



Australian Government
Great Barrier Reef
Marine Park Authority

SEAREAD

FROM CATCHMENT TO CORAL

No. 43
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Turtle Supplement



**GBRMPA and Defence
agree on Reef protection**

**Reef HQ staff
get to know sharks**



Cover: Reef HQ Turtle Hospital staff return the 150 kg green turtle Raylene to the water

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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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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



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



The New Year brings a renewed focus and enthusiasm to the protection and management of the Great Barrier Reef, and it's timely to remind ourselves what makes the Reef so special and why it deserves our care and support.

We kick-start *SeaRead* in 2012 with a supplement on marine turtles, a much-loved iconic animal of the Reef. You can read about these fascinating creatures, how they live, nest, breed and feed, and learn about the travelling adventures of Raylene, a big 150 kilogram green turtle who was tagged when released from ReefHQ Aquarium Turtle Hospital last year. She is helping us to better understand the lives of turtles in the Great Barrier Reef and the impacts on them from extreme weather.

These animals have done it tough in the past year due to the impacts of cyclones and floods on their favorite food, seagrass, but they've been fighting back and

recently we've seen a reduction in the alarming number of turtle strandings.

In other news, Reef HQ Aquarium continues to thrive as our national education centre, attracting thousands of visitors every year. The facility is undergoing significant improvements to

An almost 10 per cent increase in visitor numbers in the first business quarter reflects the outstanding work being achieved by ReefHQ Aquarium and the strong community interest in the facility.

ensure visitors have a great experience and enjoy learning about the Reef, its habitats and animals.

New exhibits where people get supervised interaction with sea creatures such as starfish and sponges and a new conference and training centre are part of a substantial capital works program.

An almost 10 per cent increase in visitor numbers in the first business quarter reflects the outstanding work being achieved by ReefHQ Aquarium and the strong community interest in the facility.

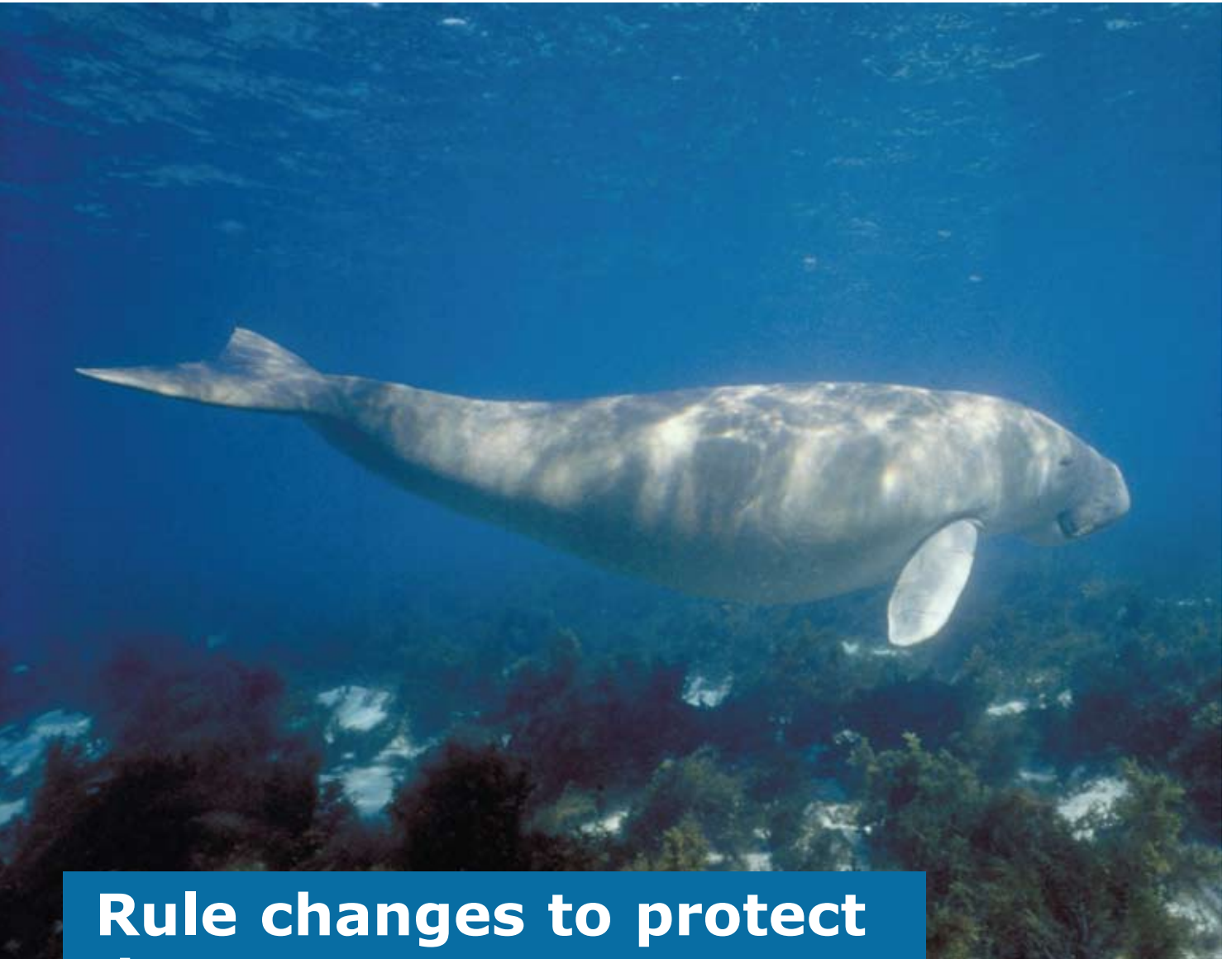
This edition of *SeaRead* also highlights the work of Local Marine Advisory Committees who continue to provide invaluable support as community partners. They help to keep GBRMPA and their respective communities well informed on regional Reef issues.

