



SEAREAD

FROM CATCHMENT TO CORAL

No. 39
May/June 2011

Special Extreme Weather Supplement



Responding to flood impacts

Sea Country Grants

Energy, ideas and exchange

Fish are smarter than you think



Cover: Dugong is a species of concern in the wake of extreme weather events.

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Aboriginal and Torres Strait Islander readers are advised that this publication may contain names and images of deceased persons.

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ISSN 1834-6774
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Chairman's message



Recently, the Great Barrier Reef Marine Park Authority (GBRMPA) invited Traditional Owners to apply for project grants under our Sea Country Partnership program, to assist in building a sustainable future for the Great Barrier Reef.

I'm delighted to report that the Minister for Sustainability, Environment, Water, Population and Communities, Tony Burke, provided 12 Traditional Owner groups with grants of up to \$50,000 each to carry out a range of activities. These initiatives include monitoring of dugong and marine turtles, managing cultural sites, rehabilitating coastal wetlands, and numerous other environmental improvement projects.

The grants support Traditional Owners' efforts in caring for their sea country and they make a valuable contribution to the Great Barrier Reef's health.

Earlier in the year, some areas of the Great Barrier Reef felt the effects of cyclone Yasi and widespread floods, and this edition of *SeaRead* includes a supplement about this extreme weather.

Fortunately, given the overall size of the Reef extending along over half the Queensland coastline, most of the Marine Park escaped unharmed including major tourism spots in Cairns, Port Douglas, Townsville and the Whitsundays.

However, there was localised damage to the Reef, and GBRMPA takes very seriously events that are harmful to the Marine Park's health. The Reef is one of the most extraordinary natural wonders of the world, much enjoyed and loved by millions of visitors each year. It is also vital to north Queensland's

economy as it supports major industries, including the tourism and fishing sectors.

The *Great Barrier Reef Outlook Report 2009* identified climate change, and its associated impacts, including increased frequency of severe weather events, as one of the Reef's greatest challenges.

For this reason, the extreme weather events of the summer reinforce more than ever the importance of GBRMPA's management efforts and its partnerships with communities to help

build the resilience of the Reef to withstand these types of impacts, now and into the future.

GBRMPA is implementing an Extreme Weather Response Program, which is part of a broader Australian Government initiative to help the nation's natural resources recover.

Projects underway by GBRMPA include extensive research and monitoring into the effects of the recent cyclones and flooding, education programs and management response activities. The supplement provides more detailed insights into this work and how it will assist the Reef.

The projects will help to further GBRMPA's work with local communities, researchers, marine managers and industries in building a healthier Reef. The more resilient our Reef is, the better it will be able to cope in the future.

Russell Reichelt
Great Barrier Reef Marine Park Authority



Responding to flood impacts

Following the floods in the Keppels and coastal region, Australian and Queensland Government agencies and the aquarium collection industry are working in partnership to help minimise the impacts of collecting in plume-affected sites.

The Great Barrier Reef Marine Park Authority (GBRMPA), Fisheries Queensland and Pro-vision Reef, the peak body for aquarium collectors, have activated Fisheries Queensland's *Coral Stress Response Plan 2009* and the industry's *Stewardship Action Plan*.

The Coral Stress Response Plan seeks to minimise the impacts of commercial fishing on coral reef systems showing signs of stress to allow them to recover or improve their resilience to further stress events.

Since January, three Response Taskforce meetings have been held, which have focussed on using available

information to identify the impacts of the flooding on the Reef and the potential responses of the industry to these impacts.

The Stewardship Action Plan provides a way to respond to varying levels of coral stress following events like coral bleaching and flooding.

Depending on a site's level of stress (low, moderate or heavy), fishers will voluntarily modify their collection practices. This may involve only collecting at depths greater than five metres, not collecting some kinds of species, or not collecting at all, at that site.

In early February, some aquarium fishers also assisted the Taskforce to collect information on the Reef's condition. They provided the first underwater images of reefs, post flooding. This was an important source of information.

Coral survey results have been delayed due to ongoing

bad weather, so alternatives for estimating likely impact are being developed to determine where responses should be applied.

Great Barrier Reef Marine Park Authority Program Manager Randall Owens said this was the first time the Stewardship Action Plan had been activated in response to a major event like the flooding.

"The insights we gain from implementing the Action Plan will be valuable," he said.

Fisheries Queensland Resource Manager Dr Brigid Kerrigan said the Taskforce was formed to consider the impact to the coral reef as a result of the recent flooding of the Fitzroy River in Central Queensland.

"The taskforce is reviewing the information available on the impacts of flooding on the aquarium fishery and recommending appropriate integrated actions," Dr Kerrigan said.

Pro-vision Reef President Lyle Squire said he was satisfied that the collaborative arrangement with the fishery and Marine Park managers was the right approach.

... fishers will voluntarily modify their collection practices.

