



FINAL CONFERENCE REPORT

20 May 2016



Gary Holland Community Centre Rockingham WA

Wednesday 4 to Friday 6 May 2016

Organised by:

Australian Coastal Councils Association Inc.

Host Council

The Australian Coastal Councils Association Inc. would like to acknowledge the interest and support of the City of Rockingham for the 2016 Australian Coastal Councils Conference.



The City of Rockingham is blessed with some of the most spectacular coastline and most popular beaches in Perth's metropolitan area. Stretching for some 40 kilometres, plus a number of unique islands, the coast supports an aquatic lifestyle which delights countless residents and visitors every year. The City's natural affinity with the coastal environment is celebrated in its iconic logo and distinctive wave-like branding elements, and is exemplified in its widely recognised positioning statement "*where the coast comes to life*".

Despite the idyllic imagery and the enviable tourism lifestyle afforded by the natural features of this area, the City faces significant challenges as the effects of climate change begin to manifest, as its population grows, and ages, and as its capacity to provide essential infrastructure to its soaring population is pushed to the limit.

The City is located within the south-west coastal strip of Perth's metropolitan region, 47 kilometres south of Perth's Central Business District. It is a rapidly developing residential area, with substantial industrial and commercial areas, and Australia's largest naval base, HMAS Stirling, on Garden Island. The City encompasses a total



land area of about 260 km², including significant areas of coastline and parkland. As of June 2014 the City had an estimated population of 125,889, following a decade long growth rate average of 4.6% per annum. Over the coming

decade the City is expected to experience an annual growth level of 2.6%, reaching a population of around 167,530 in 2026¹.

With its extensive coastline Rockingham is particularly susceptible to the impacts of sea level rise, and is currently participating in two collaborative projects to identify areas of the coast potentially subject to erosion and/or inundation. The Cockburn Sound Coastal Alliance covers the area from Fremantle to Point Peron, while the Peron Naturaliste Partnership covers the area from Point Peron to Point Naturaliste. Inundation and erosion maps have been produced to indicate areas within the City of Rockingham potentially at risk. Further investigation is required to clarify the potential extent of sea level rise, and develop appropriate adaptation plans to address those impacts.

The dynamic nature of the Rockingham coast is already presenting challenges, with several erosion hotspots being monitored and managed. The adequacy of current and planned infrastructure is also being evaluated, such as at Mersey Point where ongoing issues with sedimentation of the boating channel has led to a review of the jetty position and boat ramp.

As a consequence of the City's urban development potential and abundance of natural assets it is undergoing significant population growth and change. This change presents a major challenge for the City in meeting the subsequent facility provision and service delivery pressures, and, in particular, the increasing expectations of the community for new and upgraded infrastructure. To address the challenges this growth will bring, the City must be leading-edge and responsive to the aspirations of the existing and future community.

The City is endeavouring to implement a contemporary approach to infrastructure provision that will effectively reduce the financial burden on Local Government while ensuring the delivery of facilities and services that contribute towards a sustainable, vibrant, cohesive, healthy, and safe community.

Delivering infrastructure in a timely and cost effective manner in the face of the extensive constraints that are now placed upon rapidly growing municipalities creates a challenging dilemma for the City.

A lack of public open space severely limits the City's ability to provide enough active open space to cater for the community's growing participation in sporting activities. Studies have shown health and wellbeing, quality of life and longevity are all enhanced by access to public open space. It is especially important in the modern planning context to counter the inevitable decrease caused through in-fill and the proliferation of underprovided Greenfields estates. Lot sizes are shrinking² and the overall provision of public open space is being progressively reduced through co-located developments with schools. The reservation of public open space as drainage, 'bush forever', or as conservation wetlands compounds the lack of adequate provision for sport and recreation space.

¹ DoP (2012) WA Tomorrow Population Forecasts, Band C. Department of Planning, Perth

² Average lot size in Perth is 399 m², the first time it is under 400 m²

In 2014, the City of Rockingham was home to 33,334 seniors³ (people over the age of 50), representing 28% of the City's population. In 2036, it is forecast that the number of seniors will nearly double to 61,926. The City Centre has the highest density of aged population, with 49% of residents in this precinct over the age of 50.

This segment of the City's population faces a range of challenges.

- As the City is largely car dependent, accessing public transport can be problematic for seniors who do not drive.
- Affordable housing is an issue for seniors who need to downsize to smaller low maintenance housing. There is also a considerable shortfall of aged care beds in the City.
- A large proportion of Rockingham's seniors were born overseas and/or have families living interstate or in other parts of the world, so social isolation is an increasing challenge faced by many people in this age group.
- Uptake of new technology and access to information are issues for seniors.

As lifespans continue to trend upwards towards and beyond 100+ years, the City recognises the importance of planning for the diverse needs of the current and future seniors' population.

³ Population and household forecasts, 2011 to 2036, prepared by .id the population experts, August 2013

Sponsors

The Australian Coastal Councils Association Inc. would also like to acknowledge the interest and support of our sponsors for the 2016 Australian Coastal Councils Conference.



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SUMMARY

The 2016 Australian Coastal Councils Conference was convened by the Australian Coastal Councils Association at the Gary Holland Community Centre, Rockingham WA, from 4 to 6 May 2016. 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 2016 conference included the following:

Ms **Lisa Conolly**, Director – Regional, Family and Community Statistics, Australian Bureau of Statistics (ABS), presented a keynote address on a major transformation in the way the ABS is sourcing and producing data. Among other initiatives, the ABS is now working with other agencies to drive the future development of regional data.

Dr **Jamie Pittock**, a member of the Wentworth Group of Concerned Scientists, outlined the water challenges facing coastal communities as a result of climate change. Dr. Pittock, from the Fenner School of Environment and Society at the Australian National University, said local councils will be at the forefront of coastal adaptation and will need additional support from state and federal governments to implement effective adaptation measures.

Dr. **David Rissik**, Deputy Director of the National Climate Change Adaptation Research Facility (NCCARF), demonstrated a web tool designed to help coastal councils manage risks associated with sea level rise and other climate impacts. The tool, called *CoastAdapt*, will provide guidance to coastal planners and managers on climate adaptation and will provide sea level rise data, produced by CSIRO, for each coastal council area in Australia.

Mr **Tim Cross**, National Sales Operation Manager, Quest Apartment Hotels, presented an outline of the criteria the company uses to select a location for a new development and the key factors in achieving a successful development project.

Mr **Michael Nolan**, Chair of the UN Global Compact - Cities Programme, presented a keynote address on the climate change pressures expected to impact on cities over the next 50 years, with a particular focus on the Bay Plan 2070 project. This project aims to identify and visualize the climate risks facing Melbourne's Port Phillip Bay.

Professor **Barbara Norman**, Professor of Urban and Regional Planning at the University of Canberra, provided an outline of an information manual on planning approaches to climate change, which outlines the key approaches and planning instruments that can be used when developing coastal adaptation strategies at regional and state scales.

A Welcome Reception for delegates was held on Wednesday 4 May at the City of Rockingham reception rooms and the Conference Dinner was held on Thursday 5 May at the Secret Harbour Surf Life Saving Club, Secret Harbour. The dinner included presentation of the 2016 Australian Coastal Awards.

A copy of the final program for the 2016 Australian Coastal Councils Conference is provided in the following pages, together with additional information on the presentations made at the event.

2016 AUSTRALIAN COASTAL COUNCILS CONFERENCE
ROCKINGHAM 6 May 2016
COMMUNIQUÉ

Preamble

Representatives of Australian coastal councils and other coastal stakeholders attending the Australian Coastal Councils Conference at Rockingham, Western Australia, from 4 to 6 May, 2016, agreed to issue the following communiqué in relation to these issues having considered the risks facing Australia's coastal environment and communities.

Communiqué

We call on the Australian Government to establish a national collaborative effort to secure a sustainable future for the Australian coastal zone.

The coast is one of our most highly valued social, economic and environmental assets. It is home to our state capitals and to more than 85% of our population. Most of our commercial assets are located in coastal areas and many coastal communities face the pressures of keeping pace with some of the highest rates of population growth in the nation.

While the coastal zone plays a pivotal role in the life of the nation, however, it is under increasing threat from a complex range of pressures. These pressures include widespread coastal erosion, more frequent and severe extreme weather events, projected sea level rise and other climate impacts. These threats are impacting on coastal councils and communities in every state and placing at risk the high biodiversity and scenic values of the coastal zone.

