

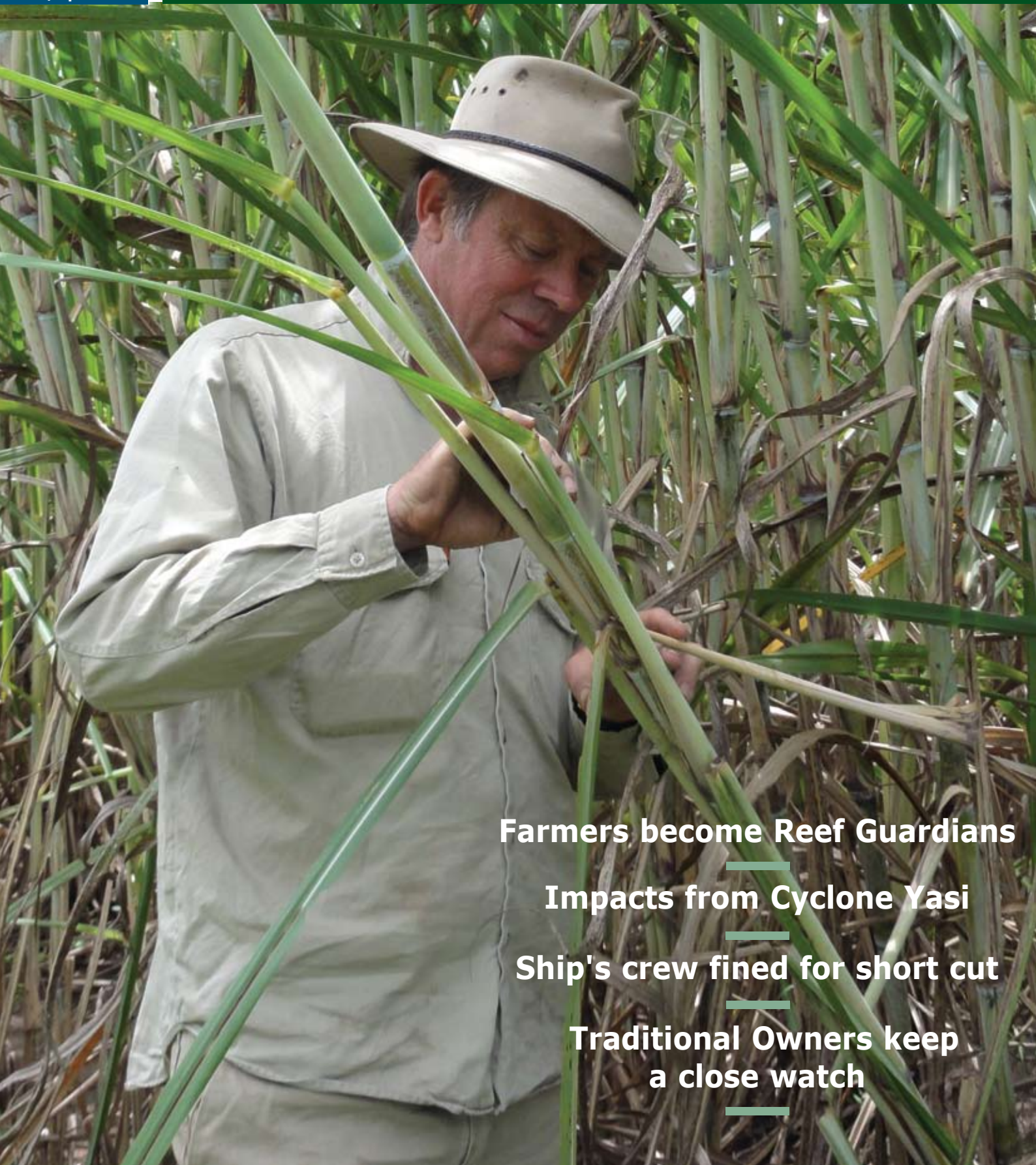


# SEAREAD

FROM CATCHMENT TO CORAL

**No. 38**  
Mar/Apr 2011

## Special Reef Guardian Supplement



**Farmers become Reef Guardians**

**Impacts from Cyclone Yasi**

**Ship's crew fined for short cut**

**Traditional Owners keep  
a close watch**



**Cover: Reef Guardian Farmer**  
Tony Ross

# Chairman's message



## In this Issue

Cyclone Yasi	3
Reef Guardians awarded	4
Reef Guardian supplement	5-8
Fishers keep an eye out	10
Coral internal clock	11
What can I do?	12

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

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Queensland communities and the Great Barrier Reef faced some extreme weather during summer – flooding in central and southern Queensland and the crossing of cyclones Yasi, Anthony and Tasha. Our hearts go out to the affected communities and we wish them a speedy recovery.