"The industry Stewardship Action Plan was triggered by the flooding and fishery participants have responded positively to the new initiative. This provides a solid foundation for developing further collaboration into the future," he said.

The Stewardship Action Plan and the Coral Stress Response Plan 2009 will remain in action until monitoring indicates that the need for special action has passed.



Children learn about their Sea Country

Traditional Owners receive Sea Country Grants

Indigenous communities along the Great Barrier Reef coastline are working toward a sustainable future for the Reef with the support of the Australian Government.

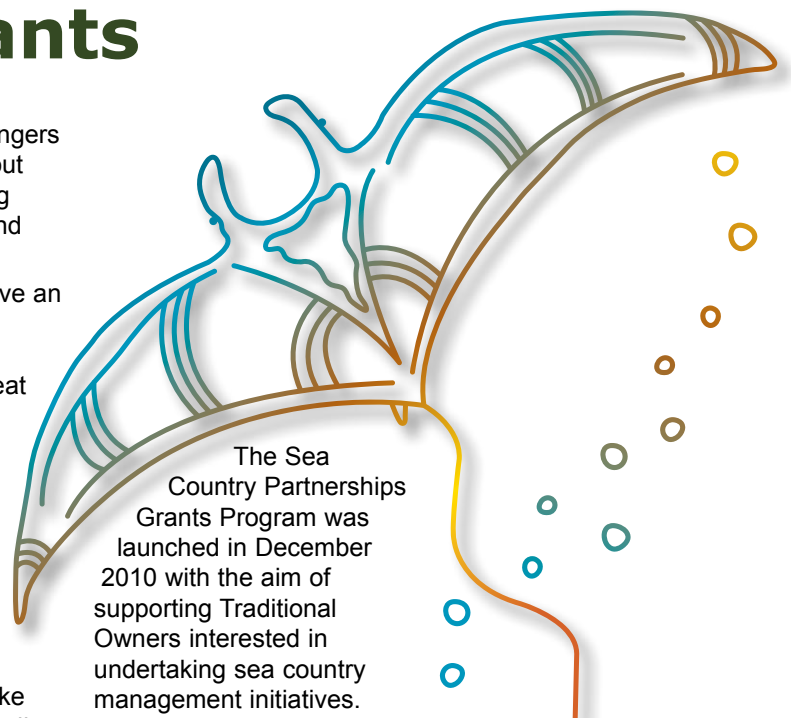
The *Caring for our Country* Reef Rescue Indigenous Land and Sea Country Partnerships Program, delivered by the GBRMPA, recently provided 12 Traditional Owner groups with funding of between \$20,000 to \$50,000.

The groups will implement a number of initiatives including the rehabilitation of coastal wetlands and the protection of green turtle nesting sites.

Other projects include developing a Junior Rangers Program and carrying out research and monitoring programs for dugong and marine turtles.

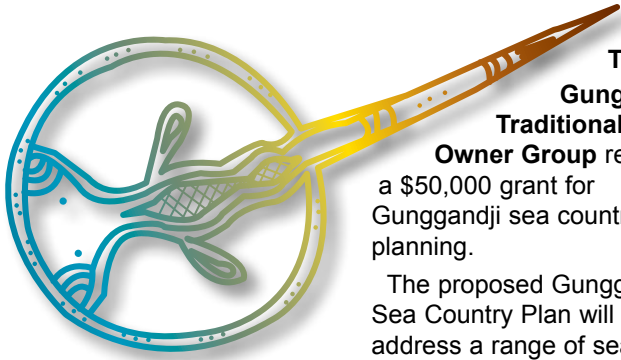
Traditional Owners have an important role in the protection and management of the Great Barrier Reef and these grants support their work.

Due to the high calibre of applications, the Minister for Sustainability, Environment, Water, Population and Communities, Tony Burke increased the grants funding from \$300,000 to \$500,000.



The Sea Country Partnerships Grants Program was launched in December 2010 with the aim of supporting Traditional Owners interested in undertaking sea country management initiatives.

Artwork by Patricia Galvin and Shenoa Sultana.



The Gunggandji Traditional Owner Group

received a \$50,000 grant for Gunggandji sea country planning.

The proposed Gunggandji Sea Country Plan will address a range of sea country management issues relating to coastal and marine areas associated with and adjacent to the Gungganji Native Title Claim Area.

Critical issues will include sustainable use, management and monitoring of turtles and dugongs and traditional fisheries (fish and crabs).

The Djiru, Gulnay, Girramay, Bandjin, Warragamay and Nywaigi Traditional Owner Group received a \$23,590 grant for the Giringun Junior Rangers program, which will be developed in the Cardwell region.

The program will instill knowledge and awareness of sea country conservation, environmental issues, monitoring and processes in conservation.

The Wuthathi Traditional Owner Group received a \$45,454 grant for Wuthathi sea country management, including training, community engagement and compliance.

