

TURNING THE TIDE

Autumn 2016, Volume 17 #1

Our Oceans are Changing | Coral Bleaching hits the Great Barrier Reef
Unprecedented mangrove dieback | Losing the south west's kelp forests
BP has no right to risk the Bight | Marine Parks needed now



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Marine
Conservation
Society



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(Foreground) Healthy Great Barrier Reef scene, photographed in 2010 © Oceanwide Images/Gary Bell and (background) bleached coral at Lizard Island, photographed in 2016 © Oceans Agency.

Note: This is composite of two images.

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From the **DIRECTOR**
Darren Kindleysides

WINNERS and losers

Since the recent Australian election there has been much talk of winners and losers. The subject goes far beyond party politics or ideological preferences of the 'left' and the 'right'. When it comes to our environment, we're all in the same party, and we all suffer if our oceans are dealt the losing hand.

The previous government attacked environmental charities like AMCS, attempting to hamstring our work and stop us from speaking out to defend our seas. They halted ten years of progress on Australia's widely consulted, overwhelmingly supported national network of marine reserves. They faltered when transformative action and investment was needed to save our Great Barrier Reef and tackle the insidious threat of global warming.

This newly elected Australian government has stewardship of the richest, most biodiverse waters on the planet, and an ocean jurisdiction twice the size of our land. Australia has a lot to lose if we don't manage our oceans properly. Our global duty to our unique marine life and future generations demands far greater protection and far more effective management of the industries which impact our seas.

This duty has never been more serious, because our oceans are changing right now from the impacts of a warming planet, pollution and development.

This year alone there has been massive mangrove dieback in the Gulf or Carpentaria following failure of the Monsoon and sustained warmer seas. This month we've had reports of entire kelp forests disappearing from parts of Australia's south west coast. And earlier this year, an underwater heatwave resulted in the worst coral bleaching on record for Australia's Reefs. Now almost a quarter of our Great Barrier Reef's corals are dead. This unprecedented environmental crisis formed the backdrop to the federal election, but the pre-election commitments from our new government fell woefully short.

In the weeks counting down to voting day, leading reef scientists could not have been more clear: the next Australian government has the best and perhaps the last chance to prevent irreversible decline of our Great Barrier Reef. More action and urgency is needed, including sufficient funding commitments to reverse the Reef's decline and save its wildlife and the \$6 billion tourism industry it supports.

The future of our natural world – our life support system - should be above politics. We all need clean air and water, healthy productive seas, a safe climate. Our environment has no left or right, only forwards or backwards.

Our oceans, our marine life, our incredible natural places simply can't afford another three years of going backwards.

Whether our environment wins or loses through this term of government remains to be seen. But we do know this – our time is fast running out. Our work to hold our governments to account is more critical now than ever.

I thank you for all you do and all your support. Together we must make sure we go forwards. We must step up our defence of our oceans.



CONTENTS

OUT OF THE BLUE	4
CLIMATE CHANGE AND OUR SEAS	6
FIGHTING FOR THE REEF	8
MARINE PARKS NEEDED	10
MANGROVE DIEBACK	13
TRAWLING THE NORTH	14
GOOD NEWS ON PLASTICS	17
DEVOTION TO THE OCEAN	23



“People ask: Why should I care about the ocean? Because the ocean is the cornerstone of Earth’s life support system. It shapes the climate and the weather. It holds most of life on Earth. 97% of earth’s water is there. It’s the blue heart of the planet – we should take care of our heart. It’s what makes life possible for us.

We still have a really good chance to make things better than they are. They won’t get better unless we take the action and inspire others to do the same thing. No one is without power. Everybody has the capacity to do something.”

Dr Sylvia A. Earle. Ocean Elder, National Geographic Society Explorer in Residence, called Her Deepness by the New Yorker and the New York Times, Living Legend by the Library of Congress, and first Hero for the Planet by Time Magazine, is an oceanographer, explorer, author and lecturer.

OUT OF THE

News from around our shores



Decomposing soft coral after the bleaching, near Lizard Island, Great Barrier Reef © The Ocean Agency

Great Barrier BLEACHING

In the first few months of this year Australia's Great Barrier Reef experienced the worst coral bleaching event in recorded history. As a result, almost a quarter of our precious Reef is now dead, tragically in the far northern section which was the most pristine.

The world has suffered three major bleaching events that were unheard of before now. The first major event was in 1998, then 2010, and now 2016. This year's event has already become the longest on record and is predicted to last until the end of 2016.

Coral bleaching is caused directly by climate change. Our oceans are growing warmer because they're absorbing excess heat from the atmosphere, caused by our continued burning of fossil fuels. The use of coal, oil and

gas is the biggest threat to the continued existence of our Great Barrier Reef.

AMCS is calling on all political parties to urgently put in place policies that move Australia swiftly to renewable energy and stop subsidising Australia's fossil fuel industry to the tune of \$7.7 billion a year. In addition to our warming oceans, pollution from the Great Barrier Reef catchment makes corals more vulnerable to bleaching and makes it harder for them to recover. Our governments must introduce regulations to dramatically reduce farm chemical and sediment pollution and provide a multi-billion dollar package to improve farm practices and fund catchment repair.

Experts say that corals can recover, if we give them a chance, but we are fast running out of time.

A fish called WINTON

Scientists have named a newly identified fish from the Kimberley after AMCS patron and acclaimed author, Tim Winton.

The 'very beautiful' freshwater fish species is golden and silver and belongs to the Terapontidae family, otherwise known as grunters.

Although known to local traditional land owners, the 30cm long fish is one of 20 species new to science that were identified in the rivers of the remote Kimberley region in North Western Australia.

The researchers named the fish after Tim Winton in recognition of his dedication to the conservation of the Kimberley region and aquatic systems around Australia.

In an interview on the ABC's 7:30 program, Winton said, that the naming was a "great honour...when I first heard about this little fish, you know, the greenie in me thought, 'Well, I wonder what kind of fish it is and I wonder what its habits are and what its habitat is.' Then the redneck in me thought, 'Well, I wonder what it tastes like?'. Winton added that we need to look after our species and habitats, and that "once gone, (they're) gone for good".

Scientists have named this newly identified grunter fish species after AMCS Patron Tim Winton.



BLUE



Check us out on twitter for live updates & news: @AustMarConsSoc



Kelp Forests gone from our GREAT SOUTHERN REEF

Great swathes of kelp forests in Australia's temperate south west have disappeared, and their demise is probably permanent, marine scientists say.

The findings come from a 15 year survey of reefs in Western Australia stretching 2000kms from Cape Leeuwin in the south to Ningaloo in the north. Over that time nearly 1000 square kilometres of kelp forest have been lost.

Kelp forests are the 'biological engine' of our Great Southern Reefs, which stretch around the southern half of Australia. They are 'as critical to the Great Southern Reef as corals are to the Great Barrier Reef', said Associate Professor Thomas Wernberg, from the University of Western Australia, who co-authored the study.

Five years on, the kelp forests are showing no signs of recovery and have been replaced by subtropical and tropical reef communities. The tropical fish are grazing the reefs and preventing the kelp forests' recovery.

The loss was triggered by an underwater heatwave in 2011 followed by above average ocean temperatures the following years.

Although there are no documented extinctions as yet, the loss of these forests could spell the loss of abalone and rock lobster fisheries, which are some of the most valuable fisheries in Australia. Together with reef-related tourism, they generate more than \$10 billion a year.

