GREAT BARRIER REEF MARINE PARK NEWS

SEAREAD

FROM CATCHMENT TO CORAL

Australian Government
Great Barrier Reef Marine Park Authority

No. 44
Mar/Apr 2012

Water Quality Supplement

Great Barrier Reef recognised

World Heritage mission assesses state of Reef

Cover: A common coral trout swims over the reef

In this Issue

ISSN 1834-6774

Great Barrier Reef
Marine Park Authority
2-68 Flinders Street
PO Box 1379
Townsville Qld 4810

Phone: (07) 4750 0700
Fax: (07) 4772 6093
Email: info@gbrmpa.gov.au

Reduce your ecological footprint by receiving *SeaRead* electronically! Send us your email address at searead@gbrmpa.gov.au or phone us on (07) 4750 0700

www.gbrmpa.gov.au

ICRI
International Coral Reef Initiative

We are proud to work with the Government of Belize to host the International Coral Reef Initiative for 2012-13. ICRI sees governments, agencies, non profit organisations, and the private sector work together to promote sustainable use of the world's coral reefs and related ecosystems. Visit http://www.icriforum.org/

Chairman's message

Many activities are taking place to manage and protect the Great Barrier Reef Marine Park, and I am pleased to share some of the highlights with you.

The Great Barrier Reef was recently recognised for its distinctive and diverse environment, and was added to Australia's National Landscapes.

Australia's National Landscapes is a unique tourism and conservation partnership to promote the nation's world-class visitor experiences and enhance the value of tourism to regional economies.

This recognition confirms that the Reef captures the essence of our country – from its amazing natural environment to the many natural and cultural experiences on offer.

We are also celebrating the good work of our 20 Reef Guardian Schools that were each awarded a $500 Ripples of Change grant to further enhance their efforts to protect the Great Barrier Reef.

Through our highly successful environmental education program, the next generation of Reef Guardians are undertaking some fantastic environmental work in their communities.

These students are the future of the Reef, and it's heartening to see their dedication to this great Australian icon. This funding will help further develop their environmental projects.

Earlier this month, we welcomed the World Heritage Committee to the Great Barrier Reef region as part of a monitoring mission to look at reef management and coastal development.

The Great Barrier Reef was recently recognised for its distinctive and diverse environment, and was added to Australia's National Landscapes.

It follows concerns raised by the World Heritage Committee meeting in June 2011 about the impacts of development on the Reef's outstanding universal value.

The monitoring mission presented a good opportunity to show the Committee how management is taking place on the ground and hear views from a range of stakeholders.

The Australian Government shares the Committee's commitment to the protection of the Reef and is undertaking a comprehensive strategic assessment of the entire World Heritage Area over the next 18 months to two years.

The goal is to create an agreed, long-term plan for sustainable development within the Great Barrier Reef region.

Both the Great Barrier Reef Marine Park Authority and the Queensland Government have entered into Strategic Assessment Agreements with the Australian Government.

The Draft Terms of Reference for these assessments were released for public consultation. Submissions closed on 13 April.

A draft Strategic Assessment Report will be developed and released for consultation. The final version will be provided to the Federal Environment Minister for decision.

Russell Reichelt
Great Barrier Reef
Marine Park Authority

Great Barrier Reef recognised

Federal Tourism Minister Martin Ferguson, Tourism Australia Managing Director Andrew McEvoy and GBRMPA Marine Park Management General Manager Andrew Skeat. (Photo courtesy of Tourism Australia)

The Great Barrier Reef recently joined a prestigious group of Australian natural and cultural icons when it was named a National Landscape.

This concept identifies landscapes which capture the essence of Australia and promotes the areas as distinctive, natural and cultural experiences for those people looking to explore Australia.

Officially announced by Federal Environment Minister Tony Burke and Federal Tourism Minister Martin Ferguson, the Reef was recognised for its outstanding natural and cultural values, its best practice management and the tourism opportunities on offer.

Environment Minister Tony Burke said a series of local workshops had identified the intricacy and diversity of the Reef's natural environments as the area's unique selling point.

"The variety of life here is staggering – it's the best managed reef in the world and each of its 900 islands and 2900 coral reefs offers a glimpse into a different underwater world," Mr Burke said.

"Nature is the number one thing that attracts overseas visitors to our shores, so all the work we do to protect the Reef is crucial to the tourism sector."

Great Barrier Reef Marine Park Authority (GBRMPA) Chairman Russell Reichelt said it was fitting that the Great Barrier Reef was named a National Landscape.

"The partnership ethos of the National Landscapes program is one that we support and it is one of the strong foundations that we base GBRMPA's management on," he said.

"I am very proud to see the Great Barrier Reef become a National Landscape and celebrate all that is unique and outstanding about the Great Barrier Reef.

