

STORY: DAVID KIRKPATRICK



The coastal lifestyle so many Australians enjoy is facing a number of significant threats.

Coastal RETREAT

On the Northern Rivers in NSW it rained on 40 out of 45 days in the period just after Christmas. Gale force winds ripped through Cape Byron on New Year's Eve throwing a wet blanket on celebrations.

Continued heavy downpours in the days and weeks that followed caused the Richmond River to flood, reaching a peak of 18.1 metres in Kyogle.

For a while it seemed like one major storm event piled on top of another.

The rainfall and flooding followed on from a severe hail storm that hit Lismore and surrounds, and a mini-tornado which wreaked havoc on the tiny hamlet of Dunoon in October 2007.

In the news room of the local daily newspaper, *The Northern Star*, staff would gather around the Bureau of

Meteorology's live weather radar and watch nervously as the storm clouds rolled in each afternoon.

"Bloody climate change," was one of the comments often muttered, as journalists phoned home to warn loved ones to batten down the hatches.

In nearby Byron Shire, the residents of the million-dollar row of houses known as Belongil Beach would have been keeping a weather eye on the sea.

And it would pay for them to stay alert, as Byron Shire Council has adopted a policy of "planned retreat" for this wealthy coastal enclave.

What this policy basically means is that residents will be left to their own devices if their properties are affected by the combination of rising sea levels and severe storm events.

Belongil residents have drawn a line in the sand and have mounted a legal challenge to stop Byron council's

THREATENED: *Climate change has serious implications for coastal communities.*
Photo: Newspix



push to have its retreat policy enshrined in its coastal zone management plan.

And it's precisely this policy of "planned retreat" that Byron Shire Council has urged the House of Representatives Committee on Climate Change, Water, Environment and the Arts to consider in its inquiry into climate change and the environmental impacts on coastal communities.

Battle lines are being drawn right across the country as cash-strapped councils clash with their own ratepayers over some of the most lucrative real estate in Australia.

Climate change threatens to reverse the 'sea change' phenomenon and permanently devalue the notion of the fibro shack with the million-dollar ocean view.

Committee chair Jennie George (Member for Throsby, NSW) emphasises the critical importance of the inquiry for Australia's rapidly growing coastal regions.

"Climate change has serious implications for coastal areas as much of Australia's population and infrastructure is in the coastal zone," Ms George says. "The growth in population along the coast is also increasing the pressure on the environment in many areas.

"The committee has received excellent submissions to date, raising significant coastal management issues."

As of late July, the inquiry had received 93 submissions from a diverse range of groups and began the first in a series of public hearings on the issue in Wyong, on the Central Coast of NSW on July 10.

Given Australia's obsession with living by the sea, it's clearly an inquiry that will have widespread ramifications for many people. It's an issue that affects all three tiers of government, the tourism industry, real estate developers, farmers, the insurance industry, environmentalists, climate

change experts and, not least, the estimated six million Australian who live within two kilometres of the beach.

According to the National Sea Change Taskforce's submission to the inquiry, coastal growth over the past 10 years has resulted in an increase of 1.27 million people since 1997, which is equivalent to about six per cent of Australia's population.

Coastal population outside the capital cities now represents 30 per cent of Australia's national population. A further one million people are estimated to be moving to the coast by 2010 as the baby boomer generation hits retirement age.

Barbara Norman, of the Global Cities Institute at Royal Melbourne Institute of Technology, warns that the Australian coast is already under great environmental pressure.

Sydney's iconic Bondi Beach could recede as much as 40 metres.

"The coast is 36,000 kilometres long and accommodates over 86 per cent of the Australian population," she states in her submission. "The Australian State of the Environment Reports 1996, 2001 and 2006 all conclude that the Australian coastal environment is suffering environmental degradation.

"This combined with the new challenges of climate change present significant public policy challenges for the federal government."

At a conference in 2005, coastal geomorphologist Dr Peter Cowell of the University of Sydney claimed that beaches such as Byron Bay could recede as much as 130 metres by 2100.

RISING TIDES:

Erosion caused by higher sea levels will impact on property owners.

Photo: Newspix

Further south, Sydney's iconic Bondi Beach could recede as much as 40 metres (although a sea wall has been built to lessen the impact of erosion).

"Without the wall it would be a further 40 metres inland. The [Bondi] Pavilion would be gone," Dr Cowell told ABC Science Online.

In 2006, the Insurance Council of Australia assessed the number of Australian addresses within three kilometres of the coast and with baseline elevations below four, five and six metres.

