



2019 AUSTRALIAN COASTAL COUNCILS CONFERENCE

CONFERENCE REPORT

15 March 2019

The Pavilion Kiama

Wednesday 6 to Friday 8 March 2019

ACKNOWLEDGEMENT OF OUR CONFERENCE HOST COUNCIL

The Australian Coastal Councils Association Inc. would like to acknowledge the interest and support of Kiama Municipal Council for the 2019 Australian Coastal Councils Conference.



Kiama is an historic town located on the NSW south coast between the Illawarra escarpment and the Pacific Ocean. The local area features exceptional natural features, including outstanding local beaches, rainforests, rivers and waterfalls.

It also has the advantage of being located on the national transport corridor, with Sydney Airport 90-minutes away by car and Canberra, only a 2½ hour drive away. The area provided a broad range of coastal case studies for the conference. Another benefit was that most venues and accommodation options are located centrally, within walking distance from each other.

The 2019 Australian Coastal Councils Conference was organised by the:



CONTACT DETAILS:

Email: info@coastalcouncils.org.au

Web: www.coastalcouncils.org.au/conference

Tel: 03 9399 8558 or 0418 254 132

SUMMARY

The 2019 Australian Coastal Councils Conference was convened by the Australian Coastal Councils Association at The Pavilion, Kiama, from 6 to 8 March 2019. It was attended by representatives of coastal councils from all states, in addition to members of the coastal research community and representatives of relevant government agencies. Highlights of the 2019 conference included the following:

Sunshine Coast: Building a Bright Future – Presentation outlining the council’s strategy of adopting smart city technologies. Presented by Warren Bunker, Group Executive, Liveability and Natural Assets Group, Sunshine Coast Council. The council is recognized as a leader in the adoption of smart technology.

Australian Coastal Cities: Climate Risks and Responses – Presentation which examines Australia’s weird weather and the impact of climate change on the nation’s tourism sector. Presented by Professor Lesley Pro Vice-Chancellor, Research Integrity and Development, at Macquarie University, member of the Australian Climate Council and the Wentworth Group of Concerned Scientists.

The Tsunami Threat to Australia - Coastal researchers from the University of NSW present the findings of a research project examining the tsunami risk to Australia. The research report, which was published in Nature, indicates the main cause of tsunamis is submarine earthquakes.

The Smart Beaches Project – Presentation and workshop on a project aimed at making beaches safer, reducing the risk of coastal drownings and improving public amenities. The project has received funding support through the smart Australian Government’s cities and suburbs program and is being led by Lake Macquarie City Council in conjunction with Northern Beaches Council and the University of Technology Sydney.

Online Short-Term Holiday Rental Platforms – Professor Nicole Gurrán, who led the recent research project into planning responses to the impacts of short-term holiday rental platforms, presents an update on the final report and subsequent state government responses.

Coastal Policy Forum – A coastal policy forum on Friday 8 March considered priority coastal policy issues and provided an opportunity for key political figures to present their party’s policies in relation to coastal issues which they will be taking to the Federal election. The forum included keynote speeches by The Hon Mark Butler, MP, Shadow Minister for Climate Change and Energy, and Senator Janet Rice, Chair of the Senate Environment and Communications References Committee.

A Welcome Reception for delegates was held on Wednesday 6 March at The Pavilion, and the Conference Dinner, including presentation of the 2019 Australian Coastal Awards, was held on Thursday 7 March.

A copy of the final program for the 2019 Australian Coastal Councils Conference is provided in the following pages, together with additional information on the presentations made at the event.

2019 AUSTRALIAN COASTAL COUNCILS CONFERENCE
Kiama 8 March 2018
COMMUNIQUÉ

Preamble

In January and February 2019, the Australian Coastal Councils Association Inc. conducted a survey of coastal councils to collect information on the major issues of current concern to councils in Australia's coastal areas. After considering the findings of the survey, which were presented to delegates attending the Australian Coastal Councils Conference at Kiama, NSW, from 6 to 8 March 2019, representatives of the coastal councils in attendance endorsed the need for five key policy initiatives, which are outlined in the following communiqué. The representatives also endorsed the need for effective actions to reduce greenhouse gas emissions.

Communiqué

We call on the Australian Government to adopt the following key policy initiatives with the aim of developing a coordinated national response to deal with coastal hazards including rising sea levels, more severe extreme weather events and widespread coastal erosion:

- 1. Resources to Manage the Coast on behalf of all Australians**
Introduce a national funding formula to provide the resources necessary to manage and maintain the coast effectively on behalf of all Australians, including the funds needed to increase the adaptive capacity of councils to address climate impacts.
- 2. Allocate Financial Assistance Grants to address coastal hazards**
Broaden the range of 'disabilities' listed under Financial Assistance Grants to include factors such as the vulnerability of coastal areas and communities to coastal hazards.
- 3. Intergovernmental Agreement on the Coastal Zone**
Develop a coordinated national approach to coastal governance through an Intergovernmental Agreement on the Coastal Zone in cooperation with Australian, state, territory and local governments. This would clearly define the roles and responsibilities of each tier of government in relation to coastal zone management.
- 4. National Coastal Policy**
Ensure that the Intergovernmental Agreement on the Coastal Zone forms the basis for a National Coastal Policy which outlines the principles, objectives and actions to be taken to address the challenges of integrated coastal zone management for Australia.
- 5. Increase funding for Australian climate research programs**
Allocate increased levels of funding for Australia's climate science research programs conducted by CSIRO and other research bodies, including the restoration of funding for the National Climate Change Research Facility or establishment of a similar body and continuing support for *CoastAdapt*. This is essential to ensure appropriate guidance in relation to responding to coastal hazards is accessible to Australia's coastal councils so that coastal communities and assets are adequately prepared to address the adverse effects of climate change impacts.

The scale of dealing effectively with coastal hazards along Australia's vast coastline requires a national approach, national leadership and national funding. We therefore call on the Australian Government to play a lead role in addressing these challenges in consultation with local government authorities, which are knowledgeable in relation to these matters and connected to their communities.

2018 AUSTRALIAN COASTAL AWARDS

The 2019 Australian Coastal Awards were announced on 7 March 2019 at the Australian Coastal Councils Conference, held at Kiama, NSW

The Awards were established to acknowledge the achievement of individuals and organisations that have made a significant contribution to the Australian coastal environment, settlements and sustainability. They are intended to raise community awareness of the importance of the coastal zone and to encourage coastal planning and management practitioners to strive for excellence.

Barry Sammels, Chair of the Australian Coastal Councils Association, said many of the people who took part in the projects nominated for the Awards are not well known public figures. They include council officers, community volunteers and others who have been working on these projects behind the scenes, out of public sight. But the work they are doing is vital.

