



# NCCARF

National  
Climate Change Adaptation  
Research Facility

Adaptation Research Network  
MARINE BIODIVERSITY AND RESOURCES

## Convenor's Spot



Welcome to the inaugural issue of the Marine Adaptation Bulletin (MAB)!

MAB is a quarterly publication that aims to inform and connect marine researchers, stakeholders and end-users in issues of climate change adaptation for the marine environment. It's an initiative of the Adaptation Research Network for Marine Biodiversity and Resources which will run from 2009-2012.

Over the next four years, the marine adaptation network will work closely with the National Climate Change Adaptation Research Facility (NCCARF) to advance knowledge about climate change adaptation, and adaptation options for stakeholders, of Australia's marine biodiversity and resources and to foster an inclusive collaborative and interdisciplinary research environment that generates outputs relevant for policy-makers and managers to develop appropriate climate change adaptation

responses. Autonomous adaptation by marine species to climate change impacts (e.g., fish swimming from a warming ocean to cooler higher latitudes) is one adaptation response. However, societal attitudes, economic policy, management and governance arrangements can enhance the adaptive capacity of marine biodiversity and resources (e.g., society limiting non-climate stressors such as coastal nutrient waste; ecosystem conscious fisheries management; flexible adaptive management), while marine stakeholder organisations can also be adaptive to climate change risks and impacts.

MAB will provide information about the network structure, its themes and activities, up-coming conferences, workshops, funding opportunities, resources, notes and news, and facts about adaptation.

Please feel free to pass this Bulletin onto any marine-related researchers or stakeholders who might be interested in joining the marine adaptation network and receive MAB directly.

Neil Holbrook

## Inside this issue:

Featured Theme - Biodiversity & Resources	2
About the Marine Adaptation Network	3
National Adaptation Research Plan	3
Notes & News	3
Key Messages from Climate Change Congress 2009	4
Conferences/Workshops	5
Contact Details	5

## At a glance

The Adaptation Research Network for Marine Biodiversity and Resources will foster an inclusive collaborative and interdisciplinary research environment that generates outputs relevant for policy-makers and managers to develop appropriate climate change adaptation responses.

### FUNDING

\$1.6m direct funding  
\$1.9m cash and in-kind partner contributions

### INVESTMENT

Australian Government Department of Climate Change through the National Climate Change Adaptation Research Facility (NCCARF) hosted by Griffith University

### FRAMEWORK

Five themes (integration, biodiversity & resources, communities, markets policy)

### HOST INSTITUTION

University of Tasmania

### CONVENOR

Associate Professor Neil Holbrook

### TIMEFRAME

2009-2012

## Featured Theme: Biodiversity & Resources

The overarching aim of the Biodiversity and Resources theme within the broader network is to better understand the adaptive capacity of marine biodiversity at genetic, species and ecosystem levels in the overall context of vulnerability to climate change risks. This information is vital to enable us to usefully inform policy and management



decision-making for the long-term conservation of Australia's marine assets and to enhance the adaptive capacity of Australia's marine based industries. There is also a clear need to develop adaptation strategies for industry stakeholders that optimise the socio-economic goods and services provided by Australia's marine resources.

Australia's ocean territory covers 14.7 million square kilometres and includes some 36,000 kilometres of coastline extending from the tropical north to the cool temperate south. Australia's isolation as an island nation has resulted in a diverse and highly endemic marine fauna and flora and the biodiversity of Australia's vast marine jurisdiction has been recognised as being

globally significant. The total annual value of the goods and services of Australia's marine areas has been estimated at \$1,359.3 billion, with around two-thirds of this derived from our diverse coastal (mangroves, coral reefs, estuaries, seagrass beds and beaches) and shelf areas. Our marine fisheries and aquaculture industries are worth around \$2.18 billion

annually (ABARE 2008). Australia has developed as a coastal population which has resulted in a large affinity with our coastal assets. We have a very high participation in recreational fishing and our iconic marine areas support extensive tourism and other recreational activities. Australians are increasingly valuing the environmental, economic and social benefits of marine biodiversity and the ecosystem services that a healthy marine environment provides.