Strong partnerships with both the tourism and commercial fishing industries continue through a range of initiatives, including consultation on bait netting at Bowling Green Bay and the use of eco certification in the tourism sector. These vital partnerships help us to maintain a balance between fostering viable and sustainable industries and ensuring the protection of the Great Barrier Reef.

We look forward to embracing the challenges ahead in 2012, with your continued support and stewardship.



Russell Reichelt
Great Barrier Reef Marine Park Authority



Rule changes to protect dugong

The dugong population off Townsville will benefit from changes to Great Barrier Reef Marine Park regulations on commercial net fishing which came into effect in December.

Burdekin commercial fishers proposed the changes to the Species Conservation (Dugong Protection) Area in Bowling Green Bay, working in close consultation with the Australian and Queensland Governments.

Great Barrier Reef Marine Park Authority (GBRMPA) Chairman Dr Russell Reichelt said the changes related to the southern part of Bowling Green Bay and included a 'No Netting Area' and a 'Restricted Netting Area'.

"Burdekin commercial fishers recognised the need to reduce the risk of incidental catch of dugong in commercial fishing nets after concerns about deaths of the species in the area," Russell said.

"Dugong populations are under pressure. Extreme weather events last summer have killed off seagrass, their main food source.

"The rule changes in Bowling Green Bay are an important step in dugong protection and demonstrate how local action can result in positive outcomes for the Great Barrier Reef and the species that rely on it."

Burdekin commercial fishers, GBRMPA, Fisheries Queensland, Department of

Environment and Resource Management and the Queensland Seafood Industry Association (QSIA) have worked together to develop the changes.

QSIA's Geoff Tilton said commercial fishers saw the need for action to reduce the incidental capture of dugong in the Bowling Green Bay area.

"Through the Burdekin Sustainable Fisheries Alliance these changes have been brought to a reality through a local stewardship action," Geoff said.

The amendments to commercial netting rules take place in two key locations within the area known as the Bowling Green Bay Dugong Protection Area.

The Restricted Netting Area will require fishers to only use three nets of 120 metres in length and with a 16 mesh drop (150mm to 245mm per mesh).

In the No Netting Area, no netting activities other than bait netting will be allowed.

A range of commercial netting activities (with low risk to dugong) are still allowed in parts of Bowling Green Bay, providing for businesses to continue operation and to supply a range of seafood products to markets.

Netting rules for other areas within Bowling Green Bay remain unchanged while recreational fishing and other forms of commercial fishing rules also remain unchanged.



GBRMPA and Defence representatives discuss the latest management arrangements

GBRMPA and Defence agree on Reef protection

The Department of Defence has reaffirmed its commitment to protecting the Great Barrier Reef during training exercises as part of a renewed management agreement with the Great Barrier Reef Marine Park Authority (GBRMPA).

GBRMPA Environmental Assessment Management Director Dr Adam Smith said the two agencies renewed their agreement for three years, following a workshop in Townsville to discuss current management issues for the Marine Park.

Defence also hosted a field trip for GBRMPA representatives to training sites at Cowley Beach and Tully, highlighting initiatives to protect and rehabilitate the sites.

"The GBRMPA undertakes planning with Defence to address environmental impacts on marine habitats and animals, particularly for major events like Talisman Sabre in Shoalwater Bay," Adam said.

"Considerations include the locations, timing and approach to exercises in relation to Reef environments. The aim is to reduce damage, accidents or other impacts from activities such as amphibious landings,

explosives training, and the use of land, sea and air vessels.

"Measures to minimise the risks include avoiding certain areas, such as seagrass habitats, issuing "go slow" alerts and reducing noise levels."

Royal Australian Navy Environment Manager, Commander Steve Cole, said considerable planning was undertaken to protect seagrass habitats and dugong.

"Paying attention to the welfare of the animals is particularly important after last summer's extreme weather, which has been taking its toll on marine mammals throughout the Reef," Commander Cole said.

"This year we conducted aerial surveys of dugong and their feeding grounds in Shoalwater Bay to monitor any impacts from Talisman Sabre.

"The surveys showed a healthy population of over 400 dugong in Shoalwater Bay before and after the training exercise."