WINNERS - 2019 AUSTRALIAN COASTAL AWARDS

Award for Annual Achievement

City of Bunbury (WA) in association with the technical resources of Cardno WA Pty Ltd for 'Koombana Bay Foreshore Redevelopment.'

Award for Climate Adaptation

Local Government Association of Queensland and the Queensland Department of Environment and Science for 'QCoast2100 – Developing Coastal Hazard Adaptation Strategies for Queensland's local governments.'

Award for Community Engagement

Sunshine Coast Council (QLD) for 'Maroochy Groyne Field Renewal Project.'

Award for Innovation

City of Greater Geelong (VIC) for 'Living Shoreline Approach to Building Coastal Resilience.'

Award for Planning and Management

Jointly awarded to: –

Shire of Broome (WA) in association with Baird Australia and Nyambu Buru Yawuru for 'Building Resilience through a Methodical Coastal Planning and Management Process'; and Port Macquarie-Hastings Council (NSW) for 'Lake Cathie Foreshore Improvements Project.'

Highly Commended – Community Engagement

City of Rockingham (WA) for 'An Innovative Approach to Coastal Hazard Risk Management and Adaptation Planning.'

Commended – Community Engagement

Mornington Peninsula Shire (VIC) and Mt Martha Lifesaving Club for "All Abilities Beach Access.'

PROGRAM

WEDNESDAY 6 MARCH

- 09:00 WELCOME TO COUNTRY
WELCOME TO KIAMA – Kiama Mayor Mark Honey
- 09:10 CONFERENCE OPENING
Mayor Barry Sammels, Chair, Australian Coastal Councils Association Inc. and Mayor, City of Rockingham
- 09:15 KIAMA: BUILDING ON ITS LOCAL CHARACTER
Diana Griffiths, award-winning designer of Studio GL, presents an outline of the Kiama Town Plan
- 09:30 CLIMATE CHANGE ADAPTATION STRATEGIES: A NATIONAL OVERVIEW
Astrid Stuer, of Water Technology, presents a national review of the approaches to assessing coastal hazard vulnerability, risk identification and adaptive planning.
- 10:00 QCoast2100 – DELIVERING QUEENSLAND-WIDE ADAPTATION PLANNING FOR COASTAL HAZARDS. Subathra Ramachandram, Program Manager LGAQ, and Sel Sultmann, Principal Coastal Scientist, QLD Department of Environment and Science, present an outline of the QCoast2100 program to fund Coastal Hazard Adaptation Strategies in QLD
- 10:30 *Morning tea*
- 11:00 SUNSHINE COAST: BUILDING A BRIGHT FUTURE
Presentation by Warren Bunker, Group Executive, Liveability and Natural Assets Group, Sunshine Coast Council on the council's strategy of adopting smart city technologies.
- 11:30 OCEAN SAFETY AND BEACH MANAGEMENT
Warren Young, Chief Lifeguard Gold Coast City Council, and Bruce Hopkins, Head Lifeguard Waverley Council, present a session on the role of the council lifeguard and the Australian Professional Ocean Lifeguard Association, including the history of *Bondi Rescue*.
- 12:00 ONLINE SHORT-TERM HOLIDAY RENTAL PLATFORMS – UPDATE
Keynote address by Professor Nicole Gurrán, Chair of Urban and Regional Planning and Policy at The University of Sydney, on the study into planning responses to the impact of STHR platforms and subsequent state government initiatives.
- 12:30 *Lunch*
- 13:30 OCEAN SAFETY AND BEACH MANAGEMENT - WORKSHOP
Interactive session facilitated by members of the Australian Professional Ocean Lifeguard Association focusing on issues including councils' duty of care for managing beaches, strategies for minimising risk of shark bite, revenue streams to offset service delivery costs and managing council exposure to litigation.

- 14.30 WHERE HAS MY BEACH GONE AND WHAT CAN I DO ABOUT IT? – The causes of coastal erosion and options for managing eroding beaches. Dr Andrew McCowan, Managing Director, Water Technology Pty Ltd.
- 15:00 *Afternoon tea*
- 15.20 WALKING TOUR of the Kiama township area commences
- 15.30 COASTAL ADAPTATION STRATEGIES
Living Shoreline Response to Building Coastal Resilience. Ralph Roob, Senior Environmental Engineer, City of Greater Geelong.
- Coastal Management in Australia and Climate Change: A comparison between jurisdictions and assessment of approaches against a gold standard.* Dr David Rissik, Senior Principal, Climate Adaptation, BMT
- 16.30 UNDERSTANDING MICROPLASTIC LOADS THROUGH A ROBUST CITIZEN SCIENCE APPROACH - Presentation by Scott Wilson, Senior Lecturer, Department of Environmental Science, Macquarie University.
- 17:00 CONFERENCE DAY ONE CONCLUDES
- 18:30 WELCOME RECEPTION, The Pavilion Kiama

THURSDAY 7 MARCH

- 09:00 THE TSUNAMI THREAT TO AUSTRALIA: SYDNEY HARBOUR AND NATIONAL PERSPECTIVES - Presentation by Kaya M. Wilson and Dr Hannah E. Power, School of Environmental and Life Sciences, The University of Newcastle.
- 09:30 KIAMA TOURISM STRATEGY
Presented by Karen Ronning, Manager Tourism and Events, Kiama Municipal Council
- 09.50 MANAGING PEAK TOURISM DEMAND AT HYAMS BEACH
Presentation on strategies developed to manage crowds of visitors attracted to Hyams Beach, on Jervis Bay, by media coverage claiming the beach has the world's 'whitest sand'. Presented by Coralie Bell, Tourism Manager, Shoalhaven City Council and Chair, Australian Regional Tourism.
- 10:10 MOYNE SHIRE AND TOURISM: TAKING CARE OF BUSINESS
Presentation by Oliver J Moles, Director Sustainable Development, Moyne Shire Council, examining the economic, social and political issues for councils operating caravan parks.
- 10:30 *Morning tea*
- 11:00 AUSTRALIAN COASTAL CITIES – CLIMATE RISKS AND RESPONSES
Professor Lesley Hughes, Pro Vice-Chancellor, Research Integrity and Development, Macquarie University, Founding Member, Australian Climate Council, Member of the Wentworth Group of Concerned Scientists
- 11:30 THE SMART BEACHES PROJECT
Presentation concerning a smart beaches platform to make beaches safer, reduce risk of coastal drownings and improve public amenities. Presented by Brad Sutton, Acting Manager Environmental Systems, Lake Macquarie City Council, Claire Chaikin-Bryan, Project Manager Strategy, Performance & Improvement, Northern Beaches Council, Frank Zeichner, Industry Association Professor, Faculty of Engineering and IT, University of Technology Sydney.
- 12:00 AN INCONVENIENT TRUCE: HOW TO MAKE RETREAT WORK AS A COASTAL ADAPTATION PATHWAY
Presentation by Allan Young, National Technical Leader, Urban and Regional Planning, EMM Consulting Pty Ltd., based on the results of a recent Churchill Trust research project undertaken across the US, UK and Caribbean.
- 12:30 *Lunch*
- 13:15 CONCURRENT SESSION: FIELD TOUR OF THE KIAMA COASTAL REGION
The field tour will start in Kiama and travel to the neighbouring Shellharbour City Council to inspect Shell Cove which is a large development currently underway to provide a marina and other diverse facilities.
NOTE: CLOSED SHOES ESSENTIAL
- 13.30 CONCURRENT SESSION: THE SMART BEACHES PROJECT - WORKSHOP
Interactive session concerning a smart beaches platform to make beaches safer, reduce risk of coastal drownings and improve public amenities. Facilitated by Brad Sutton, Acting Manager Environmental Systems, Lake Macquarie City Council, Claire Chaikin-Bryan, Project Manager Strategy, Performance &