The oceans off Western Australia are warming twice as fast as the global average. With climate change driving warmer waters and more heatwaves, we can expect more of these dramatic changes in the future.

Wernberg, T et al: Climate-driven regime shift of a temperate marine ecosystem. Science 08 Jul 2016: Vol. 353, Issue 6295, pp. 169-172

AMCS REJECTS Attempts to stifle environmental charities

AMCS has rejected the deeply flawed recommendations of an inquiry into the charitable status of environment groups and called on Prime Minister Turnbull and our new Environment and Energy Minister Josh Frydenberg to do the same.

The parliamentary inquiry, initiated by the Abbott Government in March 2015, released its report in May this year. The report of the Inquiry into the Register of Environmental Organisations rightly recognises the huge contribution environmental charities have made to protecting Australia's natural environment but makes a number of dangerous recommendations that would undermine our work and strangle us in red tape.

"This inquiry was initiated by the Abbott Government as an attack on environment groups and our ability

to be a voice for the environment on behalf of the community," said AMCS Director Darren Kindleysides.

"The inquiry report recommends forcing environmental charities to spend at least a quarter of all supporter donations on "on-ground" environmental work such as planting trees or pest control. This recommendation contradicts the overwhelming evidence presented to the Committee, that advocacy and campaigning is essential to protect the environment.

"On ground action alone is simply not enough to protect Australia's natural environment. Nowhere is this more evident than in our seas and oceans. Australia's marine jurisdiction is twice the size of our continent and it is changes to our policies and laws that ensure these special places are best protected."

Just keep SWIMMING

Disney's Finding Dory has been released in Australia as a sequel to Finding Nemo. This delightful film is about Dory the forgetful blue tang's journey across the oceans to find her fishy family.

Finding Dory is showing in Australian cinemas at a time when the Great Barrier Reef is facing enormous challenges, and Disney Australia partnered with AMCS and others to raise awareness of these issues. US celebrity Ellen DeGeneres, who gave voice to Dory, called on Australia to better protect our Great Barrier Reef.

Disney gave AMCS some free tickets to the film which we shared with our wonderful Reef volunteers, who have worked tirelessly over the years to protect our world wonder. We can give our reef a fighting chance if we 'just keep swimming'.



CLIMATE CHANGE in our oceans

Every year humans pump almost ten billion tonnes of carbon into the atmosphere from the burning of fossil fuels. Most of this carbon is in the form of carbon dioxide gas (CO₂), which forms a thin blanket around the earth, holding in the sun's energy and slowly warming the land, atmosphere and oceans.



Pteropods (sea butterflies) are tiny swimming marine snails which are eaten by animals from tiny krill to giant whales. Their shells are starting to dissolve © NOAA



By John Turnbull, diver and science educator



In Australia, we are facing a warming double whammy from a combination of global average warming with increasing tropical water volumes travelling down both sides of the continent. **These cumulative effects, combined with cyclical factors like El Nino and La Nina, mean Australian waters are fast becoming climate change hotspots.** In March this year, South East Australian sea surface temperatures were already 2 °C above average, and in March 2011 South West Australian ocean temperatures peaked at a whopping 5 °C above normal. So much for the Paris global target not to exceed 2 °C warming!

A couple of degrees may not sound like much, but marine organisms are very sensitive to temperature. Whilst terrestrial temperatures vary in the order of 20 – 30 °C over a year, ocean temperatures in a given location vary by less than 10 °C. Marine creatures need a more stable temperature regime; the optimum temperature range for reef corals, for example, is from 23 – 29 °C, and they can bleach with just 1 °C increase. Other marine invertebrates, fish and even seagrasses can be just as sensitive, with mortality, range shifts and life stage impacts resulting from as little as 1-2 °C warming.

Global warming has other flow-on effects. Increasing energy in weather systems leads to more severe, more frequent storms. Floods and cyclones are considered to be one of the most serious threats to our coral reefs. While

a single stressor, such as a storm, may not result in mortality, the combination of multiple stressors (warming, storm damage and run-off) can result in long term losses.

To compound the problem, only half of the CO₂ that we pump into the atmosphere stays there. The other half is absorbed chemically by the ocean, making it more acidic. This creates issues for many marine organisms, particularly those that have shells. Many plankton make fine shells or platelets around themselves for protection, and these shells become increasingly difficult to produce. They even start to dissolve if the level of acidity becomes high enough.

Plankton form the basis of the oceanic food web which feeds everything from fish to penguins, seals and whales. Virtually every living organism is affected, either directly through body chemistry or indirectly through reduced food supply. Projections are that pteropods (sea butterflies) will be unable to make their shells in the Southern Ocean by 2050. Krill have declined in parts of the Southern Ocean by as much as 80% over 30 years. Whales and penguins are forced to compete with a growing krill fishing industry for a declining resource; emperor penguin populations have halved over 50 years, and Adelie penguin populations have halved in a decade.

The physical changes in our oceans are driving a mass migration of marine species towards the poles. Tropical species are turning up further south, changing the composition of marine communities. We will explore this in more depth in our next article – for now let's just say these tropical visitors aren't always welcome!

On the positive side, we seem to be arguing less and less about whether climate change is "real". But accepting reality is not enough. Action is needed, and the window of opportunity is closing fast. At an individual level, we make decisions every day that impact on our personal carbon emissions. At a political and commercial level, much more can be done to encourage sustainable, renewable energy and move away from fossil fuels.



The world's emperor penguins have halved in the last 50 years.

There are also actions we can take in terms of marine conservation. Marine Protected Areas provide much-needed resilience to the effects of climate change; they can't stop warming and acidification, but they can help marine life to cope. Reducing other stressors, such as chemicals, nutrients and sediment in terrestrial run-off is also important particularly for our coral reefs.

There is no escaping climate change and our responsibilities; we created this problem – it's up to us to fix it.
[Ed: Agreed, John. And it's also up to our governments to listen to the will of the people, who overwhelmingly want action on climate change. Thanks to you and everyone who writes, lobbies, rallies, letterboxes, donates and devotes your time and passion to our oceans and climate.]

Fighting for the REEF



By Imogen Zethoven, AO,
Great Barrier Reef
Campaign Director

The six months leading up to the federal election were truly shocking for our Great Barrier Reef: The biggest bleaching event we’ve ever seen, the hottest months in the hottest year on record, 93% of the Reef affected by bleaching, and now almost one quarter dead as a result.

It was reasonable to think that our major political parties would respond with urgency and vision and pledge funded policies to secure our World Heritage treasure and the 69,000 jobs that it supports. After all, this was an international crisis which hit the front pages of newspapers around the world. But even Sir David Attenborough’s warning that the Reef is in grave danger due to climate change fell on deafened political ears.

During the election campaign, The Labor Party and Greens released climate and Reef policies we could work with, but the Coalition’s vision fell painfully short. It’s staggering to think that the re-elected Turnbull government has not committed a single new dollar or new climate policy to save the Reef. The Coalition made a big announcement

of a \$1 billion Reef loan fund but the funding over 10 years is already in the Clean Energy Finance Corporation, and must now also be spent to achieve water quality improvements. Even the Canegrowers industry organisation CEO, in a rare public comment, confirmed that the policy would be unlikely to be widely accepted by farmers and that it appeared designed ‘to get a headline with a big figure in it’.