"Undoubtedly the Reef's vast size means there are a broad range of fantastic tourism opportunities on offer with our high standard tourism operators.

"Becoming a National Landscape will promote the vastness, diversity and uniqueness of both the Great Barrier Reef and all it has to offer."

The National Landscapes program is a partnership between the Australian Government and Tourism Australia.

The program captures and promotes the best of Australia to achieve conservation, social and economic outcomes for the country and its regions.

Each landscape must meet certain criteria for selection including: protecting Australia's distinctive natural and cultural assets for our future, sustainability, ongoing leadership and management, cooperative regional planning, appropriate infrastructure, and building and sharing knowledge.

Australia's National Landscapes are: Australian Alps, Australia's Coastal Wilderness, Australia's Green Cauldron, Australia's Red Centre, Flinders Ranges, Greater Blue Mountains, Great Ocean Road, Kakadu, Kangaroo Island and the Kimberley.

World Heritage mission assesses state of Reef

An international monitoring mission representing the World Heritage Centre/UNESCO and the International Union for the Conservation of Nature (IUCN) visited North Queensland from 6 to 14 March to assess the state of conservation of the Great Barrier Reef World Heritage Area.

Coordinator of the Marine Program from the World Heritage Centre in Paris, Fanny Douvere, and Head of the World Heritage Program at IUCN in Switzerland, Tim Badman, travelled most of the Great Barrier Reef coast, spending time in Gladstone, Mackay, Townsville and Cairns to meet with stakeholders.

They visited, or inspected from the air, existing and proposed port development sites along the coast and travelled as far north as Princess Charlotte Bay.

The mission inspected some key management approaches being applied in the Great Barrier Reef including the Reef-wide Vessel Management System coordinated by Australian Maritime Safety Australia (AMSA) and Maritime Safety Queensland (MSQ), and the efforts being made by cane growers to minimise their impacts on the Reef through improved farming practices.

The mission also visited Heron and Lizard Islands to understand how these areas are managed as an important part of the World Heritage property. Having seen much of the Reef from the air, the mission delegates were amazed at its sheer size and complexity.

Dr Douvere and Mr Badman were pleased with the extensive range of stakeholders they were able to meet, including government agencies, expert researchers, ports and industry representatives, environmental groups, fishing and tourism industries and local community groups.

They were compliementary about the constructive way the majority of stakeholders approached the meetings. They were also impressed by the high standard of management conducted in the Reef. While they had previously heard that the Great Barrier Reef was the "gold standard" of marine management in the world, they didn't realise just how comprehensive many of the aspects of management really were until they were able to see how management was actually undertaken.

Despite the many positive aspects of the visit, the mission acknowledged that the Great Barrier Reef was "at a crossroads" and that many decisions made in the next few years would be critical to the long-term future of the Reef.

The mission representatives now have the challenging task to assimilate the information they gathered to compile a report on the state of conservation of the World Heritage Area. A combined report by the IUCN and the World Heritage Centre will be considered by the World Heritage Committee at the next Committee meeting in June 2012.

Strategic assessment begins

The Australian and Queensland Governments are jointly undertaking a stratgic assessment of the Great Barrier Reef and adjacent coastal zone. to create an agreed, long-term plan for sustainable development within the Great Barrier Reef Region.

It will be the most comprehensive and complex strategic assessment ever carried out in Australia.

The strategic assessment will consist of two key components – a marine component and a coastal component. The Great Barrier Reef Marine Park Authority will lead the marine component which will look at the effectiveness of arrangements in place to manage and protect the Marine Park and World Heritage Area.

The Queensland Government will lead the coastal component which will look at coastal development such as planning for urban, industrial and port development, and the processes and management arrangements in place to ensure development occurs sustainably.

The Terms of Reference for both the marine and coastal components of the assessment define what the assessment will cover and the approach used to conduct it.

Key steps in the proposed assessment process include:

- A description of existing management arrangements for the protection and management of the Great Barrier Reef
- A description of Great Barrier Reef values, including World Heritage and Marine Park values (referred to as 'matters of national environmental significance')
- Identification and analysis of impacts on the Great Barrier Reef, including cumulative impacts, from planned and potential future development on the Great Barrier Reef
- An analysis of measures to avoid, mitigate and offset impacts on Great Barrier Reef values
- Identification of key uncertainties and risks in decision-making processes and a description of how these will be addressed, including monitoring, reporting and adaptive management processes
- Recommended changes to existing management arrangements to ensure impacts, including cumulative impacts, on Great Barrier Reef values are managed to an acceptable level.

Visit www.gbrmpa.gov.au for more information.