- Improvement, Northern Beaches Council, Frank Zeichner, Industry Association Professor, Faculty of Engineering and IT, University of Technology Sydney.
- 14.30 *Marine Pests and the Australian Government: educational and information resources available to local councils.* Presentation by Brett Herbert, Scientist, Australian Department of Agriculture and Water Resources.
- 15:00 *Afternoon tea*
- 15:30 **COASTAL INNOVATION**
How do we effectively mitigate the risk of shark bite to all beach users? Craig Blount, of Cardno (NSW/ACT) Pty Ltd, presents a holistic strategy for effectively mitigating the risk of shark bite that builds on current strategies used by governments and up to date knowledge on effectiveness of personal shark deterrent devices.
- Flying Fish Point Rock Revetments: Application of ‘Green Engineering’, Fish-friendly features and other innovative Measures.* A presentation by Justin Fischer, Manager Asset Engineering, Cassowary Coast Regional Council on an innovative approach to upgrading the Flying Fish Point Seawall in Far North Queensland.
- Coastal Hazard Adaptation on Moreton Island.* Presentation by Glen Dare, Environmental Engineer, City Planning and Sustainability Division, Brisbane City Council.
- Blue carbon ecosystems: potential for future emissions reduction.* Presentation by Toni Cannard, CSIRO Oceans & Atmosphere, on the potential for blue carbon systems such as mangroves, tidal marshes and seagrasses to sequester carbon dioxide and store it as organic carbon.
- 17:00 **CONFERENCE DAY TWO CONCLUDES**
- 19.00 **GALA CONFERENCE DINNER** including the presentation of the 2019 AUSTRALIAN COASTAL AWARDS, The Pavilion Kiama

FRIDAY 8 MARCH

- 08:00 Registration opens. Tea and coffee available.
- 09:00 IMPACT OF SEA-LEVEL RISE AROUND THE AUSTRALIAN COAST: A SEDIMENT COMPARTMENT APPROACH.
Presentation by Professor Colin Woodroffe, School of Earth, Atmospheric and Life Sciences, University of Wollongong
- 9:30 REVIEW OF NSW COASTAL MANAGEMENT PROGRAMS
Presentation by Professor Bruce Thom AM, Chair of the NSW Coastal Council, concerning the Council's review of Coastal Management Programs being implemented by local councils.
- 10:00 BUILDING COASTAL COUNCILS CAPABILITY TO RESPOND TO CLIMATE CHANGE: PILOTS, PARTNERSHIP AND CO-DESIGN
Presentation on the longitudinal evaluation of Climate Change Strategy Pilots conducted under the Queensland Climate Resilient Councils program by the Program Manager, Dorean Erhart and Catherine Dunbar, Manager Adaptation – Climate Change and Sustainable Futures, QLD Department of Environment and Science.
- 10:30 *Morning tea*
- 11:00 COASTAL POLICY FORUM
Presentations and panel discussion with key Federal MPs on the coastal policy initiatives they will take to the 2019 Federal Election.

The Hon Mark Butler MP, Shadow Minister for Climate Change and Energy

Senator Janet Rice, Chair of Environment and Communications References Committee
- 12:00 FINAL SESSION AND 2019 CONFERENCE COMMUNIQUÉ
Facilitated discussion to consider adoption of the 2019 Conference Communiqué
- 12:30 CONFERENCE CONCLUDES

CONFERENCE KEYNOTE SPEECHES

Conference Opening - Speech by Barry Sammels, Chair, Australian Coastal Councils Association and Mayor, City of Rockingham (WA)

Mayor Mark Honey, of Kiama Municipal Council
Elected representatives and officers of coastal councils from around Australia
Representatives of government agencies,
Distinguished guests,
Ladies and gentlemen

It gives me great pleasure, on behalf of the Australian Coastal Councils Association, to welcome you to the Australian Coastal Councils Conference for 2019. This is a highlight of the year for the Association and its members and we are delighted that you have been able to join us.

Each year as we plan the conference program, we set out to include topics and speakers that provide insights into some of the key issues facing our coastal councils. This year there are two issues that we will be looking at in detail:

- the adoption of new technology in the delivery of local government services
- and the current state of climate adaptation in Australia's coastal areas

Both of them issues of great significance to coastal communities.

In terms of the focus on new technology - later this morning we will be hearing about the smart city technologies being implemented by Sunshine Coast Council. – a recognized leader in the smart city field. And tomorrow, we have a session that will look at a program now underway, with Federal Government support, which is aimed at introducing new technologies on our beaches to reduce the risk of coastal drownings and improve public amenities.

There is much more of relevance to coastal communities.

We'll have the findings of a research project which examines the risk of tsunamis to our coastal regions, and apparently, they occur more often than you might think. We'll also be looking at what's described as Australia's weird weather and its impact on coastal regions – in particular what sort of effect it's likely to have on our tourism sector, which is of critical interest to coastal councils.

We'll also have:

- An update on our research project into online short-term holiday platforms
- A presentation and workshop on councils' duty of care for managing beaches
- And some case studies of coastal tourism strategies

Then on Friday we'll have a coastal policy forum, which will include the findings of our coastal issues survey, and presentations by key political figures on the policies they will take to the Federal election in relation to coastal issues.

And along the way, we'll have the announcement of our 2019 Australian Coastal Award winners, at our conference dinner on Thursday night.

At this point I would like to say a word or two about the purpose of this conference, and why the Association goes to the effort of organizing the event each year.