Coastal councils and their communities call on the Australian Government to play a leadership role in developing a coordinated national approach to coastal management by adopting a set of policy initiatives based on the recommendations of the bi-partisan Australian Parliamentary Coastal inquiry. The inquiry, conducted by the House of Representatives Standing Committee on Climate Change, Water, Environment and the Arts, was acknowledged as the most comprehensive examination of coastal pressures ever conducted in Australia.⁴

We propose that the following recommendations of the coastal inquiry be adopted:

That the Australian Government, in cooperation with state, territory and local governments, and in consultation with coastal stakeholders, develop an Intergovernmental Agreement on the Coastal Zone to be endorsed by the Council of Australian Governments. Inquiry Recommendation 44)

And that:

⁴ House of Representatives Standing Committee on Climate Change, Water, Environment and the Arts (2009), *Managing our coastal zone in a changing climate: The time to Act is now*, Canberra www.aph.gov.au/parliamentary_business/committees/house_of_representatives_committees?url=ccwea/coastalzone/report.htm

The Australian Government ensure that the Intergovernmental Agreement on the Coastal Zone forms the basis for a National Coastal Zone Policy and Strategy, which should set out the principles, objectives and actions that must be taken to address the challenges of integrated coastal zone management for Australia. (Inquiry Recommendation 45)

We call on the Australian Government to adopt these recommendations to address the lack of an effective decision-making framework which is essential to achieving a collaborative national approach to coastal management. Implementing the recommendations would also address the lack of effective institutional arrangements in relation to the coastal zone.

Friday, 6 May 2016

2016 AUSTRALIAN COASTAL AWARDS

The 2016 Australian Coastal Awards were announced on 5 May 2016 at the Australian Coastal Councils Conference, held at the City of Rockingham, Western Australia.

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 - 2016 AUSTRALIAN COASTAL AWARDS

Award for Climate Adaptation

Peron Naturaliste Partnership (WA) - *Peron Naturaliste Partnership Coastal Monitoring Program*

This award is for the first phase of implementation of a regional Coastal Monitoring Program covering approximately 210km of coastline. The Coastal Monitoring Program is being used to tailor specific approaches required by each of the nine participating councils to respond to local coastal erosion and inundation hazards. In the view of the judges the implementation of the project represents an outstanding example of collaboration between coastal councils and provides an excellent example of how coastal adaptation could be addressed in other coastal regions.

Award for Community Engagement

Tweed Shire Council (NSW) - *Kingscliff Matters Shopfront project*

The Tweed Shire Council created a pop-up shopfront, which was opened every business day for a period of nine weeks at the coastal township of Kingscliff. The aim of the shopfront was to engage with the community in relation to a proposed \$21 million foreshore development in the local area. The nomination explained how the presence of the shopfront helped to foster community awareness, acceptance and support for the proposed development and in the view of the judging panel it represented a significant investment by the Tweed Shire Council.

Award for Planning and Management

Eurobodalla Shire Council (NSW) - *Reconciliation in the Grasslands project*.

The judges commented that this project adopted a unique approach to fire management at the Themeda Grass Headland, using traditional indigenous knowledge. The judges also noted that it has helped to influence NSW coastal policy reform in relation to legislation covering environment protection. The nominated project has been an inspiration for several other NSW councils who are working with local indigenous communities to apply the methodology. In the view of the judges the knowledge gained

from the project will have relevance in the management of many other coastal grasslands.

Award for Annual Achievement

City of Rockingham (WA) - *Rockingham Beach Foreshore Master Plan*

The judges commented that this project represented an excellent example of preparing a Master Plan in association with very extensive rounds of community consultation. The nomination provided extensive detail on the community engagement process and the tools used in the process. In the view of the judging panel the project represented a large undertaking, covering three planning stages and 4.5kms of urban coastline and had addressed significant environmental and social outcomes. The objective of the Plan was to enhance the public spaces in the area as a means of stimulating private investment and economic activity in the adjacent private domain. In the view of the judges the project has accomplished much in terms of both planning and community engagement and represents a significant achievement.

PROGRAM

WEDNESDAY 4 MAY 2016 CONFERENCE DAY ONE

- 09:00 WELCOME – Mayor **Barry Sammels**, Chair, Australian Coastal Councils Association Inc. and Mayor of the City of Rockingham (WA)
- 09:10 SESSION and DISCUSSION: COASTAL ISSUES AND CHALLENGES
- INTRODUCTION TO THE CITY OF ROCKINGHAM*
Mr **Andrew Hammond**, Chief Executive Officer, City of Rockingham WA
- ECONOMIC DEVELOPMENT CASE STUDY – CITY OF FREMANTLE STRATEGY*
Dr **Brad Pettitt**, Mayor, City of Fremantle WA
- COASTAL HAZARD AND SEA LEVEL RISE – THE CLOCK IS TICKING*
Mr **Oliver Moles**, Director of Sustainable Development, Moyne Shire Council VIC
- AUGUSTA BOAT HARBOUR*
Mr **Johan Louw**, Director Infrastructure Services, Shire of Augusta Margaret River WA
- PREVIEW OF FIELD TOURS AND CONCURRENT SESSIONS
- 10:30 *Morning tea*
- 11:00 KEYNOTE ADDRESS AND DISCUSSION: COASTAL POPULATIONS – NEW APPROACHES TO REGIONAL DATA
Ms **Lisa Conolly**, Director: Regional, Family and Community Statistics, Australian Bureau of Statistics, will outline a new approach to development of ongoing and dynamic information on Australia's regions as a critical resource to assist in regional planning and decision-making.
- 11:30 COASTAL RESEARCH FORUM AND DISCUSSION:
MARINE PROJECTIONS FOR NRM REGIONS OF AUSTRALIA. Dr **Kathleen McInnes**, Research Group Leader, Sea Level, Waves & Coastal Extremes, Coastal Dynamics Program, CSIRO
- NCEDA, DESALINATION, COASTAL INTAKES AND OUTFALLS AS WELL AS CONTROL OF ESTUARINE AND MARINE NUTRIENT DISCHARGE* Professor **Wendell Ela**, Professor of Desalination and Water Treatment, National Centre of Excellence in Desalination Australia, Murdoch University
- RETREAT, EXISTING COASTAL SETTLEMENTS AND THE EFFECTS OF CLIMATE CHANGE – IS THERE A ROLE FOR ROLLING EASEMENTS IN WESTERN AUSTRALIA?*
Mr **John Watson**, PhD candidate, School of Law, University of South Australia
- 12:30 *Lunch*

CONCURRENT SESSIONS – Wednesday 4 May 2016

- 13:00 **FIELD TOUR A - TOUR OF HMAS STIRLING**
Commencing at 13:00. Returning to the Gary Holland Community Centre at approximately 15:10. The tour participants will be welcomed to the naval base by Captain Brian Delamont, the Commanding Officer. They will view ships and submarines from alongside and have an historical and environmental tour of the base including the Stirling Museum.
- OR**
- 13:30 **SESSION A: COASTAL MANAGEMENT CASE STUDIES**
Location: Multipurpose Room, Level One, Gary Holland Community Centre
TOWARDS BEST PRACTICE COUNCIL-BASED COASTAL PLANNING: VALUING LOCAL KNOWLEDGE AND SHARED RESPONSIBILITY – Mr **Phil Watson**, NRM Planner, Clarence City Council TAS
- RECONCILIATION IN THE GRASSLANDS: THEMEDA GRASS HEADLAND ENDANGERED ECOLOGICAL COMMUNITIES* – Cr **Danielle Brice**, Eurobodalla Shire Council NSW
- COASTAL ADAPTATION IN THE PERON NATURALISTE REGION OF WESTERN AUSTRALIA: A FIVE YEAR JOURNEY* – Ms **Joanne Ludbrook**, Coordinator, Peron Naturaliste Partnership WA
- 15:00 *Afternoon tea commences*
- 15:30 **FIELD TOUR B – ROCKINGHAM FORESHORE MASTERPLAN**
Starting from the Foyer of the Gary Holland Community Centre this is a walking tour of the Rockingham Foreshore of around 90 minutes duration. Hear about how the City established a blueprint that will guide the redevelopment of the public spaces at the historical Rockingham Beach Foreshore, which seeks to build on its existing attributes to encourage more visitations and increase private investment.
- OR**
- SESSION B - FINANCE OPTIONS FOR COASTAL ADAPTATION**
Location: Multipurpose Room, Level One, Gary Holland Community Centre
FINANCING COASTAL ADAPTATION – Mr **Ashley Robb**, PhD candidate, Curtin University
- PROBLEMS AND PROSPECTS OF MOVING THE CLIMATE CHANGE ADAPTATION FINANCE AGENDA FORWARD* – Mr **Dan Ware**, Griffith Centre for Coastal Management, Griffith University
- 18:30 – 20:00 **WELCOME RECEPTION**
Reception Room, City of Rockingham, Civic Boulevard, Rockingham
Dress: Smart casual