The renewed agreement between GBRMPA and Defence also incorporates additional initiatives to address and adapt to climate change impacts.

Go-to guide for adapting to climate change

A go-to guide for future proofing the marine industry and protecting the Great Barrier Reef against climate change is now available thanks to the collaboration of marine managers, industry experts and researchers.

Great Barrier Reef Marine Park Authority (GBRMPA) Director Dr Paul Marshall said the Climate Change Adaptation Principles report would offer guidance to Reef users, marine industry representatives and conservationists in adapting to the impacts of climate change.

"Marine industries reliant on the Great Barrier Reef will need support and knowledge to adapt their business practices as changes in the Reef's ecosystem occur as a result of climate change," Paul said.

"An initiative of the GBRMPA and the National Climate Change Adaptation Research Facility (NCCARF), this report offers suggestions on how to best develop, communicate and implement climate change adaptation plans.

"The report uses hypothetical, realistic examples of how climate change could impact on Reef users and how the adaption principles could be utilised to change business practices to overcome the impacts of climate change.

"The principles detailed in the report were developed following a Bringing Adaption to Life workshop that brought together commercial fishers, tourism operators, marine managers and researchers.

"As a marine management agency GBRMPA is focusing not only on building the resilience of the Reef against climate change but also the industries and Reef users who rely upon it," Paul said.

Under the Climate Change Action Plan the GBRMPA has already been working with industries including the seafood, tourism and aquarium collection fishery to adapt to climate change.

"The guide focuses on positive action, flexible thinking and open communication ..."

Director of NCCARF Professor Jean Palutikof said the principles reflected the knowledge and expertise of researchers, resource managers, policy makers and resource users who had direct experience in developing or applying adaptation knowledge.

"The guide focuses on positive action, flexible thinking and open communication, urging people to keep things simple and do what they can achieve now."

You can also view video clips of climate change adaptation experts talking at the Bringing Adaptation to Life Workshop.

The report can be accessed on the GBRMPA website: <http://www.gbrmpa.gov.au/outlook-for-the-reef/climate-change/marine-park-management/supporting-adaptation/adaptation-case-study>



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Turtle

S U P P L E M E N T

Marine turtles of the Great Barrier Reef

Often called ancient mariners of the sea, marine turtles have been swimming in the ocean for more than 150 million years, first appearing during the age of the dinosaurs.

Turtles have changed little over the millennia.

They come ashore to lay eggs, producing another generation to swim the seas.

Six of the world's seven species of marine turtles are found in the Great Barrier Reef World Heritage Area.

Despite a tough outer shell, these species are under pressure.

Declining water quality, the impacts of coastal development and extreme weather and more direct

impacts such as boat strike all take their toll on the Reef's turtles.

All of the Reef's turtles are threatened species, either listed as endangered or vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*.

The Great Barrier Reef Marine Park Authority (GBRMPA) is working closely with its partners and the community to address the threats to turtle species.

It's a turtle's life

Reptiles living almost exclusively in the sea, marine turtles are long-lived, slow-growing animals taking many years to reach breeding age.

All species generally have the same fascinating life-cycle.

After running the gauntlet of getting to the sea, a turtle hatchling begins its life drifting with ocean currents or living for many years in the one place.

From between 20 – 50 years males and females migrate to a nesting area.

Interestingly, this nesting area is in the region where they first emerged out of the sand as hatchlings.

Males and females mate with a number of partners, generally offshore, a month or two prior to the female's first nesting attempt in summer.

Males will return to their feeding or foraging area, while females start fortnightly trips to the beach to lay eggs.

The female's nesting ritual will see anywhere from 50 to over 100 eggs deposited.

Once the female hauls herself back to the sea she has no more to do with the nest, the eggs and the developing hatchlings are on their own.

Once offshore she begins to make another clutch of eggs with the sperm she has stored in her body after mating.

When finished laying several clutches of eggs, the female will then return to her feeding or foraging area.

The temperature of the nest will largely determine the sex of the hatchlings. A 'cool' nest (white sand) produces mostly males and a 'warm' nest (dark sand) produces mostly females.

At seven to 12 weeks the eggs hatch and the tiny hatchlings take around two days to emerge at the surface, usually at night.

Here the hatchlings run to the sea to begin the cycle over again.

Turtle recovery one year on from cyclone Yasi

It is nearly a year since the devastating category five cyclone Yasi crossed the north Queensland coast.

Turtle feeding grounds, seagrass beds, on the Great Barrier Reef bore the brunt of the cyclone's strong winds while last year's floods also contributed to the destruction.

The affected area represented a 300km stretch of the 2400km-long Reef, with serious damage in patches and minor or nil damage in other parts.

Efforts by the Great Barrier Reef Marine Park Authority (GBRMPA), the Reef HQ Aquarium Turtle Hospital, James Cook University (JCU) and the community have all assisted turtle populations during these tough times.

The GBRMPA launched its extreme weather response plan earlier in the year encouraging boaties to "Go slow and lookout below".