Australian Government
Great Barrier Reef Marine Park Authority

WATER Quality
SUPPLEMENT

The special ingredient making the Reef great

When people think about the Great Barrier Reef, most visualise images of vibrant corals or amazing animals that call the Reef home.

It's not often they think about the water that supports all the elements that comprise the Reef – from microscopic plankton to whales weighing more than 100 tonnes, and everything in between.

The lifeblood of the Great Barrier Reef, water is equivalent to the air and atmosphere that support human life.

Marine habitats, plants and animals rely on water with natural concentrations of nutrients (nitrogen and phosphorus) and sediments for their survival.

When the quality of water on the Reef is compromised it has a flow-on effect for all the ecosystems and animals that live in it.

The quality of the water entering the Reef can be affected by a number of factors: the level and types of contaminants entering rivers and streams; the capacity of areas in the catchment to filter the water (such as riparian areas and wetlands); and the downstream impacts of other actions such as land clearing, intensification of agriculture and degradation of wetlands, which can result in increased sediment or chemicals flowing into the river system.

The Great Barrier Reef Marine Park Authority is working in partnership with the community, industry and other government agencies to improve the quality of the water entering the Reef from the catchment.

Affects of flooding on water quality

Flood plume in Hinchinbrook Channel after cyclone Yasi

One of the ways contaminants can enter rivers and streams and eventually the Reef is through flooding. Flooding is a frequent occurrence in Queensland during summer and this can cause significant flood plumes.

Potential impacts of flood run-offs can include:

- Freshwater bleaching in shallow corals
- Disease and mortality from high sediment, nutrient and pesticide loads
- Increased plankton, algal and seaweed blooms
- Smothered corals and seagrass
- Reduced coral and seagrass growth
- Increased breeding activity of some fish and crustacean species such as barramundi, mangrove jack and prawns, which may mean greater catches in coming months
- Improved breeding conditions for some sponges and bivalves.

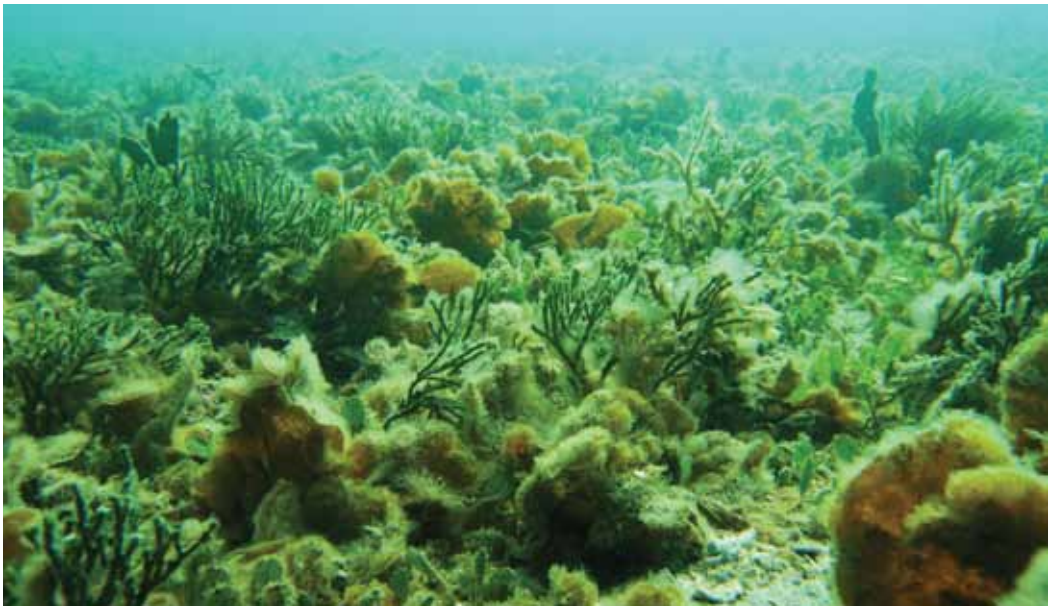
Plants and animals can struggle to cope with low salinity and low light caused by severe flood events, as the ways they have to adapt can only be sustained for short periods.

Poor water quality can have social implications for communities and industries.

