

AdaptNSW



**Office of
Environment
& Heritage**

AdaptNSW newsletter - NSW adaptation news and more

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Welcome to the first edition of the AdaptNSW newsletter for 2018 – here's to an innovative year ahead!

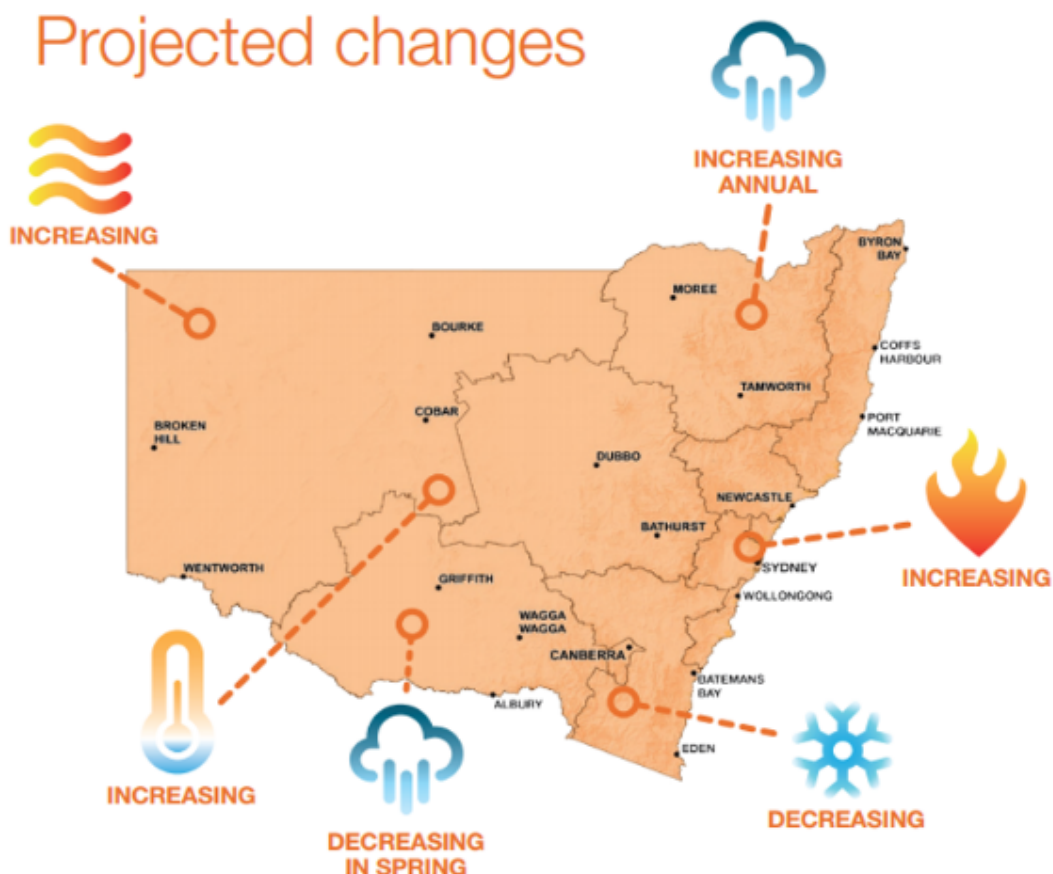
To help kick-start an exciting year of adaptation, [review the AdaptNSW 2017 presentations](#), and read on...

AdaptNSW

Do you know your NSW adaptation specialist?

The NSW office of Environment and Heritage Climate Change Adaptation team is supporting state agencies, local governments and communities to understand, and adapt to, the likely impacts of climate change.

[As our climate changes, there will be flow-on effects](#) to our communities, economies and environment. The fine-scale [NARClIM projections](#) show that NSW is likely to see increases in temperature with more intense and frequent heatwaves, changes to rainfall patterns and longer, more intense fire seasons.



NSW Climate Change Snapshot, 2014

The OEH Climate Change Adaptation team has staff located around the state with multidisciplinary adaptation expertise to provide support at a local scale to:

- Access and interpret up-to-date climate change data
- Assist with systems thinking to consider interconnected vulnerabilities and adaptation co-benefits
- Locate tools and guides to support assessment and planning
- Share knowledge and methods and tapping into expertise
- Contribute to adaptation project and event development
- Identify potential funding programs

Contact your NSW adaptation specialist:

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Australia’s 7th National Communication on Climate Change

NSW has contributed toward the [7th National Communication on Climate Change](#), outlining activities that are being taken at the state level to combat emissions, better project the likely scale and intensity of climate change, and action to minimise these impacts.