Those of you who have attended our conference in previous years know it is not one of the largest events on the conference calendar, some of which have speakers jammed together at 10 or 12 minute intervals. And it's not based on a random selection of topics which are drawn from a general grab bag of coastal issues.

Rather, we are very selective in framing the conference program. Our aim is to showcase the current state of knowledge in coastal planning and management. We also aim to link the presentations where possible under relevant themes.

One other point of difference – over the years we have attracted a number of delegates who make a point of meeting at this conference and sharing notes on the coastal issues they are facing in their local area. It's as though we are meeting up with good friends. I for one look forward to catching up with the familiar faces around the room over the next couple of days and I know many others feel the same way.

At this point I would like to acknowledge the support we have received from Kiama Municipal Council, which is providing substantial support to the staging of this event. I would like to specifically acknowledge:

Mayor Mark Honey and his fellow councillors
General Manager Kerry McMurray
Karen Ronning, the Manager Tourism and Events

And all the other officers who have provided such strong support in planning and preparing for the event. It is very sincerely appreciated.

Finally, to those of you who have joined us here today - I welcome each and every one of you. I look forward to catching up with those who have attended previous conferences. But equally, I look forward to meeting those of you who are attending for the first time.

Whether you're a representative of a coastal council, a coastal researcher, or a representative of the private sector, I invite you to share your ideas and experiences with one other as we work together to find sustainable solutions to the complex challenges facing our coastal communities.

Thank you for joining us and I'm confident you will find the time that you spend with us over the next few days will be of real value and benefit.

Speech by the Hon Mark Butler MP, Shadow Minister for Climate Change and Energy

Friday 8 March 2019 – The Pavilion, Kiama

Mr Butler began by commenting on the high level of interest and understanding he was currently observing in relation to climate change issues.

I haven't seen this surge of expectation and understanding of climate change issues for at least a decade. And it really is no wonder because people understand that 2018 was one of the five warmest years on record around the world, the other four of course being 2017, 2016 and 2015 and 2014. People are starting to get the picture that something very serious is happening to our planet. Here in Australia we have seen that writ large over this last summer and a number of other angry summers that we have experienced in recent years. In South Australia we have had the hottest summer and the hottest month and the hottest day on record, and heat records across the country have been broken as well as a range of really quite different natural disasters that we have experienced, from Townsville in the north to southern Tasmania in the south. People are getting it, in the same way that they got the idea of climate change in a very visceral way during the millennium drought, they're seeing the impacts of climate change. As Obama said: 'we are the first generation to see the impacts of climate change,' and then went on to say, 'we are also the last generation with the ability to do something meaningful and serious about it.'

Over the past few months, the Bureau of Meteorology and the CSIRO published their two-yearly State of the Climate Report which gives them more granular detail of what is already happening to the Australian continent. The continent, that you understand better than me, is a very vulnerable continent to the impacts of climate change, very vulnerable for humans because it already pushes us up against the limits of human tolerance. I was speaking to a firefighter last night at a forum who is really quite petrified by the extension of the fire season. He has worked on fires for decades and we are all accustomed to the fire season being essentially a six-month season that allows you to prepare, to backburn before the beginning of the season, allows us to swap equipment with the northern hemisphere, like Elvis, the fire-fighting helicopter, and as firefighters across the continent are seeing that season, which is analysed very clearly in the report by the Bureau and CSIRO, goes well beyond six months. It has become a fire season extending well into winter at either end. We also see through the CSIRO report very granular detail, not just about the impact of climate on rainfall, particularly in the southern part of the continent, but more disturbingly on stream flows, the amount of water actually reaching into the river systems. For the first time this report included some data on stream flow implications in the Perth area, showing that since the mid-1970s stream flow into the Perth catchments have declined by 60%, and we see the same results in the Murray Darling Basin area and the key agricultural growing regions of Western Australia, and we know all about the heat records discussed earlier.

One of the things I have been talking to groups about along this part of the NSW coast and to groups in Tasmania a couple of weeks ago, is the really severe ocean warming happening in this part of the continent. It seems, according to a map from the Bureau and the CSIRO, that the area affected runs from about the middle of the NSW coast, down right around Tasmania, and around to South Australia. A level of warming that is

already leading to quite rapid and substantial species movement, that is having very serious impact on the natural environment, with the destruction of many of our kelp forests off the coast, and also interaction of species that have never interacted before. So, I think Australians, even if they haven't read the report by the Bureau and CSIRO, are starting to understand this is a phenomenon around the globe that is actually starting to bite now.

When I first started to read about this about 25-30 years ago, people were talking about it biting in the 2030s or maybe the 2040s. This is a phenomenon biting on a vulnerable continent now. Many people who are interested in this saw over the course of the last year or two the global reports that reinforced this message that we are seeing in Australia: the IPCC report about the impacts of 2° warming, let alone 1½° – 2° degrees which is generally thought of as a relatively safe level of global warming but one which the Intergovernmental Panel of scientists reminded us would destroy more than 99% of the world's coral reefs, including the Great Barrier Reef and other very important reefs in our own continent, and reefs in other parts of the world which literally support tens and tens of millions of people. The World Bank also reported that 2° of warming by the middle of the century would cut global cereal production by as much as 20%, having increased our population probably by two or three billion people by then. More disturbingly, Africa, which will see almost all of the nett increase in population between now and 2050, would see its cereal production cut by as much as 50%, even with just 2° of global warming, and as you know if you are reading much about this, we are not tracking anywhere near to 2° - we are tracking at the moment for something quite substantially above 3°.

I think Australians are also starting to understand that we are not performing well in this policy area. Report after report of usually sober, orthodox, sometimes right-wing agencies around the world are pointing to Australia as a laggard, as being at the back of the pack. Only a few weeks ago the OECD heavily criticised the Australian Government policy for having no pathway to achieve even Tony Abbott's grossly inadequate 2030 emissions reduction targets. The Alliance global insurance giant, and we know the insurers are very much from a business perspective at the front line of climate, Alliance does an annual analysis of the 20 biggest economies in the world and their performance against climate policy and they rated Australia as 20th in the G20 in terms of our compliance with Paris Agreement commitments, so we are performing very badly against a backdrop of climate impacts becoming more and more serious. The scientific advice from local scientists and global scientists has become clearer and clearer and more urgent. One of the things that is often put to me is: 'look it, doesn't really matter what Australia does. All that matters is what China and India and the US and a couple of others do, so don't bother your heads about it, we'll just keep on doing what we have always been doing and leave it to others to solve or not to solve the challenge of climate change.' It is important, as we head into a Federal election, with climate as a very substantial part of the election debate, to be honest and say yes we are a small country, we don't rate in the top 50 of the world's nations by population, but we do rate in the 15 by greenhouse gas output. We are the largest nation per head of population, certainly in the OECD, in terms of the production of greenhouse gases, alongside of which we are pretty much the wealthiest nation. So, the question has to be asked, if Australia, with the heaviest per-capita emissions, and one of the wealthiest nations in the world, is not willing to act, who on earth could we expect to act if not us. The other

reason I think it is so important that we take our own responsibility for serious, ambitious action, as I pointed out earlier, we are a very vulnerable continent, for all the reasons you understand and have to deal with on a day-to-day basis. The Red Cross reported late last year that Australia is in the top 10 of the world's nations by cost of natural disaster. And we are moving up that table very quickly. So, to those who say 'Australia doesn't matter... we should just sit back and let the rest of the world look after this,' I think that is a gross abdication of our international responsibilities, as well as responsibilities we hold to future generations of Australians.