So it’s back to the people to save our Reef, and we will. One of the most inspiring aspects of the whole campaign was you. You and thousands of like-minded Australians came together, against the odds, and put up

one of the biggest fights in environmental history. In a time of so much uncertainty, it is more clear than ever how important the Reef is to so many Australians. We made sure the Reef was always in the spotlight. We made our voices heard.

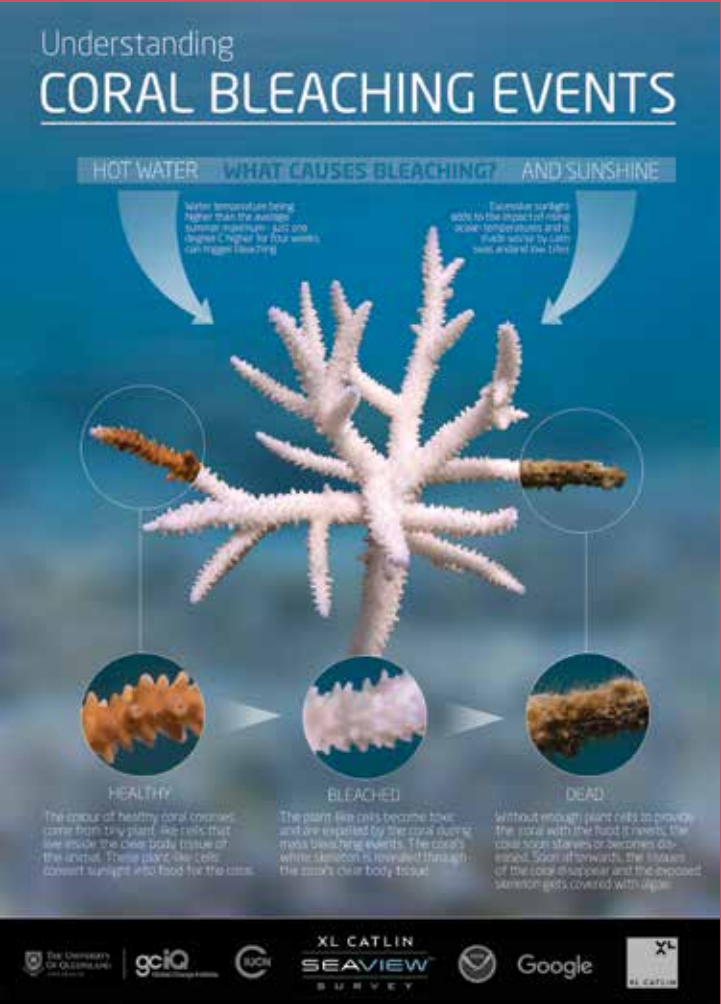
Our unprecedented effort put teams in Townsville, Mackay, Airlie Beach and Brisbane to work with local volunteers and knock on over 1,500 doors, make more than 10,000 phone calls, sharing the threats and solutions to the Reef and encouraging people to Vote for our world wonder. During the 8-week campaign, we held candidate forums and town hall meetings up and down the coast.

This phenomenal effort succeeded in keeping the Reef the number one environmental issue right through the election campaign, and ensured that local candidates couldn’t ignore it.

Let’s not forget that many MPs are now sitting on a knife edge and the government itself has a very slim majority. Now more than ever, it’s time for the large cohort of marginal MPs across all parties to listen to what the Australian community wants. **And we can confidently say Australians want a strong climate policy to protect the Reef and the jobs that depend on it, and strong action to bring clear clean waters back to our natural wonder.**

The next few years are critical. Experts are warning that the Reef will be in terminal decline in five years if we don’t see tough action to tackle carbon emissions and pollution washing off farms.

We will continue to champion strong climate policies to save the Reef because it’s the number one threat to its existence. We will also do all we can to help bring clear water to the Reef. We are in the next big phase of the campaign. Your support is needed more than ever to make sure that we see in these next critical years a turning point for the Reef. We can do this together. Thank you for all you do.



Our reef needs us now more than ever
© Troy Mayne www.oceanicimager.com

Australia's seas need **SANCTUARY**

In light of the big changes going on in our oceans, our work to create marine parks around Australia has never been more pressing. This year we've seen global coral bleaching, extensive loss of mangrove forests across the north and vanishing kelp forests in the south. As the planet keeps warming it is critical to protect the most special parts of our seas to build resilience in the face of these threats. Communities from coast to coast have been calling on our governments to better protect our oceans.



By Fiona Maxwell,
Marine Parks Manager.

Businesses around the country call for our sanctuaries to be reinstated!

Readers will recall that Australia made history in 2012 by creating the world's largest network of marine sanctuaries, protecting our sea life and giving our fish populations a chance to rebuild and grow. Australians from around the country were elated and proud. After 10 years of science and popular support, we'd made history.

But our sanctuaries have been in limbo since 2013 when they were suspended by the Abbott Government, pending a drawn out and costly review. This has left all of our offshore sanctuaries unprotected and at risk.

So now, in an effort to save our sanctuaries, more than 1000 businesses across Australia have signed onto statements calling for the federal government to restore our national network. Time and again studies and real life experience show that sanctuaries bring huge benefits to local businesses and tourism.

From Busselton in Australia's South West to Cairns on the north Queensland coast, businesses have signed on in droves. Thanks to everyone who contributed to this initiative. Do you own a business and want to express your support? Contact AMCS today! Call 1800 066 299 or email amcs@amcs.org.au

Businessman and Cottesloe resident Andrew Forrest joined Professor Jessica Meeuwig (R) and others in the campaign to save our sanctuaries.

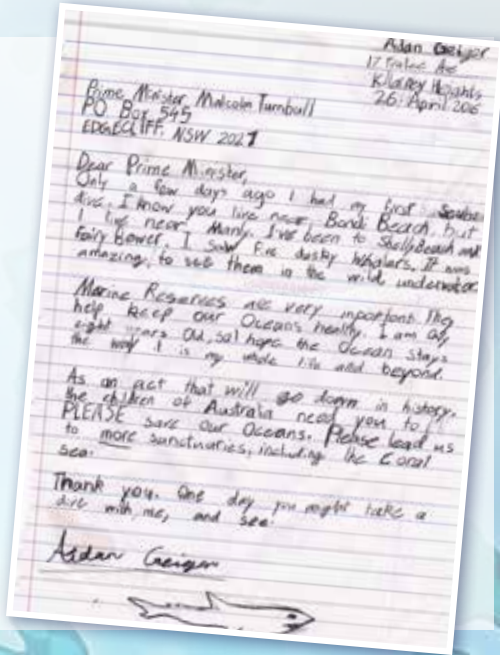


Our work continues to restore our sanctuaries. Thank you for keeping your fins up! Whether you're a scientist, business, fisher, diver, or you simply love our oceans, you have joined people from all walks of life to call out for better protections on the water. Sanctuaries make sense. They are good for marine life. Good for business and economies. They help ensure fish for the future. And they give our oceans the best defence against impacts from a changing climate.

Marine Parks Election Update

In the lead up to the recent federal election, tens of thousands of ocean lovers around the country wrote to their local MPs and candidates asking them to commit to restoring our national network of marine sanctuaries without delay. So where does the Turnbull Government stand on marine sanctuaries?