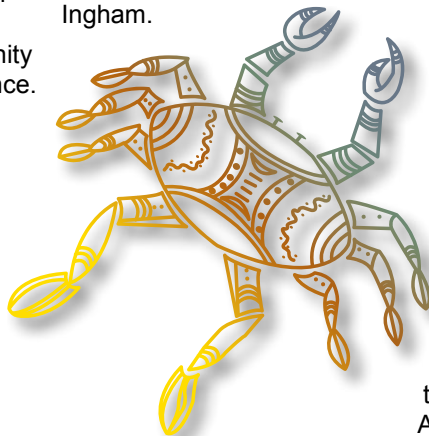
Shelburne Bay and the surrounding waters off Cape Grenville and out to Raine Island are the traditional sea country of Wuthathi people.

The Pelican expedition will enable on-country community engagement, training and TUMRA enforcement.

The Yuku Baja-Muliku Traditonal Owner Group received a \$45,454 grant for the Yuku Baja-Mulika sea country protection and training program.

The project will include an emphasis on facilitating skills development, coordinating planning and community engagement. There will also be a focus on compliance awareness amongst Traditional Owners and visitors to the area.

The Nywaigi Traditional Owner Group received a \$21,590 grant for engaging Traditional Owners in the rehabilitation of Mungalla coastal wetlands and sea country, near Ingham.



The Ambilmugu Traditional Owner Group received a \$41,818 grant for community engagement to educate the youth of Hopevale about traditional and cultural rules, protocols and activities in sea country.

The Coral's Retreat Pelican project has been running for seven years and is a community-based program run during the September school holidays by volunteers, Traditional Owners, Elders and organisations of Hopevale.

The Gimuy Yidinji Traditional Owner Group received a \$50,000 grant for the Munyami Bana Yabanday Great Barrier Reef Sea Country Integrated Management Planning Project.

Munyami Bana Yabanday holds significant cultural, spiritual and economic importance to the Gimuy Yidinji people through stories, ceremonies and traditional hunting and gathering activities.

The vision is to have acknowledged Traditional Ecologists and Culturally Aware Project Officers in their own team of sea country specialists.

The Apudthama Traditional Owner Group received a \$44,172 grant for the Apudthama sea country workshop and forum series. The project is a series of hands-on workshops and forums at the Apudthama Cape York Indigenous Rangers Conference in Injinoo.

Participants will include Indigenous Rangers, Leaders and Elders from communities between Townsville and the Northern Peninsula Area.

The Manduburra Traditional Owner Group received a \$40,158 grant for the Manduburra Land and Sea Incorporate Turtle Nest Monitoring and Protection program.

For this project, green turtle nesting sites will continue to be monitored on traditional foreshores in this sea country. An extended role will be taken in the protection of identified nesting sites against intrusion from human intervention, feral pigs and beach vehicles.

The Dabu Jajikal Traditional Owner Group received a \$43,881 grant for Jajikal Warra sea country Heritage survey.

This project is a survey of sites of heritage importance in Jajikal sea country in the region off the coast of Wujal Wujal Aboriginal Community.

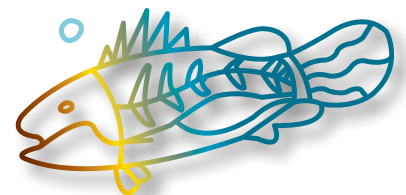
The Northern Kuuku Ya'u Traditional Owner Group received a \$34,545 grant for the Northern Kuuku Ya'u Sea and Coastal Management Program.

This is a joint project between the GBRMPA, Department of Environment and Resource Management and Traditional Owners to ensure the sustainability of dugongs and marine turtles including their habitats (seagrass monitoring).

Methods to be explored include catch and release programs, tagging and the implementation and management of a permit and flags system program.

The Umpila Traditional Owner Group received a \$45,454 grant for Compliance and Respect for Traditional Lore and Practice on Umpila sea country. This project will record sites and stories of importance in Umpila sea country.

The communication of this important traditional knowledge to Umpila people will be a basis for improved management of this traditional estate by its custodians.



Reef Guardians awarded

The recycling efforts of three Bowen Schools were recognised recently for their outstanding efforts in collecting and recycling drink containers.

Bowen State School, Queens Beach State School and Merinda State School collected over 49,500 litres of recycled drink containers between August and December last year.

Each school received prizes donated by the Great Barrier Reef Marine Park Authority, Arabon Seafoods and Whitsunday Regional Council.

Cleaning Townsville one trailer at a time

Alliance For A Cleaner Townsville (AFACT) is working their way through Townsville with a mobile trailer – cleaning waterways and beaches of rubbish before it reaches the Great Barrier Reef.

The Townsville Local Marine Advisory Committee (LMAC) supported the initiative by helping to sponsor the not-for-profit organisation.

Townsville LMAC Chairman Greg Wilcox said they were proud to assist in the initiative.

