GREAT BARRIER REEF MARINE PARK AUTHORITY

REEF BEAT

Townsville Bulletin
THE NORTH'S OWN PAPER

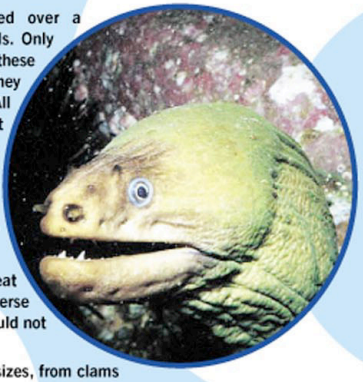
OUR GREAT BARRIER REEF

ANIMALS ON THE GREAT BARRIER REEF

The Great Barrier Reef can be compared to a big city, with its inhabitants going about their business during the day, and others coming to life at night.

It's a complex and interdependent ecosystem where all the animals great and small are important to the ultimate survival of the Reef. Virtually all major and minor groups of living things are represented, and only tropical rainforests come close to rivalling the Reef for richness of species.

The Great Barrier Reef is home to an amazing variety of fascinating animals, which live on the Reef's many islands, on the shore and underwater.



Science has described over a million species of animals. Only about five per cent of these possess a backbone, and they are known as vertebrates. All others, constituting 95 per cent of the animal kingdom, are invertebrates. On the Great Barrier Reef, animals without backbones outnumber vertebrates by 20 to one, and new species are discovered every month.

Invertebrates are the foundation of the Great Barrier Reef, and lead an astonishingly diverse range of lifestyles. Without them, the Reef could not exist.

They come in a myriad of colours, shapes and sizes, from clams to cuttlefish and corals to crabs. Some, like the octopus, are among the most intelligent animals in the ocean. Others have no brain at all. Jellyfish drift over hundreds of kilometres driven by winds, tides and currents. Sponges, by contrast, live most of their lives anchored to just one place.

While most people associate the Reef with the colourful corals and the brilliant fish, its other inhabitants are just as intriguing. First-time visitors are amazed by the variety of animals that live there.

Even the organisms found beneath a coral rock are astonishing, for example, colourful encrusting sponges, colonial and solitary sea squirts, delicate lace corals or bryozoans, slithering serpent stars and worms, and scores of other colourful and oddly-shaped animals.

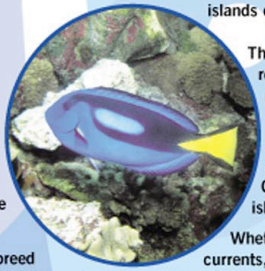
About 359 kinds of hard coral, 4,000 molluscs, such as snails and clams, and thousands of different sponges, worms, crustaceans, and other, less familiar creatures live on the Great Barrier Reef.

It is also home to 800 echinoderms, like starfish and sea urchins, 1,500 types of fish, 215 bird varieties, of which 29 are seabirds, more than 30 marine mammals, and six marine turtle species - all listed as threatened.

Several rare and endangered animals breed on the Reef, including humpback whales that swim from Antarctica to give birth in the warm tropical waters, and dugongs that live a nd feed in the sheltered coastal seagrass beds.

Animals with backbones - the vertebrates - include mammals, birds, reptiles and fishes. Although as we have seen, vertebrates in the Great Barrier Reef Marine Park are heavily out-numbered by invertebrates, they constitute some of the largest and most spectacular animals on Earth, such as the great whales, sharks and estuarine crocodiles.

The many islands of the Reef also support a diverse range of animals and birds. Among the land mammals, the Proserpine rock wallaby is found only in the Proserpine area and on a few offshore islands in the Whitsundays. Koalas, echidnas, possums, water rats and fruit bats also live on the islands of the Great Barrier Reef.



The reptiles and amphibians are represented by seven frogs, nine snakes and 31 lizard species. Species richness decreases with increasing latitude and distance from the mainland.

The islands and cays of the Marine Park have a similar range of land bird species to the adjacient mainland, but the Park is particularly important to populations of pied imperial pigeons that migrate to the Park from Papua New Guinea and an endemic silvereye which lives in the Capricorn-Bunker group of islands.

