

Cruisin' for a climate bruisin'

Stuart Kininmonth explores what climate change will mean for cruising.

The light breeze fills the sails and quietly pushes me over the rolling seas towards Davies Reef. Cumulus clouds provide some relief from the tropical sun while masked boobies dive spectacularly into the fish-filled waters. It's a perfect day, yet on the horizon I can clearly see a storm brewing. This storm is more perplexing than Switzerland winning the America's Cup, more devastating than the global financial crash and more controversial than public health care. However, unlike all of these, this storm will affect us all.

I am pointing to the climate change storm about to hit us and strangely very few people seem to care. Most people

casually say climate change is about the earth getting a bit warmer over the next century. A few degrees extra, as predicted by the science community, doesn't seem worth fussing over. Why then should we be concerned and more importantly what impact will this have on the cruising community?

How we got here

First let's pull some facts out of the confusion. Climate change is not about local weather patterns. As my father was fighting fires in Victoria, I was sheltering from the torrential rain in Townsville, yet these extremes of conditions should not be directly

attributed to climate change (although it is predicted that drought will become more common and more extreme in southern Australia in a changing climate world). Instead, climate change is an evolving alteration to the conditions we live in.

In particular the focus is all about the human population rapidly increasing the amount of carbon dioxide and methane in the insulating layer around the earth. These gases trap the sun's radiation and maintain the earth at 14 degrees Celsius on average.

For the past 12,000 years this atmospheric layer has been stable and human civilisation has been able to flourish. And we certainly did! In 1900 there were one and half billion people and now, in only a few generations, there are six and half billion.

This massive increase combined with unprecedented energy consumption has pushed the carbon dioxide in the atmosphere from 284 parts per million when Captain Matthew Flinders was charting the Australian coast to 385 ppm today.

“On present trends alone the sea level will rise by almost a metre in the next 100 years. This will dramatically place the majority of marinas and ports in urgent need of upgrades”



JAMES WOODFORD



INSET: Last chance to see healthy reef? Davies Reef near Townsville.

MAIN IMAGE: Where has the beach gone? Coastal erosion is happening now.

There can be no denying that our developed nation's obsession with fossil fuels for electricity generation and transportation has been the principal contributor to this increase yet — since this atmospheric change was highlighted in the 1960s — very little has been done. The main reason for this lack of action is that, until recently, there was some debate about what this extra carbon dioxide was doing and short-sighted denial from a conservative Australian government from the big end of town.

That time has now passed, the science is undeniable and the current government has a more realistic view. It is now a matter of how bad it will be and more importantly, how the world can work best together to turn this potentially catastrophic problem around.

This is now even more urgent because scientific groups like the IPCC have recently revealed that measured carbon dioxide levels in the atmosphere now actually exceed the worst-case scenarios proposed by the IPCC and that all the models predicting the extent of global warming were simply too optimistic. Instead of waiting 50 years for the cold polar regions to melt, we are seeing millions of tonnes of ice rapidly disappearing in the Arctic each summer while the Antarctic temperatures have risen several degrees in just 50 years. Even if just the ice in Greenland and the Arctic melts, then the sea level will rise around two metres. Sounds like you could cope with this? Think again!

What is likely to happen

I will skip over the expected increase in droughts, fires and floods that affect the land-dwellers, plus the mass extinction of hundreds of species that is already starting to occur, and focus on the key issues affecting the sailing community, namely sea level rise, storm intensity, disease spread and loss of coral reefs.

A combination of thermal expansion of the ocean and melting of polar ice has been quietly increasing the sea levels at only a few millimetres a decade. However, there is growing concern that these processes could



ABOVE: What use is a jetty if it's underwater?

BELOW: Storms on the horizon cannot be ignored. Panarakuum Island, PNG.

accelerate rapidly with a sudden collapse of the northern ice shelf resulting in a two-metre surge in just a few decades.

On present trends alone the sea level will rise by almost a metre in the next 100 years. This will dramatically place the majority of marinas and ports in urgent need of upgrades. The full impact of the coastal erosion and the community flooding will be expensive to Australians and devastating to Pacific Island communities.

And if your marina is going under water where will you shelter when the storms rage? For every degree increase in the ocean temperature there is a corresponding increase in cyclone category. Cyclones like Larry in 2006 which devastated Innisfail and surrounding areas was a Category 5.

However, many other cyclones in the past, such as Tessi (Townsville, April 2000) and Steve (Cairns, February 2000), were only weak and did not cause much damage. In contrast, a Category 1 land-based depression in the Whitsundays caused havoc when its northerly winds damaged more than 50 anchored or moored boats in Pioneer Bay in February 2008.