The Great Barrier Reef Marine Park Authority (GBRMPA) has been monitoring the impacts of the weather events on the Great Barrier Reef and recently announced the findings of an assessment into the damage from Yasi. About 13 per cent of the Marine Park was exposed to cyclone Yasi's destructive winds. In immediate response to the category five cyclone, a team from GBRMPA and Queensland Parks and Wildlife Service conducted a rapid assessment of 36 reefs in the affected area to identify possible damage. They found that the damage was patchy, with some sections remaining relatively unharmed and other parts of the Reef suffering serious damage.

The cumulative impacts of the flood plume and cyclone are of concern and it is a timely reminder of the importance of building the resilience of the Reef so it is better able to cope with severe weather events under a changing climate. The vital role of community members helping to achieve

this outcome can be seen in the Reef Guardian Program, which is showcased in a special supplement in this edition of *SeaRead*.

Since it began in 2003, the Reef Guardian Program has been an important vehicle for behaviour change in schools and communities as they work to protect the Reef. Today more than 200 schools along the Great Barrier Reef catchment have taken up the challenge. We also welcomed Bundaberg Regional Council to the Reef Guardian Council program in early March, which brings the total number of Reef Guardian Councils to 13.

Reef Guardian Schools and Councils are helping to make a difference to the outlook of the Reef through initiatives such as conserving water, rejuvenating habitats and

## GBRMPA has been monitoring the impacts of the weather events on the Great Barrier Reef ...

educating the broader community. Help from industry sectors is also invaluable and this year the Reef Guardian Program expanded to include Reef Guardian Fishers, Graziers and Farmers. Together, these stewardship activities help to improve the quality of water that enters the Reef, rebuild lost wetlands and keep the Reef sustainable. This ultimately builds a healthier Reef which helps it to withstand extreme weather events and other impacts of climate change.

This community spirit is also seen in the efforts of Traditional Owners in Yarrabah who recently

participated in a GBRMPA training program to prevent illegal activities in the Marine Park. The workshop provided the opportunity for the Indigenous community to boost their skills in responding to and reporting suspected illegal activity, as part of their sea country management. Traditional Owners have a close connection with the Reef and have an important role in ensuring it is protected for the future.

In October this year the Great Barrier Reef will celebrate its 30th anniversary as a World Heritage Area. With the Great Barrier Reef known globally for its rich diversity, this is a timely reminder of the importance to continue working together to protect this natural wonder - so we can celebrate it for another 30 years.

Russell Reichelt  
Great Barrier Reef  
Marine Park Authority



# Cyclone Yasi impacts on the Great Barrier Reef assessed

Divers assess damage to the Great Barrier Reef after the crossing of cyclone Yasi

Equipped with stinger suits, waterproof paper and boats, a team of marine scientists dove into the Great Barrier Reef's waters recently to assess potential damage to the Reef from cyclone Yasi.

The team, from the Great Barrier Reef Marine Park Authority (GBRMPA) and Queensland Parks and Wildlife Service, surveyed 36 reefs that were in the path of the category five cyclone.

GBRMPA's assessment coordinator Dr Paul Marshall said about 13 per cent of the Great Barrier Reef, from Cairns to Townsville, was exposed to Yasi's destructive winds of up to 285km per hour.

"The good news is that the damage to these reefs has been patchy," he said.

"In some instances, neighbouring reefs and coral structures have remained relatively unharmed. These surviving corals will help the damaged areas to rebuild.

"The areas that faced wind gusts of up to 285km per hour

were the most seriously damaged. Coral has been broken, and torn from the reef and tossed around.

"Branching corals have suffered the most, with the remnants being strewn across the seabed floor, while large plate corals have been snapped off and dumped into deeper water. Some corals that are hundreds of years old have been tipped on their sides."

GBRMPA will be monitoring the recovery of these reefs closely as well as undertaking further research into the impact of the recent cyclones and floods on the Reef and the industries and communities that rely on them.

"Research conducted by James Cook University into the effects of cyclone Hamish, which tracked along the Queensland coast in 2009, shows that coral trout can go off the bite following a cyclone," Paul said.

"We have received similar reports from fishers between

Innisfail and Bowen after cyclone Yasi.

"However, the research also reported increased catch rates of red throat emperor. Other species that are expected to thrive due to improved breeding conditions include barramundi and mackerel.