Whether they live on land, underwater, fly through the air or drift on the ocean currents, the animals of the Great Barrier Reef are all important and depend on each other. It's up to us to ensure that the Great Barrier Reef stays great - not just for people, but for the thousands of animals that call the Reef home, and depend on it for their survival.

To learn more about what you can do to help keep it great visit www.gbrmpa.gov.au and www.reefED.edu.au

GREAT BARRIER REEF MARINE PARK AUTHORITY

REEF BEAT

Townsville Bulletin
THE NORTH'S OWN PAPER

OUR GREAT BARRIER REEF

Sustainable Practices on the Great Barrier Reef

The Great Barrier Reef Marine Park is vast and beautiful, and is enjoyed by hundreds of thousands of people every year. Unfortunately, human activities, such as careless waste disposal, are placing the Reef under pressure.

The good news is that this and other problems can be solved, provided we all play our part in keeping the Great Barrier Reef great. Most of the solutions are very simple, and involve little more than applying common sense.

Being aware of the effects of your actions on the environment and other people is the first step. For example, how you dispose of your waste at home or on the Reef, directly affects the health of the Reef.

At home, all wastes should be reduced, reused, recycled or disposed of carefully, to ensure that they don't enter the environment. Organic wastes such as fruit and vegetables, (though not fish waste), can be composted, and will help improve soil in the garden. Fish waste generates a powerful smell as it decomposes that will attract flies and vermin, and could make you very unpopular at home and with the neighbours, so it's better not to try to compost it.

Inorganic wastes such as glass and plastics should be reused or put out for recycling. This is important because lightweight plastic bags can easily blow out to sea where they may be mistaken for food by turtles and other sea creatures that can choke to death on them.

Chemical cleaners, waste oil, paint and other products can kill marine creatures, so it's important that they don't find their way into stormwater drains where they can wash onto the Reef.

One of the best things about living on the Queensland coast is having the chance to take a boat out to the Reef. But people in boats need to be very careful not to damage the Reef or the special animals and plants that live there.

If you're out in a boat, make sure all litter stays on board, and is taken home for recycling at the end of the trip. Remember the 'pack it in, pack it out' rule - if you take it out in the boat, you can take it home again at the end of the day.

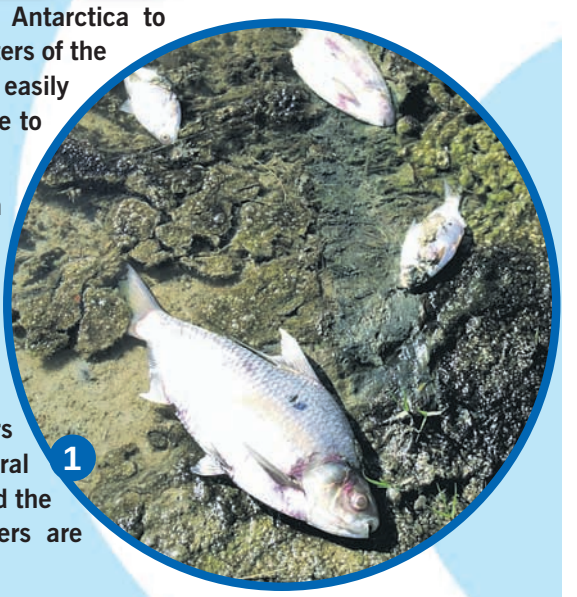
Oil and fuel is poisonous to marine life, so it's important not to spill any when refuelling the boat.

Sea creatures, like turtles and dugongs, live in shallow water, and can easily come into contact with boats. Many of these rare and special animals are killed and injured in accidental collisions with boats every year on the Great Barrier Reef.

Humpback whales swim from Antarctica to have their babies in the warm waters of the Marine Park, and they too can be easily disturbed if boats get to close or move to quickly around them.

So the message to boat drivers is clear: In shallow water or close to marine mammals - Slow Down! You'll avoid hitting the animals by mistake, and by keeping quiet and a safe distance from them, you may see more.

Anchoring on coral can severely damage the Reef, especially in places used by many boats, so skippers should anchor in sand or mud rather than on the coral itself. Special public moorings have been located around the Marine Park to help protect the coral, so boat owners are encouraged to use them.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Hundreds of thousands of seabirds, such as gulls, terns, noddies and mutton birds (a kind of shearwater), live and breed on the islands in the Great Barrier Reef Marine Park.