Sea sponges under the spotlight

Researchers at James Cook University are beginning to unravel the larval life of the common Great Barrier Reef sponge, paving the way for sustainable ways to stock public aquariums.

The work has established how larvae of the sponge find their way to coral reefs where they then spend their adult lives.

The project will establish sustainable culture techniques for sponges, which are highly valuable to reef ecosystems.



Dr Ingo Narberhaus from the German Federal Agency for Nature Conservation visits the GBRMPA

Energy, ideas and exchange

The Great Barrier Reef Marine Park Authority (GBRMPA) recently hosted a visiting marine biologist from our German counterpart, the German Federal Agency for Nature Conservation (BfN).

Dr Ingo Narberhaus spent four weeks working with the GBRMPA, participating in workshops, and visiting research organisations such as the Australian Institute of Marine Science.

"I've had varied experiences since I got here, including working in the field and attending staff forums," Ingo said.

"I've been involved in some very interesting initiatives and discussions and I've seen some really interesting creatures that we don't have in our cool waters."

The collaboration between the agencies aims to strengthen professional ties and encourage the exchange of information and ideas.

Since the international exchange program began in 2006, two members of the GBRMPA have visited Germany to observe the work the BfN is undertaking in the areas of research, funding, enforcement, information and education.

The agencies share a mandate for conservation and the sustainable use of marine environments. Like GBRMPA, BfN has adopted Marine Protected Areas and ecosystem management in their work.

Ingo dedicated some of his time in Australia with a working group formed to

investigate the use of renewable energy and establish GBRMPA's position on the issue.

The Renewable Energies Working Group is developing a framework for renewable energy plans and projects in the Marine Park.

In the long-term, the group aims to be proactive and develop a strategic environmental assessment of renewable energy installations and consider how renewable energy projects in the Marine Park can contribute to the area's response to climate change.

Renewable energy is an essential part of Australia's low emissions energy mix and is important in helping Australia to stay on track to meet its Kyoto target and beyond.



WEXTREME Weather SUPPLEMENT

Understanding extreme weather

Cyclone Yasi stripped leaves off trees on Hinchinbrook Island

The *Great Barrier Reef Outlook Report 2009* outlined scientific research indicating the frequency of intense rainfall events and cyclone severity is likely to increase as a result of climate change.

In addition to the risk of damage to reefs, the greater frequency of extreme weather incidents will also limit the time for reefs to recover from these disturbances.

Recent floods and cyclones highlight the importance of the Great Barrier Reef Marine Park Authority's (GBRMPA) efforts to improve the resilience of the Great Barrier Reef against climate change and the cumulative impacts of extreme weather events.

It is also more important than ever for Reef users to understand and prepare for the impacts of extreme weather.

What is climate change?

The *Great Barrier Reef Outlook Report 2009* identified climate change as the greatest threat to the long-term health of the Reef. The Earth's climate has always been changing but the difference today is that the

change is happening faster than anything experienced for many millions of years. The changing world climate is being accelerated by human activities, especially the combustion of fossil fuels.

What climate change means for the Great Barrier Reef

The Great Barrier Reef is one of the most diverse coral reef systems in the world and is home to thousands of species of marine wildlife.

Almost all Great Barrier Reef species will be affected by climate change, some seriously. Understanding the vulnerability to the effects of climate change on habitats, and the species that depend on them, and how long these changes may take, is critical to predicting the outlook for the Great Barrier Reef.

The Great Barrier Reef ecosystem provides the basis for economic activity and social wellbeing for

communities who live by the Reef. Changes to the ecosystem due to climate change are likely to have serious implications for reef-dependent industries and communities.

What is the GBRMPA doing to help the Reef in the face of climate change?

The Great Barrier Reef Climate Change Action Plan aims to increase knowledge about the implications of climate change for both the Great Barrier Reef and the communities and industries that depend upon it.

The plan develops and supports strategies that foster adaptation and minimise impacts through improving and maintaining the resilience of the Reef. The agency draws on the insights it gains through assessment and monitoring activities, including those into extreme weather events, to carry out a range of management actions. The

initiatives being carried out by GBRMPA under the Extreme Weather Response Program further supports this work.

The Zoning Plan for the Great Barrier Reef Marine Park is the most significant action taken to enhance biodiversity protection and resilience.

Complementing its field management work, GBRMPA is working in partnership with industries and local communities to encourage and reward environmental initiatives that support the Reef's health.

The GBRMPA's commitment to stewardship includes programs such as Reef Guardians, which recognises the environmental initiatives of farmers, fishers, councils and schools, and the high standard tourism operators.

Traditional Owners have a vital role in caring for their sea country and GBRMPA works closely with Indigenous communities on initiatives that enhance the health and resilience of the Reef, including compliance work and a range of environmental programs.



Impacts of Summer's Extreme weather

Diver inspecting damage at Myrmidon Reef

The summer of 2010/11 was characterised by extreme weather events in the Great Barrier Reef Region.