"Cyclone Yasi tracked between the main tourism sites in Cairns, Port Douglas and the Whitsundays and we were very pleased to find that those areas are still healthy and thriving with marine life.

"For the time being, it is important to remember while parts of the Reef in the path of the cyclone have been damaged, most of the Great Barrier Reef remains unaffected."

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

In light of this, GBRMPA is working with its partners to

A \$1.08 million boost from the Australian Government will help the Great Barrier Reef Marine Park Authority assess the Reef in the aftermath of this year's floods and cyclone Yasi.

The funding is part of a broader package driving the recovery of Australia's natural resources following these events.

A number of activities are planned including assessing reef health, monitoring inshore flood plume water quality, expanding monitoring programs, and socio-economic research.

build the resilience of the Great Barrier Reef ecosystem to aid the recovery of the Reef from climate-related events.

A more detailed scientific assessment of the damage will be released in the coming months.

# Ship shortcut lands crew in hot water

Two crew from a Hong Kong-based bulk carrier pleaded guilty and were fined a total of \$53,000 in the Gladstone Magistrates Court recently for entering a restricted area in the Great Barrier Reef Marine Park.

The chief officer and third officer were in charge of the 180 metre-long *Signe Bulker* when it illegally entered an area in the Capricorn-Bunker Group of Islands on 18 January this year.

The *Great Barrier Reef Marine Park Act 1975* prohibits ships from entering some areas in the Marine Park including the cluster of islands that make up the Capricorn-Bunker Group.

Great Barrier Reef Marine Park Authority Chairman Russell Reichelt said it was important that ships complied with the rules to ensure both the environment and their industry was protected.

"The Great Barrier Reef is a multiple use Marine Park and shipping is a legitimate use of the area, provided it is carried out in accordance with the rules and regulations," he said.

"This court result shows the importance of the rules in place to protect the Reef, and highlights that there are real and serious consequences for breaking the law.

"The vessel's route took it through an array of sensitive habitats with hazards to navigation, presenting a high level of risk to a vessel the

size of the *Signe Bulker*.

"In addition, the Capricorn-Bunker Group is special and unique and was the first part of the Great Barrier Reef Marine Park to be declared and protected. It is also a popular tourist site.

"There are 10 major trading ports along the Great Barrier Reef coast and the latest statistics show that over 3500 ships operate in the Great Barrier Reef, making over 9700 voyages each year.

"Most routine shipping activities have negligible consequences on the Marine Park. However, there is the potential for the incident to have a serious impact on the Reef."

The *Signe Bulker* was originally heading towards Lady Musgrave Island before deviating through the Capricorn-Bunker Group of Islands and transiting through the restricted area between 7am – 9am.

The *Signe Bulker* then headed south-west to Gladstone, where it anchored and marine authorities boarded the vessel to interview the crew.

This joint investigation involved the Great Barrier Reef Marine Park Authority, Queensland Water Police (Gladstone Office) and the Australian Maritime Safety Authority.

The maximum penalty for crew for this type of offence is \$110,000.



## It's a real rarity

Did you know that coral reefs make up only about seven per cent of the Great Barrier Reef? The Reef is in fact much more diverse with a variety of habitats and animals that make it a truly rare ecosystem.

An array of species from crocodiles and seahorses to coral and parrotfish live in diverse places such as seagrass meadows, mangrove forests, deep water, coral cays and sponge gardens.

Conserving this diversity of life is central to making sure the Reef remains one of the healthiest and most resilient ecosystems on the planet.

The *Great Barrier Reef Biodiversity Strategy 2011* will be released later this year after public consultation.

The *Biodiversity Strategy* aims to guide and coordinate management actions for conserving and managing biodiversity in the Great Barrier Reef.

It has been developed in response to the *Great Barrier Reef Outlook Report 2009*, which identified the need of an overarching framework to coordinate management actions to conserve and manage biodiversity.

## Ship groundings

Since 2009 there have been nine incidents of ship groundings, pollution or transiting through a protected area.



# reef guardians

S U P P L E M E N T

## The Reef Guardian Program

**The Great Barrier Reef Marine Park Authority's Reef Guardian Program is empowering communities to work together today for a healthier Reef tomorrow.**

The Great Barrier Reef's ability to support species is under pressure from a range of impacts from coastal development and declining water quality to a changing climate, its biggest threat.

While these issues fall outside of GBRMPA's regulatory and legislative influence, GBRMPA has developed a stewardship program to help protect the Reef for the future.

The Reef Guardian Program was launched as a vehicle for behaviour change to encourage the community to build the resilience of the Reef so it will be better able to cope with ongoing pressures.