Bird watching can be a lot of fun, but when the birds are breeding, they can be easily spooked and may desert their eggs or chicks if harassed.

Visiting the islands of the Great Barrier Reef is popular with locals and tourists alike. But there are a few simple things that can be done to help preserve them.

For example, introduced plants can be a major problem for small islands, because they can take over from native species. To avoid accidentally introducing plants to islands, check your clothing and shoes to make sure that seeds like hook grass aren't hitching a ride.


2


3


4

Photos:

1. The sad reality of pollution harming the Great Barrier Reef - dead fish washed up on beaches.

2 & 3. Community and Environment groups do their part to keep the coastlines and beaches clean of rubbish.

4. A big operation: The cleaning up of a waste spill on the Great Barrier Reef.

You may need a permit to visit or camp on the island, and these can be obtained from the Queensland Parks and Wildlife Service who manage many of the islands in the Great Barrier Reef Marine Park.

Radios, generators and loud music can spoil the unique experience of visiting a remote island for other people and may frighten wildlife, so they're generally discouraged.

It may seem like there's lots of things you can't do on the Great Barrier Reef - but the rules are there to protect the Reef so that people will still be able to enjoy it hundreds or even thousands of years from now, just as you can today.

There are lots a truly amazing animals and plants on the Great Barrier Reef, many of which are found nowhere else in the world. But they are fragile and can be easily harmed through thoughtless action. Following these simple guidelines will ensure that the life of the Reef will be around for many generations to come.

To learn more about them, visit the GBR Explorer on www.reefed.edu.au

GREAT BARRIER REEF MARINE PARK AUTHORITY

REEF BEAT

Townsville Bulletin
THE NORTH'S OWN PAPER

OUR GREAT BARRIER REEF

REEF HABITATS

When people think about the Great Barrier Reef they usually associate it with colourful fish and coral gardens. However, the Reef contains many different habitats, which are all interlinked and vital to the myriad of animals and plants that live there.

The word 'habitat' means 'a place where an organism lives.'

Some of the different habitats on the Great Barrier Reef include coral cays, ribbon, fringing and platform reefs, reef flats, seagrass beds, continental islands, mangroves, rock pools, muddy bottoms, sandy substrates, lagoons and continental shelf.

In this article, we look at some of these habitats to help you understand how they are formed, and the critical role they play in the life of the Great Barrier Reef.

First, it's important to understand why different habitats matter. If you look at it from your personal point of view, the idea is easy to understand. For the first few years of our life, we usually live at home with our parents or caregivers.

When we get a bit older, we go to school, a new habitat where we learn basic skills like reading and writing, and how to get along with other people at work and play. A few years after school, we move on to yet another habitat to start our own families, and the whole process begins anew.

The same is true for fish and other sea life. For example, a fish that hatches on the outer Great Barrier Reef may float in its larval form to the deep ocean, as part of the vast floating mass of microscopic plants and animals known as 'plankton.'

As it develops into a juvenile fish, it may swim back to shore to live in sea grass or mangrove areas. Those that survive to become adults may move back to the coral reef to breed and, as with humans, the whole process of new life starts all over again.

As you can see, each of the deep ocean, mangrove, and seagrass bed habitats are just as vital to the fish as the coral.

Coral cays are among the most beautiful habitats on the Reef. Cays are small islands of sand that form on top of coral reefs. The sand on coral cays is made up of reef animal skeletons, shells, and other debris.

As waves wash around reefs, they deposit sediment on the calm, or leeward, side of the reef that is protected from the wind.

Initially coral cays are little more than exposed sand banks, but as they grow, their position changes constantly in response to weather conditions.

