine protected areas or zones is about 30%. This proportion maximises both biological productivity, including fish stocks, and biodiversity.

14. LEARNING BY DOING is often the most efficient way for communities to develop expertise. It is usually much cheaper than formal training, provides immediate benefits in terms of achieving progress in a project or program and does not force on communities methods used by outside "experts" which are less than efficient in the particular socio-economic and bio-physical contexts.

All of us have experienced situations where projects designed by outside experts- usually westerners- are so detailed and prescriptive that they make no allowance for the specific circumstances prevailing in the area in a foreign country in which a project or

program is to proceed. This causes resentment and inefficiency and often leads to failure.

Conclusion

The over-riding conclusion from case studies of various marine protected areas around the world is that success or failure is not usually determined by complex factors unique to that particular marine protected area. On the contrary, they result from failure to apply these fairly simple strategic principles. And it is usually the socio-economic rather than the biological factors that determine success or failure.

Why do managers fail to apply these simple, well-proven approaches? My conclusion is that it derives from the natural tendency of humans to prefer immediate gratification to long-term benefits. It takes a lot of self-control for a manager either to deliberately raise difficult issues with possible opponents in order to resolve them or to refrain from responding in-kind to insults.

Decades of experience has shown that there are strategic principles which are applicable virtually everywhere, however, at the detailed level, there is no simple or "turn-key" formula. What works for one nation or group of nations at the detailed level can only rarely be transposed unchanged to another ecological or socio-economic environment. For example, a few large marine protected areas may be the right approach in one country, but a network of many smaller ones, supported by integrated management of the surrounding areas, might be better in another.

Detailed advice on marine protected areas planning and management is provided in IUCN's "Guidelines for Marine Protected Areas".

Update: Learning to Adapt - Melbourne

The first module in the EIANZ's climate change adaption professional development program, Learning to Adapt, was delivered in Melbourne on 18 March, in partnership with the City of Melbourne.

Participants from State and local government, industry, the research comment and from not-for-profit organisations heard from some of the leaders in applying climate change science, with a focus on adaptation in Victoria. Kate Harris, the CEO of the Centre for Sustainability Leadership, facilitated a conversation on leading a response to climate change, Professor Christian Jacob explained the state of play in climate modelling, Suzanne Knight and Bethany Roberts gave an update on the Victorian Government's adaption program, Rob Turk from ARUP and Bernie Cotter from the Association of Bayside Municipalities ran through case studies in adaptation from around Melbourne. The participants then identified three projects to apply their new found skills and knowledge – they will be working together on these throughout the course, leaving three organisations better prepared for our changing climate.

The Module attracted international interest with three academics from Bangladesh visiting Australia to participate. The EIANZ was also well represented with around half the participants enjoying the generous member discount. Module two, which focuses on assessing and managing climate change risks, will be delivered on 29 April again at the RMIT city campus. A small number of registrations are still available for this and the final module, focused on implementing and communicating climate change adaptation action. Participation is recognised by the programs supporters, RMIT University, the Green Building Council of Australia and the Infrastructure Sustainability Council of Australia, as well as through the Institute's Certified Environmental Practitioner program. [For more information](#)

"I thoroughly enjoyed the first module of Learning to Adapt. The speakers were diverse and engaging, and I came away with an improved understanding of climate change science, risks, and adaptation. The group project is a great way to get us thinking actively about the course content, and I'm looking forward to working with my group over the next two modules."

Zara Marais, Participant and EIANZ Member



EIANZ Honorary Fellow Appointed to AIMS



EIANZ Honorary Fellow, Penelope Wensley, has been appointed as Chairman of the Council of The Australian Institute of Marine Science (AIMS).

EIANZ congratulates Penny on her appointment, and is encouraged that such an important Institute will have the benefit of her leadership and dedication to environmental protection issues.

Reef 2050 Long Term Sustainability Plan Released

The Australian and Queensland governments have released the final version of the Reef 2050 Long Term Sustainability Plan. EIANZ submitted comments on the Draft plan, and while EIANZ is pleased to see some minor changes that appear to be in response to EIANZ comments, overall, EIANZ is concerned that the document remains broad and imprecise, with poorly defined outcomes and timeframes for action. The plan, and related information is available here: <http://www.environment.gov.au/marine/great-barrier-reef/long-term-sustainability-plan>

Free Books – in exchange for a book review!

As book review editor for *the Australasian Journal of Environmental Management*, Claudia Baldwin is looking for reviewers for the following books:

- *Governance of Natural Resources: Uncovering the social purpose of materials in nature*, edited by Jim Sato
- *Globalization and the Environment* by Peter Christoff and Robyn Eckersley
- *Ecocultures: Blueprints for Sustainable Communities*, edited by Steffen Bohm, Zareen Pervez Bharucha, and Jules Pretty

Reviews are to be no more than 600 words, and the reviewer can keep the book in appreciation of your time and effort.

If interested, please contact Claudia Baldwin at claudiab@westnet.com.au I will send the book and some samples of previous book reviews (if you aren't a subscriber to AJEM).

Upcoming Events

Environmental Ethics – EIANZ Steps Program

The [Steps Program](#) is the EIANZ professional development program for early career environmental practitioners. Aligned with the Institute's mission to lead excellence in environmental practice, the Steps

Program plays an integral role in building the knowledge and skills of environmental professionals, providing a pathway to skilled and ethical practice and potential certification.