Recreational fisherman were urged to modify their practices to limit the impact on the under pressure species.

The GBRMPA also worked closely with researchers at JCU to better understand how turtles respond to extreme weather events.

The joint turtle tagging program between the GBRMPA and JCU in Cardwell that commenced mid last year will provide marine managers with information to make more informed management



A tagged turtle waits to be released back into the Marine Park

decisions into the future.

The Reef HQ Turtle Hospital has also played a pivotal role in rebuilding the turtle population following a record number of deaths in 2011.

In 2011 there were 1244 turtle deaths, compared to 720 for the same period in 2010.

This is a jump of more than 42 per cent.

Recent statistics indicate that turtle deaths are beginning to ease and highlights the resilience of the turtle population and the appropriateness of management actions.

The release of five green turtles from Reef HQ Aquarium Turtle Hospital in Townsville after long stints of rehabilitation was the result of months of hard work by aquarists nursing the animals back to health.

March last year.

The 150 kilogram green turtle was found gravely ill at Wunjunga Beach, south of Home Hill, on 24 September 2010 and was rushed to the hospital.

She had multiple lesions on

The GBRMPA and the Turtle Hospital enjoyed a groundswell of community support in working to rehabilitate sick and injured turtles.

The support is evident in the generous donations from the public to the Turtle Hospital and the 1000-strong crowd who attended the release of turtles Goldie, Sophie, Pete, Giovanni and Booker in late October.

Some Traditional Owner groups along the Great Barrier Reef catchment have also committed to voluntary temporary suspensions of hunting turtles.

The Great Barrier Reef may escape the extreme weather of last summer but climate models are still leaning toward above average cyclone activity in Queensland over the summer months.

her flippers (front and rear), she was floating/listing severely and passing excess black gravel in fecal matter.

Reef HQ Turtle Hospital staff gave her an initial seven day round of antibiotics, however, a 14 day dose was required to

High sea surface temperatures, cyclones and floods are all associated with the Queensland summer and pose a threat to the Great Barrier Reef's and animal's health.

The Bureau of Meteorology's seasonal climate outlook is considerably more favourable than last year, and while there will be associated rainfall and flooding, this is unlikely to be as severe or widespread.

The GBRMPA will continue to monitor the progress of tagged turtles in the Marine Park while the Turtle Hospital is continuing to rehabilitate sick and injured turtles.

With six of the world's seven species of marine turtle living in the waters of the Great Barrier Reef World Heritage Area, efforts to protect turtles are vital.

fully cure a case of floating syndrome.

Carers believed Raylene, estimated to be around 40 years old, had some lung damage consistent with emphysema and the second dose of antibiotics was necessary to allow the lungs to

Back in the swim

Reef HQ Turtle Hospital's most famous and largest patient, Raylene, has been enjoying her home waters in the Burdekin since being released off Townsville in

Working together today for a healthier Reef tomorrow

The Great Barrier Reef Marine Park Authority's (GBRMPA) job is far from over once turtles are released from rehabilitation in Reef HQ Aquarium.

Marine managers continue to monitor the progress of turtles after they are released using satellite and acoustic tags to get an insight into their behaviour and help inform management.

Five turtles released with satellite tags will form part of a research project to track turtle movements in the Great Barrier Reef after their main food source had been compromised by floods and tropical cyclone Yasi.

As part of its Extreme Weather Response Program, the GBRMPA, Girringun Rangers and James Cook University (JCU) will track green turtles in the Cardwell region to assess their behaviour.

GBRMPA Species Conservation Manager Mark Read said the project would help scientists understand how green turtles used their habitat and the results from this research would help managers consider effective actions to protect turtle populations from additional stress.

"By working with the Girringun Rangers and researchers from JCU we will be able to combine traditional knowledge with scientific information to analyse the effectiveness of current management strategies and possibly improve them further," he said.

heal and to stop the floating.

Thanks to the loving care and attention of the hospital staff, Raylene recovered and she was returned to her beloved Great Barrier Reef Marine Park on March 18 2011.

She quickly swam home to Wunjunga Beach where she

"Developing collaborative partnerships like these will aid the protection of these species for the long-term future."

Nywaigi Traditional Owner and CEO of Girringun Aboriginal Corporation Phil Rist said they were taking action to ensure the long-term sustainability of these species.

"We share the local community's concern about these species," he said.

"As Traditional Owners we are actively involved in sea country management, and are looking forward to working with the GBRMPA and JCU on monitoring and research.

"The Great Barrier Reef has been important to our people for over 60,000 years and our involvement in this initiative is just one other way we can continue to directly support it for future generations."

Dr Mark Hamann from JCU's School of Earth and Environmental Sciences will lead the project.

He said it was important to understand more about how turtles responded to cumulative impacts such as loss of food, habitat degradation and increased air temperatures.

"This current situation is unprecedented. We need to see how green turtles react to this so we can prepare for similar conditions in coming wet seasons," he said.