It estimated that more than 425,000 Australian addresses are below four metres above mean sea level and within three kilometres of the current shoreline.

Within the Greater Sydney region (Newcastle to Wollongong), 46,000 addresses are identified as being within one kilometre of the shoreline and with elevations of less than three metres.

"The potential impacts on the Australian community arising from sea level rise when combined with the current exposures to inland flooding are therefore likely to be significant," the Insurance Council states in its submission to the inquiry.

"It is in this context that the general insurance industry considers that urgent adaptive measures are required. We submit that the significant implications for the Australian



"Rapid rates of coastal population increase will accentuate the threat to coastal communities."

economy that flow from this hazard require significant consideration and treatment."

Emeritus Professor Bruce Thom from the University of Sydney believes successive federal governments have failed to act on critical management issues and coastal planning has largely been left up to state and local governments.

Going forward he contends there will be a number of critical "tipping points" reached in each and every coastal community around the country as sea levels continue to rise.

Each tipping point would then need to be assessed in relation to the nation's capacity to pay.

Professor Thom raises a series of pertinent questions in his submission, pointing to low-lying areas in Australia he believes could be at risk.

"When will barrages be needed at Port Philip or Botany Bay?"

"When will the very low runway at Sydney Airport need to be elevated?"

"When will houses around Swansea need to be relocated as here a 1m sea level rise will inundate 100 per cent of properties adjoining Lake Macquarie?"

"And when will levees, pumps and seawalls be demanded by property owners at risk of inundation or erosion?"

Professor Colin Woodroffe, of the University of Wollongong, believes that the Queensland city of Cairns appears to be particularly at risk.

"Many parts of the centre of the city are at levels that are already subject to flooding by events that have a recurrence of less than 1 in 100 years," he writes in his submission.

"Although the details of how this will change in future are contentious, it is clear that these levels will be experienced with greater frequency in future (as a result of either sea-level rise or storm intensification, or both)."

But is it time to panic just yet?

In general, scientists have been able to predict how much sea levels are going to rise in Australia, but it's not a one size fits all formula.

A recent Council of Australian Governments (COAG) report suggests that the average sea level rise around the Australian coast is 0.9mm per year.

Meanwhile, the international Intergovernmental Panel on Climate Change (IPCC) has reported that sea levels will rise between nine centimetres to 88cm by 2100.

While arguing that Australia is better off than many other low-lying countries around the world such as The Netherlands



“Decision making is particularly fragmented in relation to the coastal zone, and national coordination is needed.”

or the Maldives, Professor Woodroffe of the University of Wollongong warns there is no room for “complacency”.

“In comparison with these nations, the coast of Australia would appear to have far fewer imminent threats,” he writes in his submission.

But, at the same time he notes that an unusually high percentage of the Australian population is focused along the coast, and “rapid rates of coastal population increase will accentuate the threat to coastal communities”.

“Indigenous communities, such as those of the central Torres Strait Islands, and communities with a low-adaptive capacity such as the Cocos Malays on the Cocos (Keeling) Islands, present a unique set of concerns,” he says.

Professor Woodroffe points to six “climate drivers” that can have an impact on the coast: sea level rise; temperature



HIGHER FREQUENCY: *Flooding and more intense storms could occur more often.*

Photos: Newspix

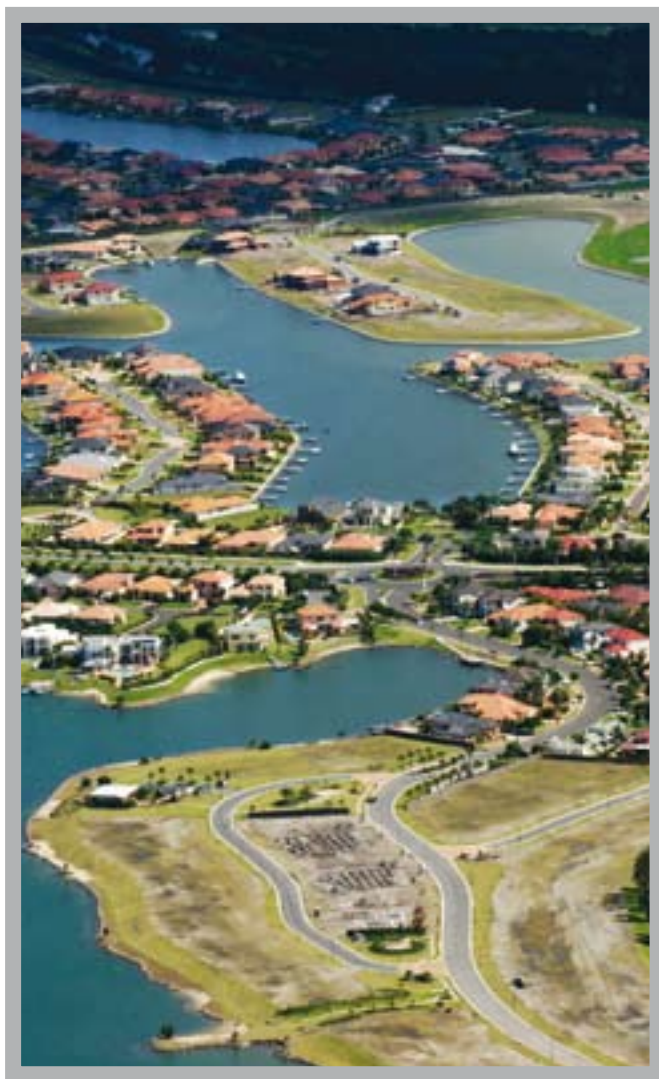
rise; carbon dioxide concentrations; storm occurrence; wind-wave changes; and changes to rainfall and run-off.