THURSDAY 5 MAY 2016 - CONFERENCE DAY TWO

- 09:00 SESSION AND DISCUSSION: WATER MANAGEMENT IN THE COASTAL ZONE
Presenter – A/Prof **James Pittock**, Fenner School of Environment and Society, Australian National University and member of the Wentworth Group of Concerned Scientists
- 09:30 SESSION AND DISCUSSION: INTRODUCING A CLIMATE RISK MANAGEMENT TOOL FOR COASTAL AUSTRALIA
Presenter - Dr **David Rissik**, Deputy Director, National Climate Change Adaptation Research Facility
- 10:00 Dr **Mat Vanderklift**, Senior Research Scientist, Oceans and Atmosphere Flagship, CSIRO
- 10:30 *Morning tea*
- 11:00 SESSION AND DISCUSSION: ECONOMIC DEVELOPMENT STRATEGIES IN COASTAL REGIONS
QUEST APARTMENTS ROCKINGHAM – CASE STUDY
Mr **Tim Cross**, National Sales Operation Manager, Quest Apartment Hotels
- MID WEST CAMPING NODES*
Ms **Nicole Nelson**, Manager Tourism and Library Services, Shire of Irwin WA
- 11:50 COASTAL RESEARCH FORUM AND DISCUSSION:
COASTAL DOLPHIN RESEARCH IN WESTERN AUSTRALIA: MURDOCH UNIVERSITY CETACEAN RESEARCH UNIT'S ACTIVITIES AND KEY FINDINGS 2006-2016 - Dr **Alexander M. Brown**, Researcher, Cetacean Research Unit, Murdoch University
- COMMUNITY IMPACTS AND ATTITUDES TOWARDS A STATE MARINE PARK: CASE STUDY AT JURIE BAY, WESTERN AUSTRALIA – Ms Asha McNeill*, PhD Candidate, School of Earth & Environment & Oceans Institute, University of Western Australia
- 12:30 SPECIAL GENERAL MEETING – Australian Coastal Councils Association Inc.
- Lunch*
- 13:30 NOTE: Departure time to be confirmed
FIELD TOUR C - PENGUIN ISLAND TOUR
Visit Penguin Island by ferry and take a tour with rangers on the island which is home to the largest colony of Little Penguins on the west coast and a diverse array of wildlife and breathtaking marine and coastal scenery.
- SESSION C - COASTAL EROSION SESSION**
Location: Multipurpose Room, Level One, Gary Holland Community Centre
- SEA LEVEL RISE AND ITS IMPLICATIONS FOR COASTAL MANAGEMENT – Dr Andrew McCowan*, Managing Director, Water Technology

ACCURATE FRAMEWORK FOR ASSESSING THE EFFECT OF MITIGATION SCHEMES FOR COASTAL EROSION – Dr **Kasper Kaergaard**, Senior Engineer, DHI Australia

PLANNING FOR LONG-TERM COASTAL EROSION AND INUNDATION IN WESTERN AUSTRALIA: IMPLICATIONS FOR PLANNERS – **Ashley Robb**, PhD candidate, Curtin University Sustainability Policy Institute

SUNSHINE COAST REGIONAL SAND SOURCING STUDY – Mr **Greg Fisk**, BMT WBM Pty Ltd (Water and Environment)

15:00 *Afternoon tea*

15:30 **FIELD TOUR D – ROCKINGHAM COASTLINE**
A bus tour of significant coastal infrastructure and management hot spots that best demonstrate the different coastal processes impacting on the City of Rockingham’s 26km of coastline.

OR

SESSION D - COASTAL POLICY WORKSHOP

Location: Multipurpose Room, Level One, Gary Holland Community Centre
An interactive session to identify key coastal policy initiatives and advocacy

strategy.

19.00 GALA CONFERENCE DINNER including the presentation of the 2016 AUSTRALIAN COASTAL AWARDS

Secret Harbour Surf Life Saving Club, Secret Harbour

FRIDAY 6 MAY 2016 - CONFERENCE DAY THREE

- 09:00 KEYNOTE ADDRESS AND DISCUSSION: COASTAL AUSTRALIA BAY PLAN 2070 FOR PORT PHILLIP BAY – Mr **Michael Nolan**, Chair of the UN Global Compact Cities Programme, will outline the Bay Plan 2070 project which aims to identify the pressures due to climate change that are expected to impact on Port Phillip Bay in Victoria over the next 50 years
- 09:30 SESSION AND DISCUSSION: A REVIEW OF PLANNING APPROACHES FOR COASTAL CLIMATE CHANGE – Professor **Barbara Norman**, Professor of Urban and Regional Planning, University of Canberra
- 10:00 SESSION AND DISCUSSION: COMMUNITY SCALE BATTERY STORAGE UNIT TRIAL AT ALKIMOS – Mr Gus Riggs, Senior Policy Adviser, Synergy
- 10:30 *Morning tea*
- 11:00 SESSION AND PANEL DISCUSSION: COASTAL POLICY and 2016 CAMPAIGN FOR THE COAST
Presentation and panel discussion on priority issues to be addressed in the coastal policy agenda for the 2016 Federal election.
- 12:00 FINAL SESSION AND 2016 CONFERENCE COMMUNIQUÉ
Facilitated discussion to consider adoption of the 2016 Conference Communiqué
- 12:30 *Lunch*
- 13:30 CONFERENCE CONCLUDES

SUMMARY OF PRESENTATIONS

CONFERENCE DAY ONE – Wednesday, 4 May 2016

Welcome – Barry Sammels, Chair – National Sea Change Taskforce

Mayor Barry Sammels began by acknowledging the traditional custodians of the land on which Rockingham stands and to pay respect to their Elders both past and present.

He welcomed everyone in attendance on behalf of the Australian Coastal Councils Association and said he was sure you they would welcome the opportunity to network with representatives of other coastal councils and with the many other coastal stakeholders who are attending. He said he was equally sure they would find the event provided a wealth of information that was relevant to to them and to the organisation they represented. He said the theme for the conference was *A Sustainable Future for Coastal Australia*.

Barry Sammels said everyone present would agree the coast is one of our most highly valued social, economic and environmental assets. It is home to our state capitals and to more than 85% of our population. It is also home to some of the fastest growing communities in Australia. But while the coastal zone plays a pivotal role in the life of the nation, it is under increasing pressure from a complex range of threats. These threats include widespread coastal erosion, more frequent and severe extreme weather events, projected sea level rise and other climate impacts.

He said the aim of the Australian Coastal Councils Association, was to make sure these challenges are dealt with effectively. “We aim to ensure the generations who come after us continue to have the opportunity to enjoy this unique natural asset in the same way that we do. The big question, of course, is how is this going to happen? Managing and caring for the nation’s 36,000km of coastline is an enormous task. At the moment that task is largely left to local councils.’

He said as the level of government with the least share of taxation revenue, however, local councils simply didn’t have the resources necessary to deal with all the challenges involved. ‘In our view the only way these enormous challenges can be dealt with effectively is for the three levels of government to work together through a coordinated national approach to coastal management. That is at the core of the policy proposals we are developing for the forthcoming election, which we will be considering over the course of the next three days.’

Barry Sammels said issues to be discussed during the conference include:

- New and emerging sources of data to assist councils in their regional planning and decision making;
- A demonstration of a new on-line tool which has been developed by the National Climate Change Adaptation Research Facility to help coastal councils

- manage the risks associated with climate change;
- Updates on the major developments affecting coastal planning and management that have occurred over the past year.

Barry Sammels acknowledged the support received from a number of organisations towards the organisation of this conference, and specifically acknowledged the following:

Murdoch University
Quest Apartment Hotels
Construction firm Tracc Civil Pty Ltd and
The City of Rockingham – the host council for this event

He said The Hon. Julie Bishop MP, Member for Curtin and Minister for Foreign Affairs, had been invited to open this event and ‘unfortunately, with Federal Parliament being recalled and the Budget being brought forward, it was no longer possible for her to attend. But she has asked me to pass on her apologies and best wishes for a successful event.’

Barry Sammels welcomed all delegates to the event whether they were a representative of a coastal council, a State or Federal policy maker, a coastal researcher, or a representative of the private sector and invited them to share ideas and experiences with each other to work together to find sustainable solutions to the complex and often difficult challenges facing our coastal communities.