In relation to adaptation action, NSW has highlighted the:

- [Integrated Regional Vulnerability Assessment](#) (Enabling Regional Adaptation) process that has been undertaken in eight of 10 state planning regions, and engaged over 1,200 decision-makers at a local and state government level;
- [Building Resilience to Climate Change grants](#) which have seed-funded 22 climate adaptation projects, resulting in 92 partnerships with local government

across 71% of all NSW local governments, 9 NSW agencies, 6 research institutions, 2 professional organisations, 3 community groups and 6 businesses;

- [NSW Adaptation Research Hub](#), a collaboration between leading NSW universities and experts in climate-change and adaptation science at the Office of Environment and Heritage, which seeks to leverage NSW's collective, and multidisciplinary, science capacities to produce relevant and practical research to directly inform the decision making of NSW agencies and communities;
- [Reforms in 2016 to NSW coastal management legislation](#) that are improving planning for development and natural hazards along the NSW coastline to better equip local government and coastal communities to plan for, and effectively respond to, coastal climate change impacts.
- Use of [Urban Green Cover](#) (permeable, reflective and vegetated surfaces) to mitigate urban heat for cities and the urban environment.
- \$62.5M in funding between 2011-2016 for enhanced bushfire management programs such as hazard reduction activities, rapid bushfire response and fire-related equipment, to help minimise the risk to the community from extreme bushfire events;
- A new evaluation framework for climate change programs to monitor adaptation at a regional scale to assess how effectively government agencies are employing adaptation processes, rather than the effectiveness of specific adaptation processes or interventions. This assumes good process leads to good adaptation decisions.

2017 amongst hottest years on record

The Bureau of Meteorology's [Annual Climate Statement](#) finds 2017 was Australia's third warmest year on record (since data records commenced in 1910), with the annual national mean temperature 0.95°C above average. This exceptional warmth for the year of 2017 has occurred in the absence of an El Niño.

For [NSW](#), 2017 was the warmest on record for both mean and daytime temperatures, with mean temperatures 1.42°C above the 1961–1990 average. Contrasting to this, clear nights meant cooler than average minimum temperatures for most of NSW during winter, with winter mean minimum temperatures at the lowest since 1997. Despite this, NSW's mean minimum temperature for 2017 was the 6th warmest on record, 0.97°C above average. 2017 was also the driest year for NSW since 2006, with the statewide average rainfall coming in at 18% below average.

Seven of Australia's ten warmest years have occurred since 2005 and Australia has experienced just one cooler than average year in the last decade (2011).

The World Meteorological Organisation has released its 25th [statement on the state of the global climate](#) which identified 2017 as the most expensive year on record for severe weather and climate events, with Munich Re assessing total disaster losses

at US\$320 billion, the largest annual total on record. It confirms 2017 as one of the three warmest years on record, and the warmest not influenced by El Niño.

The report also found that risk of heat-related illness or death has been increasing, with about 30% of the world's population living in areas with potentially "deadly temperatures" *at least* 20 days a year. The North Atlantic hurricane season was the costliest ever for the US, at US\$265 billion, and set development gains back in Caribbean islands, such as *Dominica, where the World Bank estimated total damages and losses at US\$1.3 billion, or 224% of the country's GDP.*

NSW regions get serious about acting on climate change

In a groundswell of action, NSW regions are acknowledging the impacts of climate change and their role in reducing emissions and supporting their communities to build resilience:

- Parkes Shire Council is supporting rapid growth of renewable power in the LGA with wind and solar projects;
- Lismore City Council has invested in Australia's largest floating solar farm at the East Lismore Sewerage Treatment Plant;
- Eurobodalla is offering its third solar bulk buy to all residents and business in Eurobodalla through the South Coast Health & Sustainability Alliance.
- Kiama Municipal Council which is reducing organic waste by turning residents' green waste into compost and offering it back free of charge through its OK Organics program;
- Wollongong, Shellharbour and Kiama LGAs are collaborating on a Illawarra Biodiversity and Local Food Strategy for Climate Change;
- A Dubbo editorial is asking what residents will do as temperatures get hotter as per NARCIIM projections; and
- Gunnedah is supporting its threatened koala population by installing improved 'blinky drinkers', water stations capable of holding up to 200 litres with infra-red night vision cameras to monitor koalas through heat events through the OEHS Saving Our Species program.

