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AdaptNSW event overview...and more!

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AdaptNSW 2017

Thanks to all the participants and contributors at our Annual Forum

The **AdaptNSW annual forum** was held on Monday 27 November 2017, bringing together 196 delegates (and one dog) from across government, industry, research institutions, consultancies and community in a bumper day that showcased the latest in climate change adaptation research and implementation in NSW.

The program featured 23 speakers and numerous case studies of leading adaptation practice and research, 16 market place stalls and 60 Climate Data Immersions (through the XDI tour in the UTS Data Arena).

This year's keynote speaker was Dr Nick Watts profiling his recent publication The Lancet Countdown: Tracking Progress on Health and Climate Change , and reiterating three sobering key findings:

1. the impacts of climate change are unequivocal and potentially irreversible, affecting the health of populations around the world right now;
2. delayed action on climate change has jeopardised human lives and livelihoods;
3. there is reason for optimism with significant action in the past 5 years and 2017 being a year of momentum change presenting clear and unprecedented opportunities for public health.

Dr Nick Watts, Executive Director of the Lancet Countdown speaks at AdaptNSW 2017

The day also featured a 360-degree interactive visualisation of infrastructure interdependencies with the Cross Dependency Initiative (XDI) in the UTS Data Arena. XDI draws on the NARCliM projections, and using climate risk analytics software, can calculate best value infrastructure investments and a cost-benefit analysis of pathways for mitigating risks or adopting adaptation strategies to increase resilience.

The NSW Office of Environment & Heritage is currently leading a Sydney pilot of this new tool with Transport for NSW, Sydney Water and City of Sydney to explore the benefits of collaborative adaptation to address risks to infrastructure. Read more on the Fifth Estate.

XDI CROSS DEPENDENCY INITIATIVE

Dr Karl Mallon, Director of Science and Systems at Climate Risk conducts a virtual data tour of the XDI climate risk tool at AdaptNSW 2017

A vibrant lunchtime marketplace showcased the the climate adaptation work being undertaken by NSW government agencies and research partners

The day concluded with a panel on the Power of Innovative Adaptation, featuring:

- Kate McKenzie, Director of Finance, Policy & Decision Metrics at Climate-KIC Australia, who gave insights on how the finance sector is responding to climate change through investment in low carbon and good risk analytics, and the role of ratings agencies to price risk.
- Samantha Karmel, Community Engagement Officer at the NSW State Emergency Service explained that the community has ability to find solutions if provided with the right information in the right way and the right time, and related challenges of trust.
- Ethel Karskans, Forensic Data Analyst at PwC Australia talked about applications of data, and the growth of gamification to better understand climate risks and adaptation.
- Karen Tindall, Senior Adviser at the Behavioural Insights Team explained how empirical findings about human behaviour could be applied to climate change to make public policy more effective.

Power of Innovative Adaptation panel: moderator Cris Hickey (OEH), Karen Tindall (ClimateKIC), Samantha Karmel (SES), Ethel Karskans (PwC), Karen Tindall (Behavioural Insights Team)

All the Forum's presentations can be viewed on the event page here.

The Team will endeavour to answer the audience questions in upcoming newsletters, and welcome any further comments or suggestions that our readers may have on how to

improve climate change information and knowledge delivery in NSW in 2018! adapt.NSW@environment.nsw.gov.au

The **AdaptNSW team** (L-R) Isobel Cummings, Dilini Berg, Liesl Laker, Suzanne Dunford, Carla Wilson, Melinda Hillery, Malcolm Robertson, Aaron Coutts-Smith, Storm O'Toole, Polly Mitchell

Bio Node wins accolades

The NSW Adaptation Research Hub's Biodiversity Node has recently been acknowledged with two special honours:

- the 2017 BHERT National Award for Outstanding Collaboration for National (Non-Economic) Benefit
- Highly Commended in the 2017 MQ Research Excellence awards in the *Five Future-Shaping Research Priorities – Secure Planet* category.