Registrations now open.

Environmental Ethics, Melbourne - 29th Apr 15

Freshwater Place, Southbank 9am to 4pm
\$300 EIANZ members, \$350 non-members

Presented by renowned industry experts Jon Womersley and Alan Chenoweth, this module aims to provide participants with an introduction to the principles and practice of environmental ethics with a view to embedding quality principles at an early stage of a career. The workshop will equip participants with practical strategies for dealing with likely challenges and issues faced by early career professionals around environmental ethics.

[Register here](#) or contact the Central Office Team for more information Tel. +61 3 8803 6150 or email info@eianz.org

Making EIA's work (Melbourne)

The EIANZ Victorian Committee, in conjunction with Herbert Smith Freehills invite you to an interactive seminar: Making environmental impact assessments work - guiding your major project through the environmental impact assessment process in Victoria.

This interactive seminar will focus on: how to navigate the Environmental Impact Assessment (EIA) process in Victoria; understanding the expectations of key regulators; and providing insights for proponents and their advisers to leverage the EIA process and add value to their project.

Thursday 23rd April, 2015

5.15pm for a 5.30pm start until 7.30pm

Herbert Smith Freehills Offices. L42, 101 Collins Street, Melbourne

EIANZ members - \$25, non-members - \$40, students - \$20

CHAIR:

Heidi Asten – Environment, Planning & Communities, Herbert Smith Freehills

SPEAKERS:

Adam Mitchell	Manager Impact Assessment Department of Environment, Land, Water & Planning
Tony Robinson	Manager Major Projects Environment Protection Authority Victoria
David Hyett	Industry Director Environment, AECOM
Tim Power	Partner, Environment, Planning & Communities, Herbert Smith Freehills

[Click here to access the flyer](#) for more details on this event.



Legislation, Environmental Approvals and Policy

SEQ Division presents a two day summit focussing on the hurdles and pathways forward for environmental legislation, environmental approvals and policy.

Rarely a week goes by without discussions or notifications of a change of environmental legislation, policy or approvals strategy. As environmental practitioners, or professionals who work closely with environmental planning, we must adapt to these hurdles and provide ethical, sustainable solutions. In this forum we will hear from Queensland's leading practitioners in environmental approvals, development and implementation of legislation and policy.

How are lessons past being applied to improve performance and enhance environmental outcomes? How can we lead the way for the next generations for environmentally and economically sustainable solutions to today's challenges?

This summit is aimed at environmental practitioners from students and early careers through to experienced professionals. It will also appeal to non-environmental practitioners who are exposed to the requirements of environmental planning, approvals and policy fluctuations.



Speakers include: Michael Roche (Queensland Resources Council), Elisa Nichols (Environment and Heritage Protection), John Briggs (Ashurst), Hamish Manzi (Adani), Paul Lindsay (Compass), James Mackenzie (Environment and Heritage Protection), Barton Green (Three Plus), Michael Klug (Clayton Utz), Dean Ellwood (EHP), Michael Ryan (Arrow), Hugh Lavery (AEI), Omar Ameer (Environment and Heritage Protection), Brad May (Epic Environmental), Brett Watkins (Madex Group).

What will you learn?

- Understanding the roles of regulators, proponents, contractors and consultants;
- Negotiation skills (with proponents and the regulator);
- Risk management; and
- Improvements to your environmental auditing.

Early Bird prices available until 24 April. To book and see the full program, check out the website at www.eianz.org and click on events, South East Queensland.

Professional development activities are a cornerstone of Institute's contribution to achieving the highest standards of environmental practice. For information on upcoming events, please see <http://www.eianz.org/eventsplus> or contact your local Chapter or Division for more information or to assist in organising an event.

From EIANZ Fellows

Fellowship of EIANZ recognises senior practitioners who have distinguished themselves in terms of their professional reputations, the ethical and moral standards that they maintain and their ability to influence environmental practice. Fellowship is by invitation only, and recognises the esteem in which these individuals are held by their peers. Here, Some of EIANZ's fellows share insights into careers and practice.

Adam Smith FEIANZ, CENvP



Qualifications: BSc(Hons), PhD, MBA, FAICD, FARLF

Current professional activities: Director for Reef Ecologic

Career path: I started as a scientist with NSW Fisheries Research Institute focussing on fish and habitats in NSW. I loved the mixture of field work, industry engagement and

communication. I moved to The Ecology Lab to work primarily on underwater visual surveys of fish and sharks. I started a part time PhD at UNSW on the ecology of fish around sewage outfalls. Did the first surveys of Grey Nurse Sharks and some interesting work on fish and benthos at Cocos and Christmas Islands. After 3 years I joined NSW Fisheries as Manager (Habitat) and worked closely with industry, conservation and politicians.

In 1999 I joined GBRMPA and had several different roles as Manager, Director and A\General Manager responsible for EIA, tourism, aquaculture, Defence and ports. In 2014 I started Reef Ecologic.

Best aspects of work: Working with great people on interesting, challenging projects that make a difference for the environment, industry and community. Visiting coral reefs with clear water, colourful coral and fish.

Inspirations and motivations: To improve my skills, work with recognised experts and assist the next generation.

Biggest environmental concerns: Climate Change and unsustainable development are my biggest concerns. Environmental practitioners should work strategically at local, state, national and international levels to ensure world class policy and projects lead to world class outcomes for developments and activities.