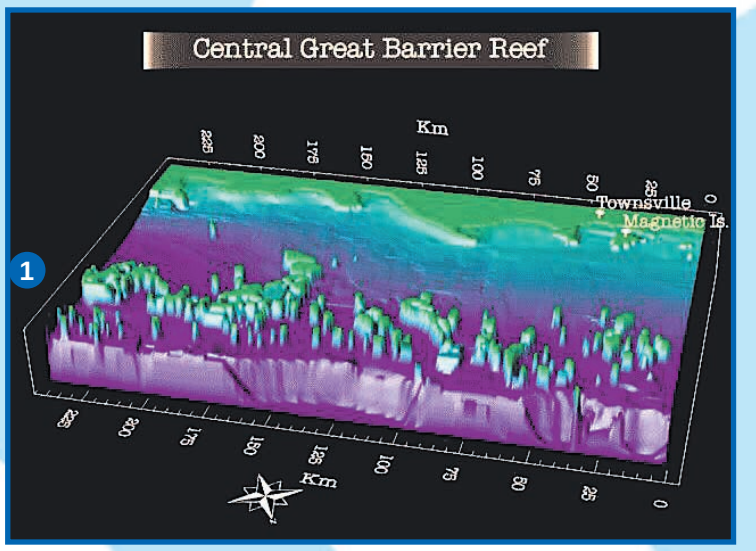
Pictures:

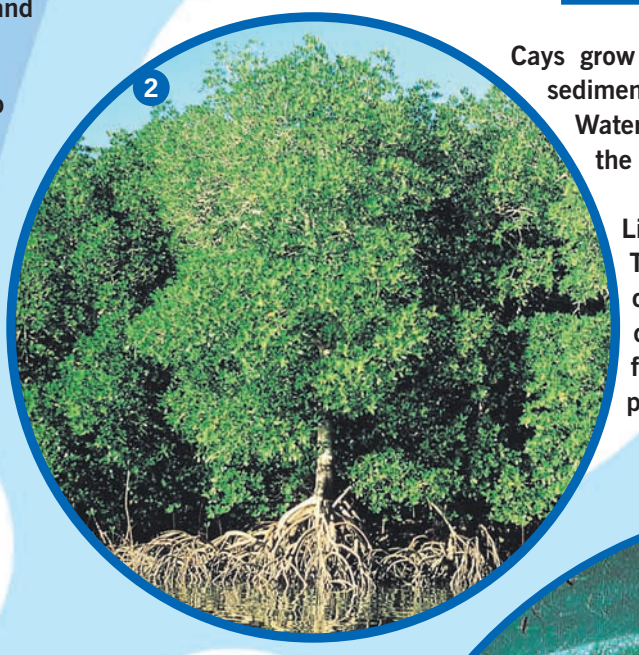
1. Computer generated images created by Australian Institute of Marine Science to enable scientists to better manage the Reef. This is what the reef of Townsville would look like if all the water was drained from the Reef.