Although they have not yet released details of their marine parks review, the Coalition's 2016/17 Budget has commitments to make our marine parks operational by July 2017. While we welcome this news in principle, the devil is in the detail. The budget has allocated only \$56.1m over four years for implementation and management. This is about half of what is needed to fully restore our marine parks and sanctuaries, and indicates that our sanctuaries remain at risk.



Growing community concern about the Coral Sea

Seven out of 10 voters in the Far North Queensland electorate of Leichhardt (around Cairns and Port Douglas) are concerned the federal government's review of a Coral Sea marine park is harming local fishing and tourism businesses.

New Galaxy research has also found that the majority of local recreational anglers (76%) support reinstating protection zones in the Coral Sea, east of the Great Barrier Reef. In addition, most Liberal National Party supporters (71%) believe the federal marine park review is creating uncertainty for local tourism and fishing charter businesses.

The research conducted in May this year highlighted community concerns about the more than three years of uncertainty for local businesses as a result of the government's review.

These results are significant because the federal government singled out the Coral Sea Marine Park as a justification for their review. In the lead up to the 2013 federal election, Tony Abbott promised to suspend the Coral Sea Marine Park and other national marine parks and sanctuaries because he said it was "... threatening the livelihoods of many people in the fishing industry and many people in the tourism industry."

However this survey shows that the people who fish, business owners and the general public share an awareness that the health and future of the Great Barrier Reef and Coral Sea is fundamental to the success of the local economy.

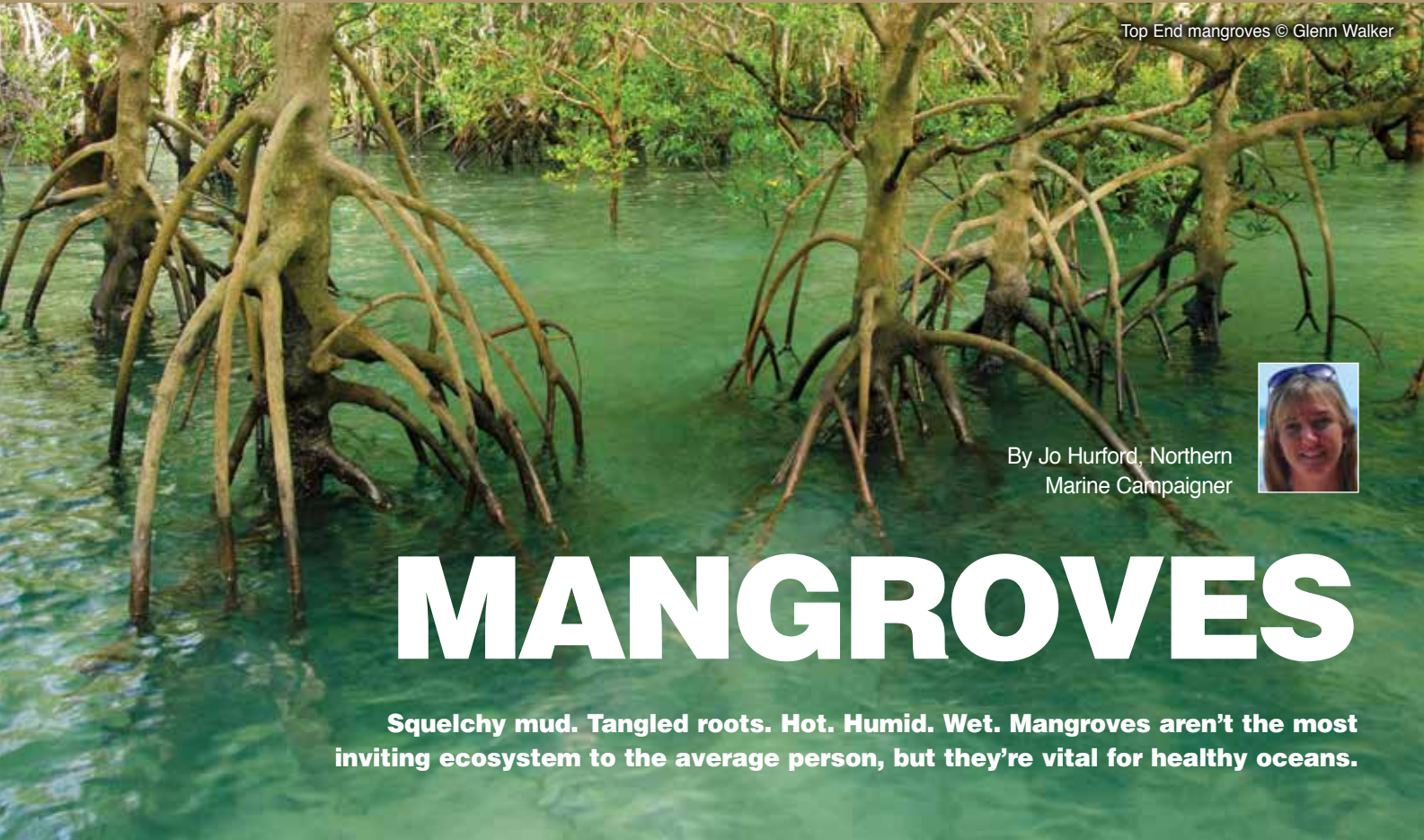
The federal government must put an end to the uncertainty that is holding back local business opportunities and reinstate the balance of marine sanctuaries and also recreational fishing zones in the Coral Sea Marine Park.



(L): Val Taylor, AM pioneered SCUBA, underwater photography and cinematography, and is calling for a Coral Sea sanctuary.

(R): Honorary Life Member Valerie Taylor, AM, AMCS President Craig McGovern (front right) join people in Brisbane to save our sanctuaries.





Top End mangroves © Glenn Walker

Dead mud welks in Limmen Bight, Gulf of Carpentaria. These are a popular subsistence food for local Indigenous communities © James Sherwood/Bluebottle Films.

By Jo Hurford, Northern Marine Campaigner

MANGROVES

Squelchy mud. Tangled roots. Hot. Humid. Wet. Mangroves aren't the most inviting ecosystem to the average person, but they're vital for healthy oceans.

“Mangrove” refers to both the habitat and plants that live in the intertidal zone between the land and sea. Be it a tree, shrub, palm, or fern, all are able to tolerate excess salt and air-less soils. Together these diverse plants form the mangrove forests that fringe our coastlines, rivers and estuaries.

Mangrove fruits, seeds and seedlings can survive floating along in the ocean currents for more than a year. It is this skill that saw them migrate out of South East Asia and take root in India, Africa, the Americas and Australia. Almost half (42%) of mangrove forests found in Australia are found in the Northern Territory, which has 32 species of mangrove.

Although traditional land owners have known their sea country for thousands of years, our mangrove communities are still revealing species new to science. Here are some of the things you might find in a mangrove forest:

- A species of ant that hides in air pockets as the tide rises, which can hold its breath for 3.5 hours!
- A gastropod that can bore a hole through the shell of its prey with its drill-like vice that then acts as a straw to ‘slurp up’ its soft-bodied victim.
- A mud lobster that, by picking tiny pieces of organic matter to eat out of the mud, builds a pile up to 3 metres high around its burrow!
- A mangrove snail that because it doesn't like getting its shell wet, climbs trees one or two hours before the incoming tide. Once the water recedes they shimmy down to feast upon anything left behind, like seagrasses.
- There's even amphibious fishes (Mudskippers) that spend so much time out of the water and are so adapted to breathing air that they'll drown if held underwater!