Sobering statistics on cost of natural disasters

A new report by the Australian Business Roundtable for Disaster Resilience & Safer Communities has found the total economic cost of natural disasters is growing and will reach \$39 billion per year by 2050, with significant, and often long-term social impacts, including death and injury and impacts on employment, education,

community networks, health and wellbeing.

More than nine million Australians have been impacted by a natural disaster or extreme weather event in the past 30 years. The number of people affected annually is expected to grow as the intensity and, in some areas, the frequency, of events increases.

When combined, the total economic cost of natural disasters in the 10 years to 2016 has averaged \$18.2 billion per year, equivalent to 1.2% of average gross domestic product (GDP) over the same period. This is expected to reach \$39 billion per year on average by 2050 (in present value terms), even without considering the impact of climate change.

Investment in disaster resilience yields a double dividend. First, in the avoided impacts of disasters when they occur. And second, in the broader co-benefits that arise even in the absence of a disaster. This double dividend is a crucial part of the business case for well-designed resilience investment. It is also a compelling reason to integrate disaster resilience into investments that may not be specifically targeting risk reduction.

The report highlights four key recommendations:

1. Embed resilience across all aspects of policy and decision-making
2. Prioritise resilience investments by considering the broader economic and social benefits that result
3. Improve understanding of disaster risks and costs to society
4. Collaborate and coordinate to build resilience and address the long-term costs of natural disasters

US study finds society saves \$6 for every dollar spent on climate change resilience

A [report](#) by the American National Institute of Building Sciences has found that mitigation funding can save society \$6 in future disaster costs for every \$1 spent on hazard mitigation, based on a review of 23 years of federally-funded mitigation grants.

With 2017 identified by the National Oceanic and Atmospheric Administration (NOAA) as the costliest on record for America due to natural disasters (\$306 billion in losses), this report highlights the benefits of investing in resilience measures now based on best-available science, for projected future impacts.

Simple measures such as like installing hurricane shutters, replacing flammable roofs, and clearing vegetation close to a structure yielded \$158 billion in societal savings from \$27 billion spent in mitigation grants over 23 years.

The report also examined the financial benefits to private developers in exceeding local building resilience standards, such as elevating homes higher than required in flood-prone areas, yields \$4 in savings for every \$1 spent.

Read more [here](#).

News from the Nodes...

Adaptive Communities Node – CAPS installation

The [Adaptive Communities Node](#)'s *Climate Adapted People Shelter (CAPS)* was installed at the end of 2017 opposite Nepean Hospital in Western Sydney.



The CAPS project aims to develop new concepts for bus shelter design that prioritises user comfort and responds to our changing climate, particularly heat which is an increasing issue in Western Sydney. By 2030, Western Sydney is projected to experience up to 7 additional days above 35°C per year placing exposed communities, including Sydney's 600,000 daily bus users, at heightened risk.

The installed design maximises the benefits of cross flow ventilation, with the perforated rear screen and the roofline designed to expel heat before it can build up. The roof panel is also insulated to reduce heat radiation from the ceiling. Solar panels on top of the shelter provide power for integrated LED lighting, increasing safety and amenity at night time, while the open design also allows room for disabled access.

This first CAPS site is gathering data from users to evaluate the new design in terms of the benefits provided compared with the standard bus shelter (which stands adjacent). It is envisioned the new design will provide greater protection from the summer heat, and serve as a blueprint for broader application in Sydney and elsewhere.

To find out more about the CAPS project, read the Adaptive Communities Node report [Using Smart Technologies for Climate Change Adaptation in Western Sydney: A CAPS](#)

[Research Report](#) and if you have experienced the CAPS bus shelter, please give [feedback](#) to [Penrith City Council](#)!

Bio Node – Bandjalang Seasonal Calendar: Making use of cultural knowledge in adaptation science

The [Biodiversity Node](#) has been working with the Minyumai Doobai (Women) Rangers to produce an indigenous ecological-knowledge seasonal calendar which captures observed seasonal change in species, and photographs of key indicators of climate change seen throughout 2017. The Bandjalang clan seasonal calendar brings together knowledge from recordings of Bandjalang Elders (now deceased) Lawrence Wilson, Mary Cowlan, Janet Gomes and Eileen Morgan as well as the Minyumai Rangers and other clan members.