2. Mangroves that are commonly found along shorelines and river mouths.

3. Scientists dive to check the conditions and to study seagrass beds, seagrass is a common food for Dugong.

4. Rockpool found in freshwater river systems.

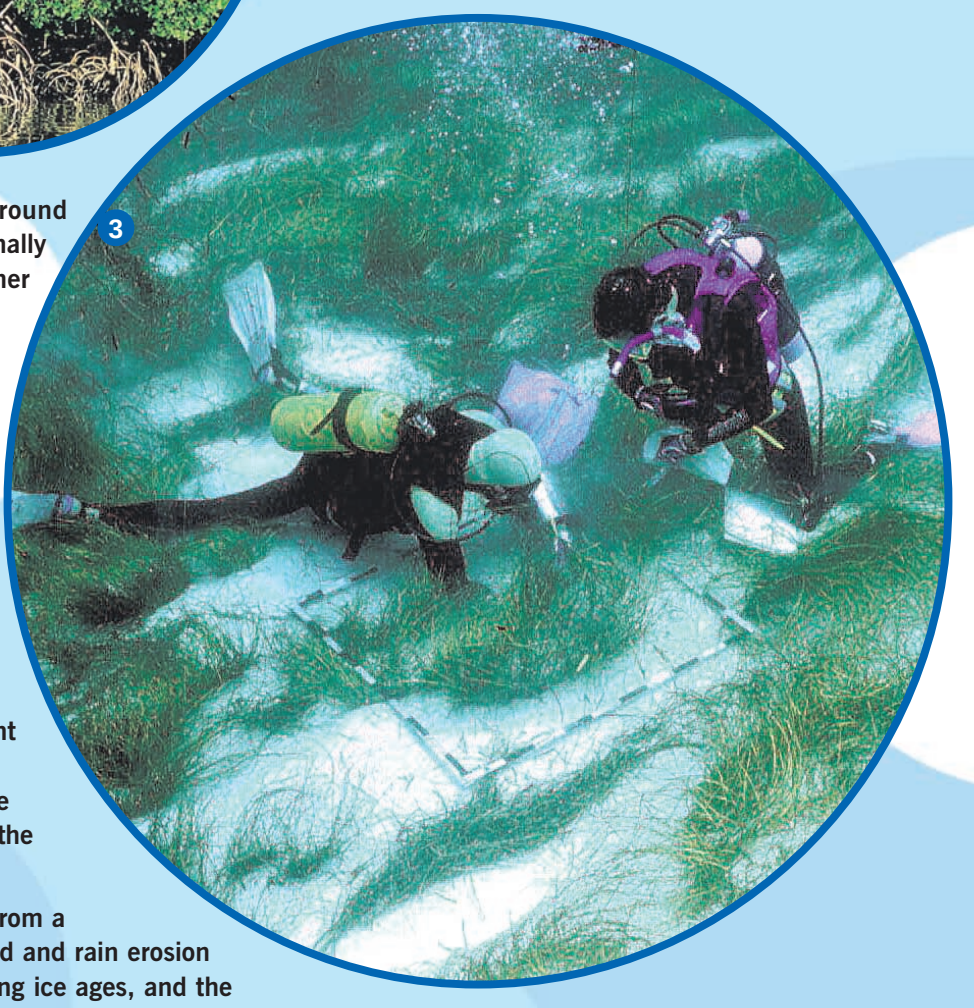




Cays grow larger and become more stable as they accumulate sediment.

Water flowing through the sediments reacts chemically with the skeletons of dead coral to form beach rock.

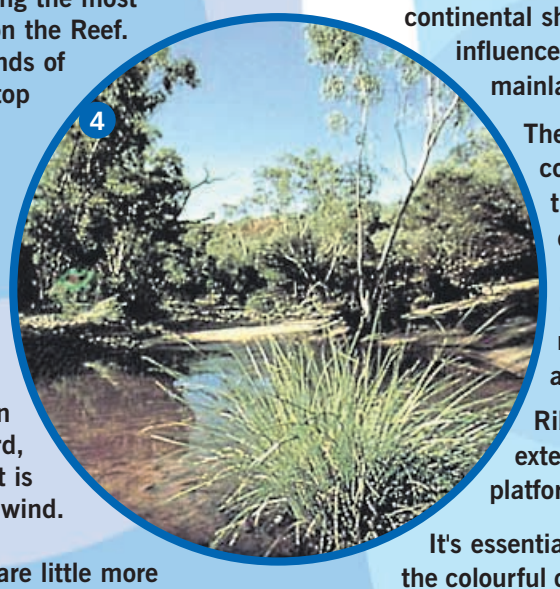
Like concrete, the beach rock further stabilises the cay. The seeds of plants also reach the cay, drifting on the ocean, or arriving attached to birds' feathers or in their dung. This gradually increases the cay's soil cover and fertility, which in turn encourages the growth of more plants and further strengthens the cay.



Fringing reefs, which grow around continental islands, and occasionally along the mainland, are another important habitat.

Their closeness to land means that they are affected by run-off and sedimentation from urban centres and rural land use practices. Compared to outer reefs, fringing reefs generally host fewer hard corals and more soft corals and algae because they are better able to withstand inshore conditions.

Platform reefs are another important habitat normally found on the continental shelf away from the influences of run-off from the mainland.



Their shape results from a combination of wind and rain erosion that occurred during ice ages, and the endless process of growth and erosion of the Reef under water.

During the last ice age, sea levels were much lower than they are today, and much of the area currently occupied by the Reef was coastal lowland, with dry limestone hills eroded by wind and rain. As the ice retreated to the poles and mountains, the sea reclaimed the land and coral grew again on the hilltops, adding between 5m and 20m of new growth during the past 10,000 years.

Ribbon Reefs grow along the edge of the continental shelf with the longest continuous stretch extending nearly 670km between Cooktown and the Torres Strait. Ribbon reefs are essentially elongated platform reefs. Why they occur only in the northern Great Barrier Reef is unknown.