Alarmingly, these critical ecosystems are globally threatened. Around 35% of the world's mangroves have already been destroyed and in some Asian countries, like India and the Philippines, by as

much as 50%. Mangrove forests shield our coasts and bear the brunt of the wrath of cyclones. Their loss has led to increased flooding and devastation from tropical storms.

Bizarrely, these intertidal forests are also drowning! Like elsewhere around the globe, sea levels in the Top End are rising, but here by 7mm every year. To counter this, mangrove forests and their inhabitants are currently adapting by retreating inland. But will they keep pace with the advancing water?

With Australia's Top End mangroves considered among the most pristine in the world we need to ensure they stay that way; for the protection they offer our coastline, for the filtering service they provide our waters, for the nursery grounds they provide our favourite fish, and for all the weird and wonderful creatures that call our mangrove forests home.

Scientists, conservationists and commercial fishers are deeply concerned about an unprecedented large scale dieback of mangrove forests across northern Australia's coastline.

By Ingrid Neilson
Communications Manager



In the lead up to the August 2016 Territory election AMCS is calling on both major parties to pledge funding for immediate climate and mangrove research and water quality testing in response to this urgent ecosystem crisis. There must also be no further clearing of mangrove forests in the Top End.

Northern Australia's MANGROVE DIEBACK unprecedented

Around 10,000 hectares of mangrove forests along 700kms of coastline have died along the Gulf of Carpentaria. A detailed study is yet to be undertaken, but photographs reveal two locations worst hit, at Limmin Bight on the Gulf of Carpentaria in the Northern Territory and at Karumba in Queensland.

The dieback is almost certainly correlated with an un-seasonally low Monsoon rainfall followed by extreme warming with sustained high sea temperatures.

Mangroves are critical to marine ecosystems and our climate. They act as crucial nurseries for many marine species, which spend at least some of their life spans in the mangrove roots. They also act as critical carbon sinks, absorbing 50 times more carbon than tropical forests by area, according to Professor Norm Duke, a mangrove expert from James Cook University.

The dieback came to light during an

international wetland conference in Darwin. Conference delegates called for mangrove monitoring efforts to be scaled up as a matter of urgency, so that scientists can establish baseline data and try to isolate and manage dieback events such as these recently witnessed.

Our oceans and coastlines are changing. We need the best minds and leaders to take stock of these rapid changes and make a swift transition from a carbon intensive economy to one based on renewable energy, and a truly sustainable approach to our natural world. The solutions are clear. We can heal our blue planet by creating a clean, sustainable future. Watch this space, and take heart that we are working towards a better brighter future together.

An unprecedented dieback of mangrove forests across northern Australia has coincided with the worst coral bleaching on record. Our leaders must face facts and act accordingly.



Love dolphins? Who doesn't? Here are some dolphins from Australia's northern climes. But did you know the real cost of eating some seafood includes the lives of some of our favourite finned friends?

By Josh Coates,
Fisheries Campaigner



Indo-Pacific bottlenose dolphins
© Simon Allen, University of Western Australia.



Bottlenose dolphins (*Tursiops truncatus*) are distributed globally and tend to inhabit deeper waters off the Australian coastline. They tend to be considerably larger than the Indo-Pacific bottlenose dolphins (*T. aduncus*) that inhabit much of Australia's tropical and temperate coastline.

FINFISH TRAWLING in Australia's North – out of sight, but do we mind?

Back in the 1930s when trawlers first fished northern Australian waters, we had little understanding of the impacts of trawl fishing on our fish populations and seafloor habitats. Similarly, few were mindful of the damage done to non-target species, such as turtles and dolphins. In those days, foreign stern and pair trawlers dragged nets in the waters of the Timor and Arafura seas off the North of Australia with little regulation or understanding of the long-term consequences.

By the 1970s, Australia had really begun to more deeply consider and understand fisheries management and, in 1979, the Australian Fishing Zone was established covering Commonwealth waters. Foreign trawlers were then licenced to trawl for fish in our Northern waters until being excluded from Australia's Economic Exclusion Zone in 1990. Australian trawl fishing effort started from about 1985 onward, but to this day, these trawl fisheries have remained relatively poorly researched and regulated – despite the increased level of community concern for our fragile marine wildlife and habitats.

Industrial scale bottom trawl fishing uses heavy gear

that drags or rolls across the seafloor, destroying the habitat and leaving it much like a ploughed field, devoid of structure. This fishing method, likened to 'clear-felling' the ocean, is not selective – scooping up the target fish as well as anything else in the way at the time. The huge amounts of 'bycatch' dragged to the surface by trawling include large quantities of unwanted and undersized fish that are simply tossed back dead or dying. Other bycatch can include Threatened, Endangered or Protected Species (TEPS), such as dolphins, sharks and sawfish.

These factors, combined with the ability to freeze fish at sea, larger boats

Cheap meal: Marine predators and scavengers like dolphins and sharks often follow trawlers, feeding on the disturbed, injured or discarded fish around the nets. Here, bottlenose dolphins forage around a trawl net being hauled off north-western Australia.

The real cost: Interacting with trawl nets is a high risk endeavour for marine life. This dolphin, and others like it, paid with its life. It was discarded back into the ocean.

Collateral damage: Target catch in these fisheries include long lived reef fish, but bycatch includes other fish and marine life, like this threatened sandbar shark and these soft corals, sponges, sea fans and more.



and nets, and improved fish finding technology, mean that significant impacts can occur in short time frames. This has led to bottom trawling being commonly associated with overfishing, ecosystem impacts and, in some cases, fisheries collapse.

When the foreign trawl fishing fleets finally left the waters of Western Australia, Northern Territory and Queensland in 1990, trawl fishing was largely replaced by trap and line fishing methods, which are more selective and have fewer impacts on habitats or problems with TEPS bycatch.

However, largely out of sight and out of mind, finfish seafloor trawling has crept back into

our northern seas, and it's got conservationists, scientists, recreational fishers, tourism businesses and smaller fishing operators very worried.

There are genuine problems in fish trawl management in our northern waters, such as a lack of transparency and independent science, insufficient independent observer monitoring (to check on catch and bycatch), and big increases in the use of trawl gear. Coral reef and other seafloor habitats are at great risk. **However there is a clear alternative. Smaller and more sustainable operators, using hook and line and/or trap gear, complain of being pushed out by larger corporate backed boats, in some cases using overseas crews and with an ethos of short-term gain over long-term sustainability.**

It's now clear that big changes have occurred in Northern fisheries, and they're not good. There has been a 900% increase in the number of trawl boats operating in the NT Demersal fishery since 2011, without the significant management review that you'd expect with this change. **Disturbingly trawl fishing is currently being trialled in the ecologically sensitive Timor Reef area.** This is a fragile system of coral reefs, soft corals and sponge gardens. It is a biodiversity hotspot and

should not be subject to destructive fishing practices.

We have recently challenged approval of some of these fisheries for export under our federal environment laws and will continue to work to see these fisheries brought up to modern day standards of science, with transparent management and genuine ecosystem based management, which considers the impacts from the fishery on the broader marine environment. If they can't meet these standards, they should be replaced by the existing sustainable fishing methods that can.