This is outstanding recognition for the node, and its role in placing NSW in a better position to manage and protect biodiversity in a changing climate as a result of the collaborative model of operationalising research through the Hub.

CEO of the Business Higher Education RoundTable, Peter Binks, said "This is an extraordinary example of the collaboration between universities and institutions that we seek to highlight. The Biodiversity Node has succeeded in bringing together a disparate range of parties with a common objective, and has developed a wonderful array of tools that will benefit communities in NSW and across Australia."

Hosted by Macquarie University, the Biodiversity Node brings together 64 individual researchers from 16 institutions and agencies across Australia, including OEH, Macquarie University, the Royal Botanic Gardens & Domain Trust, Taronga Conservation Society Australia, CSIRO, Western Sydney University, and many more.

Biodiversity Node representatives L-R: Leigh Staas (MQ), Polly Mitchell (OEH), Linda Beaumont (MQ), Suzanne Dunford (OEH), Victoria Graham (MQ), Michelle Leishman (MQ), and Susan Bannigan and Peter Binks of BHERT.

Bio Node outputs include guidelines for translocating vulnerable species; identifying tree species at risk from increased drought; identifying weeds that may become greater threats in future; assessing the adequacy of the NSW protected area system under future climates; investigating the impacts of sea walls on beach biodiversity; and identifying climate refugia across the landscape; as well as a suite of evidence-based online tools including:

- Niche Finder**:** baseline maps of ecological ranges and climate niches
- **Threatened Species**: metrics on the vulnerability of NSW threatened species to climate change
- Weed Futures**:** predicting how weeds will respond to climate change
- Climate Ready Vegetation**:** step-by-step instructions revegetation planning for future climates.

Read more about the exciting outputs of the NSW Biodiversity Node.

New collaborative research partnerships

The NSW Adaptation Research Hub welcomed a new **Human Health and Social Impacts Research Node** in October 2017, led by the University of Sydney in collaboration with NSW Health and Edge Environment.

This node will look at the relationship between climate change and human health and

society, addressing research themes such as vulnerable populations; physical and mental health; and health assets and services.

Two initial projects are focussing on the long-term effects of the Lismore floods on community mental health, and the connection between housing, health and a changing climate.

For more information on the Human Health and Social Impacts Node please contact HumanHealthSocialImpactsNode@environment.nsw.gov.au

A new **Resource and Energy Efficiency Research Hub** has also been launched. Its initial **Energy Efficiency Decision-Making Node** is led by the Low Carbon Living CRC at the University of New South Wales in collaboration with the University of Wollongong and CSIRO.

Specifically, this Node will focus on the uptake of energy efficient and zero emissions vehicles, and how to improve the provision of energy efficiency by community housing providers. Further projects to be added soon.

For more information on the Energy Efficiency Decision Making Node, please contact EEDMNode@environment.nsw.gov.au

The new Human Health and Social Impacts Node stall (left) and Energy Efficiency Decision Making Node stall (right) at the AdaptNSW marketplace.

Biodiversity Node Workshop summary: Wildlife Disease Surveillance

Outbreaks of wildlife diseases, particularly those transmitted by insect vectors, are frequently associated with climate patterns such as El Niño events.

In September, a half-day workshop on ‘Wildlife Disease Surveillance’ was led by Dr Hannah Bender of Taronga Conservation Society Australia as part of research being undertaken by the Biodiversity Node of the NSW Adaptation Research Hub.