There is growing awareness of climate change, and Government at all levels now has a strong focus on

adaptation. However, our understanding of the current and potential impacts of climate change, particularly in the marine context, has not moved at the same rapid pace as increasing public awareness and acceptance of climate change as a major issue. With this in mind there will be an ongoing need to establish clear baselines, and to improve our understanding of impacts in our marine systems. This must be tackled with a view to developing the necessary understanding on which to base adaptation strategies and management plans, and on assessing the success of implemented management strategies. Investigating the causes

for species or ecosystem shifts away from baselines will be important for improving the understanding needed to underpin adaptation strategies, and in turn evaluate the effectiveness of those strategies. For many of us this requires a shift in the perspective from which we conduct our research (see Figure

1); one of the goals of the Biodiversity and Resources theme of the marine adaptation network is to support this transition.

The potential climate change impacts, degree of resilience and adaptive capacity of the vast majority of our marine species and ecosystems are still largely unknown. The Biodiversity and Resources theme aims to provide a central national location whereby researchers, governments and industry can enhance their knowledge of the latest scientific information that can inform adaptation options. To engage with the Biodiversity and Resources theme, please forward your contact details to

[Wenneke.tenHout@utas.edu.au](mailto:Wenneke.tenHout@utas.edu.au)

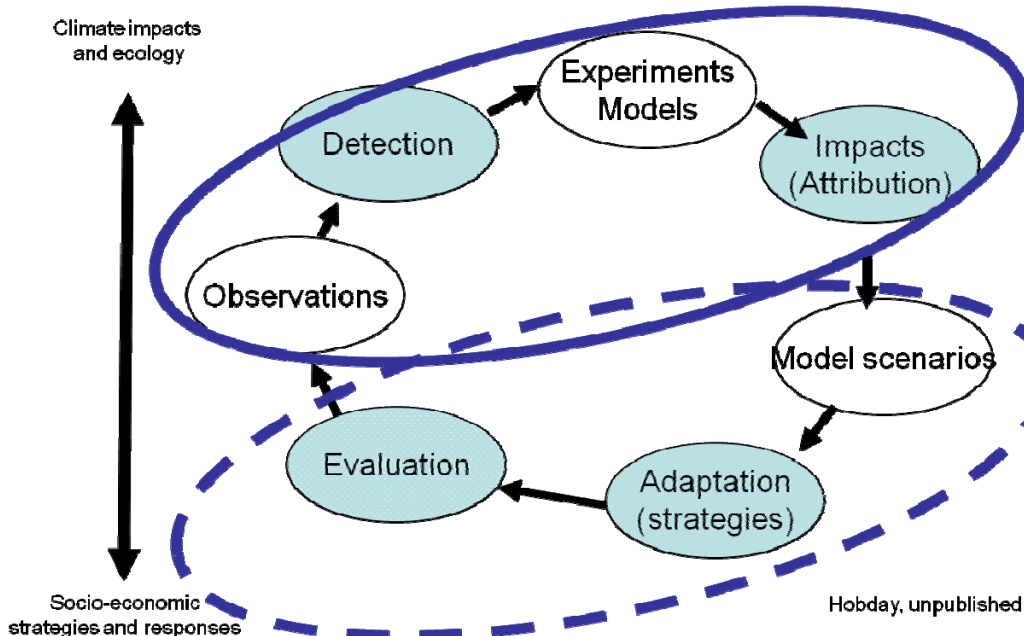


Figure 1: A conceptual model of the links between climate impacts (solid blue line) and adaptation (dashed blue line)

ABARE (2008). *Australian fisheries statistics 2007*, Canberra, June (available at [www.abare.gov.au](http://www.abare.gov.au))

# About the Marine Adaptation Network

The Marine Adaptation Network consists of five inter-connecting themes:

- Integration
- Biodiversity & Resources
- Communities
- Markets
- Policy

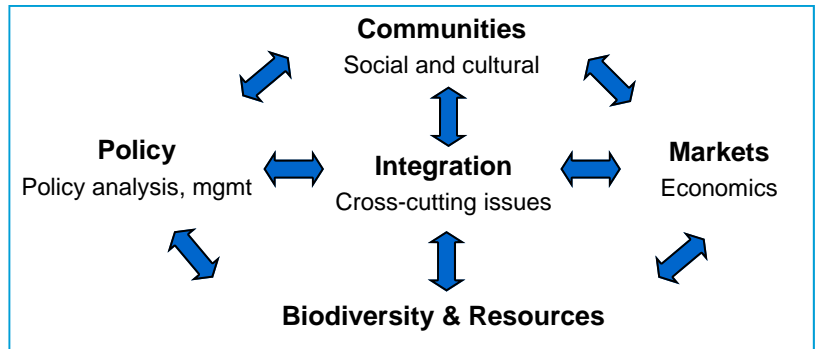


Figure 2: Integrative model of the Marine Adaptation Network

The marine adaptation network will improve our understanding of, and enhance, adaptive capacity of all sectors within the marine space using an integrative model (Figure 2) of collaboration, engagement and cooperation that cross-cuts between biodiversity & resources, communities, markets and policy (including management and governance).

For further information, please contact Neil Holbrook on [Neil.Holbrook@utas.edu.au](mailto:Neil.Holbrook@utas.edu.au)

## National Adaptation Research Plan for Marine Biodiversity & Resources

NCCARF and the Australian Government Department of Climate Change are leading the development of eight National Adaptation Research Plans (NARPs) corresponding to the eight Networks that have also been established.

These plans are drafted by a team of experts from each field following extensive community consultation, and are then subject to public review. The NARPs contain research priorities identified through stakeholder engagement and wide review from within the

appropriate sector. The Marine Biodiversity and Resources NARP was released for comment in November 2008, was subsequently revised and is with the Minister for final approval. A call for expressions of interest (EOIs) for funding associated with the priorities is expected to follow release of the Marine NARP. These EOIs will be evaluated by an expert panel (to be determined), after which selected full proposals will be invited. The draft NARP contained research priorities appropriate to adaptation research in (i) aquaculture, (ii) commercial and recreational fishing, (iii) conservation management, (iv) Indigenous and subsistence use, and (v) tourism and recreational uses. The need for cross-sectoral research in the marine space was also recognised.



## Notes & News

NCCARF has received an invitation from the newly-formed New Zealand Climate Change Centre (NZCCC) inviting NCCARF networks and partners to attend its inaugural conference on May 20 & 21 in Wellington NZ.

This two-day conference is the NZCCC's first major event and the first conference in NZ to focus solely on climate change adaptation.



While this event will focus on

New Zealand issues based around six key themes it will, through keynote presentations, lead speakers and panel discussions, consider the impacts and adaptation measures required within NZ due to impacts that occur beyond its borders.

Australian colleagues are invited to attend to be brought up to speed with the likely impacts NZ will face, and current research efforts.

For more information and to register contact NZCCC directly at [www.confer.co.nz/adaptation09](http://www.confer.co.nz/adaptation09)

For more information about the NZCCC see [www.nzclimatechangecentre.org](http://www.nzclimatechangecentre.org)

Although the amount of funding is still to be determined, developing a national set of priorities across the marine space is to be commended, and offers a chance for cross cutting research, rather than a segmented sub-sectoral funding approach. One of the network goals will be to promote research on both the funded and non-funded priorities in the coming years.

If you would like further information about the development of the NARP for Marine Biodiversity & Resources, please contact Professor Jan McDonald on 07 5552 8758 or email [jan.mcdonald@griffith.edu.au](mailto:jan.mcdonald@griffith.edu.au).

# Key Messages from the International Scientific Congress on Climate Change: Global Risks, Challenges & Decisions

Copenhagen, Denmark 10-12 March 2009

The University of Copenhagen recently hosted the International Scientific Congress on Climate Change under the heading "Climate Change: Global Risks, Challenges and Decisions" on 10-12 March 2009.

The main aim of the congress was to provide a synthesis of existing and emerging scientific knowledge necessary in order to make intelligent societal decisions concerning application of mitigation and adaptation strategies in response to climate change.

The congress aimed to identify and synthesise the science, technology and policy advances required in order to ensure sustainability of global communities in the current and coming decades.

The findings of the congress should be seen as a supplementary to the work of the Intergovernmental Panel on Climate Change (IPCC).

The six preliminary key messages were delivered by the Congress' Scientific Writing Team resulting from the International Scientific Congress on Climate Change. The conclusions will be published into a full synthesis report by June 2009.

The Danish Government will host the UN Climate Change Conference in December 2009 and will hand over the conclusions to the decision makers ahead of the Conference.