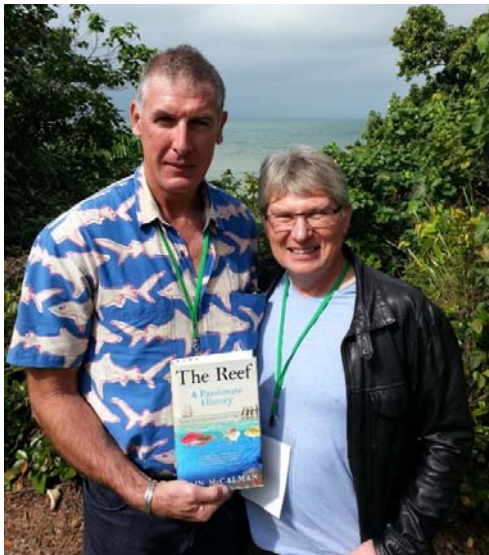
Advice to practitioners, young and old:

1. Aim for excellence in everything you do
2. Learn from experts and aim to be an expert yourself
3. Encourage your peers and staff to join and participate in EIANZ

On the role of EIANZ in the lives of environmental practitioners: EIANZ is the peak body for people who wish to work together to lead and improve the art and science of environmental impact assessment. Key successes and achievements of EIANZ include the certified environmental practitioner framework and a great annual conference to communicate leading edge thinking.

I joined my local group in 2000 (15 years ago) and have had various roles including President (FNQ).

Biggest challenges facing environmental practitioners: The declining natural environment, streamlined legislation that focuses on approvals, the lack of Strategic environmental assessment and Cumulative Impact Assessment to guide decisions, the need for leadership to change from impact assessment to net benefit, the lack of mandatory certification and training for environmental professionals.



Adam Smith (left) with Ian McCalman

Darryl Low Choy, FEIANZ

Qualifications: *PhD (UQ), MBlEnv (City & Reg Plan) (QUT), Grad Dip Urb & Reg Plan (QUT), BA (UQ), GCert Higher Ed (GU)*

Current professional activities:

Day Job: Head of Planning Discipline, Griffith University with responsibility for all Urban and Environmental Planning undergraduate and postgraduate programs.

Other day jobs:

1. Program B (Water Sensitive Urbanism) co-leader in Cooperative Research Centre for Water Sensitive Cities, and Project Leader for Catchment Scale Landscape Planning for Water Sensitive Cities in an Age of Climate Change Project.
2. Adjunct Professor, University of New England and Project co-leader for Reduction of Legal and Institutional Impediments Project of the Invasive Animals Cooperative Research Centre.
3. Project Leader, Griffith Planning team of Research Consortium undertaking the Climate Change Adaptation for Natural Resource Management (NRM) in East Coast Australia Project



Other Professional Activities:

- Visiting Professor (Senior International Scientists) of the Chinese Academy of Sciences
- Member, Coastal Expert Panel, New South Wales' Government
- Member, Technical Reference Group, National Climate Change Adaptation Research Facility (NCCARF)
- Chair, Regional Landscape and Open Space Advisory Committee (SEQ)
- Chair, Land & Sea Management Committee, Quandamooka Yoolooburrabee Aboriginal Corporation (QYAC)

Career path : Most professionals will have at least four major shifts in their professional direction during their working life - I have had four!

1. Cartographer: I originally trained (at QIT) and worked as a cartographer / aerial photo interpreter then completed a BA at University of Queensland with majors in geography and soft rock geology. This led to employment initially with an American Petroleum Exploration company, then with an Australian geotechnical consulting engineering firm as a Terrain Evaluator.

2. Geographer: Next I moved into the consulting field of environmental studies which was then commencing in Australia. I coordinated the first EISs commissioned in NSW and Queensland. Subsequently I was involved in a range of EISs and environmental studies throughout Australia for new town, resource development, infrastructure and tourism projects.

3. Town Planner: In time I came to the realisation that the EIA process was limited and that many significant environmental issues were related to the statutory planning system and the town planning processes of State and Local Governments that determined land use

activities and landscape transformation and resulted in landscape changes and impacts. Consequently I completed (part-time) a Graduate Diploma in Urban and Regional Planning followed by a Masters of City and Regional Planning at QUT. I then worked as a consultant Town Planner for local authorities and resource development organisations throughout Queensland.

4. Educationist / Academic: After a few years of part-time lecturing at QUT, an opportunity arose in 1982 to join the full-time staff of the School of Built Environment at QUT. I lectured in the undergraduate and postgraduate programs across the urban and regional planning field and also in the landscape architecture course, developing the landscape planning field. As a career academic I eventually had to complete a doctorate. I completed (part-time) a PhD thesis at the University of Queensland titled: "Cooperative Planning and Management for Regional Landscapes".

In 1995, I moved to Griffith University to assist in the establishment of their new Environmental Planning School including undergraduate and postgraduate programs. These programs were the first of their type in Australia and at that time there were few such programs in the world. The original and current planning programs at Griffith University are distinguished from conventional planning programs on the basis that they are science based (as opposed to the conventional design based programs at other universities), and that they have a very strong 'environmental' philosophy integrated through the programs and all courses. All of our planning programs have PIA accreditation.