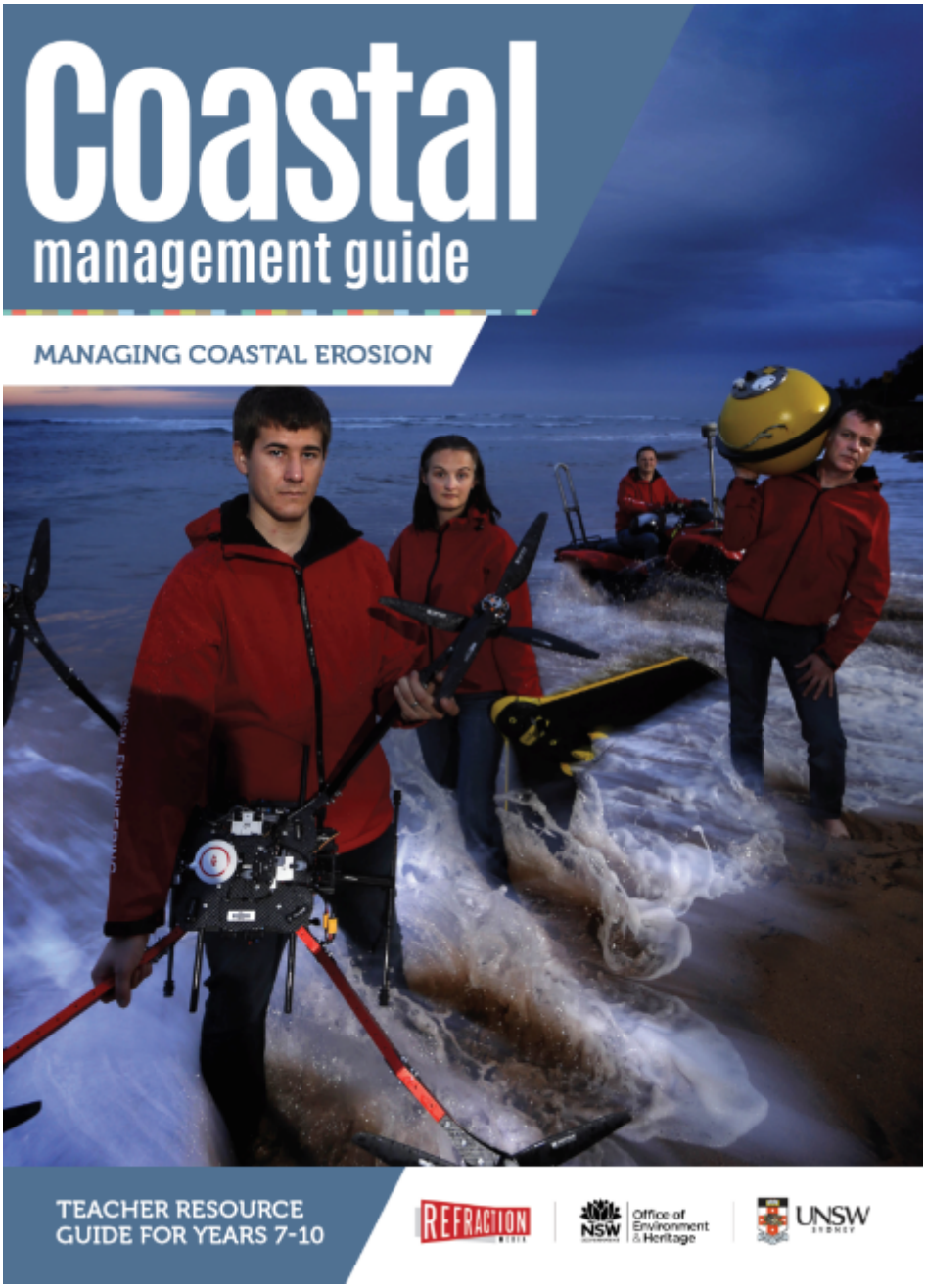
This research is using long-term datasets contained in the Australian Registry of Wildlife Health to examine the relationship between climate variables and disease in free-ranging wildlife to identify disease hotspots.

The workshop aimed to provide an opportunity for engagement and knowledge-sharing between research scientists and government practitioners, and fostered some lively discussions. Dr Cameron Webb from the University of Sydney/NSW Health described arthropod vectors of wildlife pathogens as akin to “*dirty flying syringes*”, Dr Michael Terkildsen of the Bureau of Meteorology discussed climate links with wildlife disease and mortality, and Dr Claire Harrison of NSW Primary Industries presented an interactive tool for logging wildlife disease incidents.