The season was the second wettest on record for Australia and the intense rainfall caused extensive flooding in many coastal areas of southern Queensland, including several Great Barrier Reef catchments.

In addition to the increased rainfall, the strong La Niña event was associated with above average cyclone activity in the Australian region. This included cyclone Yasi, the first cyclone to cross the coast as a category five system since 1918.

Cyclone Yasi

Following tropical cyclone Yasi, experts from the Great Barrier Reef Marine Park Authority (GBRMPA) and the Department of Environment and Resource Management carried out a rapid assessment of 76 reefs between Port Douglas and the Whitsundays to assess the extent and severity of the damage.

The impact of the cyclone

Approximately 13 per cent of the Great Barrier Reef Marine Park was exposed to destructive cyclonic winds. Impacts were observed over 300 kilometres of the 2 400 kilometre-long Marine Park, although the damage ranged from very serious to minimal or nil in the affected area. At the worst affected sites coral gardens were reduced to

rubble and in some instances large established corals were dislodged from the reef.

Despite the extensive reef damage, our underwater survey teams encountered vibrant marine life at many of the sites.

Fortunately, cyclone Yasi tracked between the main tourism sites in Cairns, Port Douglas and the Whitsundays and these areas are still healthy and thriving with marine life.

Central Queensland floods

The floods in Central Queensland in late 2010 and early 2011 resulted in flood waters running into the Great Barrier Reef catchment from the Fitzroy, Burnett and Mary Rivers. This run-off carried freshwater, sediments, nutrients, pesticides and other contaminants onto the Reef. Mapping indicates that along the Capricorn Coast near Rockhampton the flood plume extended as far as 65 kilometres offshore.

The GBRMPA, through the Australian Government's \$10.5 million Reef Rescue Marine Monitoring Program and together with James Cook University, CQUniversity, Australian Institute of Marine Science, Queensland Department of Environment and Resource Management and a group of volunteers, collected extensive water quality samples from the flood plume.

The impacts of the flooding

There has also been some flood-related damage to shallow sections of reefs in the Keppel Bay region. However, damage appears to be localised and confined to shallow reef areas, with the majority of the reefs still characterised by healthy corals and vibrant marine life.

Flood plumes can also have an impact on the health of seagrass beds. Monitoring over previous years indicates that sediments can have an immediate impact on the health of seagrass, whereas nutrients and low light from turbid waters can have a long-term impact that does not appear until four to six months after the flood event.

Recovery

Signs of recovery should be seen within five years in the areas seriously damaged by cyclone Yasi. For example, there is visual evidence that reefs in the area damaged by cyclone Larry in 2006 have already begun to regrow.

The success of recovery for flood-damaged coral reefs depends on the extent of damage. The reefs are used to receiving freshwater during the wet season and, while it causes damage, the reefs have proven to be resilient to the impacts.

The surviving corals and seagrass will help other damaged areas to recover from the recent floods and cyclone as long as the

conditions are right. This requires protecting the reefs and seagrass from further stresses caused by poor water quality and pollution.

TIMELINE

2010

- **December 8**
Bureau of Meteorology advises of above average tropical cyclone activity – up to six in the Coral Sea.
- **December 23**
Four days of extreme rainfall in central and northern Queensland commences.
- **December 25**
Cyclone Tasha (category 1) crosses between Gordonvale and Ravenshoe. Heavy rain between Rockhampton and Peninsula.
- **December 28**
Disaster situation declared by Queensland Government in Emerald, Bundaberg, and Central Highlands. Burnett River peaks.

2011

- **January 5**
Fitzroy River peaks in Rockhampton.
- **January 31**
Cyclone Anthony (category 2) crosses the coast near Bowen.
- **February 2**
Cyclone Yasi (category 5) makes landfall near Mission Beach.



How is the GBRMPA responding to extreme weather events?

The GBRMPA has received \$1.08 million in additional funding from the Australian Government to assess the impacts of the floods and cyclones on the Reef. The GBRMPA will use the findings to inform management actions following extreme weather now and into the future and to assist Reef communities and industries to better understand and prepare for cyclones and floods.

The funding for the Extreme Weather Response Program is part of the Australian Government's Caring for our Country initiative that is committed to supporting the recovery of Australia's natural resources.

A crown-of-thorns starfish feeds on an acropora plate coral

The GBRMPA, in partnership with the Queensland Parks and Wildlife Service, research agencies and Reef stakeholders, is implementing an Extreme Weather Response Program.

The program aims to assess the impacts of extreme weather events on the Great Barrier Reef ecosystem, assist Great Barrier Reef industries to adapt to the changes, and inform future management responses.

Coral reefs

A rapid assessment of the impacts of tropical cyclone Yasi on reefs was completed in the weeks immediately after the cyclone. The survey teams completed 882 rapid reef health surveys at 76 reefs spanning 500 kilometres of the Marine Park between Port Douglas and Airlie Beach.