It's essential that all the diverse habitats of the Great Barrier Reef are preserved for the future. Just protecting the colourful corals and pretty fish is not enough. All Reef habitats are interdependent and essential for the overall health and long-term survival of the Great Barrier Reef. To learn more about what you can do to help keep it great, visit: www.gbrmpa.gov.au and www.reefED.edu.au

GREAT BARRIER REEF MARINE PARK AUTHORITY

REEF BEAT

Townsville Bulletin THE NORTH'S OWN PAPER

OUR GREAT BARRIER REEF

Reef Dangers

The Great Barrier Reef is a magical place full of very beautiful and amazing creatures.

While the Reef is magnificent and colourful, it can also be a place of hidden danger. The good news is that these risks can be easily managed.

Many people imagine they'll be set upon by sharks, cone shells and box jellyfish the moment they dive into the sea. Nothing could be further from the truth. The Reef is a great place to enjoy and explore. Hundreds of people visit every day, and the vast majority have a great time.

We've dedicated this Reef Beat to 'dangers' to help explain what they are so you can avoid them. For the same reason you were taught to look both ways for traffic before crossing the street when you were little: running into the street without looking is dangerous, and you need to know how to cross safely.

Out on the Reef there are both dangerous creatures, and some things that endanger the Reef itself.

Because of negative environmental impacts such as pollution, over fishing, and siltation, human beings are considered by far the most dangerous and threatening animals to the Reef.

But a number of other animals can cause harm to people through accidental contact. Some of these include the stonefish, cone shell and the box jellyfish.

These animals should be treated with extreme caution for they have been known to inflict serious pain and sometimes even death.

As its name implies, the stonefish looks just like a stone. If you happen to step on one of its 13 spines, it will inject a toxin into your foot, causing extreme pain. Stonefish are ambush predators, which means they sit still, usually in coral rubble, and wait for their prey to come by before attacking. The pain that these fish can inflict if you stand on one has been likened to having your foot set on fire. The good news is they are not normally fatal.

Many North Queenslanders, who enjoy collecting seashells, are taught from an early age that "if you see a cone leave it alone". The beautiful cone shell is a hunter, using venomous harpoons to kill its prey. Most feed on worms but some species specialise in feeding on other shells and a few on fishes.

These shells are capable of 'smelling' their prey a great distance away, and keep tasting and sniffing the water until they make contact with their victim.

The rasp-like tongue found in most snails has been modified in cone shells into a hollow harpoon filled with venom.

The venom is extremely potent, killing its prey almost instantly. Unfortunately, this can include people who mistakenly disturb these harmless looking creatures.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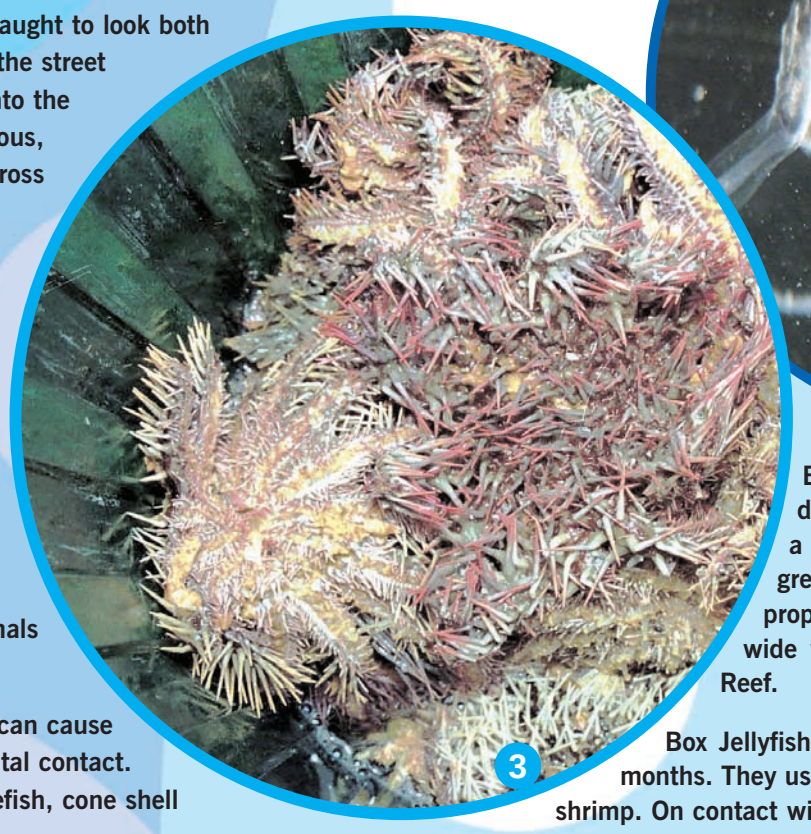
The Crown of Thorns sea star is not only dangerous to humans but poses serious threat to the Reef.