During my academic career I have completed a number of major secondments into practice including:

1. Regional Planning and Management Adviser to Commissioner Tony Fitzgerald on the Commission of Inquiry into the Conservation, Management and Use of Fraser Island and the Great Sandy Region;
2. Manger, Open Space and Outdoor Recreation Program, SEQ 2001 regional planning initiative of the Queensland Government; and
3. Specialist Adviser, Queensland Government's first statutory regional planning initiative: SEQ Regional Plan 2005-2026 and the subsequent SEQ Regional Plan 2009-2031.

It was in this latter secondment that I introduced the concept of the "Regional Landscape" to provide a policy framework to address a raft of non urban landscape values such as: biodiversity; outdoor recreation; cultural heritage, indigenous landscape; agricultural production; scenic amenity; and natural resource values.

My current research activities cover: growth management for developing regions; values led planning and indigenous landscape values; resilience and peri-urbanisation of the landscape; landscape/community transition; climate change adaptation for human settlements, planning for natural resource management and invasive species management; design of water sensitive cities, strategic post disaster recovery and the relationship between science and planning.

Best aspects of work: Firstly, I seek to research at the research frontier of prominent issues confronting society such as climate change adaptation for human settlements; water sensitive urbanism; incorporating indigenous landscape values into conventional statutory planning and community resilience and transformation associated with strategic post disaster recovery. Secondly, I seek opportunities to incorporate my research into my teaching. Thirdly, I

position my research and teaching within communities and involve stakeholders through maximum efforts of community engagement. I am unashamedly an applied researcher and practitioner and seek maximum efforts to achieve community and industry uptake of my research outcomes. I also work and research internationally in China, Vietnam and Brazil which provides me with excellent opportunities to extend my inquiry and understanding to other cultures and other planning and landscape management systems.

Professional inspirations and motivations : During my undergraduate studies at the University of Queensland in the very early 1970s, I undertook a new course (titled "Environmental Conservation") introduced by a visiting American academic (Professor Lawrence Hamilton). He was an inspiring lecturer and introduced us to emergent concepts in this exciting field - one of his textbooks for his course was Ian McHarg's "Design with Nature". Some 44 years later, I continue to recommend this seminal 1969 book as essential reading for my students.

Biggest environmental concern: The average citizen and most of our political leaders are still focussed on short-term issues and cannot make the connection between a productive economy and a healthy environment. We need a national debate on these issues and the Wentworth Group of Concerned Scientists' November 2014 "Blueprint for a Healthy Environment and a Productive Economy" seeks to initiate such a discussion.

The EIANZ can play a major role in facilitating an ongoing but focused debate on these matters, both within the Institute and in the wider community in which its members are located.

Advice to practitioners, young and old: The chief principles that I apply to my approach to professional life includes:

Science Informed Planning: This paradigm articulates my philosophy of 'evidence based planning / policy'; 'joined up' planning and management; and interdisciplinary approaches to research, teaching and practice.

Work with the community: We are living in a continually and rapidly changing society with evolving and many times conflicting values. This approach involves working with the community (as opposed to "working for the community") and necessitates a good dose of innovative community engagement.

Advocacy: My approach has always involved working within the system with an evolutionary mode (as opposed to pushing for change from outside the system along revolutionary lines). My experience is that whilst this internal change process may take time to achieve, when change is achieved, it is more sustainable and more likely to have bipartisan support.

How and why did you get involved in EIANZ? During the 1980s I was involved with more mainstream umbrella professional bodies such as the Planning Institute of Australia (PIA) and the Australian Institute of Landscape Architects (AILA). At that time environmental issues were not a priority matter for planning which was largely dominated by an economic paradigm and highly focussed on development control with little attention to strategic planning and regional scale considerations. Whilst AILA did have a focus on natural environmental issues it was largely directed to the small and site scales. The field of landscape planning had barely emerged. All this coincided with the early establishment of the EIA and I and other looked towards the fledgling EIA as a philosophical home for like-minded environmental and *landscape planning professionals to engage within*.

Biggest challenges facing environmental practitioners: Continual renewal of the professions comprising and represented within EIANZ: ensuring there is an adequate pipeline of bright, passionate and energetic young people seeking to enter the EIANZs professions. This is as basic as ensuring that school leavers see a worthwhile career in these professions.

Successes and achievements of environmental practitioners: Whilst there are regional and temporal variations, environmental issues and considerations are now largely mainstreamed into the day-to-day business of government and industry. That said, there is still further work to be done in this regard but there is no denying that we have come a long way in this regard in the last three decades. Much of these achievements can be attributed directly to the practitioners who work at the 'coal face' and at the intersection of government / industry and the community.

Hugh Lavery AM FEIANZ



Qualifications: MSc PhD MEc

Current professional activities: Strategic advice to major corporates in the private sector; university involvement as Adjunct Professor (currently X2), Board Member of a Sustainability Research Centre, and training supervisor at l'Ecole Polytechnique (France).

Career path: Government service initially in a State Department of Agriculture (introducing conservation science); promotion

to executive level in a new National Parks and Wildlife Service; chief environmental adviser to Australia's largest corporate landholder; and nowadays executive counsel to major developers in Australia and overseas.

Best aspects of your work: The challenge to institute the many opportunities to be proactive in environmental management practices; and to work with emerging leaders in this arena.

Career inspirations: The field was largely unknown when I began; initial interest stemmed from working at UQ's Heron Island Research Station.