The event participants included representatives from the Office of Environment and Heritage, Taronga Zoo, Wildlife Health Australia, the Bureau of Meteorology, Department of Primary Industries, Sydney University, Macquarie University, NPWS and Health NSW.

For more information on this project, please contact victoria.graham@mq.edu.au

The Wildlife Disease Surveillance workshop with Dr Hannah Bender, Taronga Conservation Society



Coastal Node develops teaching resource

The Coastal Processes and Responses Node has released a teacher resource, Coastal Management Guide: Managing Coastal Erosion designed to assist teachers to engage students (target ages 11 – 16 years) in the complex issues of Coastal Management, including:

- the dynamic coast
- what are the issues
- managing for the future
- how do we measure coastal change

It provides a broad range of fully developed, independent and guided student activities for use inside and outside the classroom, including hands-on experiments, analysis of media reporting, and role-playing. It targets Australian High School STEM curriculum areas (Years 7–10) of *Physical Sciences*, *Human Society & its Environment*

(HSIE), *Geography*, *Earth & Environmental Sciences* and *Maths*.

The Guide's educational themes and activities provide a useful and stimulating classroom resource where the scenario of 'living at the coast' provides a launching point into diverse areas of secondary school STEM education.

The full Guide is freely available in two formats: pdf for download and eBook for online viewing.

Call out for farmers and business owners affected by climate change

The Adaptive Communities Node of the NSW Adaptation Research Hub at the Institute for Sustainable Futures at UTS will be conducting targeted interviews in the coming months as part of two projects:

1. Knowledge to Action: co-design of climate adaptation strategies
2. Business innovation in response to extreme events

The **Knowledge to Action project** seeks the ***input of agriculturalists*** to collaboratively develop, with the Institute of Sustainable Futures at UTS and the Australian National University, useful and appropriate rules-of-thumb for climate change decision-making. The guidance will be based on practicalities of on-farm decision-making and scientific analysis, and demonstrate the benefits of a dynamic approach to climate risk management.

If you are an agricultural decision-maker and ***want to get involved*** please contact **ANU Prof. Mark Howden** ph.02 **6125 7266** or mark.howden@anu.edu.au or **UTS A/Prof. Brent Jacobs** ph.02 **9514 4173** or brent.jacobs@uts.edu.au

The **Business innovation in response to extreme events** project is also seeking interviews with ***business owners in Lismore*** to understand innovative business activities (both individually and collectively) done in preparation for, and in the aftermath of, a natural disaster. This could include changes in business practices and operations, development of new products and services, development of new knowledge and information sources, or establishment of new collaborations.

This project is part of Node research into different types of flood events in three locations (Lismore, Picton and Cowra), business adaptation over long time periods (in the Alpine region) and adaptation in response to extreme or emergency events (bushfires and floods). Case studies will be developed that document knowledge sources and practices around forced adaptation in response to climate change.

For more information contact **Dr Samantha Sharpe** at the Institute for Sustainable Futures, UTS on **0425 333 759** or samantha.sharpe@uts.edu.au**.**

NSW Coastal Conference

The annual NSW Coastal Conference was held in Port Stephens from 8-10 November. The conference is multidisciplinary, involving people from various backgrounds such as hydrology, climate change, marine and terrestrial ecology, engineering, planning, social sciences, fisheries and risk management, producing robust dialogue and presenting unique solutions.

Climate change impacts were included in the discussions, such as loss of saltmarsh habitat due to sea level rise, foreshore erosion exacerbated by sea level rise, changes in fish species compositions due to warming ocean temperatures and responses to storm damage.