COASTAL CASE STUDIES

Mr **Andrew Hammond**, the CEO of the City of Rockingham, provided delegates with an economic snapshot of the City. He said since 2006 the population of the council area had increased by 40% - from 87,000 to 135,000. The length of coastline in the City is 36.8km and the area is 261 square km. Andrew said rate revenue is \$71m and annual turnover is \$275m. The City workforce is 600 (540FTE). He said the City’s major economic development focus and priority resource allocation is directed towards projects and activities that:

- are unique and attractive to prospective investors
- come under the control, management and influence of the Local Government
- fall within the capabilities and expertise of the City as a corporation to deliver successfully
- provide increased revenue streams for the City as a corporation
- benefit the community at large and will facilitate measurable new investment.

Dr. **Brad Pettitt**, the Mayor of the City of Fremantle, outlined the economic development strategy of the City. He said the economic strategy was based on the concept of building on Fremantle’s strengths towards a dynamic future. He said

Fremantle's economy had plenty that is working: for example there had been a 45% increase in visitor numbers and a 50% increase in length of stay. But there had been little population growth and housing affordability had become a challenge for people on average income. He said the objectives of the economic strategy included rejuvenating the city and civic heart of Fremantle and developing better connections to and use of Fremantle's waterfront. Dr Pettitt said the total value of developments currently under construction or planned was \$1.4 billion. He provided an outline of some of the development projects.

Mr **Oliver Moles**, the Director of Sustainable Development, Moyne Shire Council, in Victoria, provided an outline of the one of the major issues facing coastal councils all around Australia – the projected impacts of climate change. He said climate change meant that storm events would be more severe and more frequent, and that rising sea levels would threaten coastal communities. He said 2015 had been confirmed as the hottest year on record. It was estimated that by 2050 130 million people would be affected by floods, about 75% of them in Asia. The World Bank predicted that the annual cost of climate change damage from flooding and sea level rise could be as high as \$1 trillion unless major cities took appropriate action. He provided a number of examples of the impact of recent severe weather events and highlighted climate risks in Australia. Oliver Moles said the Australian Infrastructure Plan released in February 2016 had provided much information on the need for additional roads and public transport, but there was no discussion about coastal infrastructure. He said there had been \$9 million provided to NCCARF for further climate adaptation research, but there were proposed cuts to staff at CSIRO Oceans and Atmospheric Division, and there was a lack of funding for adaptation works.

Dr **Johan Louw**, the Director Infrastructure Services with the Shire of Augusta Margaret River, provided an outline of a project to establish a safe anchorage for boats at Augusta. He indicated that for many years commercial operators had moored their vessels in the ocean because they were unable to access a commercial jetty in the nearby Blackwood River. The Augusta Boat Harbour project had recently been completed, providing a new boat harbor featuring sheltered boat launching facilities, floating finger jetties and 40 boat pens.

Ms **Lisa Conolly**, Director Regional Family and Community Statistics with the Australian Bureau of Statistics, presented a keynote address outlining current developments in the collection and distribution of regional data. She said there are currently enormous opportunities for development of regional data. The major challenge is how to harness these opportunities to improve regional data. Solutions will only be developed and resourced in collaboration with users and producers of data, and with political support. Lisa Conolly said in 2015, the ABS had received the most significant government investment in the 110 year history of the organisation - \$250 million over 5 years. She said would enable the ABS to transform to meet current and future needs in a more responsive and flexible way, while continuing to deliver high quality statistics. 'Through modernise ageing systems and processes and developing statistical capabilities required for a 21st Century national statistical office we aim to reduce statistical risk: ensure that our statistics are robust and fit for purpose, reduce time to market: provide the information that is needed when it is needed; reduce costs: be more efficient and effective.' She said achieving these objectives would enable the ABS to grow the business through capitalising on emerging opportunities

and innovation an reduce red tape, including reducing respondent burden on businesses and households.

Dr. **Kathleen McInness**, Research Group Leader – Sea Level Waves and Coastal Extremes, Coastal Dynamics Program, CSIRO, made a presentation titled *Coastal and Marine Projections for the Natural Resource Management Regions of Australia*. She provided an outline of findings of recent coastal research projects, beginning with updated projections of the climate risks facing Australia’s natural resource management regions. Dr McInnes made the point that global sea level reflects the state of the Earth’s climate system. She said factors affecting sea level rise include warming/cooling of the ocean (thermal expansion/contraction), change in mass of glaciers and ice sheets, and changes in terrestrial storage. ‘Relative sea level is also affected by ocean density, circulation, land movement, and distribution of mass on the Earth.’ She said increased sea level will increase the frequency of extreme sea level events and will increase the frequency of coastal inundation and erosion.

Professor **Wendell Ela**, Professor of Desalination and Water Treatment at Murdoch University and Chief Scientific Officer of the National Centre of Excellence in Desalination, presented a paper titled *Desalination for Water Security and Environmental Protection*. He said 40% of the world’s population is now living in a water–scarce region and that total global water demand is expected to rise by 35 - 60% between 2000 and 2025, and could double by 2050. Professor Ela said a 40% global gap between demand from economic development and supply of accessible and reliable water is expected by 2030. He said an individual person’s daily water needs varied between 1000 and 6000 litres a day, and provided an overview of the six desalination plants operation in Australia at Perth, Adelaide, Gold Coast, Sydney and Melbourne.

Mr **John Watson**, PhD candidate from the University of South Australia School of Law, presented a paper titled *Retreat, Existing Coastal Settlements, and the Effects of Climate Change – Is There a Role for Rolling Easements in Western Australia?* Delegates heard that the prospect of global warming and rising sea levels threatens Australia’s coastal settlements. For many years the threat of shoreline erosion and inundation had been addressed by defending vulnerable land with hard and soft engineering measures. John Watson made the point that unfortunately this approach threatens the health of the coastal environment, incurs amenity impact and requires considerable funding. He said an alternative strategy is to allow the coast to retreat naturally inland. This is considered a controversial approach, as it would require the removal of established property and infrastructure from the path of coastal inundation.

CONCURRENT SESSION ONE- COASTAL MANAGEMENT CASE STUDIES

Towards Best Practice Council-based Coastal Planning: Valuing Local Knowledge and Shared Responsibility

Mr **Phil Watson**, NRM Planner, Clarence City Council TAS, presented a paper on a coastal reserve planning process that moved away from traditional coastal planning approaches based on management actions derived from coastal, cultural and recreational values towards a solid focus on valuing local and stakeholder knowledge as a means to build durable commitment towards both the plan's development and its long term implementation. He said that by using an overarching regional strategic framework, the Coastal Reserve Activity Plans (RAPs) were founded on local knowledge obtained from an extensive two-way communication strategy. Each of the 20 RAPs developed to date featured friendly one-on-one 'walk and talk' chats with stakeholders, social media and report cards. Key RAP management issues included Aboriginal and cultural heritage, flora and fauna communities, habitat including standardized bird and bat surveys, coastal erosion and inundation, recreation and bushfire and vegetation management plans.

Reconciliation in the Grasslands: Themeda Grass Headland Endangered Ecological Communities

Cr **Danielle Brice** from Eurobodalla Shire Council in NSW presented a paper outlining the application of a unique approach to fire management of the Themeda Grass Headland, applying traditional indigenous knowledge. The innovative approach had helped to influence NSW coastal policy reform in relation to legislation covering environment protection. Like much of Australia's flora, the existence of Themeda Grass Headlands is uniquely tied to Indigenous past practices. Generally, grasslands have had evolutionary guidance through the influence of fire to maintain headlands in an open grassy state. This was for practical and cultural reasons. From a scientific standpoint it created a highly specialized grassland community, which would not have been possible without the use of fire to resist invasion by native and exotic shrubs.

Coastal Adaptation in the Peron Naturaliste Region of Western Australia: a 5 Year Journey

Ms **Joanne Ludbrook**, Coordinator of the Peron Naturaliste Partnership (PNP) in Western Australia, said the region involved in the partnership is largely sandy low lying open coastline, bounded by the rocky coastal areas of the Cape Coast to the south and the Garden Island ridge to the North. She said the length of coast from Point Peron to Cape Naturaliste is 212 kms, including 105kms of urban coast - where the adjacent uses are predominately residential and commercial - and there are significant coastal values and assets in the region. Joanne Ludbrook outlined the background of the PNP, the nature of the partnership and its key achievements. She said the key reason for developing flexible adaptation pathways for the Peron Naturaliste Coastal Region was to ensure the region is adequately prepared to respond to the impacts and opportunities posed by climate change. Joanne Ludbrook said the regional coastal monitoring program developed by the PNP was aimed at improving understanding and at increasing the capacity of local land managers to respond to erosion and inundation hazards in the coastal zone.