The community-based Reef Guardian Program plays a critical role in supporting the management of the Marine Park.

Reef Guardian Schools kicked off in 2003 and today there are more than 230 schools in the Great Barrier Reef catchment that are involved in the initiative.

Teaching students to understand and appreciate the Reef and its connected ecosystems is a key objective of the program.

Schools are taking action by participating in a range of activities from energy audits and creating worm farms to waste management and adopting habitats.

In 2007, the Program expanded to involve councils. There are 13 councils along the Great Barrier Reef coastline from Bundaberg to Cooktown, and all of these councils are now officially signed up to the Reef Guardian Council Program.

The program recognises the positive environmental activities being undertaken by councils.

Last year, the Australian Government announced funding for GBRMPA to improve the outlook of the Reef. This funding has enabled GBRMPA to expand the Reef Guardian Program to include fishers and farmers while further investigating opportunities for Marine Park tourism operators.

The Reef Guardian Farmers and Fishers pilot programs were launched this year. The pilots recognise the economic,

social and environmental sustainability of fishing and farming businesses within the Great Barrier Reef catchment.

Voluntary environmental practices from primary producers and fishers that go above and beyond mandatory standards have

significant benefits for the Reef.

The Reef Guardian Programs are playing an important role in encouraging communities, individuals and businesses to help build a

healthy and resilient Marine Park.

... vehicle for behaviour change to encourage the community to build the resilience of the Reef ...



## Reef Guardian Fishers

Stretching more than 2400 kilometres in length, the Great Barrier Reef Marine Park is a multiple use area with commercial fishing contributing strongly to the regional and national economy.

While fishing was identified in the *Great Barrier Reef Outlook Report 2009* as ecologically sustainable in the Marine Park, some fishing activities are having impacts on the Reef.

Pressures from fishing include removing top-order predators such as sharks, incidental catch of species of conservation concern, illegal fishing or collecting, and the accidental killing of non-targeted species.

The Reef Guardian Fishers Program recognises fishers who have innovative business operations that help to reduce these pressures and work toward a sustainable Reef for the future.

While regulated activities for trawl fisheries include the use of by-catch reduction devices (BRDs), turtle excluder devices (TEDs) and fishing in the correct zones, the Reef

Guardian Fishers Program recognises those voluntary actions that go beyond what is regulated.

For example, all Reef Guardian Fishers are using emissions calculators to measure and further reduce their carbon emissions to be more energy and cost efficient.

While the Great Barrier Reef needs the support of fishers, a healthy reef ecosystem also provides for a viable commercial fishing industry. Positive action benefits fishing businesses.

In addition, fishers have identified the need to adapt their businesses to deal with impacts from a changing

climate. Impacts, including increased frequency and intensity of cyclones, are affecting important fish habitats, fish size, abundance, survival and distribution. As a result, industries dependent on a healthy Reef could suffer.

The Reef Guardian Fishers Program recognises those fishers who are helping to build the health of the Reef so it is better able to cope with climate change impacts.

GBRMPA will continue to work with fishers and peak bodies to develop the Reef Guardian Fishers program, as an important part of managing the Reef for its long-term health.

## Reef Line pilot program case study

With a number of reef line fishers already leading with innovative practices, the Reef Line Fishery has been recognised in the initial Reef Guardian Fishers pilot program.

Reef line fishers, who target coral trout species and red throat emperor, are operating their businesses to ensure there are minimal impacts on the Great Barrier Reef.

The fishery has reduced unwanted by-catch by using view buckets to better target their fish. They also use larger hooks to reduce the catch of small unwanted fish.

Non-stainless hooks, which rust and break down quickly, are also being used to ensure hooks don't stay in the fish for long periods of time and cause harm.

In cases where unwanted fish are caught, Reef Guardian Reef Line Fishers are using innovative approaches to release them, which increase the fish's chance of survival.

Barotrauma, which is a fatal condition that causes the fish's swim bladder to expand, occurs when fish are rapidly brought to the surface from deep water. If released in this condition, these fish cannot

swim properly and are easy targets for predators.

Reef Guardian Reef Line Fishers are maximising the survival of fish with barotrauma by using a needle to vent the built up gas.

Other fishers avoid fishing in deep water to minimise barotraumas and are finding ways to return unwanted fish as close to the Reef as possible.

All participants in the Reef Guardian Fishers program will use the online emissions calculator to help reduce their greenhouse gas emissions,

including finding ways to maximise fuel efficiency.