Together with your support, we will ensure that this fishing method won't stay out of sight and mind. Our seas belong to all of us and should be managed for all, not just a greedy few. Australians care about how their fish is caught and whether the sea has been damaged along the way. Thank you for your active and informed engagement in our fisheries work. If you want to know more, or want to get further involved in this issue, contact us at HQ through amcs@amcs.org.au.

All photos © Simon Allen, University of Western Australia. All trawling photos from north WA fish trawl fisheries using single otter demersal trawl, the same method used in the NT and QLD fish trawl fisheries.



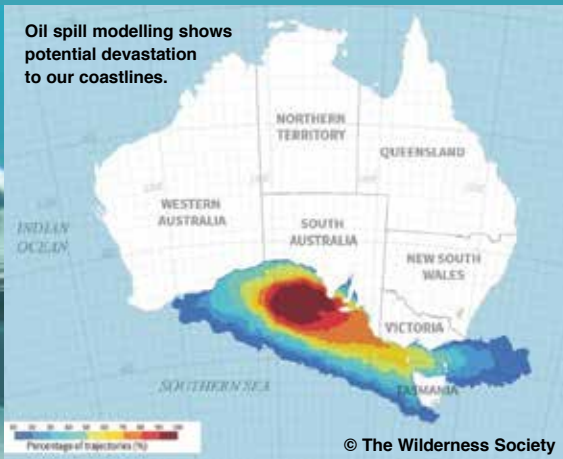
By Josh Coates,
Fisheries Campaigner

Australian sea lions
© Aengus Moran.



BP has no right to risk the BIGHT!

The Great Australian Bight is one of the most amazing marine environments on the planet – wild and unpolluted, it's home to whales, sea lions, sharks and albatross. The Bight is a calving and nursery grounds for the endangered southern right whale, and home to some of our last colonies of endangered sea lions.



Thanks to all of our supporters for the amazing response to our emails on this issue. Thanks to you we backed our submission to the senate inquiry on this issue with over 8000 public submissions and petition signatures to relevant politicians already! The fact that the regulator NOPSEMA recently rejected BP's Bight plans a second time is evidence that our voice is being heard, but the fight is far from over. We will need all of your support to continue the fight and protect our Southern Ocean. Thank you.

* National Offshore Petroleum Safety and Environmental Management Authority

GOOD NEWS to curb marine plastic pollution.

Everyone has seen drink containers littered in our streets and parks, caught along creek banks, lying on the beach, or floating out to sea. But did you know that every minute 21,000 bottles and cans are littered or sent to landfill in Australia?

By Michelle Saul

New South Wales and Queensland have made the move to follow South Australia and the Northern Territory and introduce a Cash for Containers scheme to help recycling.

Laysan albatross chick with a gut full of plastic © Marine Photobank.



This not only squanders precious resources, it harms our sea life too. Once in the ocean, plastics slowly break down into smaller and smaller pieces which are mistaken for food by animals from microscopic plankton to seabirds and whales.

But now there's good news for our marine wildlife, with the New South Wales and Queensland Governments approving Cash for Containers recycling incentive schemes! Despite lobbying against the initiative from the beverage industry, the state governments have backed the Cash for Containers model which the community (that's you) overwhelmingly called for. Congratulations!!

From July 2017 in NSW, ten cents will be paid for drink containers returned to depots or reverse vending machines. The scheme will reduce litter, increase recycling, create hundreds of jobs and provide a new source of revenue for charities and community groups across the state. We expect that with the right design features, a Container Deposit Scheme will eliminate half of the toxic tide of marine plastic pollution and provide a

\$150 million/year boost to the recycling sector! In South Australia, where a similar scheme has run successfully since 1977, charities and community groups have raised \$60 million by returning used drinks containers.

The NSW decision paves the way for other jurisdictions. The ACT Government has previously said they would follow NSW lead. Queensland has just committed to introduce the scheme by 2018. Despite the encouraging news, Tasmania, Western Australia and Victoria are yet to make commitments and the beverage industry maintains its strong opposition. The Northern Territory's scheme is still running successfully after the Territory Government defeated a legal challenge by Coca Cola in 2012.

You can help! If you live in Victoria, Western Australia or Tasmania, your government needs to hear from you! Visit our website to act today marineconservation.org.au

Volunteers from the Underwater Research Group NSW, Nature Conservation Council NSW and AMCS sorting rubbish collected from Sydney's Gordon's Bay © AMCS/Ingrid Neilson.



But all of this could be put at risk if the Australian Government allows drilling for oil and gas. Offshore and deep-water oil and gas drilling is already dangerous, but the remote and harsh conditions of the Southern Ocean make this a disaster waiting to happen.

AMCS is proud to be part of the Great Australian Bight Alliance, a collaboration between Indigenous Traditional Owners, local communities, surfers and environmental groups working to prevent oil and gas mining in the Bight.

BP's tragic 2010 Deepwater Horizon blowout and spill in the Gulf of Mexico is one of many examples of how offshore oil and gas drilling can go wrong. This was the largest marine oil spill in US history, with oil spilling into the Gulf of Mexico for 87 days. Eleven workers and millions of animals died from this disaster, while local

fishing and tourism industries collapsed. Alarming, BP is one of the main players proposing drilling the Bight.

In the Great Australian Bight the risks are compounded by its remoteness, exposure to the wild weather and huge Southern Ocean waves.

The impacts of fossil fuels and climate change on our marine environments must also be considered, as was made clear by the recent coral bleaching events. For the same reasons that we oppose new coal mining we must also oppose new oil and gas drilling, particularly the opening up of previously untouched fossil fuel deposits.

As if that is not enough, the loud and disruptive underwater blasts of seismic exploration and noise from drilling into the sea floor would harm our marine life. Then there are the massive risks

associated with increased shipping and animal strike, the smothering of sea life from the disturbed seabed and drill cuttings disposal, chemical pollution, discharge of drilling fluids, biosecurity hazards and underwater noise.

The expansion of oil and gas exploration threatens the unique environment of the Great Australian Bight and risks Australia's commitments to the Paris climate agreement. The Australian government must reject outright all oil and gas development in the Great Australian Bight to protect the region, while creating an Independent Expert Panel to fully assess the cumulative threats from oil and gas and alternative futures for the region.

Visit our website to learn more, sign the petition and support our work marineconservation.org.au



By Lindsay Simpson,
author and owner of
Providence V

The REEF

I booked our honeymoon in the Whitsundays after our neighbour described his holiday there as 'one of the best weeks of his life'. Honeymoons should be about superlatives. Surely.

And ours was as spectacular as the neighbour had predicted. Diving off the deck of a 38-ft bareboat yacht, I was stunned at the magical world below.

Thirteen years later, the photograph of us beaming from the back deck of the yacht is on my bedside table. The blue coral, anemone coral, Reef brain corals and the teeming fish life: Angelfish and Butterfly fish; Damselfish and Gobies and the turquoise flash of the Parrotfish as it munched on the coral on the ocean floor. Each bay offered its own magnificence as though to upstage the one we'd just snorkeled. My love affair with the Great Barrier Reef THE REEF by Lindsay Simpson, author, owner of *Providence V*.

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My love affair with the Great Barrier Reef began that year.