The findings will help managers and Reef users to understand the implications of high intensity cyclones.

Water quality

The Marine Monitoring Program tells us about the health of ecosystems through monitoring water quality, seagrass and inshore coral reefs.

Due to the extensive flood plumes this season, additional water quality sampling (especially in the Fitzroy region) and seagrass health monitoring has been included in the program.

Biodiversity

The health of populations of dugong and green turtles are of concern in the wake of the floods and cyclones. Understanding the causes of death and the health of stranded animals will help GBRMPA to assess the ongoing impact of extreme weather on dugong and turtles.

The GBRMPA is expanding the number of veterinarians and management agency staff trained and equipped to perform necropsies and take samples from dugong strandings.

A satellite tracking program with James Cook University will monitor five dugongs and five green turtles in areas directly affected by cyclone Yasi. The project will reveal the movement patterns of these animals in relation to their seagrass meadow feeding grounds.

Islands

Extreme weather events can significantly damage both recreational infrastructure and natural environments within the Marine Park. Assessment and repair of damaged recreational infrastructure is underway.

Cyclones and floods can change the shape and size of cays and islands, influence beach structure and damage vegetation. These changes impact on animals that rely on these areas for nesting and roosting.

Aerial surveys and photography is being used to identify impacts and sites that need further investigation and will require recovery actions such as pest control, fire management and rehabilitation.

Floods and cyclones increase the amount of marine debris washed about by the current, creating hazards for wildlife and increasing the risk of the transfer of pests and weeds. Increased monitoring of weeds and pests and the removal of marine debris is underway.

Industry

The GBRMPA is partnering with the CSIRO and JCU to document the socio-economic impacts of the floods and cyclones on tourism operators and commercial fishers within the Marine Park.

The survey will improve the GBRMPA's understanding of the adaptive capacity and resilience of Reef-dependent industries to climate change.

Crown-of-thorns starfish

The GBRMPA is working with the tourism industry and fishers to monitor Reef health and assess the abundance of crown-of-thorns starfish outbreaks and extreme weather events.

The Integrated Eye on the Reef platform will be used to collect information from Eye on the Reef Tourism Monitoring, the Sightings Network, and Reef Health and Impact Surveys.

Education

Utilising existing networks of Reef industries, users and stakeholders, the GBRMPA will be developing a range of materials to raise awareness about areas of concern: the transfer of pests and weeds, and promoting best practice for boat users in order to protect marine life displaced by extreme weather events.

Turtles and dugong are species of concern in the wake of recent floods and cyclones. Extreme weather events affect the water quality on the Reef which impacts on seagrass beds, a vital food source for turtles and dugong. Significant changes in the movements and health of these animals has been recorded following extreme weather events in the past.

A team of experts from the Great Barrier Reef Marine Park Authority (GBRMPA) and James Cook University are assessing the effects of the floods and cyclones and investigating how, in a situation where critical habitat like seagrass beds are damaged or degraded, the animals that rely on those habitats respond to these changes.

Staff at the GBRMPA and its education arm, Reef HQ Aquarium, are currently monitoring the progress of a green turtle released after treatment at Reef HQ Aquarium's Turtle Hospital.

The 150 kilogram turtle, Raylene, was fitted with a satellite tracking device that transmits a signal when she surfaces and is part of a pilot program funded by the GBRMPA Extreme Weather Response Program.



Released Raylene returns home

Raylene the green marine turtle is now being tracked by the GBRMPA

The tracking device will enable scientists to see how she moves around the seagrass beds and use this information to better understand the impacts of extreme weather events on marine animals.

Since her release on The Strand in Townsville, Raylene has safely returned to her home feeding grounds off Wunjunga Beach near Home Hill.

Information from the study will be valuable to

conservation managers, researchers and coastal residents alike and provides a personal connection between people, the habitat, and the animals.

Reef industries have their say

The Great Barrier Reef Marine Park Authority (GBRMPA) invited tourism operators and commercial fishers to share their concerns and experiences after the recent cyclone and floods in an industry survey.

In partnership with the Commonwealth Scientific and Industrial Research Organisation, the GBRMPA undertook a telephone survey of commercial fishers and tourism operators affected by the recent weather events.

The research forms part of the ongoing process to understand the social and

economic issues faced by industries in the aftermath of extreme weather.

The impacts of recent extreme weather are only just beginning to be understood and this research documents and acknowledges the hardships that some businesses are facing.

The information from the survey builds upon the GBRMPA's strong partnerships with industry and assists in the development of strategies to plan for future climate events affecting the Great Barrier Reef.