Robust fuel transfer procedures between motherships and dories are undertaken to minimise the chance of fuel spills and reduces potential damage to the Reef.

The GBRMPA hopes the Reef Guardian Fishers program will encourage more fishers to adopt such best environmental practices.



# Reef Guardian Farmers and Graziers

Building the health of the Great Barrier Reef to cope with pressures from a changing climate is the best solution for its long-term protection.

Action from agricultural industries, including farmers and graziers, is making a

positive difference in directly improving the quality of water flowing in to the Reef catchment. This is improving the health of the Great Barrier Reef.

The new Reef Guardian Farmers pilot program, launched in March this year,

recognises practices that are making a positive difference to the Reef and its supporting habitats.

Farmers are taking action to reduce their use of water, thereby the chance of farm run-off. They've also adopted ways to improve the

health of the soil with minimal use of fertilisers.

Innovative practices include using trickle irrigation and minimising watering by adjusting to weather conditions and understanding what is needed for crops.

Other initiatives include rotating crops or planting alternative crops in the off season, which keeps the soil rich naturally without the use of fertilisers.

Many farmers are also restoring and rejuvenating habitats and wetlands in their surrounding area. This is a critical action in building the health and connectivity of the Great Barrier Reef and its supporting habitats.

The Reef Guardian Farmers pilot program is showcasing these positive land practices, which will further encourage other farmers to follow their lead.

The program is fostering information sharing that will help to improve both the economic and environmental sustainability of the agricultural industry while ensuring the sustainability of the Great Barrier Reef Marine Park.

## Reef Guardian Farmers case study

Tony and Marjorie Ross are cane farmers by trade but Reef Guardian Farmers by nature.

In 2011 the Great Barrier Reef Marine Park Authority recognised Tony and Marjorie as one of their first Reef Guardian Farmers for their exceptional environmental practices in agriculture.

Water quality from catchment run-off has been identified as one of the priority issues reducing the resilience of the Great Barrier Reef.

Tony and Marjorie's voluntary initiatives over the last 20 years have directly addressed these critical issues.

Basic management adaptations to their Mackay cane farm have reduced the amount of sediment and nutrients that run-off the farm.

They have worked to rebuild the health of the land starting with controlled traffic farming, which is a simple approach that controls and minimises machinery used on the farm.

Controlled traffic farming makes a dramatic difference in reducing soil compaction, which helps improve the health of the soil and minimises fuel use.

Tony and Marjorie also keep a grassy cover over headlands and drains to filter run-off and reduce chemical and fertiliser movement off-farm.

In a step to reduce fertiliser and water use, weather forecasting tools are used to help determine optimal times for spraying or fertilising.

The Ross family's Mackay

farm is also managed by the use of electronic soil mapping to provide accurate data on soil nutrients when planting.

In addition to their current work, Tony and Marjorie have plans to trial organic fertilisers on a five hectare section of the farm and compare the cane yields with conventionally fertilised crops.

While this management approach already makes significant improvements on the health of the Reef, the Ross family plans to continue to develop more innovative environmental practices for the future.

# Reef Guardian Schools

More than 60,000 school students from the Torres Strait to Gympie are taking a lead role in caring for the Great Barrier Reef.

The Reef Guardian Schools program provides students, teachers and their communities with an opportunity to make positive changes for the environment in the face of emerging threats to the Reef.

Schools are recognising they can be part of the solution and participate in building the health of the Reef through habitat rehabilitation, water quality initiatives and waste minimisation.

Some Reef Guardian Schools are focusing their environmental efforts on reducing their ecological footprint to help reduce impacts from a changing climate.

Water quality is another major issue inhibiting the health of



the Great Barrier Reef and schools are acting to address this.

Trinity Anglican School has restored Sawpit Gully to improve the water that flows into the Reef. As part of the ongoing restoration project the students are continuing to stabilise the site that has also become a wildlife corridor.

A growing number of Reef Guardian Schools are influencing their local communities to become

involved and to undertake local projects that are beneficial to building the health of the Reef.

Gordonvale State School has focused on a community approach to sustainability in catchment care by developing a Reduce, Reuse, Recycle and Rethink program.

While developing strong partnerships as a part of their initiative, the school rehabilitated a local creek to improve the connectivity of the

Great Barrier Reef catchment.

The Reef Guardian Schools program has engaged 230 Queensland schools, mostly primary schools, and is now focusing on increasing secondary school participation.

Reef Guardian Schools are only found within the Great Barrier Reef catchment but we can all do something to protect the Reef – no matter where you live. It could be as simple as flicking off a switch.