Biggest environmental concern: The reliance by almost everyone on regulatory compliance to deliver environmental management. Practitioners should treat statutory compliance as a baseline only, and seek new benchmarks to devise, test and implement best practice examples beyond this 'common denominator' level.

Advice to practitioners, young and old: Seek (and foster) any examples where current practices are actually delivering net environmental gain through management; be patient and persistent, remembering that experience will best allow you to grapple with the infinite complexities of the environment; and meanwhile beware of giving advice that might revisit you adversely in the long term.

Role of EIANZ: To exemplify (oversee, demonstrate and promote) ethical best-practice.

How and why did you get involved in EIANZ? As a founding member, fostering the notion of a professional peak body.

Biggest challenges facing environmental practitioners: Effectively introducing sustainable practices into the private sector (as major landholders, the principal source of funds for modelling initiatives, and leaders of community behaviour).

Successes and achievements of environmental practitioners: Bringing the attention of the public to the need for prudence in respect of the natural environment, though still needing to demonstrate how this is actually converted into appropriate management practices.

Member Snapshot

EIANZ Member Snapshot – Natalie Madden

Qualifications: BSc, MTEM

Best aspects of work: Lifelong learning and sharing knowledge, especially mentoring graduates and my own children who are both studying science

Inspirations: My parents and grandparents have a strong appreciation of the Australian landscape and the fragility of the land and waterways being cattle graziers and builders in regional Queensland. I grew up in Gladstone, Qld and wanted to save the trees and have been working on this now over 30 years.

Biggest environmental concern: The lack of understanding about the significant of plants to humankind – food, water, air, shelter and biodiversity and our inability as practitioners to communicate the facts and the urgency.

How and why did you get involved in EIANZ? My friend and colleague Alexandra Hare invited me to Tasmania for the Annual Conference and to revisit the Tarkine wilderness I spent my undergraduate years protesting to protect with a young Dr Bob Brown as our activist and leader.

Biggest challenges facing environmental practitioners: I believe that unless EPs start using social media our profession will become extinct to the environmental lawyers, economists, accountants and engineers

EIANZ Member Snapshot – Mandy Elliott

Qualifications:

- Master of Legal Studies (Environmental) Australian National University 2000 - 2003
- Graduate Diploma of Applied Science (Environmental Management) Deakin University 1996-1997
- Bachelor of Social Science (Socio-Environmental Assessment and Policy) RMIT 1992-1994



Describe your current and recent work: I am a Principal Environmental Scientist with approximately 20 years of professional experience in both the private and public sector, including ten years at the Victorian Department of Planning (various name changes over the years) where I held a position as a Senior Environmental Assessment Officer within the Environmental Assessment Unit. My key role at the Department was to manage large private and public projects that required environmental impact assessment (EIA) under the *Environment Effects Act 1978*.

From February 2010 I have been working in the private sector as a Principal Environmental Scientist, based in Victoria and in November 2011 I commenced as Director of my own company, EnviroME Pty Ltd. I am also a sessional member of Planning Panels Victoria, a position that I have held since early 2012.

The type of work that I do is environmental planning, impact assessment and project approval coordination (as often projects require both environmental and planning approvals). The range of projects that I have been involved in (both in my current and previous government work) are freeways and pipeline proposals, rail projects, safe harbour developments, quarries, wind farms and residential estates.

I am also author of *Environmental Impact Assessment in Australia: Theory and Practice* 6th Ed. (February 2014) and co-author with Ian Thomas of the 4th and 5th editions. I am a Certified Environmental Practitioner and Certified Impact Assessment Specialist with the EIANZ.

Career path: During my time at uni, I was fortunate enough to be interviewed and selected to be on my local government's environment advisory committee as a community representative where I had my first experiences of 'the real world'. It was a great introduction to being aware of what was happening within my region and how we could (as a group) have input into planning and policy. It was also at the same time as the proposed relocation of Coode Island chemical storage facility to Pt Lillias (my local government area). This was controversial in the region at the time and so here was my introduction to EIA from a community perspective.

After I had completed my undergraduate degree, I was employed as part of a large team of graduates by a multinational environmental / engineering firm to assess the streetscapes of Melbourne as part of the

Optus cable network roll out. Essentially, this was my first introduction to environmental impact assessment from a work related perspective.

I stayed with this firm for approximately five years working on environmental impact assessments, preparation of environmental management plans, water quality monitoring for various projects, and assisting senior staff on environmental audits and implementation of environmental management systems (ISO 14000 was quite new and exciting to many back then!).

Eventually I joined one of our clients as an Environmental Officer (Department of Defence, Vic/Tas region). This role was enjoyable and took me to many Defence sites in Victoria and Tasmania. However my time at the Department of Defence was relatively short (12 months) as a position became available in the Victorian State government as an environmental assessment officer looking after a variety of Environment Effects Statements.

I had studied this concept called EIA at uni, had experienced a little of it as a junior consultant but I really felt this role was the one for me. I applied and got it and spent almost ten years with the Department. EES's that I managed over that time ranged from quarries, roads, gas pipelines, marina's, residential estate developments and wind farms. I was also involved in environmental and planning policy projects during that time (including preparation of wind farm guidelines and review of the *Environment Effects Act* 1978). Working in the State government was a great experience and I recommend environmental/planning practitioner work for local or State government at some point in their career (if possible) as it assists in understanding the decision making process.