There is great action happening at a local level of climate. I have been talking to a number of fantastic renewable energy groups over the last few days in this part of NSW, who are grasping the nettle, breaking some of those barriers to access to solar for example for people who don't own their own rooftop, such as renters, a range of businesses are now taking on the challenge of climate change and seeking power purchase agreements with renewable energy. But what we know against all of that, and as laudable as all of that is, national government policy does matter. When we were in government carbon pollution levels came down by about 11% in five or six years because we had policy in place. We negotiated with the Greens for a carbon price mechanism, we had the renewable energy target, and a range of other policies. And they worked. And just as unsurprisingly, when Tony Abbott ripped all of them up in 2014, carbon pollution levels literally turned on a dime within 12 months and they have been rising ever since. The government's own data, despite a couple of debates about what these data mean over the last week, projects that under the government's current policy emissions will continue to rise all the way to 2030, such that we are now the only advanced economy in the world where carbon pollution is going up rather than coming down.

Labor will take a suite of policies to this coming election anchored in a commitment we made in 2015, based on the advice of the Climate Change Authority, which was to move to net zero emissions as a nation by the middle of the century, a position we think is required by the Paris Agreement, and also to cut our current emissions in the medium term by 45% before 2030. At the moment, the government's data, released every 12 months, usually on Christmas eve, indicates that we are tracking towards a 7% reduction. By way of comparison, the UK is tracking to a 61% reduction by 2030, because they have managed to take the politics out of climate for at least 10 years, and currently have the same level of greenhouse gas emissions that they had in the 1890s – an extraordinary demonstration of what you can do with a level of political maturity and investor confidence that actually allows an economy to transition. To those who say that decarbonisation is inconsistent with maintaining an industrial base, the UK continues to make three times as much steel as we make here in Australia, and still have 800,000 people working in the automotive industry at a time when we have shut ours down. Some of them have their jobs threatened, but not by climate change policy, they have their jobs threatened by the impact of Brexit. So, just a demonstration of what you can do with a bit of political maturity, leadership and ambition through a national government.

We have already released our energy policies including a really ambitious hydrogen policy, but over the next few weeks we will be releasing transport, industrial sector, land sector, international policies to demonstrate how we are going to achieve that 45%

reduction over the course of the coming decade. It is a very ambitious target. Given how much time we have lost over the last five or six years, the annual reduction in emissions that we are talking about is probably even higher than the annual emissions reductions achieved under the historic outlier, which was France when they shifted their entire electricity system from coal to nuclear in the space of a single decade. I don't want to sugar-coat the level of ambition involved in this, but we now have the technology to do it. We have a vehicle sector that is shifting to low and ultimately zero emissions technology. We have an energy sector in a country with the best solar radiation and wind resources on the planet as well as businesses that are willing to invest.

If we are fortunate enough to be elected at the Federal election in May I am very keen to continue working with your Association on the impact you are feeling every day, because I understand as a resident of a coastal council myself that coastal councils are on the front line of this. Sea level rise and other impacts on our coast are, I think, as the Climate Council described it 'a sleeping giant of climate change' and we need to get back to a position, which Jennie George in her report 10 years ago talked about, and which NCCARF set a foundation for - of having that coordination, that clear role delineation, funding arrangements, research and advocacy arrangements, that recognise the importance of good, sensible, far-sighted planning about how we manage those impacts. The impacts that are already baked into the system, the impacts we are already seeing, let alone those that will come from future climate change. It's a really impressive piece of policy work that follows 15 years of strong research and advocacy by this Association representing after all such a large percentage of the Australian population who live on the coasts of this wonderful continent. So, if we are elected in May, Barry Sammels, I want to make sure that we have some meetings very early in a term of government to start to think about ways in which we can co-operate on those points that you have raised out of your survey, in your policy – those points around funding, those points around clear coordination and role delineation as well as getting back to a national role in research, which Penny Wong set up through NCCARF, but which has been completely defunded over the last three or four years.

Speech by Senator Janet Rice, Chair of Senate Environment and Communications References Committee

Friday 8 March, 2019 at the 2019 Australian Coastal Councils Conference

You have had a good two and a half days of conferencing - learning lots about the issues facing coastal areas, what needs to happen, and the challenges being faced. I want to say that acting on those challenges is actually quite simple. First of all, you need to build the understanding of what the issues are, secondly develop a strategy for dealing with them, and thirdly – this is the tricky bit – implement those strategies. Then review how you are going. It sounds simple, but it hasn't been happening, and what I want to focus on in my presentation is why it hasn't been happening. It is not just chance, that the strategies that you know, and the strategies that scientists over the past two days have been putting forward – why they haven't been happening. In particular I want to talk in some detail about the challenges of climate change.

I clearly remember the moment I learnt about climate change. I was studying science at Melbourne University, in 1980 – I was 20 years old – and I came out of a climatology lecture, having just learnt about what was then the newly emerging science of what the

impact of global warming was going to have on us and our planet. I walked out absolutely gob smacked and devastated and thinking: this is really, really serious! Why isn't the world doing something about this? It was learning about global warming on that day that had a critical role in politicising me, and realising that there is an action that's needed, but it's not happening. For the last 39 years trying to get people in power to listen and to take the required action and see sense and get the change has been so much of a struggle. It's distressing that here we are – 39 years on – and still really only starting to have meaningful discussions about what really needs to happen to take serious action to reduce our carbon pollution. It's really only because as I know you have heard over the past two and a half days that we are now feeling the effects of that climate change up front and in full glorious technicolour. And we know it is not pretty. We know that we have just had the hottest January ever recorded, south eastern Australian suffering one of the worst droughts ever experienced, the two massive fish kills in the Murray-Darling Basin, the extraordinary bushfires around the country, and then just a few weeks ago, the massive, the record rainfall and flooding in the Townsville area that's killed 500,000 head of cattle, and destroyed homes, livelihoods and infrastructure of entire communities.