# Reef Guardian Councils

Actions from Reef Guardian Councils are addressing primary issues affecting the health of the Reef.

The Reef Guardian Councils program recognises the importance of local government's role in helping to protect the Great Barrier Reef through environmentally sustainable practices.

GBRMPA is supporting Reef Guardian Councils to incorporate practices into day-to-day operations that are helping to build the health of the Reef. Councils are also developing key partnerships and educating the wider community.

Reef Guardian Councils took another step forward in 2010

by aligning their environmental efforts with the key risks identified in the *Great Barrier Reef Outlook Report 2009*, including declining water quality and climate change.

To reflect these issues, a focus on five priorities has been established: water management, waste management, land management, community education and climate change.

Mackay Regional Council has taken action to effectively manage local land by adopting eight beach management plans. The move will protect, restore and enhance some of the region's most significant assets.

The initiative provides a strategic master plan for coastal management in the region and identifies site-specific priorities and actions for each beach.

In north Queensland, Townsville City Council is part

of the Healthy Water Ways Alliance. The group is lobbying for Water Sensitive Urban Design funding and taking into consideration the lessons learnt from a similar process in South East Queensland.

Townsville City Council are already upgrading their GIS database to include recommended sites for improvements to infrastructure including measures such as fish ladders or water sensitive designs when upgrading existing sites.

In a waste management initiative, Cook Shire Council has turned their landfill sites into transfer stations where all materials collected by the council and the community are recycled or reused.

The 13 Reef Guardian Councils along the Great Barrier Reef coastline are working towards building the resilience of the Reef to better cope with stresses in a changing climate.







## More eyes and ears keeping watch over the Reef

More than 20 Traditional Owners converged on Yarrabah recently to learn how to aid the fight against illegal activities in the Great Barrier Reef Marine Park.

The two-day "Eyes and Ears – Better Witness" training workshop run by the Great Barrier Reef Marine Park Authority (GBRMPA) boosted the participants' skills in responding to and reporting suspected illegal activity.

GBRMPA Compliance Field Operations Coordinator Shaun Skerritt said the workshop met a desire by Traditional Owners and the wider Indigenous community to prevent illegal activities.

"The attendance and enthusiasm of participants means we've increased our network of eyes and ears to assist with Marine Park management and compliance," he said.

"The workshop covered Marine Park compliance, resources available to aid their work, zoning legislation

and how Native Title legislation operates with Marine Park legislation.

"Traditional Owners and Indigenous communities have a close connection with the Reef and are important stakeholders in ensuring it is protected for the future.

"This workshop is a culmination of two years of planning and development by Traditional Owners, Indigenous stakeholders, GBRMPA and a number of other government agencies."

Mandingalbay-Yidinji Traditional Owners attended the workshop in Yarrabah. Attendees included already established Indigenous Rangers and community members interested in sea country management.

There was widespread support for the workshop and its aims.

"This compliance training demonstrates a commitment to developing a serious partnership with the GBRMPA and other government agencies with the aim of

managing sea country," Yidinji Traditional Owner Vince Mundraby said.

"These partnerships are part of a longer transitional plan to ensure the sustainability of this region's resources for future generations, and we support the rights and responsibilities of the custodians," Yarrabah Aboriginal Shire Council CEO Leon Yeatman said.

The workshops were delivered by GBRMPA through the Australian Government's Caring for Our Country Reef Rescue Indigenous Land and Sea Country Partnership Program.

The workshops represent one of three types of training packages GBRMPA developed to address specific issues identified by Traditional Owners. All three training packages will continue to be rolled out during 2011.

### Coastal councils meet to protect the Reef

Mayors and senior staff from councils along the Great Barrier Reef coastline recently met in Cairns to help shape the direction of the Great Barrier Reef Marine Park Authority's Reef Guardian Council program.

The Reef Guardian Council Steering Committee meeting was hosted by the Cairns Regional Council and covered a range of topics including coastal ecosystems and their value to the communities and broader environment.

### Reef HQ Aquarium makeover

Reef HQ Aquarium is undergoing a makeover from the top with the Aquarium's first floor to be transformed to include more displays, amenities and a conference room.

The project will see Reef HQ become one of Townsville's prime conference and function centres, with the quirky twist of having guests wander around on top of a living coral reef ecosystem.

The upgrade will also include the addition of new display tanks, and the introduction of extra interactive opportunities and new education programs.

### Local school scoops up award

Gordonvale State School was recently awarded the inaugural Virginia Chadwick Memorial Foundation's Award for Environmental Excellence for outstanding environmental achievements.

