



Adaptation and climate resilience in Australia

Some climate change impacts will be unavoidable. To prepare for these, Australia is taking action to build the resilience of our communities and natural systems.

National Climate Resilience and Adaptation Strategy—

All levels of government, business and the community have a role to play in preparing for future climate change impacts. The Australian Government provides national climate change science and adaptation information to guide decision-making.

The Government is developing a National Climate Resilience and Adaptation Strategy to outline how Australia is managing its climate risks for the benefit of the community, economy and environment, now and into the future. The Strategy will articulate a set of principles on good adaptation practice and showcase some of the leading practice adaptation activities that are already underway.

Investing in science—The Strategy will highlight Australia's investments in science over many years that help us better understand and plan for the impacts of climate change.

Through the \$145 million National Environmental Science Programme, we will achieve a greater understanding of Australia's climate and weather patterns and the potential impacts of climate change on our unique landscapes, biodiversity, settlements and infrastructure.

To assist planners and decision-makers at all levels of government and across the community, the CSIRO and Bureau of Meteorology have developed climate projections that provide detailed information about the implications of future climate scenarios in different regions. These projections will help to ensure high-value, long-lived infrastructure can be designed to withstand future climate conditions.



The Government's recently announced science and research priorities ensure a proportion of the \$9 billion funding for science research and innovation is directed towards adaptation and climate resilience research. This includes the Government's ongoing investment in science through institutions like the Bureau of Meteorology, the CSIRO and the Australian Antarctic Division.

You can find more information about climate projections, impacts and adaptation at www.climatechangeinaustralia.gov.au.

Improving the resilience of Australia's environment—

Actions to improve the health and resilience of Australia's unique landscapes and biodiversity will assist adaptation to future climate change impacts. The Government has taken action to improve the resilience of the Great Barrier Reef through the Reef 2050 Plan. The Plan sets out a long-term strategy and targets for managing pressures on the Reef, including invasive species, run-off and development. The \$140 million Reef Trust is supporting a wide range of on-the-ground projects.

The Green Army and National Landcare Programme will also build the resilience of our natural landscapes and environment by supporting local projects to clean up and revegetate the environment and conserve habitats. The 20 Million Trees Programme will improve the extent, connectivity and condition of native vegetation that supports native species. The Programme complements the National Threatened Species Strategy that helps many of Australia's most vulnerable species to recover now and under future climate conditions.

You can find more information about the Government's actions to improve the resilience of Australia's environment at www.environment.gov.au.

National Climate Change Adaptation Research Facility

The \$9 million National Climate Change Adaptation Research Facility (NCCARF) is working to support decision-makers to manage and prepare for the risks of climate change, particularly in the coastal zone.

As part of its work, NCCARF is working closely with stakeholders to develop a practical, online tool to assist local and state governments and other organisations understand and address sea-level rise, coastal erosion and other hazards.

NCCARF will provide easy-to-read summaries of key adaptation topics, based on its research activities since 2008. NCCARF manages four adaptation research networks which share information on leading adaptation practice concerning vulnerable communities, ecosystems, settlements and infrastructure and social, economic and governance dimensions.

You can find more information about the work of NCCARF at www.nccarf.edu.au.



Innovative research to understand ocean acidification in Antarctica

Since November 2006, scientists from the Australian Antarctic Division and the Antarctic Climate and Ecosystems Cooperative Research Centre have been undertaking research on the impacts of ocean acidification on Southern Ocean organisms such as phytoplankton, krill and animals that live on the sea-bed.

As part of this research, scientists are undertaking a major project to simulate ocean acidification conditions forecast for the year 2100. The Antarctic Free Ocean Carbon Enrichment (AntFOCE) experiment at Australia's Casey research station is exploring the effects on seabed communities of more acidic seawater conditions due to enriched carbon dioxide. Seabed habitats are among the largest ecosystems on earth and support the vast majority of marine biodiversity. The experiment was successfully run over eight weeks in early 2015, and samples are currently being analysed.

AntFOCE is the one of the world's first in-situ polar ocean acidification experiments, and is one of many studies shedding light on how increased ocean acidity may affect the carbonate skeletons of marine species and what impacts may follow for marine food chains.

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