This is climate change. This is the impact of climate change being felt now. And what is distressing is that we can't just turn the heat off now that we realise the damage being done. Tackling climate change is a bit like taking a cast iron pot off the heat – it just keeps on cooking for quite a lot longer before it cools down. In the time when we need real leadership to recognise our homes, our towns, our entire communities, our country, our planet, our biodiversity and human civilisation is at risk, we have a prime minister, Scott Morrison, who brings a lump of coal into the Parliament, and an opposition leader, Bill Shorten, who loves to walk the line on climate change - saying we need strong action. Bill Shorten, in response to the proposal for two new coal-fired power stations in the Hunter yesterday, basically all he could say was that they won't get any government funding. And his response to the Adani coal mine – we won't give it any government subsidies – not willing to actually face up to the role that coal in Australia is playing and the need for us to be urgently getting out of coal and gas and oil. You can tell just how seriously the Morrison government treats climate change and indeed coastal policy when they haven't sent anybody here. I do want to acknowledge Mark Butler, and his commitment to being here and working with the people in this room to be getting some action. But Labor continues to support exports of coal and natural gas. Mark didn't talk about coal. Labor still supports subsidising the fossil fuel industry, doing next to nothing to encourage the uptake of electric vehicles, and I look forward to policy on that, supporting clear-fell logging of our native forests, mainly for woodchips. The fact is, we have to end our reliance on fossil fuels. Coal is the world's biggest driver of climate change and Australia is the largest exporter of coal. Eighty percent of the coal we mine is exported. We are also the world's biggest exporter of natural gas. Which means we are a massive player in producing the globe's carbon pollution. No-one can pretend we are a small player. Our 1.3% of emissions is actually the 12th highest in the world when we are only the 55th biggest nation by population size. We are in the top five of emissions per person, but our coal and our gas exports dwarf our domestic emissions. So, without a plan to quit coal, to get out of fossil fuels, the government and in fact the Labor Party have got no plan to fight climate change. As my colleague, Adam Bandt said: coal needs to have its Marie Kondo moment – we say, 'thank you, you've done us well, but you no longer spark joy you only spark bushfires.' So, why aren't we taking the action, why

aren't we getting the implementation of all of our strategies and what we know needs to happen? Why are the major parties still talking about coal and fossil fuel? Labor, Liberal and the Nationals continue to take millions of dollars in donations from the fossil fuel industry, like Adani, Santos, Woodside, Chevron – they accepted almost \$3.7million of dirty money from the fossil fuel industry – and this is now, when we are feeling the impacts of climate change, when we need to have that action – to rapidly adapt to a zero carbon economy and to adapt to the new realities we will face, to account for the sad state of affairs that the planet has climate change baked in. We are experiencing its impact now, and we will increasingly experience them over coming decades, even if we achieve what we need to achieve – of a zero-carbon world in double-quick time.

I know that a lot of your councils are taking serious action and leading the world in some instances. We just need to get our state and Federal governments to join in. Last year I chaired an inquiry into the impacts of climate change on housing, building and infrastructure. It was eye-opening. As all of you know, councils, and coastal councils are bearing the brunt of the effects of climate change, and that inquiry clearly established that climate change is putting substantial numbers of Australia's building and infrastructure assets at risk, and damage and disruption to these assets is already happening and will increasingly have significant implications for the liveability of our communities and our cities and for our economy. Our report found that infrastructure such as transport, housing electricity and water is at major risk from sea level rise and extreme temperatures. Eighty-five per cent of Australians live near the coast, and much of our major infrastructure is on the coast. Official estimates have us staring down the barrel of sea level rise of 1.1 metres by 2100. Some 250,000 existing homes are at risk of inundation at a cost of more than \$226 billion in commercial, industrial, road and rail and residential assets at risk of inundation. We also know that 1.1 metres by 2100 is a conservative figure, and our knowledge of what's happening in Greenland and the Antarctic is constantly evolving. Rates of melt and the science around it are advancing rapidly, and some of the scary estimates – point to the collapse of both the Greenland and the entire west Antarctic ice sheet, which would lead to sea level rise of tens of metres. If we look to the recent past and the near future, between 1993 and 2016 sea levels rose 7cms. By 2020 it's expected that Australian sea level will rise by between 6 and 19cms. These figures can be a bit abstract, but I know that you know what that means. You see the impact in terms of coastal erosion and inundation in places that didn't used to be inundated. There are some tangible examples, like Collaroy and Narrabeen beach on Sydney's northern beaches which in 2016 had an estimated \$30 million damage by severe storms eroding around 50 metres of beach and causing extensive property damage. Our Senate Inquiry was told by the City of Lake Macquarie that a 0.9 metre increase in relative sea level is expected to result in the permanent inundation of over 93 hectares of residential zoned land along with the loss of public land and facilities. And then there is increased storm intensity. The Climate Council of Australia submitted that the 2° increase in average temperatures would result in a 10 to 30% increase in extreme downfalls and increasing intensity, such as the massive rainfall event in Townsville in February. And it's not just sea level rise, floods and coastal erosion. At the inquiry we heard evidence that the cities would experience major increases in the number of days over 35° - doubling in Melbourne, quadrupling in Brisbane, and Darwin facing a staggering 265 days a year over 35°. That's over 70% of the year. Just think of that in the context of the heat records that have been smashed this summer, and the bushfires that have been experienced in areas that have never

experienced fire, and reflect on what this means for our lives, for the impact on our wildlife and our precious places. We just cannot allow this to occur.