The Virginia Chadwick Memorial Foundation is a non-profit organisation, founded in memory of the late Hon. Dr Virginia Chadwick who was the former Chairman of the Great Barrier Reef Marine Park Authority.



## Fishers keep an eye out

With more than 1500 commercial fishing boats off the coast of Queensland, the chance of fishers interacting with a species of conservation interest is high.

While it is difficult to escape the risk of accidentally catching or harming these species, such as dugong and marine turtles, the number of fishers who actually report incidents is extremely low.

The Great Barrier Reef Marine Park Authority (GBRMPA), Queensland Seafood Industry Association (QSIA), the Department of Environment and Resource Management and Fisheries

Queensland are working together to encourage commercial fishers to report incidents, benefiting all parties involved.

GBRMPA Ecosystem, Conservation and Sustainable Use Manager Mark Read said commercial fishers play a crucial role in understanding and managing species.

"Commercial fishers spend their lives on the water, observing the seasons, the habitats they fish in and the animals they encounter," Mark said.

"This information is incredibly valuable for

informing the management of their fisheries and for identifying practical solutions for minimising interactions with these species.

"Without this data from commercial fishers it is difficult to develop effective management responses."

If an animal of conservation interest is caught in a net and is reported, the catch is not illegal. However failure to report could result in legal consequences.

Mark said although reporting incidents was extremely beneficial in the management of species, commercial fishers would

also gain information of great use to their business.

"Information from fishers about when and where they see herds of dugong could allow development of regional management approaches to restrict fishing to certain areas and minimise the chances of catching dugong," he said.

"It would be in the fishers' interest to avoid these herds because with dugongs weighing up to 400kg it could result in damage to the net and loss of fishing time, all of which has an impact on the fisher and the environment."

GBRMPA is also recognising best environmental practices from commercial fishers within the Great Barrier Reef Marine Park.

The Reef Guardian Fishers pilot program encourages and recognises those fishers and business who take further steps to help improve the resilience of the Great Barrier Reef and fish sustainably.

To report a stranded, sick or dead marine animal please call 13 QGOV (13 74 68).

## Turtle Hospital sends off another six

Six former patients of the Reef HQ Turtle Hospital were released back into the wild recently, including 150kg marine turtle Raylene who had to be carried to the water in a harness.

The 50-year-old turtle was released back into the Great Barrier Reef Marine Park after she was rehabilitated from floating syndrome.

Raylene was among six turtles that were released, the biggest mass release from the Turtle Hospital to date.





## Coral internal clock just keeps on ticking

According to new research, when it comes to telling the time corals trump humans.

While many humans are adrift without a wristwatch, research has shown how corals' internal clocks tick reliably even when they are no longer stimulated by external signals like the sunlight and the moon.

ARC Centre of Excellence for Coral Reef Studies (CoECRS) and James Cook University Professor David Miller said this ability to tell the time appears hard-wired into corals.

"It is something they have learned to do automatically – probably because it was a matter of life or death," he said.

The study, conducted at the CoECRS, investigated how

corals use circadian rhythms to dictate their feeding and breeding and to manage their symbiotic relationship with algae.

The study included taking samples every four hours under conditions of normal light/dark and total darkness. From this the researchers discovered

corals were running two separate circadian systems in parallel.

During the day, corals supporting symbiotic algae nourish the coral. However when night falls the algae reverses this partnership and turns to suffocate the coral and rob it of precious oxygen for its own survival.

The research found coral responded to this threat by

making enzymes to help them struggle through this period.

"What they do is automatically make a whole swag of "emergency response" proteins known as chaperones – molecules that mop up the damage that corals sustain every day," David said.

When sunlight returned, algae powered up again and returned to their domestic duties of nourishing the coral.

"Both systems are necessary to the survival of the symbiotic marriage of the coral animal with a completely different life form, a plant," he said.

"It's a fresh example of the marvelous complexity and interplay that takes place in the partnership, where both have evolved sets of genes that enable them to survive with the other's quirks."

... this ability to tell the time appears hard-wired into corals.

### Torres survives Yasi

Former patient of the Reef HQ Aquarium Turtle Hospital, Torres the green turtle, was in the path of cyclone Yasi about a day before it crossed.

As cyclone Yasi approached the Queensland coast in February, Torres, who was installed with a satellite tracking device on his release in 2010, escaped the destructive winds and headed north toward Cairns.

You can track Torres' journey at [www.seaturtle.org/tracking](http://www.seaturtle.org/tracking).