For further information about the International Scientific Congress on Climate Change, please visit <http://climatecongress.ku.dk/>



## Key Message 1: Climatic Trends

Recent observations confirm that, given high rates of observed emissions, the worst-case IPCC scenario trajectories (or even worse) are being realised. For many key parameters, the climate system is already moving beyond the patterns of natural variability within which our society and economy have developed and thrived. These parameters include global mean surface temperature, sea-level rise, ocean and ice sheet dynamics, ocean acidification, and extreme climatic events. There is a significant risk that many of the trends will accelerate, leading to an increasing risk of abrupt or irreversible climatic shifts.

## Key Message 2: Social disruption

The research community is providing much more information to support discussions on "dangerous climate change". Recent observations show that societies are highly vulnerable to even modest levels of climate change, with poor nations and communities particularly at risk. Temperature rises above 2C will be very difficult for contemporary societies to cope with, and will increase the level of climate disruption through the rest of the century.

## Key Message 3: Long-Term Strategy

Rapid, sustained, and effective mitigation based on coordinated global and regional action is required to avoid "dangerous climate change" regardless of how it is defined. Weaker targets for 2020 increase the risk of crossing tipping points and make the task of meeting 2050 targets more difficult. Delay in initiating effective mitigation actions increases significantly the long-term social and economic costs of both adaptation and mitigation.

## Key Message 4 - Equity Dimensions

Climate change is having, and will have, strongly differential effects on people within and between countries and regions, on this generation and future generations, and on human societies and the natural world. An effective, well-funded adaptation safety net is required for those people least capable of coping with climate change impacts, and a common but differentiated mitigation strategy is needed to protect the poor and most vulnerable.

## Key Message 5: Inaction is Inexcusable

There is no excuse for inaction. We already have many tools and approaches – economic, technological, behavioural, management – to deal effectively with the climate change challenge. But they must be vigorously and widely implemented to achieve the societal transformation required to decarbonise economies. A wide range of benefits will flow from a concerted effort to alter our energy economy now, including sustainable energy job growth, reductions in the health and economic costs of climate change, and the restoration of ecosystems and revitalisation of ecosystem services.

## Key Message 6: Meeting the Challenge

To achieve the societal transformation required to meet the climate change challenge, we must overcome a number of significant constraints and seize critical opportunities. These include reducing inertia in social and economic systems; building on a growing public desire for governments to act on climate change; removing implicit and explicit subsidies; reducing the influence of vested interests that increase emissions and reduce resilience; enabling the shifts from ineffective governance and weak institutions to innovative leadership in government, the private sector and civil society; and engaging society in the transition to norms and practices that foster sustainability.



## Conferences/Workshops

### Climate Change Adaptation 'Managing the Unavoidable' Conference

20-21 May 2009, Wellington, New Zealand  
[www.confer.co.nz/adaptation09](http://www.confer.co.nz/adaptation09)

### The 8th Indo Pacific Fish Conference (IPFC) and the 2009 Australian Society for Fish Biology (ASFB) Workshop & Conference

31 May-5 June 2009, Fremantle, Western Australia,  
Australia  
[www.ipfc2009asfb.com](http://www.ipfc2009asfb.com)

### AMSA2009 International Conference

5-9 July 2009, Adelaide, South Australia, Australia  
[www.amsaconference.com.au](http://www.amsaconference.com.au)

### 15th International Interdisciplinary Conference on the Environment

8-11 July 2009, Daytona Beach, Florida, USA  
[www.ieaonline.org/conference](http://www.ieaonline.org/conference)

### 2010 International Climate Change Adaptation Conference 'Climate Change Adaptation Futures: preparing for the unavoidable impacts of climate change'

29 June-1 July 2010, Gold Coast, Queensland,  
Australia  
[www.nccarf.edu.au/conference2010](http://www.nccarf.edu.au/conference2010)

## Contact us

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### THEMES

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Images were provided by Dr Gretta Pecl and Alistair Hobday.

## Marine Adaptation Network Partners:

National Research  
**FLAGSHIPS**  
Climate Adaptation



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Great Barrier Reef  
Marine Park Authority

The Adaptation Research Network for Marine Biodiversity & Resources is an initiative of the Australian Government Department of Climate Change being conducted as part of the National Climate Change Adaptation Research Facility [www.nccarf.edu.au](http://www.nccarf.edu.au)