Imagine if the majority of cyclones were Category 5, regularly throwing yachts onto the nearby beaches as happened with Althea in 1974. With temperatures increasing globally, cyclones will occur over more than the traditional summer cyclone season and extend further south to impact centres that are presently considered safe.

And if the storms make you nervous to leave the marina, then at least keep the hatches closed against mosquitoes. As any cruiser who has ventured

WHAT IT WILL MEAN OVER THE NEXT CENTURY

Predicting when the earth will change is very difficult because every natural system, like the temperature of oceans, is very complex and inadequately understood. However, some changes can be presented with confidence.

YEAR	EXPECTED IMPACT ON CRUISERS
2010	Localised severe weather patterns caused by small changes in land and ocean temperature.
2030	The Arctic could be ice-free with many alpine glaciers gone. El Niño events where the ocean is unusually warm across the Pacific are the norm. Eastern Australian current stronger pushing warm waters further south.
2050	Several Pacific communities forced to relocate as sea levels rise. Coastal zones around the world are in a state of flux as beaches erode. Coral reefs suffering badly with increased temperature and acidity.
2100	Much of the southern Mediterranean and southern Australia becomes a non-productive arid zone. Environmental refugees create havoc as heavily populated countries undergo climactic change. Coastal infrastructure is a mess and expensive to maintain.

ANDY LEWIS

north of our borders will tell you, the biggest danger out there is malaria. More than a million people every year die from malaria and many more suffer regular bouts of fever and lethargy. Here in Australia we are blessed that our mosquitoes are not yet carriers and often not the right species.

As the temperature increases many of the dangerous mosquitoes will be able to spread south into Queensland, which will undoubtedly lead to considerable suffering. Already established diseases such as the Ross River and Dengue viruses have increased their infection rates in new areas.

Avoiding these new tropical coastal perils and anchoring on nearby coral reefs will soon be very disappointing. As the level of carbon dioxide increases in the atmosphere, there is a corresponding increase in ocean acidity. This is disastrous to animals that use calcium carbonate for their shells or skeletons. Corals quickly crumble as the ocean dissolves the skeleton faster than the coral polyp can build them, leaving a crumbling weedy atoll. Fish and other marine life dependant on the reef are left exposed to predation and can quickly disappear. Don't even start to think about what a loss of the reef would mean for coastal Queensland as the Pacific swell reaches the newly exposed shore.

What we can do

So is all hope lost? Is there nothing we can do?

Undoubtedly the solution involves many varied initiatives but more importantly, a cultural change is required. The Copenhagen summit was disappointing in that some countries were still not recognising the benefits of a unified approach to managing our ever-crowded world.

This is where the cruising community, more than any other community, can play a leading role. We understand how to live simply without excessive power generation and water use. Anyone who has cruised has had to monitor their battery amps and volts and their water tank levels and adjust their lifestyle accordingly. This is the opposite of life on land where many folks have little idea of what happens behind the switch or the water tap. We have also been living the alternative lifestyle with solar and wind generation combined with an attitude that says it's OK to go slowly when there is little wind to drive us to our next destination. And more importantly we have found that a simpler lifestyle that feels the rhythm of the environment is a happier, more fulfilling, one.

So don't hold back telling everyone how you exist happily on solar panels and that you don't need a 90-inch plasma screen. Continue to walk to the local markets for your supplies, consider eating less meat and continue to think twice before you fire up the engine on a calm day. It could all make a difference. ch

USEFUL LINKS

Unfortunately climate change is complex and requires some dedication to understand fully. Here are some suggested places to start.

The book *Climate Code Red* by David Spratt & Philip Sutton (<http://www.climatecoded.net/>) is an excellent place to start.

The leading authority on the science published a Climate Change Science Compendium which can be freely downloaded at <http://www.unep.org/compendium2009/>

Tim Flannery has produced a comprehensive book called *The Weathermakers* (<http://www.theweathermakers.org/>). Websites like <http://www.pewclimate.org/> and <http://www.realclimate.org/> offer a variety of pictures, graphs and text.

Government sites like www.climatechange.gov.au are also very useful.

cruisinghelmsman Stuart Kininmonth



Stuart is a marine ecologist based in Townsville and lives aboard his 1991 Hunter Legend 433 Orpailleur with partner Olia.

He started with Mirror dinghy sailing on the Gippsland Lakes in Victoria and then progressed to the Queensland coastal areas in a shared 35-year-old Thunderbird.

Have you thought about owning a trailerable power sailer to...

- Go sailing
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