During my time in the State government, I began lecturing and tutoring at RMIT in the Master of Environmental Planning course (EIA and EMS). It was also this connection back to RMIT that lead me to assist Ian Thomas

with the 4th edition of his text book *Environmental Impact Assessment in Australia: Theory and Practice*. waterways, oceans, air, the protection of areas that we all should be able to enjoy (e.g Antarctica) and the destruction of habitats.

Best aspects of your work? Friday night when I shut the laptop!! Just kidding.

I enjoy the variety of projects and personalities that EIA brings. EIA is both a technical and political process and I enjoy the complexities and challenges of both of these aspects. EIA is not rocket science: but I believe you do need a good understanding of both the technical and political (and social) components to do it right.

I enjoy working for myself because it allows flexibility, some control over what you work on and it allows me to still be part of my children's life (I have twin boys – 8 years old) whilst they are at primary school – I get to go on school excursions and 'coffee mornings with the school mums' – even if I'm up late because I had that time off during the day!

Inspirations: Like many environmental practitioner's, I wanted to save the world when I was in my teenage years and I was also very interested in politics at an early age. I questioned everything and wanted to know more about why things were happening the way they are around the world. I was also very interested in the social and cultural aspects of environment, which is why the first university degree that I undertook was a social science degree at RMIT. David Suzuki was an early influence.

Biggest environmental concern: This is a difficult question to answer because so many environmental and social/political issues are connected. My biggest environmental concerns include the pollution of

How and why did you get involved in EIANZ? I became a member of EIANZ almost as soon as I commenced working – it was the only institute that I felt I belonged and I always enjoyed reading the journals and newsletters. I felt the EIANZ catered for the many issues that I was interested in. Over the years, as my experience grew, I have become more involved with the institute, particularly the SIS-IA. I've enjoyed meeting people over the years through the forums, events and conferences and I have made some friends along the way. There are some really dedicated people in this organisation!

Final comments: What has been important in my career (and continues to be pivotal) is to have mentors. These mentors may change, depending on the type of work that you are undertaking at the time, or what stage of your career you are at. But for me, I have had some key mentors throughout my career who have helped to guide me and encourage me. I can't stress how important these people are, especially when you are first setting out to change the world as an Environmental Practitioner!

EIANZ Member Snapshot – Nicky O’Broin

Qualifications: Bachelor of Arts, Post Grad Diploma Urban and Regional Planning, Cert IV in Training and Assessment

Current and recent work: I am a Principal Environmental Consultant for a natural resource management consultancy firm in Adelaide. I am currently involved in developing Climate Adaptation Pathways for coastal towns in South Australia. This involves mapping sea level rise along the coastline, identifying risks such as erosion and inundation of town infrastructure and natural environments, developing practical adaptation actions to either protect or manage the impacts in close collaboration with affected communities.

Career path: During my university days I ran a community based education program at a NGO in Adelaide focussing on water quality and stormwater management. This soon led to a role as a Wetlands Project Officer in a government agency. I then worked in Perth (Western Australia) as an Environmental Planner/Consultant for a consultancy firm. I was exposed to many water and vegetation projects managing the interface of natural systems and the built environment. After several years, plus some time working in the United Kingdom in similar roles, I finally made my way back to Adelaide. That was about 15 years ago. I am now thoroughly enjoying my work in climate change adaptation and assisting urban and regional communities manage times of droughts and floods.

Best aspects of work: As a consultant I have the opportunity of working on a range of projects that are situated in different geographical regions each year. I enjoy working in a multi-disciplinary team and continually learning more about emerging environmental issues.

Inspirations: Interesting work, making a difference to improve the health of the environment and people.

Biggest environmental concern: How to be better prepared for rising sea levels.

How and why did you get involved in EIANZ? My colleagues at the time suggested I got involved in EIANZ. I wanted to learn about what other like-minded people were doing, to keep updated on emerging issues and events, and to be part of a wider (and recognised) network.

Biggest challenges facing environmental practitioners: One of the key challenges for environmental practitioners is to act as the ‘tightrope walker’, carefully balancing in each hand the mix of requirements of the wider environment – i.e. social, economic, financial, political and natural systems.

New members

October 2014 to March 2015:

Welcome to the EIANZ:

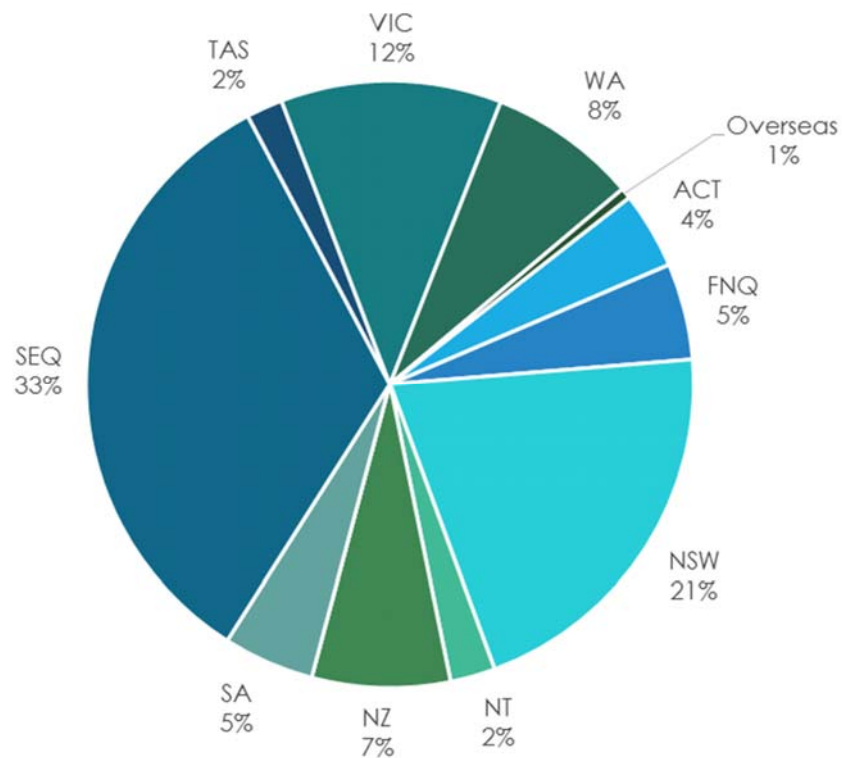
• Penelope Wensley	ACT	• Alina Tipper	NSW	• Peter Smith	NSW	• Fritz Retief	NZ
• Alana Gordijn	ACT	• Rob Owens	NSW	• Leng Boonwaat	NSW	• Nick Reuther	NZ
• Felix MacNeill	ACT	• Jeremy Slattery	NSW	• Ashleigh Morris	NSW	• David Hodge	NZ
• Natalia Weir	ACT	• Shawn Hunt	NSW	• Claire Miles	NSW	• Sarah Smith	NZ
• Geoff House	FNQ	• Katie Shammas	NSW	• Cameron Weller	NSW	• Vanessa Dally	NZ
• Hilary Skeat	FNQ	• Brian Preston	NSW	• Laureenne Coetzee	NSW	• Jude Addenbrooke	NZ
• Tim Christensen	FNQ	• Justin Thompson-Laing	NSW	• Cherie Gellert	NT	• Bryan Scoles	NZ
• Katrina Gasnier	FNQ	• Deidre Stuart	NSW	• Michael Browne	NT	• Karen Sky	NZ
• Alana Kemmerling	FNQ	• Madeleine Black	NSW	• Lisa Bradley	NT	• Nerena Rhodes	NZ
• David Eason	FNQ	• Kate Reeds	NSW	• David Rhind	NT	• Rupinder Brar	NZ
• Byron Jones	FNQ	• Daniel Baird	NSW	• Helen Dwyer	NT	• Mark Bellingham	NZ
• Jo Hardy	FNQ	• Abi Singham	NSW	• Mike Welch	NT	• Helen Davies	NZ
• Darryl Antat	FNQ	• Melissa Huntsman	NSW	• Chris Brady	NT	• Alison Davis	NZ
• Mike Limpus	FNQ	• Suzanne Orme	NSW	• Suzanne Barber	NT	• Tony Matthews	NZ
• Christopher Sawyer	FNQ	• Kirsty Flynn	NSW	• Monique Jensen	NT	• James Skurupey	NZ
• Kyle Browne	FNQ	• Philippa Owen	NSW	• Sonya Pearson	NT	• Brendon Barnett	NZ
• Jennifer Soledad	FNQ	• Ketan Patel	NSW	• Simon Gummer	NT	• Reagan Knapp	NZ
• Carol Marshall	FNQ	• Robert Brothers	NSW	• Lauren Cooper	NT	• Clay Stevens	NZ
• Lana Pawlutschenko	NSW	• David Dryburgh	NSW	• Mihkel Proos	NT	• Julia Lindesay	NZ
• Talitha Judge	NSW	• Kirstin van Riel	NSW	• Leslee Reif	NT	• Oluwasegun Alabi	SA
• Stina Nikolaysen	NSW	• Kate Flint	NSW	• Gary Taylor	NT	• Mark Lethbridge	SA
• Fiona Marshall	NSW	• Malcolm Dale	NSW	• Amy George	NT	• Dean Lanyon	SA
		• Adam Labruyere	NSW	• Keith Tayler	NT	• Jean Paul Pearce	SA
		• Suzanne Clifton	NSW	• Shane Papworth	NT	• Adele Swanton	SEQ
		• Kirsten Davies	NSW	• Mark Davies	NZ	• Susan Hayes	SEQ
		• Freya Gordon	NSW	• Christopher Bergin	NZ	• Natalie Madden	SEQ
		• Oluwatobi Arowobusoye	NSW	• Rosemary Cross	NZ	• Colin McCready	SEQ