The OEH Coastal and Estuary Grants 2017/18 rounds were launched at the conference, offering $63million across three streams to: protect assets from climate related damage from coastal erosion and storm surge; restore and conserve coastal wetlands and rainforest, estuaries and dune ecosystems and to assist the community's enjoyment of our coast. Information about the grants can be found at:
http://www.environment.nsw.gov.au/coasts/coastalgrants.htm

We are also very pleased to note that NSW Adaptation Hub Coastal Processes and Responses Node researcher Associate Professor **Ron Cox** was awarded the '***Ruth Readford Award for Lifetime Achievement***', recognising Ron's career achievements and significant contributions to coastal management in NSW. Congratulations Ron!

The Coastal Node's Associate Prof. Ron Cox receives the prestigious Ruth Readford Award for Lifetime Achievement from Prof. Bruce Thom.

New case studies of NSW Councils Building Resilience to Climate Change

New case studies from the NSW Building Resilience to Climate Change (BRCC) grants program are now accessible. These grants are funded by OEH, the NSW Environmental Trust and the Climate Change Fund, and encourage:

- Enhanced consideration of climate change impacts in local and regional decision making.
- Delivery of projects that minimise climate change impacts for local and regional decision makers.
- Implementation of climate change adaptation beyond current projects and programs.
- Fostering of adaptive capacity in Local Government through a community of practitioners across professional disciplines with direct experience in implementing adaptation responses across NSW

These new case studies illustrate diverse opportunities to treat climate change risks and vulnerabilities to council assets and operations, such as:

Building regional capacity in Water Sensitive Urban Design, Blacktown City Council
Hydrating Bungarribee, Blacktown City Council
Destratification system for off-stream storage, Kyogle Council
Citizen Science and Foreshore Inundation – Tidal Valves, Lake Macquarie City Council
Gross Pollutant Trap Effectiveness, Queanbeyan-Palerang Regional Council

We are pleased to also share with you some learnings from a BRCC project that didn't proceed. As climate change adaptation is an iterative process, sharing lessons from unsuccessful adaptive efforts can help us all better manage and navigate potential project risks of climate change responses. Cross-council heat mapping: lessons from an unsuccessful project

Climate Change into the courtroom

Nations around the world have adopted more than 1,200 laws to curb climate change, up from about 60 two decades ago, a sign of widening efforts to limit rising temperatures, according to a new study. The Climate Change Laws of the World database covers climate change legislation and policies in 177 countries, and features climate litigation cases from 25 countries, with cases discussing law and fact issues regarding climate change science, mitigation and adaptation policies.

And those laws are getting used. Another recent publication for the United Nations Environment Programme reviews climate change litigation around the globe, and outlines that apart from the United States, Australia is seeing more climate change litigation (80 cases) than any other country.

Hot & Dry: Australia's Weird Winter

A new report from the Climate Council reveals Australia has just gone through its hottest winter on record with more than 260 heat and low rainfall records broken during the winter months, and calculates that climate change has made the record-breaking season 60 times more likely.

Other key findings in the report include:

- Winter average maximum temperatures were almost 2°C above average
- The nation experienced its second driest June on record and the driest winter since 2002
- Australia's average winter temperatures have increased by around 1ºC since 1910
- Winter warm spells are lasting longer, occurring more often and becoming more intense
- 2017's hot and dry winter has led to an earlier start to the bushfire season

Investors worth US$1.8 Trillion urge banks to disclose climate risk

Following the release of recommendations by the Task Force on Climate-related Financial Disclosures (TCFD) in June 2017, a group of over 100 institutional investors holding almost US$2 Trillion in assets has called upon leading banks (to act to manage climate risk, including:

- Climate-relevant strategy and implementation;
- Climate related risk assessments and management;
- Low carbon banking products and services; and
- Banks' public policy engagements and collaboration with other actors on climate change.

The investors estimate that achieving the long-term temperature goal enshrined in the Paris Agreement of limiting global warming to "well below 2ºC" above preindustrial levels could require approximately US$90 trillion invested by 2030. However, the costs of inaction are potentially much higher, with estimated permanent losses amounting to 5-20% of portfolio values over the next 10 years alone if no further action is taken to mitigate climate change.
Read more here.