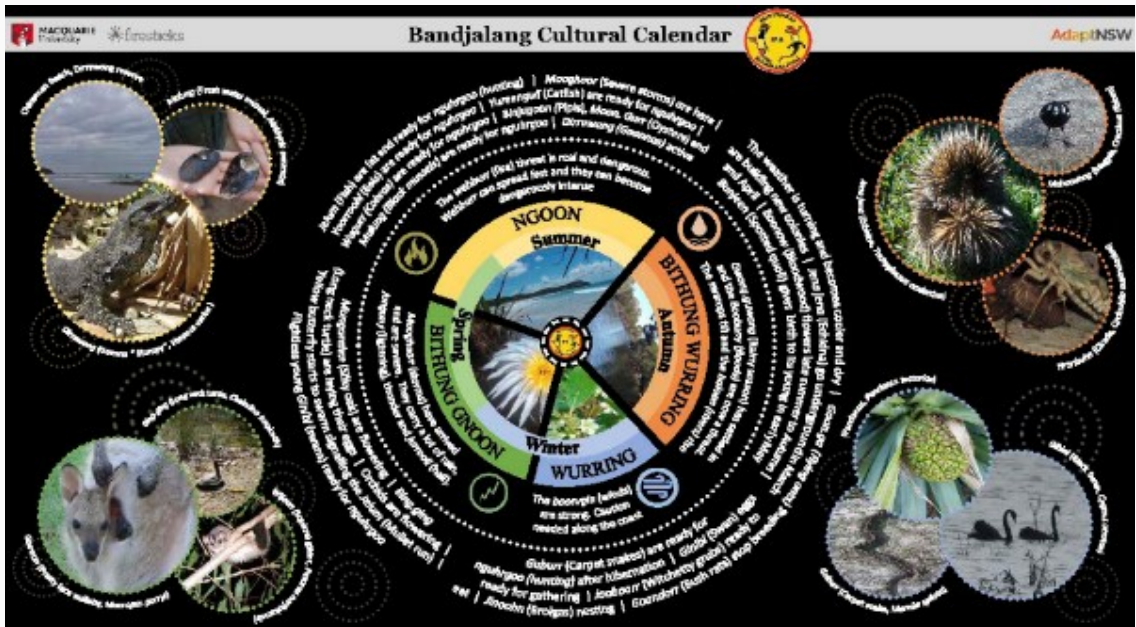
L-R: Minyumai Rangers Belinda Gomes, Lilly Wilson, Mary Wilson and Maitland Wilson work on the Bandjalang Cultural Calendar.

The Minyumai Indigenous Protected Area is a biodiverse 2150 ha block of land managed by the Minyumai Rangers (men and women) under guidance of senior Traditional Owners of the Bandjalang estate. The IPA lies between Tabbimoble Swamp Nature Reserve and Bundjalung National Park on the NSW north coast.

Knowledge of seasonal change in culturally important species will allow the clan to observe and discuss the impacts of climate change. The calendar will be used by the IPA to guide management activities, such as when to burn and spray weeds to avoid impacting on culturally important resources. Drier times in the IPA may mean that species' reproductive cycles shift. Tuning in to subtle seasonal and climatic change is an important part of Indigenous ecological knowledge.

The calendar features both Bandjalang language and scientific names and is an important tool for the re-vitalisation of the endangered Bandjalang language. The calendar will also be used by local school groups and displayed at the local clinics to raise awareness of Bandjalang culture, language and culturally important species and how they are linked to climate.

For more information contact the Minyumai Doobai at minyumai.doobai@gmail.com or Dr Emilie Ens emilie.ens@mq.edu.au.



Coastal Processes and Responses Node – Coast Snap



The Coastal Processes & Responses Node partner, the [Water Research Laboratory](#) (UNSW Sydney) has teamed up with the Office of Environment and Heritage and Northern Beaches Council to establish innovative community beach monitoring photo points at Manly and North Narrabeen.

The project uses a unique smartphone cradle that ensures that community snaps are taken from the same position and angle. This allows the CoastSnap team to normalise images captured by any smartphone, to map beach and shoreline change through time.



The photo above shows how the shoreline position at the entrance to North Narrabeen lagoon has evolved since installation of the CoastSnap station. In 7 months the shoreline position has gone from having a relatively narrow beach and wide lagoon entrance to complete closure of the lagoon. This shoreline change data was entirely sourced from community CoastSnap photos, so keep on snapping to see how our dynamic beaches change over the coming months.