CONCURRENT SESSION TWO – FINANCE OPTIONS FOR COASTAL ADAPTATION

Finance options for coastal adaptation: Western Australia Case Study

Mr **Ashley Robb**, Project Manager for Coastal Adaptation Planning with Gingin Dandaragan Coastal Partnership and PhD candidate at the Curtin University Sustainability Policy Institute, provided an outline of the Gingin Dandaragan Coastal Partnership, noting that the project commenced in 2012 and involved a collaboration between government agencies, engineering and planning specialists, universities and peer review. He said it was a risk

management process that considered coastal hazards including long term coastal erosion and coastal inundation. The aim of the process was to identify potential hazard areas, identify assets at risk, identify adaptation options for reducing risk and to implement the most feasible solutions. He identified adaptation options as follows:

Strategy 1: Managed Realignment (or relocate):

Deliberate process of allowing coastal processes to take their natural course.

Land acquisitions

Strategy 2: Coastal Protection and preservation of beach amenity

Rock groynes and sand nourishment. Most expensive.

Strategy 3: Coastal Protection but loss of beach amenity

Limestone seawall. Least expensive

Strategy 4: Informed Community Adaptation

Case by case assessment. Does not guarantee a uniform approach to relocation or protection

Mechanisms to finance climate change adaptation in Australia

Mr **Daniel Ware**, a PhD candidate at the Griffith Centre for Coastal Management, said adaptation to climate change is a new area of expenditure for local governments. He said planning, administration, communications, operations, maintenance and repair schedules, were increasing the cost of infrastructure provision and new capital works. Adaptation of local government operations represents an additional cost and adaptation of coastal communities is a public good which implies a role for government. Daniel Ware said there is a huge gap between how much adaptation finance is available and how much will be needed. The most recent estimates show the developing world will require \$140 to \$300 billion a year by 2050 to adapt to climate change. Taking the most recent commitments for adaptation in 2013 and the lowest estimated needs by 2050, adaptation finance will need to increase by 438% by 2050. Mobilizing additional finance for adaptation is one of the most pressing challenges for developing countries; delaying action will mean even higher costs. Daniel Ware said it is important to tap into additional public sector finance from developed countries, mobilize private sector finance for adaptation and increase national spending in developing countries.

CONFERENCE DAY TWO – Thursday, 5 May 2016

PLENARY SESSION: Water management in the coastal zone

Dr **James Pittock** is an Associate Professor with the Fenner School of Environment and Society at the Australian National University and a member of the Wentworth Group of Concerned Scientists. He told delegates the impacts of climate change were expected to be sea level rise, droughts, floods and fire, greater diffuse pollution, higher water temperatures and changes in species compositions. He said societal responses would include greater rainwater and groundwater harvesting, desalination, changed agricultural and fire management practices, thirsty energy and carbon mitigation and hardening floodplains and sea shores. Dr Pittock said there were five potential approaches to adaptation for an uncertain future. The characteristics of these approaches were 'no regrets', reversible and flexible, have safety margins, soft adaptation strategies and have shorter decision time horizons. Local governments have the mandate, local knowledge and needs for long term adaptation planning, but they need resources and can encourage sustainable catchment land use. He suggested a regional approach to adaptation planning and management. This scale would be large enough to manage landscape pressures but small enough to utilise local knowledge. They needed to be adequately funded and have access to technical expertise. He commented that local government and regional NRM would be more effective if they worked together on such a regional approach.

Introducing a climate risk management tool for coastal Australia

Dr **Dave Rissik**, Deputy Director of the National Climate Change Adaptation Research Facility (NCCARF), told delegates that the research facility had been building a tool/framework that would provide coastal managers, especially in local councils, with support and knowledge to take action to adapt to climate change and sea level rise. He said a beta version of the CoastAdapt tool is scheduled to be available by 1 July. Dr Rissik said the tool had been developed through consultation with approximately 700 coastal stakeholders from all states and territories. The participants in the consultation had advised that the tool should align with activities by other groups, such as state governments, be flexible, recognizing different levels of knowledge, provide accessible, straightforward and reliable information. The stakeholders had also indicated the tool should have multiple entry points providing access to information for senior management and executives as well as members of communities. It should provide detailed information and guidance for coastal decision makers including council officers and should not make work. Dr Rissik said there were 64 authors and 41 technical reviewers involved in preparing content for CoastAdapt. The emphasis in designing the tool was on making sure it met the needs of a variety of users.

Integrating coastal catchment research with community engagement

Dr **Mat Vanderklift** is Senior Research Scientist, Oceans and Atmosphere Flagship, CSIRO. He outlined the best practice principles for integrated coastal zone management as follows:

- Development of a strategy with clear, tangible objectives
- Integrating planning, with the use of participatory planning to develop consensus
- Working with natural processes in an ecosystem-based approach
- Ensuring that decisions taken today do not bar future options
- Using a combination of instruments and available technologies
- Developing indicators for ICZM
- Implementing the precautionary principle
- Providing fiscal support for sustainability in ICZM

Dr Vanderklift said coastal environments were becoming urbanized, resulting in rapid changes including deteriorating water quality, changing morphology, loss of habitat and

biodiversity. These changes generated monitoring and management needs, including the need to understand the impacts of land-use changes, understanding the impact of extreme events, and developing new approaches to monitoring and modelling. He said the Australian Government was committed to improving observational capability through National Research Infrastructure. He provided an outline of the community engagement activities associated with research projects in Western Australia and Queensland and said these had been successful because they ensured the support and involvement of all relevant bodies. They highlighted the importance of stakeholder input and had established baseline data for effective decision-making.

ECONOMIC DEVELOPMENT CASE STUDIES

Quest Apartments Rockingham

Mr **Tim Cross**, National Sales Operations Manager, Quest Apartment Hotels, outlined the background to development of the Quest brand, the location assessment process used by the group, the background to the Rockingham Quest location, and the group's growth plans. He said the company had been founded in 1988 and had since grown to more than 120 properties. Tim Cross said the Quest Business Model is based on establishing a partnership with major corporate customers such as Wesfarmers, Qantas and Coles. He said the Quest product combined elements of hotel accommodation with apartment facilities and the group focused on marketing to the extended stay traveler. The key priorities for these travelers were location, guest experience, ease of booking and price. The key criteria when undertaking a new location assessment were as follows:

- **Corporate Market in a location:** National Accounts, Local market intelligence, major development projects
- **Industry and Commerce over a range of local industry sectors:** Business and industrial parks, regional infrastructure projects. Employment levels and regional economic output
- **Access to Transport, Health and Education facilities:** Attractions, Conference and Exhibition Centres
- **Accommodation market:** Current and future demand markets. Supply pipeline and competitors in the market.

The key criteria when undertaking a new site assessment are:

- Direct street access and frontage
- Direct street access to car park
- Direct car park access to reception
- Access to restaurants, cafes and grocery shops <5min. walk
- Access to entertainment or recreation facility <5 min. walk
- Access to public transport <10 min. walk
- Located within a 3km range of key economic drivers
- Main road exposure
- Substantial daily traffic flow
- Well illuminated

Tim Cross said the selection criteria for the Quest Rockingham included strong population growth forecasts, good access to transport, increasing visitor numbers, a strong pipeline of approved and planned projects, a local concentration of large employers, local conference and exhibition facilities, a strong annual event program, and ready access to leisure facilities. He said the benefits to the local economy of a Quest development included a large infrastructure spend and job creation in the construction phase, on-going employment creation, increased capacity for accommodating major conferences, flow on expenditure in local cafes and food outlets.

Mid West Camping Nodes

Ms **Nicole Nelson**, the Manager Tourism and Library Services for the Shire of Irwin, provided an outline of the Coastal Nodes Project, in the mid west of Western Australia. The location extends for 340km along the central west coast with the Indian Ocean to the west and the Great Victoria and Little Sandy Deserts to the east. She said the aim of the region is to be a leading self-drive, coastal and outback holiday region with sustainable growth in visitation. The Mid West Coastal Camping Nodes project is helping to make this happen. The Shire of Irwin is a member of the Mid West Tourism Alliance, a working group consisting of the MWDC, Tourism WA, Regional Development Australia Mid West Gascoyne, the Mid West Chamber of Commerce and Industry, Local Governments in the Mid West region, Fisheries and the Department of Parks and Wildlife who identify and progress major tourism priorities for the region. The focus for the working group was to identify opportunities for new and refreshed tourism developments, and how other priorities for the region could be aligned.