• Katherine Taske	SEQ	• Sue Pedrazzini	SEQ	• Rosanna O'Neill	SEQ	• Roberto Petruzzi	VIC
• Marnie Ryan	SEQ	• Hamish Bartrim	SEQ	• Peter Thompson	SEQ	• James McCarthy	VIC
• Adam Hutchinson	SEQ	• Christopher Beavon	SEQ	• Sally Mayberry	SEQ	• David Adams	VIC
• Rowan Turner	SEQ	• Sally Croker	SEQ	• Sally Wilson	SEQ	• Glenn Murray	VIC
• Nicki Werynski	SEQ	• Sally Fergus	SEQ	• Ian Lambert	SEQ	• Madeleine Thomas	VIC
• Kathie Fletcher	SEQ	• Kylie Aeberli	SEQ	• William Blank	SEQ	• Tim Connell	VIC
• Martin Ross	SEQ	• Rhiannon Stewart	SEQ	• Courtney Loudon	SEQ	• Liam Henderson	VIC
• John van Osta	SEQ	• Andrew Hamilton	SEQ	• Rhiannon Caynes	SEQ	• Anthony Wansink	VIC
• Nicole Nesvadba	SEQ	• Jedd Appleton	SEQ	• Justin Wilson	SEQ	• Maree Keenan	VIC
• Elodie Wawrzyk	SEQ	• Xavier McMahon	SEQ	• Matthew Petersen	SEQ	• Nick Walker	VIC
• Jasmine Walden	SEQ	• Kristin Metzeling	SEQ	• Matthew Kinnane	SEQ	• Meeka Lewis	VIC
• Jaime Mejia	SEQ	• Deborah Brennan	SEQ	• Glen Neill	TAS	• Bruce Turner	WA
• Dante Mude	SEQ	• Nikita Magan	SEQ	• Jacqueline Dircks	TAS	• Belinda Bastow	WA
• Sophie Walker	SEQ	• Dong Yang	SEQ	• Carol Steyn	TAS	• Hannah Ley	WA
• John Harbison	SEQ	• Kane Mitchell	SEQ	• David Blair	VIC	• Stuart Halse	WA
• Janet Marshall	SEQ	• Brian Connellan	SEQ	• Mohammed Angawi	VIC	• Travis Inman	WA
• Dennis Gannaway	SEQ	• Rachel Barley	SEQ	• Ilya Berelov	VIC	• Rudi Seebach	WA
• Leanne Sommer	SEQ	• Kim Tuart-Haynes	SEQ	• Kelly Miller	VIC	• Johannes Kok	WA
• David White	SEQ	• Melanie Dixon	SEQ	• Jasmin Lightbody	VIC	• Brett Richardson	WA
• Aaron Aeberli	SEQ	• Miranda Weston	SEQ	• Katie Martin	VIC	• Conor O'Neill	WA
• Leanne Erakovic	SEQ	• Leah Walker	SEQ	• Russell Synnot	VIC	• Garry Ogston	WA
• Rebecca Wuth	SEQ	• Sarah Cumpston	SEQ	• Siska Hester	VIC	• William White	WA
• Jennifer Curry	SEQ	• Apanie Wood	SEQ	• Sarah Richards	VIC	• Bruce Hegge	WA
• Comila Roebuck	SEQ	• Jaime Kruusmaa	SEQ	• Ashleigh Fox	VIC	• Joshua Fernandez	WA
• Kirsty Woods	SEQ	• Rebekah Utting	SEQ	• Caroline Clarke	VIC	• Patrick Ilott	WA
• Ariane Allen	SEQ	• Brendan Dillon	SEQ	• Mark Bridgeman	VIC	• Gearoid Fitzmaurice	WA
• Kerry Dalton	SEQ	• Matthew Gray	SEQ				

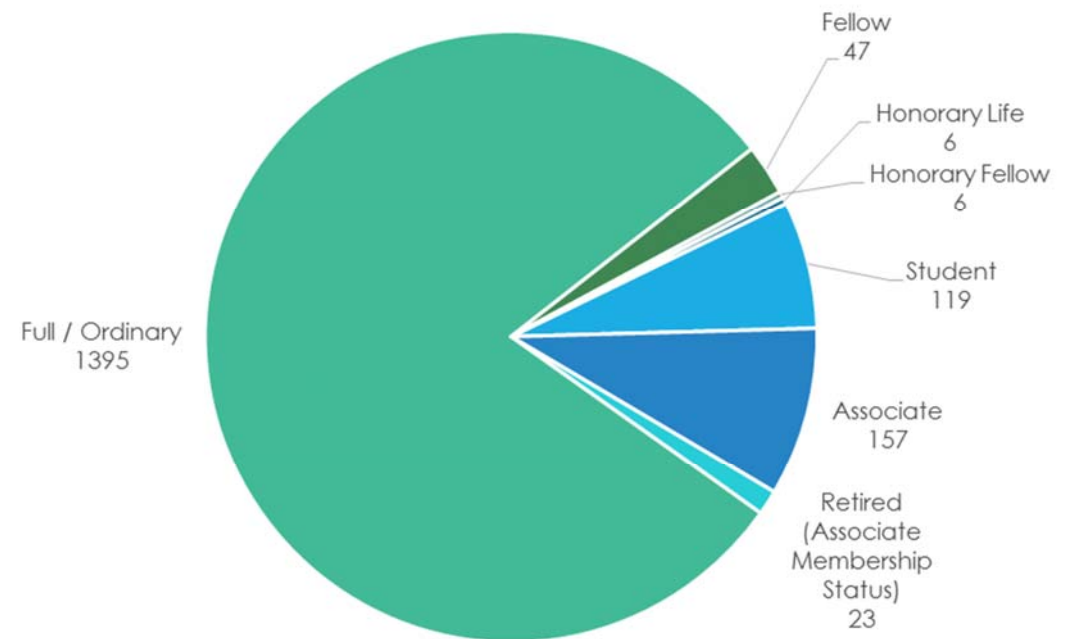
Member Statistics as at February 2015

Membership by Chapter and Division

Total membership: 1753



Membership by type



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