So, what does this mean for you – for coastal councils? I know that you have been discussing solutions that you have been coming up with to deal with coastal inundation, caring for people during heatwaves, caring for wildlife and ecosystems. What we know, and what we agree on, is that adaptation cannot be left to councils alone, and the Greens are absolutely adamant about that. Local government, as I know from my time there, is the level of government with the least amount of resources to be able to undertake such an enormous task. But currently the responsibility is largely left to you. There is a massive mismatch between the amount of local government infrastructure exposed to climate change risks and the resources that local governments have to carry out effective adaptation to manage these risks. What our inquiry found, and what the Greens absolutely support is the development of nationally consistent and authoritative benchmarks and guidelines regarding key climate change risks, such as sea level rise, rainfall and the management of flood risk. In the Senate report, our Greens recommendations – sadly we had three different sets of recommendations because we couldn't agree on what the response needed to be, so we had the Greens recommendations, the Labor recommendations and the government recommendations – so the Greens recommended that the Australian Government fund the preparation of a national climate change risk assessment, which would be updated regularly, say every five years. This would include a national audit undertaken by Infrastructure Australia to identify national at-risk infrastructure, such as road and rail networks, ports, airports, water, storm-water and irrigation infrastructure, electricity generation, transmission and distribution infrastructure, telecommunications, housing and building infrastructure and coastal defences. At the heart of the Greens recommendations in the report is the acknowledgement that responding and adapting to climate change, that's policy development, funding and resources and action, must be led by the Federal government. It can't be piecemeal. It can't be left for councils to do this work on your own or front up to these massive costs on your own. This must be coupled with real action to mitigate against climate change, otherwise we are just like that boy with his finger in the dyke in Holland. That means a zero-carbon economy, and 100% renewables. The Greens are launching our Renew Australia policy next week, so I'm not going to foreshadow that, but if you look back to our commitments in 2016 – it was at least 90% renewable energy by 2030, heading towards zero carbon transport, zero carbon agriculture and building. The cost of climate adaptation in a 4° world, which is where we are currently heading, you can't do it because the cost is simply too high to bear. The other critical thing that the Greens will also be announcing next week is what we need to be doing in terms of protecting our natural environment from all of the pressures it is currently under, whether it's from climate change or other development pressure. That means we need to be strengthening our national environment laws and putting real dollars towards environmental protection and to do all of the habitat restoration and all of the programs and processes that are needed to protect our precious natural places.

The good news in terms of dealing with this is that we are coming up to a Federal election and so you can choose. You can vote to continue on the path of climate disaster, or to vote for real action. You can vote for the major parties, who continue to take millions of dollars of donations from the coal industry, and have no plan to quit

coal, and realise that big corporate donations to political parties are the biggest cancer on Australian democracy. If we don't clean up politics the major parties will continue to work for the interests of their donors, not for the future of all Australians. For the Greens, our plan is to quit coal, transition to 100% renewables, ban the corporate donations that corrupt Australian politics. We refuse donations from the big end of town, so that we can fight for the outcomes that we want - on our coasts, outcomes that will benefit the Australian people, benefit our communities, our coastlines, our natural treasures – not to line the pockets of Labor and Liberal corporate mates at the big end of town.

In conclusion, in regard to Greens policy on coastal issues, the bottom line is that coal and gas and oil equal climate change and we've got to commit to the strategies and the environment policy and spend the dollars to fix the issues that we know are staring us in the face. We need to address our climate crisis by getting out of coal, and our climate, our coasts our communities, our coral reefs, our beaches and our wetlands will have a future. That's what we are working for, we are continuing to work for, with you and for you and all strength to our arms in our quest to achieve this because we are going to need it.

SUMMARY OF PRESENTATIONS

PPT presentations made at the conference are now available at the Australian Coastal Councils Association web site -

CONFERENCE DAY ONE – Wednesday 6 March 2019

Kiama: Building on its Local Character

Diana Griffiths, founding director at Studio GL, who has responsibility for preparing a Town Centre plan for Kiama, provided an outline of how the Kiama community is working to retain its distinctive coastal character and sense of place.

Climate Change Adaptation Strategies

Astrid Stuer, senior coastal engineer with the consultancy Water Technology Pty Ltd, presented a comparison of the different approaches being adopted to climate adaptation around Australia. She pointed out that each jurisdiction has developed its own approach aimed at addressing coastal vulnerability, but each has a similar purpose – to plan and prepare for climate change through local government implementation. She explored the advantages and disadvantages of the different state programs and the lessons to be learned from each of them.

QCoast2100 – Delivering Queensland-wide Adaptation for Coastal Hazards

Subathra Ramachandram, the QCoast2100 program manager with the Local Government Association of Queensland, and **Sel Sultmann**, Principal Coastal Scientist with the Queensland Department of Environment and Science, described the QCoast 2100 program, which was launched by the Queensland state government, in partnership with the Local Government Association of Queensland, to encourage coastal councils to gain a greater understanding of coastal hazards and to plan for safer, more resilient communities.

Sunshine Coast: Building a Bright Future

Warren Bunker, Group Executive Liveability and Natural Assets Group, Sunshine Coast Council, presented an outline of the council's Smart City Framework, which is aimed at stimulating local economic growth, ensuring long-term environmental sustainability and improving the quality of life for local residents through technical innovation. The Council has made significant progress in harnessing a range of technologies to create a more liveable region, including development of the largest solar energy farm in South East Queensland, introduction of the first whole-of-region smart Wi-Fi system, and development of smart waste bins and water meters.

Ocean Safety and Beach Management

Warren Young, Chief Lifeguard for the Gold Coast City Council, and **Bruce Hopkins**, Chief Lifeguard for Waverley Council in Sydney, presented a session that examined the role of the council lifeguard and the Australian Professional Ocean Lifeguard Association, or APOLA - the professional association that has represented Australian beach ocean lifeguards since its formation in 1974. They spoke of their experience of managing beaches and the role the ocean lifeguard plays in promoting tourism and generating revenue streams to offset service delivery costs.

Online Short-term Holiday Rental Platforms – Update

Professor Nicole Gurrán, Chair of Urban and Regional Planning and Policy at The University of Sydney, presented an update on a study into planning responses to the impacts of short-term holiday rental platforms on Australian coastal communities, which was commissioned by the Australian Coastal Councils Association. The report was presented to relevant state government agencies, which have been in the process of developing policy positions in response to the rapid increase in listings of properties on platforms such as Airbnb and HomeAway stayz.

Workshop – Ocean Safety and Beach Management

Warren Young and **Bruce Hopkins**, members of the Australian Professional Ocean Lifeguard Association, together with Ian Lee, National Training Officer with APOLA and principal of Aquatic Safety Consultants Australia, and Brad Sutton, Acting Manager Environmental Systems – Lake Macquarie City Council, facilitated a workshop on issues including the duty of care that councils have for managing beaches, strategies for minimizing the risk of shark bite, and effective strategies for patrolling beaches.

Where Has my Beach Gone and What Can I Do About it?

Dr Andrew McCowan, Managing Director, Water Technology Pty Ltd, made a presentation discussing the main processes affecting beaches – the wind, waves, tides, currents and storms - and explored some of the principal causes of erosion, including the effects of climate change and sea level rise. The presentation then reviewed the options available for managing eroding beaches, including both “soft” and “hard” management options.

Living Shoreline Response to Building Coastal Resilience

Ralph Roob, Senior Environmental Engineer, City of Greater Geelong, made a presentation concerning an artificial offshore reef, which has been established by the City of Greater Geelong in partnership with the University of Melbourne through the National Centre for Coasts and Climate.

Coastal Management in Australia and Climate Change: A Comparison Between Jurisdictions and Assessment of Approaches Against A Gold Standard

Dr David Rissik, Senior Principal, Climate Adaptation, BMT, presented an overview of the various approaches to coastal adaptation around Australia, and assessed the different approaches against what he defined as a gold standard for climate change adaptation planning on the coast.