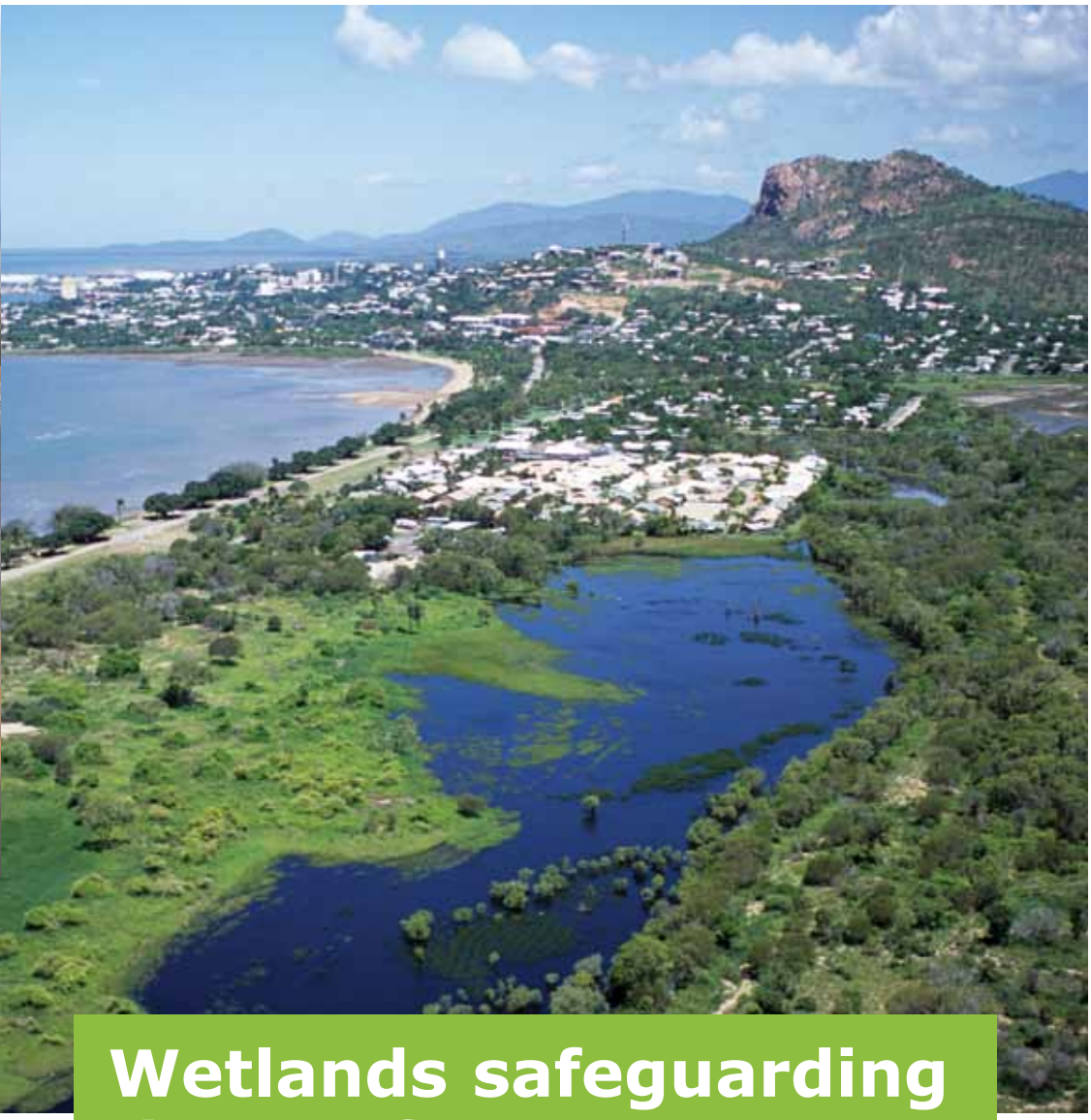
- Potential economic costs include declines in fish populations important for fishing and a decrease in recreational visits, which has flow on effects to local industries.
- Algal blooms and increased particles in the water reduces underwater visibility. If the concentration and frequency were to increase, visitor satisfaction to the Great Barrier Reef may be affected.

The extent of any impact depends on how much pollutant is carried out with waters, and how long the water stays in the system.

Some impacts take time to show their full effect and it can be months before we know how much damage there may have been.



Soft coral covered in algae in Keppel Islands group



Wetlands safeguarding the Reef

Coastal wetlands provide a vital link between land, freshwater and marine environments.

They protect our shores from wave action and, more importantly, they filter and recycle pollutants to purify the water before it flows out into the Reef and form nurseries for fish and other freshwater and marine life.

Wetlands in the Great Barrier Reef catchment occur in many different forms. They may include flowing streams, billabongs, ephemeral lakes, lagoons, dams or urban wetlands.

Population increases and pressures in land-use practises in the catchment and coastal areas create competition for the use of wetland resources. Past agricultural activities have led to a loss of wetlands through drainage and infilling practices.

Draining of wetlands can expose acid sulphate soils to the air that can acidify soil, ground waters and surface waters, which may drain into adjacent waterways impacting on aquatic species.