In order to achieve the Mid West's 2050 vision, to attract 1 million visitors that stay and enjoy the region for longer, 6 regional tourism priorities were highlighted. One of them being to "Develop coastal campsites and day use visitor nodes from Green Head to Kalbarri." The coastal nodes were to be short stay nature based eco campgrounds, similar to those in National Parks, with minimal infrastructure requiring minimal maintenance and servicing but may require 4WD to access some camp sites. The Shire of Irwin was elected as the leading LGA working closely with the Mid West Development Commission on behalf of the four participating Local Governments. This project would add approximately 200 sites to WA's camping capacity through stage 1, increasing to 300 if stage 2 funding is secured. Stage 1 of the project each site was required to have an Aboriginal Heritage Study, Flora and Fauna Survey and concept designs. The MWDC supported the group of LGAs to secure Royalties for Regions funding of \$1.5m through the Western Australian Caravan and Camping Action Plan: 2013-2018 to support the upgrade and installation of new visitor infrastructure at the four coastal camping nodes in this first stage. Tourism WA has granted funds to the Shire of Irwin as the project auspice on behalf of the four local governments. In this role the Shire of Irwin has coordinated bulk purchases chosen by the group including toilets, shelters and furniture then distributed the remaining equally between each Local Government once milestones are achieved. This project is expected to attract an additional 4,700 people per year to the region and deliver an additional \$585,000 into the region per annum. It is successful because it's been done collaboratively with Local Government Authorities, Regional Development Commissions and Tourism WA.

COASTAL RESEARCH FORUM

Coastal Dolphin Research in Western Australia: Murdoch University Cetacean Research Unit (MUCRU) Activities and Key Findings 2006-16

Dr **Alexander M Brown**, Researcher, Cetacean Research Unit, Murdoch University, said the mission statement of the MUCRU is the conservation and management of cetaceans (whales and dolphins) and dugongs. 'We strive to conduct applied and empirical research that facilitates industry and government agencies in meeting their environmental, regulatory and statutory responsibilities.' Dr. Brown said the core areas of research were abundance estimation, population biology & behavioural ecology, fisheries interactions, innovative research techniques, marine mammal health and citizen science. He said the research activities are widely spread across Western Australia, ranging from the south coast of WA to the Kimberley, including ongoing studies in the busy waterways around Perth, Bunbury and Mandurah/Rockingham. To this end, Murdoch University's Cetacean Research Unit (MUCRU) conducts rigorous, applied research on coastal dolphins to improve the scientific basis for

informed decision-making relevant to their conservation and management. Dr. Brown said research was being conducted towards reducing incidental capture of bottlenose dolphins in the Pilbara trawl fishery. This involved a net-mounted video; logbook data; observer program, abundance estimation & genetic sampling. The unit had made a series of recommendations aimed at mitigating the issue. He said innovative techniques were being developed to collect data on snubfin and humpback dolphins, including acoustic monitoring. These techniques were aimed at developing methods of automatically differentiating between species and estimating abundance. He said the techniques included the use of Unmanned Aerial Vehicles for assessing baleen whale body condition and the use of fixed-wing UAV for dugong distribution and abundance. He said marine mammal health was monitored by a variety of methods, including life history data, post mortem investigations and pathogen identification. Dr Brown said three smart phone apps had been developed to assist with citizen science activities. There were 1,500 users of the apps, which had resulted in recording 8,000 sightings of 104 species of marine mammals.

Community impacts and attitudes towards a state marine park: case study at Jurien Bay, Western Australia.

Ms **Asha McNeill**, a PhD Candidate at the School of Earth & Environment & Oceans Institute, University of Western Australia, who presented a paper on the socio-economic impact of marine park on people living a community at Jurien Bay, 220km north of Perth. She said the area known as the 'Turquoise coast, is an area of high biodiversity and ecological significance featuring limestone islands reefs and sheltered lagoons. It was popular with recreational fishers and holidaymakers. The zoning for the marine park had been determined over a two-stage consultation period. Each zone has different rules on the things you can and can't do in the park and focuses on fishing activities. Asha McNeill said conservation plans such as the marine park can be controversial and political. They represented significant taxpayer investment. She said the aim of the study had been to identify the variety of social impacts experienced by the communities due to the marine park and the distribution of costs and benefits across sectors. The reaction of the recreational fishers was typified by comments such as 'nothing much has changed', 'plenty of other places to fish', and 'we never used to fish there anyway'. The people who lived in the grey shack, community, however, was more critical, including comments such as 'we have lost easy access fishing', 'it was a sheltered spot for families', 'they didn't ask us' and 'what's it protecting anyway'. The reaction of commercial rock lobster fishermen was mixed, with some supporting the park. Other commercial fishermen were negative, critical and unsupportive. Local recreational fishers were generally supportive of the status quo, and members of the grey shack community were negative and unsupportive. One commercial fisherman said the marine park area was not viable anymore: 'Some of it has been definitely been the Marine Park but some has been those rules and regulations that have come in too.' Asha McNeill concluded that all types of fishing restrictions impacts are perceived to accumulate on fishers; recreational fishers can be strong supporters of fishing restrictions if handled the right way; and there are significant impacts from the restructure of rock lobster fishery management.

CONCURRENT SESSION ONE – COASTAL EROSION SESSION

Sea level rise and its implications for coastal management

Dr **Andrew McCowan**, Managing Director of Water Technology Pty Ltd, told delegates that estimates of sea level rise associated with climate change vary around Australia. He said in Victoria, Coastal Hazard Vulnerability Assessments (CHVAs) conducted for planning purposes are required to take into account a sea level rise of 'not less than 0.8m' by 2100 for new developments and of 0.2m by 2040 for 'fill-in' developments. These CHVAs are required to investigate the susceptibility of new developments to a range of hazards, including coastal

inundation, long-term coastal recession and short-term erosion. Dr. McCowan said in assessing these hazards, due consideration must be given to the underlying geology and geomorphology and to the main drivers of coastal processes in the area, such as sea level rise, tides, waves, currents and sediment transport. The responses to sea level rise will be very different for different landforms. The response of a coast with a rocky cliff will be very different to that of an exposed sandy beach, which in turn will respond very differently to an estuarine embayment with extensive inter-tidal flats. Dr. McCowan said it needs to be acknowledged that sea level rise is not something that will suddenly appear in 2040 or 2100, it is happening now. More than 23 years of satellite water level data show an increase in the globally-averaged mean sea level of 3.3mm per years, resulting in an increase of sea level of more than 75mm over the last 23 year. This has special implications for sandy beaches, because it is effectively a lowering of the beach by the same amount relative to the mean sea level. For an active coastal zone width of 100m this would be equivalent to the loss of 7,500 square metres of sand for every kilometer of beach since 1993. Dr McCowan concluded that: coastal systems are dynamic and complex; sea level rise is happening now and is already causing problems and exacerbating pre-existing problems; there is a need to consider 'compartments' for adaptation; not all the problems are caused by sea level rise.

Accurate framework for assessing the effect of mitigation schemes for coastal erosion

Dr **Kasper Kaergaard**, senior engineer with DHI Australia, told delegates coastal erosion is a major issue facing coastal communities everywhere. In many cases, it is best to let nature do its course and abandon erosions threatened areas, but when valuable infrastructure is at risk; mitigation of the coastal erosion can be the best option. Dr. Kaergaard said when mitigating coastal erosion there are usually two objectives, firstly to reduce the risk of infrastructure failing due to erosion while, secondly, retaining the beach amenity. An early and accurate assessment of the effectiveness of different mitigation schemes with respect to these two objectives is important to ensure that the limited available budget is spent in the best possible way. He said DHI had developed a new accurate screening framework, which coastal councils can use when screening different coastal erosion mitigation options in the early stages of a coastal erosion project. The framework is based on the newly released MIKE 21 FM Shoreline Model which combines a process based 2D description of the waves, currents and sediment transport with a 1D description of the shoreline position, thus allowing for accurate predictions of the long term (years to decades) coastal response to different mitigation options. The shoreline model has been validated and applied at numerous locations around the world. In Australia the model has been used on the Gold Coast where it was applied in the concept design of erosion mitigation schemes at Palm Beach and also to hind-cast the morphological development around the Narrowneck artificial reef. Setting up the framework for a particular location is a task for a modelling specialist where the local conditions regarding waves, currents, sediment properties and morphological conditions are input to the framework. However, once the framework has been set up to represent these local conditions, it is simple to input different mitigation schemes to the framework and compare the results. The framework is an easy to use and reliable tool for screening mitigation options in the early phase of a coastal erosion project, i.e. before going into concept design.