The survey drew upon the considerable knowledge of more than 200 individuals in the commercial fishing and tourism sectors within the

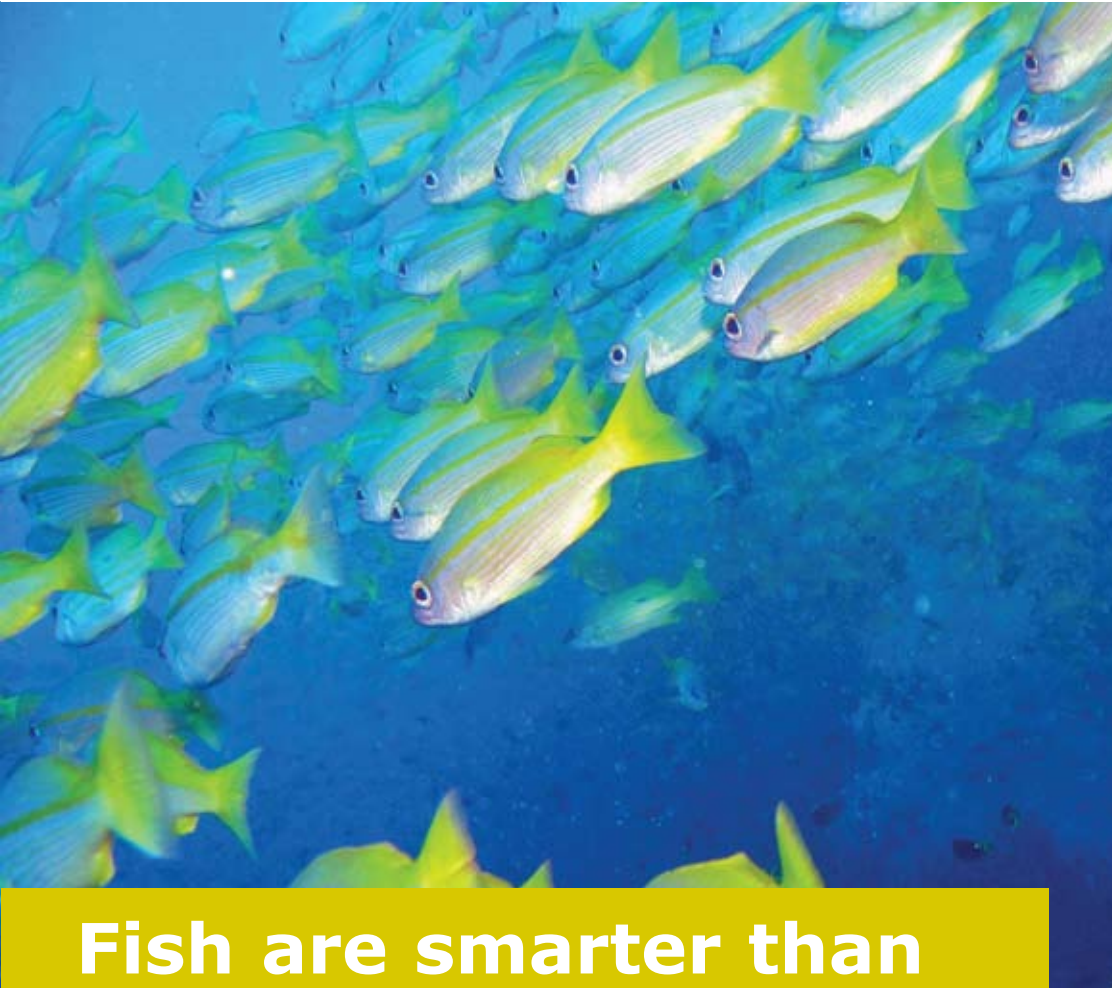
Great Barrier Reef Region from as far north as Cairns and as far south as Bundaberg.

What you can do to help

A healthy Reef is more resilient and can recover better from the impacts of climate change, such as coral bleaching. Climate change is a global issue but there are many things that individuals, businesses and governments can do to help minimise their impact on the Great Barrier Reef.

You can limit your greenhouse gas emissions by:

- Using energy efficient devices in your home
- Turning off electrical appliances and lights when they are not in use
- Leaving the car at home and walking or riding to work or school.



Fish are smarter than you think

The myth that fish have a memory span of three seconds has been busted following new research undertaken in the Papua New Guinea.

The study found fish that are regularly hunted with spearguns are wary and keep their distance from fishers – suggesting fish have long term memory.

The international team, who focused on the effects of marine areas closed to fishing by customary laws, measured ‘flight distance’ in a range of coral reef fishes which are popular targets for local fishermen in the study area in Papua New Guinea.

Lead author Dr David Feary of University of Technology Sydney said the team discovered that fish previously exposed to

speargun fishing took flight much earlier when a diver approached, compared with fish living in protected zones.

“Fish which are regularly targeted appeared to have a pretty fair idea of the three metre range of the typical rifle-style speargun used by the local PNG fishers,” he said.

“Inside protected areas, the fish tended to move off when the diver closed to within two to three metres of them.

“However those outside the protected zone, where hunting was common, mostly fled when the diver came within four to five metres of them.