Several Great Barrier Reef wetlands are listed under the Convention on Wetlands of International Importance (the Ramsar Convention), which aims to halt the worldwide loss of wetlands.

Learning about wetlands

Interactive touch screens that contain information about the importance of wetlands to the Great Barrier Reef were re-launched on World Wetlands Day this year.

Great Barrier Reef Marine Park Authority Water Quality and Coastal Ecosystems Director Hugh Yorkston said touch screens rolled out in Mackay, Townsville and Ingham were upgraded to improve the user experience.

"Wetlands are vital to protecting the Great Barrier Reef and the more people learn about their importance of wetlands, the better it is for the Reef," he said.

"Our aim is to encourage people to identify wetlands in their local area and understand the simple things they can do to take better care of wetlands and in turn help protect the Great Barrier Reef."

The touch screens were developed by the Queensland Wetlands Program, a joint initiative of the Australian and Queensland governments.

Monitoring and improving water quality

Sensitive ecosystems, like coral reefs, require good-quality water to remain healthy, and the Great Barrier Reef Marine Park Authority (GBRMPA) is working with its partners to monitor and improve the quality of water entering the Marine Park.

The Reef Water Quality Protection Plan (Reef Plan) has seen the Australian and Queensland governments committed to ensuring that by 2020 the quality of water entering the Reef from adjacent catchments has improved.

They have invested more tan $375 million over five years to Reef Plan activities. This includes a $200 million Reef Rescue initiative which provides financial incentives to farmers to adopt improved practices in land management. It also includes the Reef Protection package by the Queensland Government which funds research and development into better land management practices.

As part of the Reef Plan, GBRMPA undertakes a water quality monitoring program, to monitor the impact of flood events in the Great Barrier Reef Marine Park.

The GBRMPA, together with James Cook University, Central Queensland University, Australian Institute of Marine Science, Queensland Department of Employment, Economic Development and Innovation and volunteers, assess levels of nutrients, sediments, pesticides and salinity as well as the overall health of corals and seagrass beds.

The monitoring program enables the Australian and Queensland governments to measure the success of the Reef Plan's implementation.

The findings are used to publicly report on the progress towards the Reef Plan goals, objectives and targets.

While the Great Barrier Reef will be subject to future extreme weather events, the land management changes being made by farmers with the support of initiatives like Reef Rescue will reduce the longer-term impact of land-based pollutants on the Reef and make it more able to cope with climate change and other stressors.

Reef Guardian Farmers and Graziers in action

Reef Guardian Farmers and Graziers are improving the economic and environmental viability of their farms while increasing the Reef's resilience, leading the way for significant improvements in the amount and quality of water running into the Great Barrier Reef.

Reef Guardian Graziers Jeff and Karen Mills from Morinish near Rockhampton are undertaking a range of innovative land practices to improve the quality of water flowing from their property.

Among their sustainable practices is fencing riparian areas, the land between their property and a local stream.

"We are proud to be Reef Guardian Graziers, as we believe cattle producers have an important role to play in managing properties so off-farm impacts are minimised," Jeff said.