"We know the loss of seagrass is impacting coastal green turtle populations, with unusually high numbers of deaths. We now need to know how the remaining turtles are responding to these conditions."

continues to forage today.

Raylene was tagged with a radar which has enabled her movements to be monitored since being released.

The findings assist the GBRMPA to better understand the species and help to inform management initiatives.

Introducing the Great Barrier Reef's marine turtles

Green turtle (*Chelonia mydas*)

- Listed as vulnerable
- Adults mostly eat seagrass
- Raine Island in the north and Heron Island in the south are two very important nesting areas for green turtles.



Loggerhead turtle (*Caretta caretta*)



- Listed as vulnerable
- Adults mostly eat seagrass
- Raine Island in the north and Heron Island in the south are two very important nesting areas for green turtles.

Hawksbill turtle (*Eretmochelys imbricata*)

- Listed as vulnerable
- Adults feed primarily on sponges, algae and some times sea grass
- North Queensland nesting population together with eastern Arnhem Land make up on the most significant nesting populations of hawksbill turtles in the world.



Flatback turtle (*Natator depressus*)



- Listed as vulnerable
- Adults are carnivorous, feeding mostly on soft bodied prey such as soft corals and jellyfish
- The only marine turtle that is found exclusively in Australian waters.

Olive ridley turtle (*Lepidochelys olivacea*)

- Listed as endangered
- Adults are carnivorous eating prey such as molluscs and small crabs.



Leatherback turtle (*Dermochelys coriacea*)



- Travels through World Heritage Area
- Listed as endangered
- Adults are carnivorous eating prey such as jellyfish and other soft bodied species.



Turtles return to the Great Barrier Reef Marine Park

The Great Barrier Reef Marine Park Authority (GBRMPA) is starting to see the results of comprehensive rehabilitation at the Reef HQ Turtle Hospital pay off.

Aquarists and the team at Reef HQ were rewarded for all their efforts to protect green turtles when five patients were released back into the Marine Park recently.

Goldie, Sophie, Pete, Giovanni and Booker returned to the water fitted with acoustic tags to allow researchers to monitor them.

Reef HQ Director Fred Nucifora said it was great to see these turtles had been nursed back to health.

"The team of experts at the Reef HQ Aquarium gave the turtles the necessary care and attention and they were able to regain weight and recover from their conditions," Fred said.

"All of this work in the Turtle Hospital would not have been possible without the support of the community.

"The Turtle Hospital relies on donations from the community and businesses so this is really a celebration of all the hard work by the wider community to assist our turtles."

Great Barrier Reef Marine Park Authority Species Conservation Manager Dr Mark Read said rehabilitating sick turtles was much needed with the species under pressure following several years of extreme weather.

"Turtles have been doing it tough following the destruction of their main food source seagrass after several big wet seasons and cyclone Yasi," Mark said.

"Thankfully these turtles have been fortunate enough to be rehabilitated at the Turtle Hospital and they will be continued to be monitored."

The latest batch of turtles to return to the water will see the total number of rehabilitated patients rise to 36.

Management actions

The GBRMPA is implementing a range of management actions to protect turtles, including long-term initiatives to enhance the health of the Great Barrier Reef to better support the animals' habitats and food sources and short-term initiatives in response to high numbers of strandings.

Actions include:

- Implementation of the joint Federal and Queensland Government Reef Water Quality Protection Plan, including the \$200 million Reef Rescue Program, which is the most critical action. The program works to improve water quality which will provide seagrass beds with the best possible chance for recovery.
- Working with the Queensland Department of Environment and Resource Management (DERM) to identify and understand turtle strandings hotspots. These occur as turtle go into new areas in search of food.
- Working with Fisheries Queensland and commercial fishermen to limit net-related deaths from incidental capture (of turtle and dugong) in Bowling Green Bay near Townsville and in

the Boyne River at Gladstone. Initiatives include:

- New GBRMPA regulations that modify netting practices in Bowling Green Bay
- Changes by the Queensland Government to netting practices in the Boyne River.
- Promoting smart boating and fishing practices, including:
 - Calling on boaties to "Go slow – lookout below", as a reminder to watch for animals and to slow down when going over shallow water and seagrass beds or to avoid these areas all together.
 - Encouraging fishers to voluntarily modify their practices to minimise the impacts on turtles. For example, commercial netters can shorten soak times to provide an opportunity for marine animals to be released alive if they get caught. Also encouraging fishers to report all interactions with threatened or protected species to allow marine managers to identify hotspot areas.

Reef HQ staff get to know sharks

Juvenile leopard sharks born at Townsville's Reef HQ Aquarium are getting up close and personal with the aquarists who look after them.

As part of Reef HQ's captive breeding program, aquarists use a variety of techniques to help the sharks become accustomed to human interaction so they are less sensitive to being handled and transported out of the Coral Reef Exhibit.

In a process that takes nearly 12 months, the sharks are taught to feed on command using a target and reward system so that they learn to relax around humans.