### Reef Guardians awarded

Reef Guardian Schools across the Great Barrier Reef catchment were rewarded with grants to continue their innovative environmental work they intend to undertake in 2011.

The grants of \$500 were given to 20 Reef Guardian schools as a part of the Reef Guardian Schools Ripples of Change Awards, providing an opportunity for the schools to undertake small environmental projects within their schools.

### Bundaberg joins the Reef Guardian Program

Bundaberg Regional Council showed its commitment to protecting the Great Barrier Reef by partnering with the Great Barrier Reef Marine Park Authority (GBRMPA) to officially become a Reef Guardian Council in March.

GBRMPA Chairman Dr Russell Reichelt said the Great Barrier Reef faced increasing pressures and local government commitment to initiatives like Reef Guardian Councils helped to ensure the Reef was well placed to meet the challenges ahead.

Presently, there are 13 Reef Guardian Councils involved in the GBRMPA program.

## Calendar of events 2011

### 18-22 April

18	World Heritage Day
14 - 20	Australian World Heritage Week
22	Earth Day

### May

8 - 9	World Migratory Bird Day
9	National Volunteer Week
9 - 11	OZ' Water Week 2011
18	International Museum Day
20	Walk Safely to School Day
22	International Day for Biological Diversity
23	World Turtle Day
26	National Sorry Day
27	National Reconciliation Week

## What can I do?

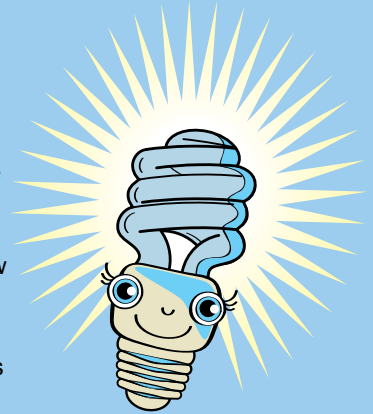
### Smarty pants

While a changing climate is increasing temperatures on its own, we need to try slow it down by reducing our greenhouse gas emissions. How? By keeping our energy use to a minimum through turning off lights, appliances, air-conditioners – whatever you can!

- Buy an energy-efficient water heater
- Switch to 'green' electricity produced from renewable sources
- Use energy efficient lights

- Choose energy efficient products
- Turn off electrical devices, such as televisions, at the wall
- Turn off lights around the house
- Use less hot water
- Dry your clothes on the clothes line, not in the dryer
- Heat and cool your house efficiently
- Cool your home by allowing the breeze to flow in, instead of using the air-conditioner
- Spread the word to others

Remember the more energy you use, the higher our temperatures get, and when it gets too hot our turtles, seabirds, coral and other reef creatures can't cope – so flick the switch!



## Creature feature

### Sawfish of the Great Barrier Reef

Four of the world's seven species of sawfish are known to be found in the Great Barrier Reef Marine Park and joining coastal, estuarine or inland waters.

While their name suggests they are a fish, the species is in fact in the sharks and rays family. It is their distinctive crosscut saw-looking extension that gives them the sawfish name.

This extension or rostrum is very sensitive and is used by sawfish in defence or to dig for prey. They can even use it to stun their prey – making it an easy meal.

Generally sawfish are slow growers, take many years to reach sexual maturity, are long-lived and produce few young. These traits make sawfish populations vulnerable to the pressures they are under.

All four species of sawfish in the Marine Park are protected and it is illegal to keep them if they are caught. The International Union for the Conservation of Nature and Natural Resources Red List of Threatened Species lists all four species as critically endangered globally.

#### The freshwater sawfish

One of the ways sawfish can be identified is by the number of teeth on the saw. The freshwater sawfish can grow to around six metres in length and has less than 20 teeth on either side of its saw.

Juveniles and young adults spend most of their time in rivers and estuaries, while the larger more mature animals tend to be found in coastal and offshore waters. They eat fish, molluscs and crustaceans.

#### The dwarf sawfish

Despite its name, the dwarf sawfish can grow to over three metres in length. Across northern Australia they are restricted to brackish and saltwater. They mostly eat prawns and fish.

#### The green sawfish

The green sawfish is generally not found in freshwater but prefers coastal and inshore environments, including estuaries and river mouths.

Studies of the green sawfish have found an apparent preference for shallow inshore waters as nursery areas.

The green sawfish isn't an ambush predator, as other sawfish can be, but actively pursues schools of baitfish and prawns.

#### The narrow sawfish

The narrow sawfish can be found in northern Australian inshore waters to a depth of around 40m and probably spends a lot of its time on or near the sea floor.