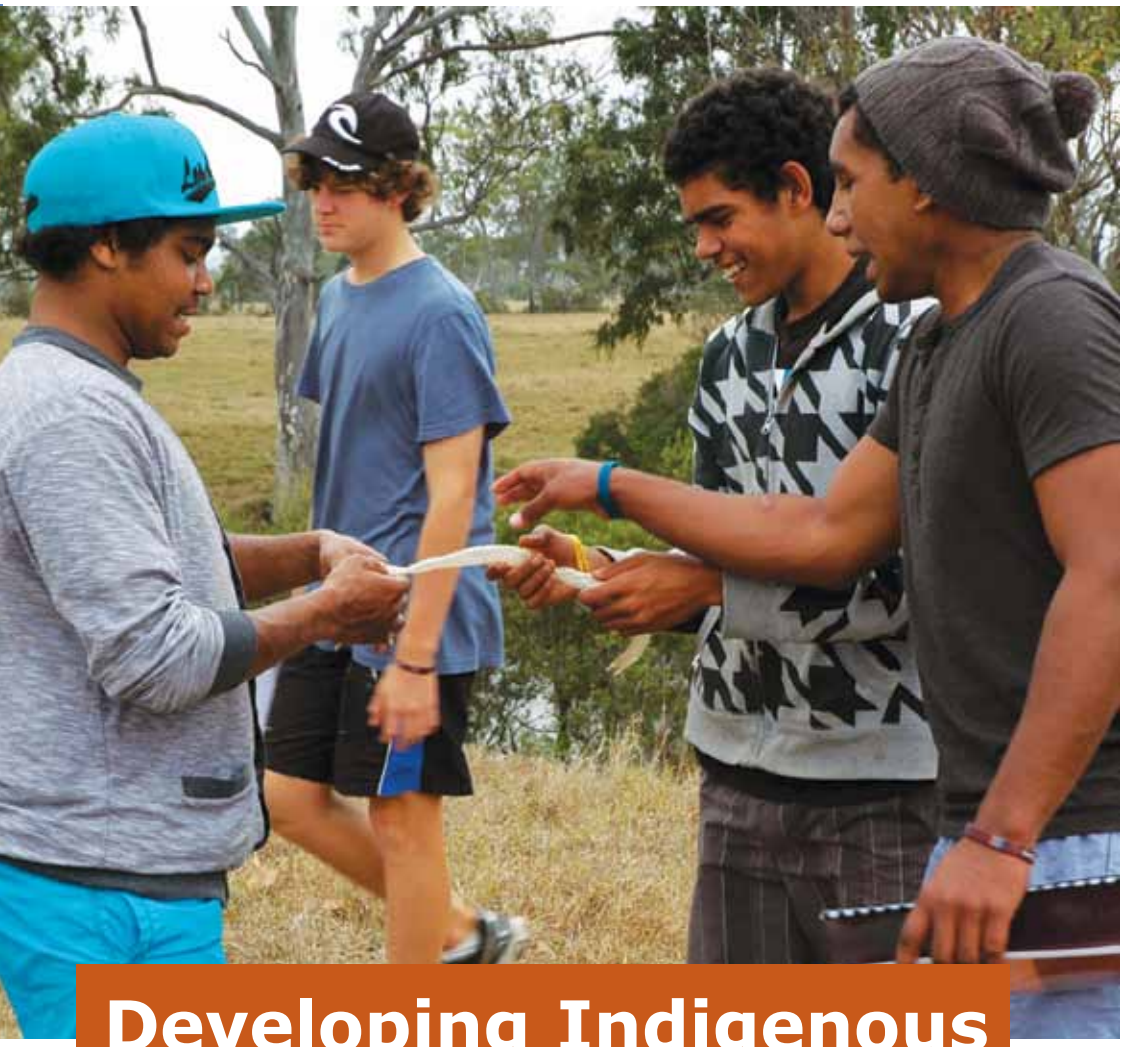
The Reef Guardian Graziers is a new environmental program of the Great Barrier Reef Marine Park Authority to help protect the Reef for the future.

It showcases the good environmental work graziers are undertaking to help protect the Reef and encourages others in the industry to get involved in similar activities.

What you can do

Everyone can make a difference to water quality and the health of the Reef by modifying their actions around the house and when they're on the water.

Be sure to read the What Can I do? article on page 12 of this month's Searead to find out the steps you can take to help protect and improve water quality on the Great Barrier Reef.



Developing Indigenous leadership

Indigenous high school students from Glenmore State High School in Rockhampton recently learnt about land and sea protection and conservation to help the Great Barrier Reef.

The Indigenous Leadership program is part of the Great Barrier Reef Marine Park Authority's (GBRMPA) Reef Rescue Land and Sea Country Indigenous Partnerships Program.

GBRMPA Indigenous Partnerships Director Liz Wren said it was important to establish the next generation of Reef custodians.

"The Great Barrier Reef is important to the Traditional Owners who have a close connection with the marine environment," she said.

"The next generation shares this passion for the Reef and it's important for them to get hands-on experience in both traditional and modern methods of conservation management.

"It was great to have Traditional Owners work with GBRMPA and Queensland Parks and Wildlife Service staff to deliver the program."

Students visited sites between Rockhampton and Yeppoon, providing an opportunity for senior male students to reconnect to land and sea country.

At each site, Indigenous mentors introduced the students to the real-life impacts that personal, recreational and commercial actions can have on the Great Barrier Reef.

From this, the students delivered presentations to fellow students, school staff, GBRMPA officers and their family members about how they can personally look after sea country.

On a second field trip, selected students spent a day with a Marine Parks Ranger on a QPWS Marine Parks vessel to learn the ins and outs of their day-to-day work.

This included safety procedures and stowing equipment onboard vessels, as well as Marine Park management including zoning and basic matters of compliance.

BRIEFS

EMC reduction

The Australian Government recently announced a temporary reduction in the Environmental Management Charge (EMC), for visits to the Great Barrier Reef Marine Park with a commercial operator.

Under the arrangement, there will be a $2.50 reduction in the EMC for three years to take effect from 1 April 2012.

From April, the EMC paid by a tourist on a full day trip to the Marine Park with a commercial operator will be reduced to $3.50 per day while a part day visit will be $1.75.

The reduction in the EMC, as collected through the Standard Tourist Program Charge, will end on 31 March 2015.