“Quite simply, the fish in areas that were fished regularly were wariar and stayed further away – just far enough that it would be

difficult to hit them with the speargun technology used locally.”

The study found when an area was closed the fish appeared to recover their confidence, allowing divers to approach much closer – within speargun range when the area was reopened for fishing.

The researchers argued that while temporary closures had value in conserving fish stocks and helping them to recover, their effect on fish behaviour may have to be factored in when reserves are reopened, if the aim is to preserve fish stocks.

This may mean the use of gear-restrictions or short re-openings to avoid a sudden, heavy kill of larger fish which have become accustomed to the relative safety of a closed area.

GBRMPA signs up to Facebook

We’ve established a Facebook page on the Great Barrier Reef Marine Park, and invite you to join the conversation.

Our aim is to build an online community of Reef supporters, and provide an informal and engaging way to interact with that community.

You can access our Facebook page from our website www.gbrmpa.gov.au

Feeling extra special on World Heritage Day

While the Great Barrier Reef World Heritage Area (GBRWHA) celebrated World Heritage Day recently, the countdown is also on for its 30th anniversary this October.

The GBRWHA was listed on October 26 1981 for four natural criteria by the World Heritage Committee. The Reef is still recognised for these four criteria 30 years later.

Ingham students pledge support for the Reef

A local Ingham school is the latest school to commit to taking action to protect the Great Barrier Reef.

Trebonne State School has joined more than 230 schools in Queensland in the Great Barrier Reef Marine Park Authority’s Reef Guardian Schools Program.

The environmental education program provides schools with the opportunity to get involved in projects that improve their local environment and the outlook for the Great Barrier Reef.

Calendar of events 2011

June

5	World Environment Day
5	National World Whale Day
8	World Ocean Day
20	International Ride to Work Day

July

3 – 10	NAIDOC Week
29	Schools Tree Day
31	National Tree Day

Future events in

August

9	International Day for World Indigenous People
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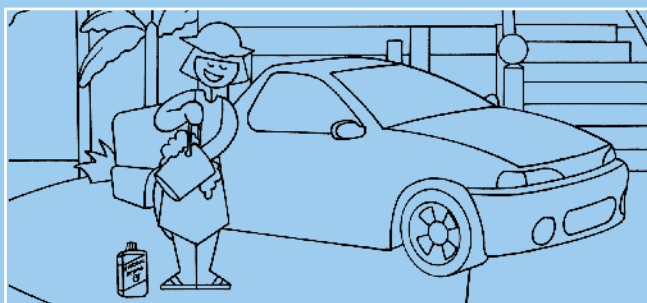
What can I do?

Water wise

If we reduce our water consumption, there would be less water running off into the Great Barrier Reef. Here are a few hints to help you become water wise...

Inside

- Turn the tap off when brushing your teeth
- Take shorter showers
- Rinse your dishes in a plugged sink, rather than under a running tap
- Regularly check your property for water leaks
- Use the washing machine only when you have a full load
- Install a dual-flush toilet



And we make sure Mum and Dad wash the car on the lawn!

and water-saving shower nozzle

Outside

- Be aware of the current water restrictions
- Water in the cool of the morning or evening
- Consider greywater reuse

and reuse indoor water in your garden

- Install water efficient sprinklers and drip irrigation
- Use mulches such as bark compost to help planting beds retain moisture

Creature feature

Cnidarians

With tentacles covered in millions of stinging cells – corals, anemones, hydroids and jellyfish are well armed to feed upon the planktonic community.

These creatures are called cnidarians, who have "specialised cells" that are used mainly for capturing prey. Box jellyfish, fire coral and stinging hydroids are all capable of stinging humans.

Reef hydroids

Reef hydroids are very diverse in appearance and include fire corals, stinging hydroids and blue bottles. Looking like colourful feathers growing out from the reef, stinging hydroids use their branches to filter food from the water. These branches are covered with stinging cells.

Fire coral

With variable shapes, ranging from large sheets to branching staghorn-like forms, Fire coral gives a burning sensation when touched.

Jellyfish

Jellyfish are in the same group of animals as corals



Blue bottle jellyfish

and most use stinging cells found in their tentacles to capture food. These cells are called nematocysts.

Chironex fleckeri (commonly known as box jelly fish) are fast and agile swimmers and have stinging cells only on their tentacles. They can be found close to the coast and are one of the most venomous marine creatures on the planet.

However, the most common injury to people is coral cuts. Corals themselves are susceptible to damage through human activities such as anchoring, diving and decreases in water quality through pollution.

Did you know? The Great Barrier Reef has about one-third of the world's soft corals and 360 species of hard

corals and also provides a home for 'Nemo', the lovable orange, black and white clownfish of movie fame. Clownfish live within anemone's tentacles, getting protection from predators, and the anemone eats the scraps from the clownfish's meals. The clownfish also help keep the anemone's tentacles clean.