Understanding Microplastic Loads Through a Robust Citizen Science Approach

Scott Wilson, senior lecturer with the Department of Environmental Science at Macquarie University, made a presentation outlining the need to gain a better understanding of the types and quantities of microplastics on our shorelines and the way in which a citizen science approach is being used to achieve this.

CONFERENCE DAY TWO – Thursday 7 March 2019

The Tsunami Threat to Australia: Sydney Harbour and National Perspectives

Kaya Wilson and **Dr Hannah Power**, of the University of Newcastle, presented the findings of a research project into the risk of tsunamis in Sydney Harbour and along the Australian coastline more broadly.

Kiama Tourism Strategy

Karen Ronning, Manager Tourism and Events, with Kiama Municipal Council, presented an outline of the tourism strategy that has been developed for the town.

Managing Peak Tourism Demand at Hyams Beach

Coralie Bell, Tourism Manager with Shoalhaven City Council, presented a case study concerning peak tourism demand at Hyams Beach, where thousands of day-trippers and overseas visitors are being drawn to the beach each day over summer, attracted by claims that Hyams Beach has the world's whitest sand.

Moyne Shire and Tourism: Taking Care of Business

Oliver Moles, Director of Sustainable Development with Moyne Shire Council in Victoria, presented a case study concerning the caravan parks operated by Moyne Shire which are operated in competition with those run by private sector operators in the council area.

Australian Coastal Cities – Climate Risks and Responses

Professor Lesley Hughes, Pro Vice-Chancellor, Research Integrity and Development, Macquarie University, and a Founding Member of the Australian Climate Council, made a presentation examining recent extreme weather patterns in Australia and outlining the impact of unprecedented heat and other climate impacts on Australia's tourism sector.

The Smart Beaches Project

Brad Sutton, Acting Manager Environmental Systems, Lake Macquarie City Council, and **Claire Chaikin-Bryan**, Project Manager Strategy, Performance & Improvement, Northern Beaches Council, presented a report on a project funded by the smart cities and suburbs program, which is aimed at developing technology to make beaches safer and reduce the risk of coastal drowning.

An Inconvenient Truce: How to Make Retreat Work as a Coastal Adaptation Pathway

Allan Young, National Technical Leader, Urban and Regional Planning, with EMM Consulting, presented the findings of a study which examined the implications of climate retreat options, based on the results of a Churchill Trust research project undertaken across the United States, the UK and the Caribbean

Workshop – The Smart Beaches Project

Brad Sutton, Acting Manager Environmental Systems, Lake Macquarie City Council, and **Claire Chaikin-Bryan**, Project Manager Strategy, Performance & Improvement, Northern Beaches Council, facilitated a workshop on the Smart Beaches Project, which has been funded by the smart cities and suburbs program with the aim of developing technology to make beaches safer and reduce the risk of coastal drowning.

Marine Pests and the Australian Government: Educational and Information Resources Available to Local Councils

Brett Herbert, Scientist, Australian Department of Agriculture and Water Resources, made a presentation on the *MarinePestPlan 2018-2023*, which is a national plan that aims to reduce the risk of marine pests entering Australia and minimise the spread of established pests.

How Do We Mitigate the Risk of Shark Bite to All Beach Users?

Craig Blount, of Cardno (NSW/ACT) Pty Ltd, presented a holistic strategy for effectively mitigating the risk of shark bite, including the use of emerging technologies for shark deterrence and detection to avoid the need for catch and kill, and reduce or eliminate capture of other marine species.

Flying Fish Point Rock Revetments: Application of ‘Green Engineering’ Fish-friendly Features and other Innovative Measures

Justin Fischer, Manager Asset Engineering, Cassowary Coast Regional Council, presented an outline of an innovative approach to upgrading a local seawall adopted by the council. The upgraded wall provides enhanced fish and marine biodiversity habitat in a tropical location and is the first of its kind in the Great Barrier Reef Marine Park.

Coastal Hazard Adaptation on Moreton Island

Glen Dare, Environmental Engineer, City Planning and Sustainability Division, Brisbane City Council, made a presentation on work being undertaken at Cowan Cowan on Moreton Island, where the council is working with residents to assist them in managing coastal erosion.

Blue Carbon Ecosystems: Potential for Future Emissions Reduction

Toni Cannard, of CSIRO Oceans & Atmosphere, presented an outline of a study to assess the potential for blue carbon systems such as mangroves, tidal marshes and seagrasses, to sequester carbon dioxide and store it as organic carbon. The research indicated that carbon captured within these ecosystems represents nearly half of the total carbon accumulated in marine sediments, even though they cover only 0.2% of the ocean surface.

CONFERENCE DAY THREE – Friday 8 March 2019

Impact of Sea-level Rise Around the Australian Coast: A Sediment Compartment Approach.

Professor Colin Woodroffe, School of Earth, Atmospheric and Life Sciences, University of Wollongong made a presentation on the impact of rising sea levels, which he indicated is likely to vary depending on characteristics of particular sections of coast – in particular the availability of sand.

Review of NSW Coastal Management Programs

Professor Bruce Thom AM, Chair of the NSW Coastal Council, made a presentation concerning the Council's review of Coastal Management Programs being implemented by local councils. During the presentation Professor Thom drew attention to the frustration of coastal planners and managers with the on-again, off-again interest and involvement of the Australian Government with coastal issues.

Building Coastal Councils' Capability to Respond to Climate Change: Pilots, Partnership and Co-design

Dorean Erhart, the *QLD Climate Resilient Councils Program* Manager with the LGAQ, and **Catherine Dunbar**, Manager Adaptation - Climate Change and Sustainable Futures, QLD Department of Environment and Science, presented an outline of the QCRC program, which is aimed at building the capability of local governments to take positive actions to mitigate and adapt to climate change.

COASTAL POLICY FORUM

Coastal Issues Survey

Presentation by **Alan Stokes**, Executive Director of the Australian Coastal Councils Association, in which he presented the results of a survey conducted by the Association in early 2019 with the aim of identifying the major issues of current concern to local governments in Australia's coastal areas.

Keynote Speech by The Hon **Mark Butler** MP, Shadow Minister for Climate Change and Energy – *see transcript at page 12 of this report.*

Keynote Speech by **Senator Janet Rice**, Chair of the Senate Environment and Communications References Committee - *see transcript at page 15 of this report.*

Final Session and 2019 Conference Communiqué

Facilitated discussion to consider adoption of the 2019 Conference Communiqué, which presented a list of 5 key coastal policy initiatives which were based on analysis of the Coastal Issues Survey.