Conferences | Competitions | Grants

Conferences

2018 Blue Shield Australia Symposium in Canberra, 29-30 January 2018 will focus on cultural heritage, climate change and natural disasters to share expertise, experiences and case studies of the protection of cultural heritage in times of natural disaster and climate change and the strategies being put in place by the sector to work towards a sustainable future http://blueshieldaustralia.org.au/about-us/

International Conference on Climate Change and Global Warming in Melbourne, 1-2 February 2018 aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results on all aspects of Climate Change and Global Warming
https://www.waset.org/conference/2018/02/melbourne/ICCCGW

Climate Leadership Conference in Sydney, 15 - 16 March 2018 brings together sustainability, climate and energy professionals to focus on the way forward in meeting Australia's commitments under the Paris agreement and the implementation requirements that have been set out at COP23. The Conference will highlight Australian national, state, local and regional responses to climate change through policy, adaptation and mitigation strategies, innovation and business solutions
www.climateleadership2018.com.au

NCCARF Climate Adaptation Conference in Melbourne, 8-10 May 2018 will focus exclusively on climate impacts and adaptation in partnership with Engineer's Australia to present conference key theme *Practical Responses to Climate Change*. Call for abstracts extended to 19 December http://climate-adaptation-2018.w.yrd.currinda.com/

Competitions

NELA Essay Competition The NELA Essay Competition is now open, seeking essays addressing issues facing Australian environmental law from undergraduate and postgraduate students at Australian universities. Submissions close 18 December 2017.

Grants

National Landcare Program Smart Farming Partnerships grants are available for projects to develop, trial and implement new and	Close 21 December 2017

innovative tools that support the uptake of sustainable practices across our agricultural, fishing, aquaculture and farm forestry industries https://www.grants.gov.au/?event=public.GO.show&GOUUID=8C474BF9-EE24-E2FD-35A40CF6417DE06A	
NSW Coastal and Estuary Grants provide funding in three streams for development of Coastal Management Programs (CMP); transitioning a Coastal Zone Management Plan (CZMP) to a CMP; and undertaking investigations and designs or cost benefit analyses for infrastructure works recommended in a certified CZMP or CMP. The grant program aims to support local government in managing the risks from coastal hazards, such as coastal erosion; restoring degraded coastal habitats; and improving the health of NSW estuaries, wetlands and littoral rainforests. http://www.environment.nsw.gov.au/coasts/coastalgrants.htm	Planning stream – close 30 June 2018 Implementation stream close 30 January 2018 Hotspots-open coasts hazards close 30 January 2018
Environmental Trust Environmental Research Grants provide funding up to $150,000 to support applied research projects that help address environmental problems in NSW in four key theme areas in 2018: Resource management; Wetlands and river systems; Landscape management; Marine, coastal and estuarine ecosystems.	EOIs open early 2018
NSW Regional Growth Fund provides grant funding through six streams for projects that facilitate regional development by enabling essential infrastructure, supporting arts and culture, enhancing and building sporting infrastructure, improving regional voice and data connectivity, investing in mining-impacted communities, spurring job creation and deliver local infrastructure. https://www.nsw.gov.au/improving-nsw/regional-nsw/regional-growth-fund/	See website for key dates

NSW Adaptation Hub outputs

for outputs of each of the nodes please visit the following sites:

Biodiversity Node, led by Macquarie University

http://biodiversity.science.mq.edu.au/

Adaptive Communities Node, led by the Institute for Sustainable futures, UTS

https://www.uts.edu.au/research-and-teaching/our-research/institute-sustainable-futures/our-research/climate-change/nsw

Coastal Processes and Responses Node, led by the Sydney Institute for Marine Science

http://sims.org.au/research/long-term-projects/oeh-coastal-processes-node/