Tourism operators collect the EMC through a Standard Tourist Program Charge from their clients then remit the funds to the Great Barrier Reef Marine Park Authority (GBRMPA).

The funds are used for management initiatives to keep the Great Barrier Reef Marine Park healthy.

This includes environmental impact management, research, education, policy development and field management.

Over the next three years, the Australian Government will offset the lower EMC collected to ensure the GBRMPA can continue its high standard of management of the Great Barrier Reef Marine Park.

The temporary $2.50 reduction will remain constant over the three years, but the Standard Tourist Program Charge is subject to Consumer Price Index (CPI) adjustments.

GBRMPA experts on YouTube

See remarkable vision of the Great Barrier Reef and watch insightful videos from marine experts on the Great Barrier Reef Marine Park Authority's new YouTube channel.

With new videos uploaded regularly it's a great way to learn about issues affecting the Great Barrier Reef, and can be a great useful tool.

Find it at www.youtube.com/user/TheGBRMPA

Reef communities

Queenslanders have an amazing natural treasure on their doorstep – the Great Barrier Reef.

This multiple use area is a vital hub for both recreation and industry and Queensland coastal communities are important stakeholders in protecting and managing the Reef for the future.

Throughout the year we will take a closer look at those regions and the challenges they face while also profiling our community partners, the Local Marine Advisory Committees.

There are 11 Local Marine Advisory Committees along the coast and this regional engagement is vital to the Great Barrier Reef Marine Park Authority (GBRMPA) when making important management decisions.

Burnett region

The Burnett area encompasses the southern reaches of the Great Barrier Reef Marine Park.

Visitors to the Bundaberg region can access some of the best fishing on the Reef and they are also likely to see turtles with significant breeding and nesting grounds in the area such as Mon Repos.

The region is also home to the sugar industry, commercial fishing, small crops, forestry and agriculture.

There are several initiatives underway to monitor water quality flowing into the Great Barrier Reef. These include participation of local conservation groups in programs associated with the Queensland Wetlands Program and the Caring for our Country Reef Rescue Progam.

Traditional Owners groups Gooreng Gooreng, Gurang, Bailai and Tarebilang Bunda play an important role protecting turtle and dugong.

They are part of the Port Curtis Coral Coast Regional Traditional Use of Marine Resources Agreement (TUMRA) in place over almost 26,386km^2 - the largest TUMRA area in the Great Barrier Reef Marine Park.

Turtle hatchlings head to the water

Students from Bagara State School planting trees

Cassowary Coast region

The Cassowary Coast region is where the rainforest meets the Great Barrier Reef Marine Park.

The area is well-known for its agriculture with sugar cane, bananas and tropical fruit farms the main industry.

A commercial fishing fleet also operates from Innisfail.

With the agricultural industry the lifeblood of the area, it is critical to monitor water quality entering the Reef and efficiently respond to marine animal strandings.

The region continues to recover from two category five cyclones.

The GBRMPA monitors the condition of the Reef and in particular seagrass meadows, the feeding grounds of sea turtles and dugong.

LMACS in focus

Burnett LMAC

The region from Rocky Point in the north to Burrum Point in the south is represented by the Burnett Local Marine Advisory Committee (LMAC).

Many parts of the community are still recovering from the floods of 2010-11.

There is a strong focus on assisting commercial fishers to get back operating on the water.

The Bundaberg Regional Council and LMAC have been working to revegetate the MonRepos turtle rookery.

The project will reduce light pollution from surrounding development as it deters nesting female turtles and prevents hatchlings from finding their way to the sea.

This year the LMAC will also receive training (in conjunction with Fisheries Queensland) on survey techniques and providing rapid response to any pest fish outbreaks in local water ways.

Cassowary Coast LMAC

The Cassowary Coast Local Marine Advisory Committee (LMAC) is passionate about protecting local shorebirds, producing a brochure to show visitors how they can help protect the animals.

With beaches in the Cassowary Coast popular with recreation users, the brochure is designed to raise awareness about the birds, according to LMAC Chair Bill Shannon.

"Breeding colonies of little terns are surprisingly hard to see as they nest above the high tide mark and it is very easy to crush their eggs and disturb the chicks," he said.

"If we can all become a bit more aware of our actions, we can protect the environment and these endangered little terns."

Belgian Gardens State School students Bethany Webber, Katerina Campbell, Cassandra Ticehurst, Ben Kitchen and Byron Ebenestelli accept their award

Funding boost for Reef Guardian Schools

Twenty Reef Guardian Schools have received $500 each, through the Great Barrier Reef Marine Park Authority's (GBRMPA) *Ripples of Change* grants program.

GBRMPA Reef Guardian Director Karen Vohland said the grants would allow students to continue to expand on their environmental work that helps to protect the Great Barrier Reef.