Reef HQ Aquarium aquarist Emily Bone said this training was important to help the



Reef HQ staff have been getting to know the resident leopard sharks

sharks – and in turn the humans – feel more comfortable interacting, as aquarists must physically check the sharks each month to monitor their health and wellbeing.

"Every month we have to weigh and measure the animals to ensure they're healthy so it is important that the sharks are used to being handled and in particular being picked up," Emily said.

"It is much easier and less distracting for the animal having them conditioned to accept human contact and to

meet at the one central location so we can pick them up and take them to the scales.

"It makes it easier for us handlers to move the sharks while it also reduces the stress on the animals, particularly when the sharks are sick and are in need of vet attention."

Visitors to Reef HQ can see the two new leopard sharks that have recently joined the ranks with daily feedings in the main tank at 11am daily.

Tourism partnership extended

The Great Barrier Reef Marine Park Authority (GBRMPA) and Ecotourism Australia have recommitted to ensuring visitors can enjoy the benefits of best practice tourism operators on the Great Barrier Reef.

The two bodies renewed their partnership at the Global Eco Asia-Pacific Tourism Conference in Sydney.

Ecotourism Australia will continue to independently assess and certify Great Barrier Reef tourism operators that operate to a high standard in the Marine Park.

GBRMPA Chairman Russell Reichelt said Ecotourism Australia's program encouraged tourism operations to adopt best practices and reassured visitors their

experiences were sustainable and helped look after the Reef.

"I'm delighted we are continuing to work with Ecotourism Australia – they independently recognise and certify tourism operators protecting the Great Barrier Reef," Russell said.

"The Great Barrier Reef is a premier tourism destination and this program helps ensure over half the visitors to this iconic attraction are choosing a high standard operator.

"We applaud tourism operators that go the extra mile to ensure they do the very best for the environment and their guests, as well as giving back to Marine Park management.

"The Great Barrier Reef faces many pressures and

partnerships such as this, and the good work of the tourism industry, are vital ingredients for the future of the Reef."

There are now 52 Eco Certified operators in the High Standard Tourism Program, with over 60 per cent of the visitors to the Great Barrier Reef Marine Park using Eco Certified operators.

The partnership between GBRMPA and Ecotourism Australia began in 2004 to encourage best practice marine tourism on the Great Barrier Reef.

Tourism operations can apply to become certified by contacting Ecotourism Australia. Certified operators are recognised and rewarded by GBRMPA, including with an extended permit term of 15 years.

BRIEFS

Record October

Reef HQ Aquarium celebrated a bumper first business quarter, with record numbers of visitors flocking to see the new interactive exhibits and conference and training centre.

Reef HQ Director Fred Nucifora said there had been a 9.48 per cent increase in visitors from the same time last year.

"We're delighted the new interactive experiences and exhibits are generating so much interest and attracting new visitors to learn about the importance of protecting the Great Barrier Reef," he said.

Awards open

Doctorate and Masters students in bio-physical and social science fields are encouraged to apply for the Great Barrier Reef Marine Park Authority Science for Management Awards.

The Awards program focuses on research projects that address the risks faced by the Great Barrier Reef Marine Park.

For more information on the Science for Management Awards and how to apply email science@gbmpa.gov.au or go to www.gbmpa.gov.au

Banksia award

Efforts by Gaia Farms, near Silkwood, to protect the health of the Great Barrier Reef were recognised in the 2011 Banksia Awards – the country's most hotly contested environmental accolades.

The family business, which has received valuable support from the Queensland Government, was presented with the 'Agriculture and Food – From Paddock to Plate Sustainably' Award.

The award recognised Mike, Renee and their son Brett on their holistic farm management, including practices that improve soil and plant health and reduced chemical use and actions that reduce run-off such as providing buffers and groundcover between rows of bananas.

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.

Douglas region

Once characterised by coastal cane farms and the mill town of Mossman, the Douglas region has redefined itself as a tourism hot spot over the past decade.

Its key attractions are the World Heritage listed Daintree rainforest and the Great Barrier Reef.

Port Douglas has a busy marina with many tourist boats departing for the Reef.

The effects of commercial net and recreational fishing also has to be managed carefully while the effects of tourists and tourism operators must be monitored.

The first Reef Plan Report Card 2009 highlighted the need to continue monitoring sediment run-off from Douglas waterways which flow into the Reef. The joint federal and state initiative Reef Plan involves working with land users to monitor and reduce run-off to improve water quality on the Reef.

Townsville region

Townsville is one of the largest regional centres on the



Douglas LMAC Committee member Robert Hanan takes water samples from the inlet

Great Barrier Reef coast and with this comes the potential for increased impacts on the Great Barrier Reef.

The city of Townsville continues to grow and the proposed expansion of the Port of Townsville highlights the need to closely monitor the impacts of coastal development on the Reef.

Changes to commercial net fishing regulations in Cape Bowling Green Bay, initiated by the community and fishing industry, will help protect the local dugong population after a high number of deaths of the animal.

The community is actively involved in reducing waste flowing into the catchment through local clean ups of coastal waterways while many schools are recognised as Reef Guardians by undertaking initiatives and learning about techniques that help build the resilience of the Reef.