In 2005, we returned to the Whitsundays and bought a 62-ft gaff rigged schooner *Providence V*. For almost a decade, we took international and national visitors around Magnetic Island. Our first brochures described the snorkeling as 'magnificent fringing reef'. And it was – back then. A decade on, just before we decided to leave, the colourful coral was drained from years of dredging and poor water quality coupled by the natural disasters of cyclones. I learned that the zooxanthellae, the algae that produces the colours in the coral are susceptible to increased sediment as they rely on light to survive.

One of my last swims on Magnetic Island was accompanied by a large turtle whose shell was weighted down with algae. While algae is of course natural, it can create problems covering up injuries. It was as though unable to withstand the onslaught of humans, the coral, and its creatures, had given up their dazzling display.

We had been apologizing to our guests for some time as to the possible causes of the coral's demise: global warming, port expansions, dredging – manmade disasters. They would look at us in horror.

When we first went to Magnetic Island, we saw dugongs. For years we had no sightings. Then in June 2012, 82 turtles, mostly adult breeding females, were washed up dead at Upstart Bay south of Townsville. Eighteen were still alive exhibiting neurological symptoms. High levels of vanadium, molybdenum, iron and chromium and concentrations of mercury and cadmium were found in the blood, liver and faecal samples. Many of these contaminants are used in superphosphate fertilisers commonly used in sugarcane farms.

Following up the story, Megan Stafford, one of my journalism students from James Cook University got a quote from Dr Mark Reid, manager of Species Conservation from the Great Barrier Reef Marine Park Authority: *"What we weren't expecting was some of the material in the samples was at a concentration the machines couldn't handle. In this situation, it occurred because a particular metal was at high concentrations,"* he told her.

None of this made it into the media.

Some six months after the turtle deaths at Upstart Bay, the \$33b expansion of Gladstone port scandal made brief headlines for breaching government audit conditions on dredging and dumping spoils in a World Heritage area.

In 2011, the port expansion was plagued by controversy following reports of large numbers of diseased fish and deformed frogs with five legs, all blamed on the dredging. Other species also suffered, including humpbacked dolphins and dugongs. Again, there was an unusually large number of turtle stranding and mortalities in Gladstone through 2011 and early 2012.

A report found that it was likely that the elevated metal levels found in stranded turtles resulted from metals mobilised through the large scale dredging in Port Curtis and Gladstone. **Between January and November 2012, there were 1300 dead and dying turtles stranded on Queensland beaches.** On my daily walks along the isolated beaches of Magnetic Island, I saw several dead turtles. Lack of seagrass due to cyclones and floods was the catchcry explanation but what of the manmade pollution?

What was shocking was how quickly the media forgot these stories, concerned with the daily grind of news, forever seeking the ephemeral but not the substance, not understanding the continued stress on the reef.

I was chair and founder of the local tourism group on Magnetic Island when

the decision was mooted in 2013 to dredge 3 million cubic metres of seabed for expansion of the coal terminal at Abbot Point to service the proposed Carmichael coalmine and dump it in the waters of the Great Barrier Reef. **It sounded more like a skit from The Chasers than a serious proposal. I immediately sent out a media release condemning such an idea.**

Our Big Brothers, the regional tourism organisation, across the water in Townsville counseled strongly against being so outspoken. After all, we would all be compensated I was told. Compensated? Paid to shut up while the reef's future hung in the balance.

Meanwhile, the reef continued to deliver its verdict as it battled climate change and global warming followed by one local environmental disaster after the other including pesticide, fertilizer and sediment runoff from farms and more expansion of industry.

A 2012 report by UNESCO, delivered startling news. It was damning about proposed coastal and port development stating it would impact on the 'Outstanding Universal Value' of the site. Referring to the major dredging program underway on Curtis Island near Gladstone, it noted that 70 per cent of these developments were approved in the past decade and that the associated infrastructure from them posed 'serious concerns over the reef's

Algae covered coral reefs around Lizard Island, Great Barrier Reef, June 2016 © The Ocean Agency.



Lindsay and her husband Grant Lewis have owned the Gloucester schooner, *Providence V*, since 2005.



Thanks to you, dredge dumping in the Reef's waters has been banned since 2015. This photograph was taken in September 2014, and shows a ship dumping dredge material in Cairns Harbour © Xanthe Rivett, CAFNEC, WWF Australia.



(L-R): Imogen Zethoven, AO (AMCS), Dr John 'Charlie' Veron, Lindsay Simpson, Cherry Muddle (AMCS) at Parliament House, calling for political action on climate change during the worst global coral bleaching event on record.

long-term conservation'. Decisive action was required to reduce pressures that might affect the reef's resilience to adapt to climate change. The Great Barrier Reef had been inscribed on the World Heritage list in 1981.

I was strangely relieved at UNESCO's condemnation. That our reputation as custodian of the world's largest living organism – the Great Barrier Reef – was in doubt.

UNESCO found that the Queensland State government, across both sides of politics, has been one of the biggest offenders in approving the industrial expansion. It approved Adani's lease for the Carmichael mine. The jobs from the Adani mine number, by the company's own admission, 1,454 not 10,000 as claimed in parliament by our previous Prime Minister, Tony Abbott.

Last June, we moved south to the Whitsundays where there was less port activity we thought and better reef. That was before the approval of the Carmichael mine.

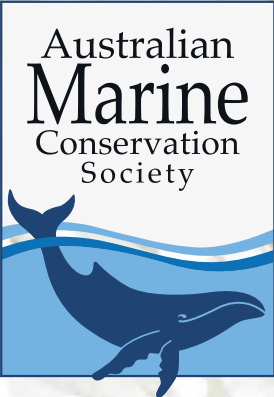
UNESCO has yet to list the Great Barrier Reef as 'in danger'. Perhaps it will be influenced by recent headlines that are fulfilling

scientists' predictions. Leading the news in recent months is the evidence from aerial surveys that 93 per cent of the reef has been affected by coral bleaching.

Extensive field and aerial surveys have revealed 'severe bleaching' in the northern part of our Reef, with 22% coral mortality overall. Our (former) Federal Environment Minister, Greg Hunt, was at pains to tell the world at the Paris Summit that Australia is 'beating and meeting' our targets to reduce carbon emissions.

Bleaching and recent environmental disasters were kept well out of his political discourse. As are the facts that the Adani Carmichael mine is reportedly set to produce more annual emissions than New York totalling about 79m tonnes of CO2 each year.

So what is the justification exactly for continuing the human footprint of pollution? Are we capable of protecting this dazzling jewel on our doorstep? Both sides of politics have shown an underwhelming commitment to the task. So that leaves our own determination. But we have to act fast.



Australia's Great Barrier Reef is in trouble.

It has just experienced its worst coral bleaching event on record and is under ongoing pressure from farm runoff along the coast.

Scientists say we need to act now or the Great Barrier Reef will be 'terminal' in five years. Your donation today counts more than ever. It helps convince our government to switch rapidly to renewable energy and stop subsidising the dirty fossil fuels. It also helps reform land use to reduce run off dirtying the waters and feeding crown of thorns starfish. Please make an urgent tax deductible donation today to help save our global treasure.

Donation Details

Make a one-off monthly donation of: ☐ \$100 ☐ \$250 ☐ \$500 ☐ My choice \$

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Thank you for all that you do.

Shop for the **SEAS**

ORIS LIMITED EDITION GREAT BARRIER REEF DIVE WATCH

AMCS is delighted to be partnering with Oris for their new Great Barrier Reef Limited Edition II watch!