"Each school has their own project ranging from breeding fish and building worm farms to increasing vegetation and reducing erosion," she said.

Twenty $500 grants are awarded by the GBRMPA each year to assist Reef Guardian Schools to undertake small environmental projects within their schools.

The schools nominate a project they would like to initiate and present a project plan to the GBRMPA.

The selected schools receive their grants early in the year to allow them time to implement their projects within the school year cycle.

Reef Guardian Schools is an environmental education program run by the Great Barrier Reef Marine Park Authority.

The program aims to create awareness, understanding and appreciation of the Great Barrier Reef and its connected ecosystems.

Ripples of Change grant winners are:

Paluma Environmental Education Centre, Babinda State School, Hampden State School, Tannum Sands State High School, Gympie State High School, Coowonga State School, Maidavale State School, Cooktown State School, Victoria Plantation State School, Kelso State School, Belgian Gardens State School, Gympie East State School, Mansfield State High School, Cawarral State School, The Willows State School, Kirwan State School, St Marys Catholic College Maryborough, Redlynch State College, Gargett State School and Collinsville State High School.

BRIEFS

Call for help

Researchers are calling for volunteer divers to help survey coral on the fringing reef around Orpheus Island in the Great Barrier Reef.

Earthwatch Australia and the Australian Institute of Marine Science (AIMS) need divers to help assess the growing prevalence of coral disease on the site as part of the new joint research project 'Recovery of the Reef'.

Volunteers can register their interest by calling (03) 9682 6828 or going to earthwatch.org.au.

New breed of shark

Hybrid black tip sharks containing the DNA of the common and the Australian black tip sharks were discovered along the east coast of Australia including the Great Barrier Reef.

In an unprecedented hybridisation between sharks in the wild, scientists have found 57 sharks in a 2000 km stretch of coast.

Hybridisation occurs among other species such as birds and some fish however this is the first recorded case between shark species.

New Reef Guardian schools

Eleven new schools from the Mackay, Gladstone, Bundaberg, Cairns and Townsville areas have shown their support for the Great Barrier Reef by signing up for the Reef Guardian Schools Program.

They join over 111 000 students from over 285 schools across the State taking part in the Great Barrier Reef Marine Park Authority's environmental education program.

The Reef Guardian Schools program gives teachers access to environmental-themed curriculum material and students are involved in activities both in and outside the classroom to help protect the Reef.

What can I do?

Where does the water used for land activities such as washing your car, clothes and dishes go once you turn off the tap or pull the plug in the sink?

It is likely that water runs off on to the Great Barrier Reef and impacts on the health of this natural wonder.

With water quality having a major impact on the health of the Reef and all the animals that call it home it is vital that we follow a few simple tips to protect the Reef:

- Reduce excess water use by taking shorter showers, check for leaks, install a dual flush toilet and water-saving shower nozzle
- Prevent run-off from around the house by adhering to water restrictions, water during early morning or evening, install water efficient sprinklers and use mulch to help garden beds retain moisture.

People can also keep the Reef clean when out on the water by following the Great Barrier Reef Marine Park Authority's Responsible Reef Practices:

- Take all litter with you and dispose of it on shore
- Collect any litter you find on and in the water and dispose of it on shore
- Re-fuel onshore where possible, using the correct gear and have clean-up equipment ready
- Do not pump bilge water overboard if oil is present in the bilge
- Store all sewage in holding tanks, if possible, and use pump-ashore facilities, where provided
- Always know what chemicals and quantities you have onboard and store them securely in a well-ventilated, bunded area.

Creature feature

Seahorse

Seahorses are a species that buck the trend when it comes to traditional parenting.

In what is sure to make other female species in the marine and wider world extremely jealous, seahorses are the only animal species on Earth in which the male bears the unborn young.

Male seahorses have a pouch on their abdomen which the female utilises when mating to deposit her eggs.

The male then fertilizes them internally and carries the eggs in his pouch.

Over a period of a few weeks the male's pouch becomes swollen until he hatches up to 100 fully-formed miniature seahorses into the water.

Despite being poor swimmers seahorses are classed as fish.

These creatures propel themselves through the water by using a small fin on their back which can beat up to 50 times a second, allowing them to move in all directions.

To protect themselves in rough seas and to camouflage themselves from their prey, seahorses will use their tails to anchor to seagrasses and corals.

They eat plankton and small crustaceans that drift by using their snouts to suck these tiny animals into their mouths.

The biggest threats to seahorses are humans - millions of dried seahorses are traded worldwide and many are taken for the aquarium trade or as incidental by-catch in commercial fisheries.

Destruction and pollution of coastal habitats is also having a major impact on seahorse numbers.