Planning for long term coastal erosion and inundation in Western Australia: implications for planners

Mr **Ashley Robb**, Project Manager for Coastal Adaptation Planning with Gingin Dandaragan Coastal Partnership and PhD candidate at the Curtin University Sustainability Policy Institute, told delegates there were a wide range of adaptation measures, such as differential rates, building regulations and contingent approvals were being recommended to coastal

practitioners for responding to long-term coastal erosion. However, he said, the potential for litigation from these measures was largely unknown. He said Coastal Hazard Risk Management and Adaptation Planning (CHRMAP) is a risk management process that considers coastal hazards to identify potential hazard areas, identify assets at risk in these areas, identify adaptation options, and implement the most feasible options. Ashley Robb said the Coastal Planning Policy (State Planning Policy 2.6) was gazetted in 2013 but remains largely untested. New research being undertaken by Curtin University Sustainability Policy Institute is investigating the implications for coastal planners. He discussed the key findings of the first round of data collection, which used interviews with WA coastal planners to identify the perceived legal and other implications of applying adaptation measures for coastal adaptation purposes. He outlined the hierarchy of adaptation measures as follows:

1. **Do-nothing:** Useful in areas absent of human-made public and private assets, where coastal erosion can be allowed to take its course with relatively little impact.
2. **Avoid:** Aims to avoid the presence of *new* development on greenfield and infill sites within a coastal hazard area.
3. **Managed Realignment (or Relocate):** The deliberate process of allowing coastal processes to take their natural course
4. **Accommodate:** Regarded as a viable solution for managing the potential impacts of coastal *inundation* through measures such as minimum floor levels.
5. **Protect:** Maintain the shoreline in a fixed position. Considered a last resort: high costs, negative down-drift impacts and visual amenity; reduced flexibility for future decision makers.

Ashley Robb outlined the key findings and opportunities of the study as follows:

1. Inconsistent approaches to hazard mapping across. Coastal hazard mapping technical guide – methods, terminology, scale definitions and uses, scenarios (years and events), examples.
2. Community needs access to hazard info early in the decision making process. Shared state-wide coastal hazard mapping platform.
3. 2015 P&D regulations remove planning discretion over single residential dwellings. Clarity is required for including these powers in planning schemes, as well as criteria for assessing development.
4. No guideline for temporary coastal protection works (timeframes, removal obligations, materials). Potential for policy refinement.
5. Strategic relocation or protection under the current funding and legislative framework is extremely limited. Investigate merits of a multi-tiered, conditional, gov. funded adaptation (acquisition) reserve
6. No multi-disciplinary reference body (e.g. NSW Coastal Advisory Board, Victorian Coastal Council). Potential for a strengthened WA Coastal Planning and Coordination Council

Sunshine Coast Regional Sand Sourcing Study

Mr **Greg Fisk**, the National Practice Leader, Environment, for the consulting firm BMT WBM, told delegates the Regional Sand Sourcing Study (RSSS) considered four potential sand sources for beach nourishment activities which were assessed with regard to environmental restraints, sediment quality, the quantity of material available and the likely sand extraction and delivery method. He said the Shoreline Erosion Management Plan (SEMP) is a 10-year action that outlines preferred management options to address priority erosion threats. Beach nourishment is preferred option for a number of priority areas. Current sand reserves are finite; expansion of current reserves constrained by legislative and environmental constraints and future climate change will only exacerbate the need for sand. He said the sand sourcing strategy was the preferred options because a wide sandy beach provides a

buffer to severe weather events and reduces the erosion threat to land based assets. In addition, the beach response to erosion mimics nature and helps to maintain recreational values associated with beaches. Greg Fisk said the Sunshine Coast social and economic values are dependent on access to healthy beaches and sand sourcing is a proven benefit which delays the need for hard structures. He said the sources of sand considered were Estuarine reserves (Maroochy River Mouth and Northern Pumicestone Passage), purchasing and transporting commercially extracted marine sand (from Moreton Bay) and identification and allocation of an offshore reserve. Greg Fisk said that having considered the options the first stage of the strategy proposed, from 2015 to 2010, was to continue using the existing reserves and trial offshore placement with commercial sand. The second stage, up to 2025, was to utilise existing reserves if still available, supplement with commercial sand (assuming trial successful) and investigate/seek approval for offshore reserves. The third stage of the strategy, for the period beyond 2025, was to continue to use existing reserves (if still available) and to supplement/replace with offshore reserves.

CONCURRENT SESSION TWO

Coastal policy workshop

Mr **Alan Stokes**, Executive Director of the Australian Coastal Councils Association, facilitated a workshop session to enable delegates to consider the provisional policy proposals prepared by the Association. He said the six key coastal policy proposals identified by the Association are:

- An Intergovernmental Agreement on the Coastal Zone
- A National Coastal Zone Policy
- Resources to manage the coast for all Australians
- Financial Assistance Grants to be aligned with Coastal Populations
- Increased funding for Australia's climate science research
- Measures to minimise legal risks for coastal councils

Alan said the key proposals, to develop an Intergovernmental Agreement on the Coastal Zone in cooperation with state, territory and local governments and to use this as the basis for a National Coastal Zone Policy, were based on recommendations of the bi-partisan House of Representatives Standing Committee on Climate Change, Water, Environment and the Arts back in 2009. He said the inquiry was the most comprehensive ever conducted into the coastal zone and in the view of the Association the recommendations by the committee members, who represented both major parties, are as relevant now as they were back then. He said the reason the Association supports these recommendations is that current methods of planning, funding and managing Australia's coastal zone are inconsistent and inadequate. Each jurisdiction has developed a different approach to coastal policy, planning and management. The delegates attending the session then split into discussion groups to consider the proposals. They then reported back to the meeting as follows:

Table 1 – Proposed Development of a National Coastal Zone Council modelled on the former Coasts and Climate Change Council The council to consist of head of the local government coastal group, head of NCCARF, Federal and state reps, stakeholders in touch with community – good engagement. This would help to leverage co-investment and multi-level government involvement. The role of the Council would be: to take carriage of: coastal planning and adaption, coastal population dynamics, coastal and near-shore marine ecology and to develop coastal policy. The Commonwealth *Living on the Coast* policy in the 1990s was very good with several significant well funded programs but no coastal adaptation. Need to look at that again before completely reinventing the wheel. Should be scientists on

Council and good engagement with climate and coastal science. One problem identified by the table was that there is a lack of effective local government representation on COAG.

Table 2 – Proposed that a global approach to the issue is needed and that:

- Nationally it is an issue that needs to be addressed.
- National Coastal Zone Policy – need for a federal definition of ‘coasts’ and areas
- Intergovernmental - define role of different govts. and agencies; increased responsibility for federal govt. over coast as there is no set policy for govt. to protect it; public access should be enshrined; actions of individual councils impact on neighbouring councils.
- Funding: A future fund is required for climate change

Table 3 – Proposed that key policy proposals³ and 4 relating to funding should be combined but need to distinguish with dot points, for example Resources and Funding. The table further suggested:

- FAG grants considered imperative in the context of ongoing uncertainty of roles, responsibility and funding
- 5. Increased funding required not just for climate science research but also to investigate different adaptation options, to provide access to expert advice and to provide coastal engineering training - progression planning
- 6. Where there is a perception that the existing legislation is adequate it is unlikely that State Government's will have an appetite to create new legislation. Refer to the report to the Coastal and Climate Change Council by Baker and McKenzie
- Statutory arrangements different in every State
- Recommendation could be worded differently to make it more politically attractive
- Victorian State Government contracts already almost impossible to achieve

Table 4 – Made the following suggestions:

- Item 5 (increasing funding for research) could be more specific. Further, it should state that funding for existing initiatives (eg coast adapt) should be maintained/extended.
- Biodiversity conservation/facilitating biodiversity adaptation should be an explicit goal in addition to protection of built environment.
- National coastal zone policy should make space for local solutions i.e. Not be too top down/prescriptive, instead have some inherent flexibility.
- It is noted that the recently announced federal budget has no provision for the maintenance of coastal infrastructure. Perhaps this should be touched on in the context of item 3 (resources to manage issue for all Australians).
- Development of a communications strategy to support the proposed reforms should be considered as there will likely be uncertainties/questions by the public.
- National coastal zone policy should establish national benchmarks for sea level rise projections and monitoring, modelling and hazard mapping techniques. The latter could be in the form of a guideline doc.