Townsville has also been impacted by extreme weather with seagrass beds slowly recovering after several severe weather events.

LMACS in focus

Douglas LMAC

The Douglas Local Marine Advisory Committee spans from Obree Point to Buchan Point, with strong agricultural and tourism representation on the committee.

The committee has several initiatives to protect and enhance the local area, including education programs for tourists and recycling methods for reef vessels.

The committee is also monitoring water quality having set up a testing program at ten sites from the upper reaches of Dickson Inlet to the historic Sugar Wharf.

Interim Committee Chair Robert Hanan said further tests would be carried out this wet season to provide a clearer picture of the water quality, and the community will be kept informed about findings.

Townsville LMAC

The Townsville Local Marine Advisory Committee (LMAC) is supporting a community group using a mobile trailer to clean local waterways and beaches of rubbish.

Alliance For A Cleaner Townsville (AFACT) is targeting rubbish hot spots. The group recently used the trailer to remove 54 tonnes of rubbish from wetlands in Oonoonba.

"At the start of our wet season tonnes of plastic washes down our urban drains, collects in our waterways and get dispensed out into the Marine Park, where it causes harm to marine wildlife," AFACT volunteer Blanche Danastas said.

"AFACT has continued to try and prevent this by cleaning beaches and waterways of rubbish around the Townsville region before it reaches the Reef and the new mobile trailer allows AFACT to achieve more in less time."

Watch out for baby hammerheads

Recreational fishers along the Great Barrier Reef coast are urged to be mindful of young hammerhead sharks when fishing.

It is currently shark pupping time in the Marine Park and young scalloped hammerhead sharks are on the hunt for food.

Great Barrier Reef Marine Park Authority Species Conservation Expert Dr Mark Read said it was imperative that recreational fishers used Responsible Reef Practices to safely return animals to the water to protect the hammerhead.

Read more about these unique animals in this month's creature feature on page 12.

Adopt a bommie

Reef Guardian Fresh Water State School near Cairns has adopted a coral bommie in the Great Barrier Reef Marine Park as part of their efforts to build the health and resilience of the Reef.

'Barry' the bommie, located just off Normanby Island, was selected by students after they saw a photograph of all the animals and corals that call the bommie home.

Adopting 'Barry' the bommie was designed to give students a sense of ownership of the Reef and contributes to the school's Reef Guardian actions.

Applications open

Applications are now open for the Great Barrier Reef Marine Park Authority's Sea Country Grants.

Traditional Owners can apply for grants of \$5000 to \$50,000 to support environmental initiatives and enhance existing sea country management programs as part of the Australian Government's Caring for Our Country Reef Rescue Land and Sea Country Indigenous Partnerships Program.

For more information go to www.gbrmpa.gov.au



Reef Guardian Schools annual awards rollout

GBRMPA representative Carolyn Luder and Townsville South State School Principal Ian Griffith congratulate school captains Shana Finnigan (12) and Kel Crisafulli (12) on their award

Ten Reef Guardian Schools in Queensland have been rewarded for environmental initiatives implemented throughout the year to help protect the Great Barrier Reef.

The successful schools were each presented with a Reef Guardian School Annual Award of \$1000 for their innovative and resourceful environmental sustainability efforts, encouraging them to continue their actions to help the Reef.

Reef Guardian Director Karen Vohland said the schools undertook a range of activities aimed at protecting the Reef including recycling, conserving energy use and community engagement.

"One of the schools that received an award reduced their water use by almost 50 per cent over two years and saved \$27,000 on their power bills after cutting down their energy use," Karen said.

"Many of the schools built strong relationships with other schools and the community in their catchment area to successfully work together to protect the Reef.

"They all showed initiative and perseverance to see their projects through from conception to completion and the students and teachers should be proud of their efforts. They are outstanding Reef Guardians."

The Great Barrier Reef Marine Park Authority would like to congratulate the following ten Reef Guardian

Schools who received awards: Bartle Frere State School, Bundaberg Christian College, Gordonvale State High School, Hayman Island State School, The Hall State School, Holy Spirit School, Ignatius Park College, Kin Kora State School, Southern Cross Catholic School and Townsville South State School.



Britaini Gough and Nicholas McCaigs of Southern Cross Catholic School accept their award

What can I do?

Waste disposal by recreational or commercial users of the Great Barrier Reef can directly impact water quality and can cause significant danger to marine life.

How you dispose of your waste is therefore very important in helping to maintain the quality of Great Barrier Reefs pristine waters.