This design of this beautiful dive watch was inspired by the sea and honours Australia's precious World Heritage reef. Water resistant to 500 metres, its beautiful coral yellow detail enhances its visibility underwater and will help you time your dive in style.

Proceeds from the sale of these limited edition watches are contributing to our work to protect our Reef. With our Reef under pressure from so many fronts, Oris's support could not come at a better time. Thanks Oris!

GREAT BARRIER BEER

It's true; you can help save the Great Barrier Reef by drinking beer!



AMCS is proud to be the first charity in Australia with our own beer. Great Barrier Beer is crafted by the Good Beer Co, Australia's first social enterprise beer company. At least half of the profits from sales of the Great Barrier Beer help fund our critical work to protect our Reef.

The beer is a crisp, refreshing mid strength, brewed with all Australian hops and malt and subtle fruit flavours. And it's brewed in Bundaberg, Queensland, on the Great Barrier Reef coast! So go on, have a coldie for the Reef!

SHARK FIN SHORTS

Making perfect beach shorts for Australians, The Rocks Push loves our coastal lifestyle and has made a line of shorts for swimming, sporting and socialising while helping save our sharks.



Cut for a short, easy fit and an elasticated drawstring and made from light, quick drying fabric, they're a great way to help end the cruel practice of shark finning. They look pretty snappy too!

KID'S BOOKS

Kim Toft highlights marine and coastal conservation through her enchanting hand painted and silk illustrated children's books.



Kim writes about the fascinating creatures that live in our mysterious underwater world, and the lush coastal habitats which fringe it.

These stunning and original books will amaze, delight and inspire the reader!

Devotion to our **OCEANS**

As a non-profit charity with minimal government support, AMCS relies almost entirely on the financial support from passionate people across Australia. You put wind in our sails and funds in the kitty to power the campaigns for our precious oceans. Here's a taste of some of the highlights from the high seas this year.

MIA AND FRIENDS

riding for the Sea Lions

Mia Powell is back on her bike and riding for the seas! For the third year running, Mia has organised another sponsored cycle ride to raise funds for our work. This year she focused on the Australian Sea Lion and along with her friends, Leila and Olivia, raised over \$550!

They had a great deal of fun, with a number of other kids and adults coming to show their support as the girls braved the heat and doggedly cycled up and down the Cooks River in South West Sydney, until they reached their 20km target. Thank you Mia and friends! You're amazing!!



Riding for Australian Sea Lions. © Jill Gardner



Olivia (L) and Mia (R) after their mighty cycle for sea lions © Jill Gardner.

In memory of **DAVE DURLACHER**

A passionate advocate of protecting our ocean wildlife & their homes, his love the ocean.



Dave and a black tipped reef shark off the coast of Umkamas, South Africa, 2015.

'We're gonna need a **BIGGER BOAT'**

Thanks to Liz Hill from Lucky Coq in Chapel St, Melbourne who raised over \$1000 in a pizza fundraiser. Liz called her pizza 'We're Gonna Need a Bigger Boat' and said, "I have always had a passion for sharks and raising awareness and appreciation for these amazing creatures."

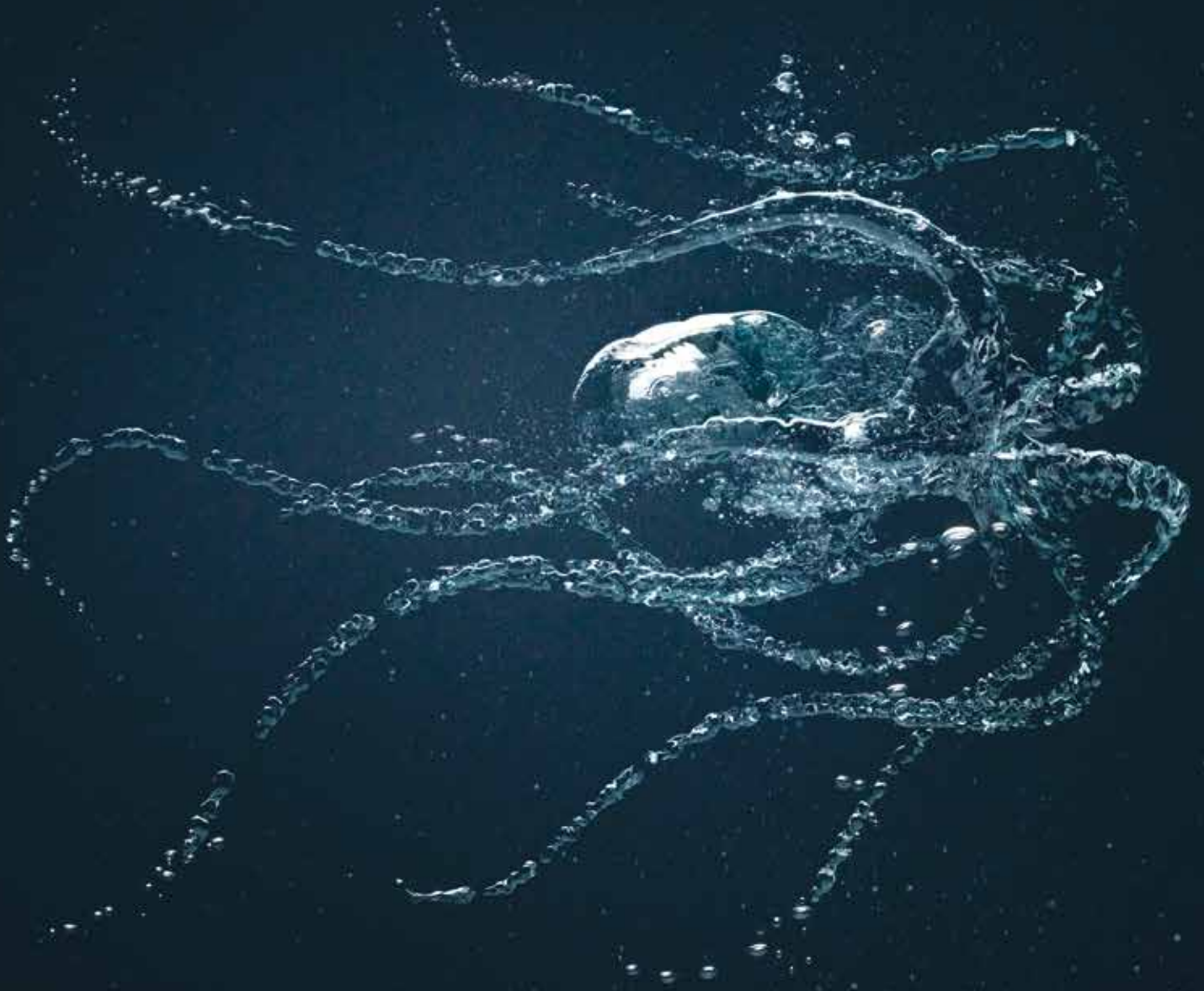


Liz Hill helping sharks through a pizza fundraiser.



Thanks Liz! You've got great taste!

**FOR ORDERS VISIT OUR ONLINE SHOP
WWW.MARINECONSERVATION.ORG.AU OR CALL 1800 066 299.**



Our seas are fragile. So please help us
protect them while there's still time,
before all our treasures are just memories.

TIM WINTON, Author, Patron of the Australian Marine Conservation Society

Love our oceans? Join us today
seaguardsians.org.au