19:00 – 22:00 Gala Conference Dinner
Secret Harbour Surf Life Saving Club
Dress: Smart

CONFERENCE DAY THREE – Friday, 6 May 2016

KEYNOTE SESSION: Bay Plan 2070 for Port Phillip Bay

Mr **Michael Nolan**, Chair of the UN Global Compact Cities Program, provided an overview of the Global Cities and the Association of Bayside Municipalities Bay Blueprint 2070. He told delegates the Global Compact Cities Programme was established in 2003 as the urban arm of the United Nations Global Compact. It is based on the Melbourne model to human rights, labour, environment and anti-corruption. The International Secretariat is hosted by RMIT University in Melbourne. The primary focus is on Sustainable Development Goal 11 – *Sustainable Cities and Communities*. Michael Nolan said the key activities for 2016 were City Projects across the following 10 focus areas: Water; Climate and Energy; Resilience; Food Security; Inequity and Livelihoods; Women and Cities; Housing; Participation and Inclusion; Heritage and Culture, and cross-cut with the Sustainable Development Goals and Ten Principles. He outlined the aim of the Bay Plan project is to develop a Bay Blueprint for 2070 given future coastal changes, population growth and pressures on Port Phillip Bay and to engage key stakeholders in understanding and envisioning the future of the Bay and its communities, economy and environment. He said the benefits of the project were to achieve a collective vision for the future of the bay and the challenges, provide an opportunity for councils to advance the vision of a local site to improve economic, social and environment outcomes and to build capacity to integrate climate resilience into council functions. Michael Nolan said each of the councils participating in the Association of Bayside Municipalities had selected potential sites for the adaptation design and visualisation focus, and that the discussion paper for Bay Blueprint had been developed and distributed. He said specific design values had been developed for each site with participating councils and outlined examples including managing shifting sands, living better with more water, enhancing biodiversity and habitats, and establishing infrastructure resilience. Michael Nolan said the project now involved selection of visualisations of adaptation in 2070 highlighting limited adaptation intervention in some locations, examples of planned adaptation, adaptation pathways, telling the story looking back from 2070, and providing guidance to urban planners, engineers and managers.

COASTAL ISSUES:

A review of planning approaches for coastal climate change

Professor **Barbara Norman**, Director of Canberra Urban and Regional Futures and Professor of Urban and Regional Planning at the University of Canberra, commenced her presentation with some simple concepts promulgated by the Coast Care organisation in the US: do not build a house that will be underwater in the next 50 years and do not build a house that will be knocked down by a storm. She said following the adoption of the United Nations Sustainable Development goals and the 'Paris Agreement' on climate change (UNFCCC 2015), the focus is now on implementation. Urban planning has been identified as a key strategy (United Nations 2015). She said climate projections were for harsher fire weather in southern and eastern Australia, less frequent but more intense cyclones in the northern regions, and sea level is projected to continue to rise beyond 2100. Professor Norman said with 85% of the population living within 50 kms of the coast planning for future coastal urban growth remains a priority. She said the science on climate change is now certain so primary focus must remain on mitigation and that significant consequences from global warming was already locked in so preparing for environmental change. Preparing our coastal urban settlements to be *climate ready* will require a change in how we plan and design our cities and regions. Climate sensitive urban design in coastal regions will be a key adaptation response in the future. She highlighted coastal planning guidelines developed by Surf Coast Shire in Victoria which stated: 'Climate responsive (particularly passive solar design), site responsive (such as minimal ground disturbance through light footings), harmony with

surrounding landscape (such as roofing -pitched for traditional look, skillion/curved/flat for contemporary and landscape responsive colours) and outdoor living (gardens, verandahs, decks and balconies).’ She also highlighted Coastal Hazard Adaptation Code introduced by Eurobodalla Shire Council, which stated: ‘Planned retreat involves the design and construction of buildings that can be easily removed following the risk from coastal hazards reaching a certain “trigger point”. Trigger points are linked to events such as beach erosion reaching a critical point or tidal inundation reaching a property on a regular basis.’ Professor Norman said not all coastal planning and management is achieved through law and policy, and quoted examples including the Peron Naturaliste Partnership, the South East Councils Climate Change Alliance and the Dhimurru Sea Country Plan. She told delegates her key messages were:

1. Planning for coastal climate change to adapt local and regional circumstances
2. Planning instruments need to work in concert to achieve the best outcomes
3. Strengthening community capacity to adapt is an important long-term action

Community scale battery storage unit trial at alkimos

Mr **Gus Riggs**, Senior Policy Adviser, Synergy, provided delegates with an overview of the trial of a residential battery storage trial now running in the West Australian suburb of Alkimos Beach. The project is supported by \$3.3 million funding from the Australian Renewable Energy Agency (ARENA). The trial involves a central 1.1 megawatt-hour (MWh) lithium ion battery storage installed in two shipping containers which will collect and store power from more than 100 rooftop solar photovoltaic (PV) systems. Combining community-scale battery storage and rooftop solar represents a win-win for energy retailers, developers and consumers and can provide households with the benefits of storage without on-site installation and maintenance. Solar will work alongside battery storage to lower Alkimos Beach’s demand for electricity from the grid. This model has the potential to offer residents cheaper electricity bills and reduce grid connection costs for future new developments. The Alkimos trial was set to prove an innovative energy retailing model suited for the 21st century and the lessons learned would address gaps in existing knowledge, potentially paving the way for similar projects. Gus Riggs said there is a need to better understand how solar and community-scale storage can operate within traditional networks. The trial provides an opportunity for follow-on projects, particularly if similar models are adopted at other residential developments. He said if the approach becomes standard practice for new residential developments, this will increase the supply and use of renewable energy in Australia.

Mayor **Barry Sammels**, Chair of the Australian Coastal Councils Association and Mayor of the City of Rockingham, presented an outline of the coastal policy framework developed by the Association. He said the Association would be using the framework as the basis of an advocacy campaign with Federal members in coastal electorates, and candidates who are nominated to stand in those seats. Barry Sammels said the coast is not just a local asset for local communities. It is a national asset that is enjoyed by all Australians. But while the coastal zone plays a pivotal role in the life of the nation, it is under increasing threat from a complex range of pressures. These pressures include widespread coastal erosion, more frequent and severe extreme weather events, projected sea level rise and other climate impacts. He said coastal councils are at the forefront of responding to these risks, but as the level of government with the least resources available, it simply doesn’t have the capacity to deal with the challenges involved. In the view of the Association the only way these huge challenges can be dealt with effectively is for the three levels of government to work together through a coordinated national approach. Given the system of Federalism in Australia, it is clear that only the Federal Government is in a position to lead such an

integrated, coordinated approach to coastal planning and management, integrated, coordinated approach to coastal planning and management. He said the six key coastal policy proposals identified by the Association are:

- An Intergovernmental Agreement on the Coastal Zone
- A National Coastal Zone Policy
- Resources to manage the coast for all Australians
- Financial Assistance Grants to be aligned with Coastal Populations
- Increased funding for Australia's climate science research
- Measures to minimise legal risks for coastal councils

Barry Sammels finished his presentation by noting a major challenge facing local councils called the vertical fiscal imbalance. He said in 1942, when Australian was at war, the Federal Labor Government, under Prime Minister John Curtin, introduced legislation which has defined the relationship between the three tiers of government ever since. The Curtin Government introduced a piece of legislation called the Income Tax Act 1942, and the effect of that legislation was to consolidate the collection of all taxation revenue under the Commonwealth Government. Up until that time, taxation revenue had been collected by both the States and the Commonwealth. The change in taxation arrangements was described at the time as a 'temporary wartime measure.' 74 years later, however, it is still in place. What that change brought about is an imbalance in revenues which has been a major frustration to the states and local government ever since, as shown in these figures

Commonwealth Government receives 81% of tax revenues

States and territories receive 15% of tax revenues

Local government receives just over 3.0% of tax revenues

He summarised the relationship between the three levels of government that came about as a result of that temporary war-time measure 74 years ago as follows:

The Commonwealth has the money.

The States have the power.

And local government has got the problems.

Conference communiqué

Alan Stokes, of the Association, reported to delegates on the coastal policy workshop, which had been conducted the previous day. He then presented a draft Conference communiqué for delegates to consider. A copy of the draft communiqué, calling on the Australian Government to retain the national Census in its existing form, was endorsed unanimously by delegates. (The communiqué can be found at page 2 of this report).