But he says sea level rise poses the greatest challenge, combined with extreme weather events that seem to be happening right across Australia with ominous regularity.

“It will be essential to adapt to the consequences of climate change on the coast, and the range of options include protection, accommodation and retreat. Prudent planning can now minimise future disruption,” he states.

“It will be essential to extend preliminary assessments of coastal vulnerability, and to develop tools and models to undertake more detailed appraisals of vulnerability.

“Decision making is particularly fragmented in relation to the coastal zone, and national coordination is needed, with wider availability of coastal data.”



COASTAL SURGE: *Population increases along the coast will accentuate the threat. Photo: AUSPIC*

“If you choose to have the advantage of living on the coastal edge, there are risks to that.”

To deal with this multi-layered issue, Professor Thom, who is also a member of the Wentworth Group of Concerned Scientists, has put forward a five-point plan for coastal planning and management which he urges the committee to consider. The plan includes:

- a Commonwealth national coastal policy, to be developed in consultation with the states and local government through COAG, that defines the national need for direction and sets out the principles, objectives and actions that a federal government must undertake to address the challenges of integrated coastal zone management for Australia;
- consideration of the advantages of the Commonwealth enacting a Coastal Zone Management Act which establishes its interest in the coastal zone across all areas of national interest (not exclusively environmental);
- the establishment of a coastal division within an existing federal agency responsible for the coordination of federal interests including the monitoring of environmental conditions;
- reinforcing the capacity of a federal science agency to serve as the manager of a National Coastal Information System

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which will be in position to fund new science on coastal physical and social systems; and

- the establishment of an external Coastal Advisory Council consisting of various stakeholder interests to review and offer technical advice to government.

Some of the ‘stakeholders’ described in that last bullet point are already looking for support, including financial assistance.

Quicksilver, the company that takes 400,000 tourists on trips to the Great Barrier Reef each year, wants federal money to help minimise its environmental impact on the reef.

“The tourism industry is one of the many user groups of the Great Barrier Reef. While figures vary, the general consensus is that tourism in the Great Barrier Reef catchment area contributes over \$5.1 billion to Australia’s economy every year and is indirectly responsible for the employment of over 50,000 Australians,” Quicksilver’s managing director Tony Baker states in his submission.

“With respect to climate change, our industry is high profile and is based around the sustainable use of the reef. While our impact may be minimal, it is there.

“To help our industry and the community to change, I believe government needs to provide financial assistance or other incentives to the industry.”

While industry may be lining up for government support, coastal residents may be heading to the courts to take on councils over the issue of coastal erosion.

It seems that Byron council’s policy of “planned retreat” is catching on.

In neighbouring Ballina Shire, one councillor Alan Rich stirred up considerable controversy recently when he suggested that council should “just let nature take its course” regarding rising seas levels and beachside homes.

“It’s an outrageous expectation of a small number of beachfront owners to expect council to bail them out potentially forever and a day,” Cr Rich said.

“The fact that wealthy people live on the beachfront is not the issue, it is one of responsibility. If you choose to have the advantage of living on the coastal edge, there are risks to that. It’s an individual choice.” •

For more information on the inquiry into climate change and environmental impacts on coastal communities, being conducted by the House of Representatives Committee on Climate Change, Water, Environment and the Arts, visit www.aph.gov.au/ccwea or email ccwea.reps@aph.gov.au or phone (02) 6277 4580.



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