While the CoastSnap team is currently working on the next NSW photo points at Moruya Heads and Cape Byron, the CoastSnap initiative has gone global, with the first international CoastSnap stations currently being installed in Brazil, Spain and the United Kingdom.

To learn more about CoastSnap and how to become a beach citizen scientist, please visit our [web page](#) and like us on [Facebook](#)

Human Health and Social Impacts Node – After the Flood



The new [Human Health and Social Impacts Node](#) partner, the University Centre for Rural Health (Sydney University) has surveyed over 2500 NSW Northern Rivers region representatives from across local health, community and business organisations, state government agencies and local governments to assess community and individual well-being following flood events.

Known as a 'hotspot' for natural disasters with over 30 flood declarations in the decade 2004-2014, the NSW Northern Rivers region is well acquainted with flooding, yet little is known about the underlying risk and impacts on the mental health of its communities. In late March/early April 2017, rainfall from ex-Tropical Cyclone Debbie caused devastating flooding in the region. These disasters can have long-lasting effects on community and individual wellbeing, particularly for those living with disadvantage. With natural disasters

such as these flood events, likely to become more intense, frequent and unpredictable under climate change, there is the potential for correspondingly severe effects on mental health.

Through this study, the HHSI Node is seeking to understand community and individual flood experience, mental health and wellbeing and social factors that may improve community cohesion, resilience and the ability to recover from such events. The project partners aim to establish long-term collaborative research to trial interventions that will help describe the intensity and duration of disaster-related mental health impacts and effective adaptation strategies for vulnerable communities in the region and beyond. The project findings will address already-identified community priorities and will feed directly into mental health disaster preparedness and response policies and local service development. Key findings from initial analyses will be presented at public forums in early 2018.

Launch of the NSW Bushfire Risk Management Research Hub

The NSW Government launched the [Bushfire Risk Management Research Hub](#) on 28 February 2018, bringing together experts in bushfire research from Australian universities and the NSW government to research ways to improve fire management strategies and reduce the risk bushfires pose to people, property and the environment.

Led by the University of Wollongong together with research partners from the University of NSW, University of Western Sydney and University of Tasmania, and involving NSW agencies including the Office of Environment & Heritage, Rural Fire Service, National Parks & Wildlife Service, and Environmental Protection Authority, the Hub will deliver research to reduce bushfire risk to urban, rural and indigenous communities.

Some of the key research focuses are:

- impacts and management of hazard reduction burns
- drivers of bushfire frequency and severity
- impacts on air quality
- impacts on the environment and endangered plants and animals.

If you would like more information please contact [Matthew Adams](#).

Tell us what you think

Local government adaptation survey March 2018

As both end-users and intermediaries of climate information, Local Councils and Regional Organisations of Councils are highly influential in adaptation activities and dependent on climate information and relevant services. Local Government NSW is undertaking its [regular survey of adaptive capacity in NSW local government sector](#), and ***asking specific questions to determine the climate information needs of local government practitioners.***

Historical climate extremes survey

Are you interested in databases on historical extreme climate events in NSW?

Please participate in the [Historical Extreme Events database survey](#) to help to inform priorities for potential future NSW Office of Environment & Heritage work on databases to provide users with meteorological data on a range of extreme weather phenomenon. The survey will take less than 20 minutes to complete and a *response is appreciated by Friday 4 May 2018*.

Conferences | Grants

Conferences

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* <http://climate-adaptation-2018.w.yrd.currinda.com/>



IPWEA Sustainability in Public Works Conference, 'Resilience for our Communities', in Sydney 14-15 May 2018 will address the latest developments and future trends that public works professionals must be aware of when planning, creating or managing public work assets or programs, or when advising decision makers, or engaging with the community <https://www.sustainabilityconference.com.au/>

Narratives of Climate Change Symposium in Newcastle, 5-6 July 2018 presents interdisciplinary collaboration inspired by the possibility of bridging the gap between scientific knowledge and effective political, legal and social action by alternative forms of narrative that acknowledge First Nations peoples' ways of knowing and being, diverse forms of story-telling, and collaborations that support pluralistic, flourishing life-worlds <https://www.newcastle.edu.au/about-uon/governance-and-leadership/faculties-and-schools/faculty-of-business-and-law/conferences/narratives-of-climate-change-symposium>



Grants

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/>

Human Health and Social Impacts Node

<http://sydney.edu.au/medicine/public-health/research/hhsi-node.php>