Here are some tips for responsible use of chemicals on your vessel this summer:

- Always know what chemicals you have onboard, and in what quantities
- Use environmentally friendly, biodegradable alternatives wherever possible - avoid using environmentally damaging chemicals
- Limit the quantities of chemicals you use
- Never release chemicals into the environment
- Regularly clean all areas of your boat, plant equipment and engine rooms to avoid the need for heavy cleaning and the use of strong chemicals
- Maintain paintwork through polish rather than through chemicals
- Keep only small quantities on your vessel - store bulk chemicals on the mainland

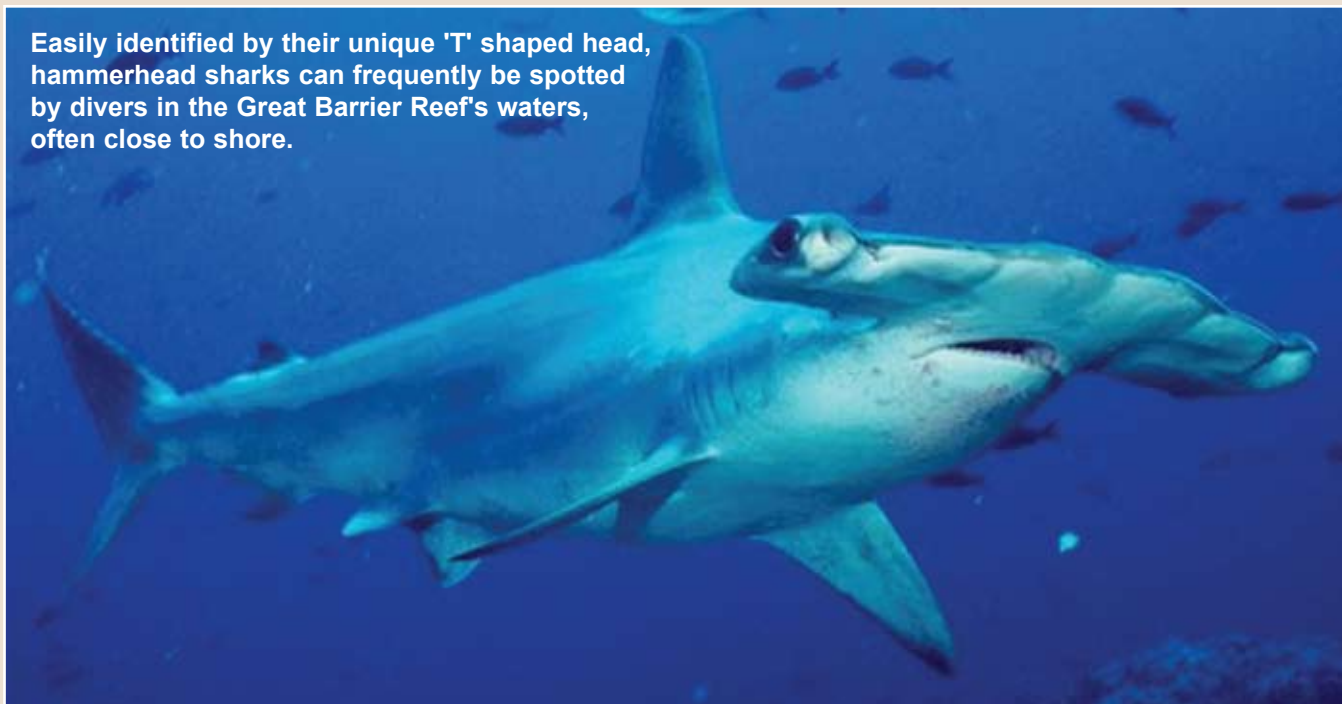
- Keep well-maintained spill kits on your vessel and other work areas, and update them regularly
- Clean up any spills through dry methods only - that is, you should 'contain, collect and dispose'
- Always look into suitable alternatives and advances in technology.

Report a spill or related incident to (07) 3530 4919.

Creature feature

Hammerhead shark

Easily identified by their unique 'T' shaped head, hammerhead sharks can frequently be spotted by divers in the Great Barrier Reef's waters, often close to shore.



Hammerheads are easily identified by their 'T' shaped heads © Doug Perrine/naturepl.com

Although they are considered a dangerous species of shark, hammerheads tend to mind their own business unless they are threatened or scared.

If you happen to come across one in your diving travels, it's best to observe from a distance.

There are nine known hammerhead species, including the most common scalloped hammerhead.

They are usually light grey in colour with white bellies that allow them to blend in when they are stalking their prey.

Hammerheads can see above and below themselves at all times, thanks to the positioning of their eyes.

It's actually thought that the hammer-like shape of its head may have evolved to enhance the animal's vision.

The hammer shape also allows the nostrils to be placed farther apart, increasing its

ability to detect chemical gradients when sweeping for prey.

Their diet primarily includes smaller fish such as sardines, mackerel and herring.

Adults will also seek out octopus, squid and cuttlefish, but any feeding opportunity will not be overlooked.

Reproduction only occurs once a year for hammerhead sharks and usually occurs with the male shark biting the female shark until she agrees to mate with him.

Their large litters of between 10 and 35 pups are born in the summer months in warm, inshore waters after a 10 month gestation period.

Recreational fishers' baits often prove irresistible for the young hammerheads with many becoming hooked as an untargeted catch.

If recreational fishers inadvertently catch a hammerhead pup it is important they return them to the water safely as they are a globally endangered species.