Like koalas and gum trees, the Crown of Thorns sea star is a native of the Reef.


2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Photos:

1. The potentially fatal box jellyfish

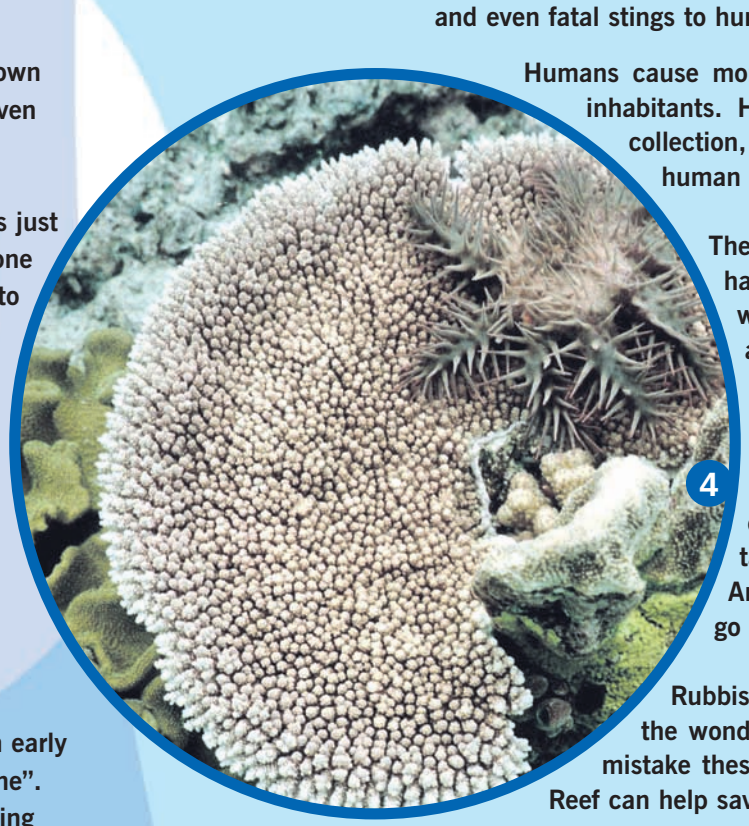
2. Irukandji jellyfish - another dangerous stinger

3. A plague of Crown of Thorns sea stars

4. Crown of Thorns sea star feeding on plate coral

But whereas koalas are strictly vegetarian, the Crown of Thorns destroy the Reef by eating the coral polyps - the animals that build a coral reef. The population of Crown of Thorns sea stars varies greatly from one year to another. Some years they achieve plague proportions while in other years few are seen. The reason for these wide variations remains one of the many scientific mysteries of the Reef.

Box Jellyfish are found in coastal waters north of Gladstone in the summer months. They use their numerous two-metre tentacles to feed upon small fish and shrimp. On contact with their prey, the tentacles quickly contract to only a few centimetres, and bring the food to the mouth. Box jellyfish are capable of inflicting serious and even fatal stings to humans.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Humans cause more damage to the Great Barrier Reef than any of its animal inhabitants. Humans contribute to pollution, over fishing, oil spills, coral collection, run off and silting of the Reef. All these negative effects of human activity pose a very real threat to the survival of the Reef.

The Great Barrier Reef is a World Heritage Area, this means that it has been recognised internationally as one of the great natural wonders of the world. Our right to use and enjoy the Reef carries an equal responsibility to protect it for the future.

What we do on land affects the health of the Reef. Simple things we can do at home can help ensure the Reef will be healthy into the future. By reducing, recycling, or carefully disposing of wastes such as plastic bags, for example, we are taking a very important step towards preserving the Reef. Another way we can help is by collecting rubbish every time we go the beach.

Rubbish such as cigarette butts and pieces of plastic can kill some of the wonderful wildlife of the Reef, such as turtles and dugongs, which mistake these items for food. Removing just one piece of plastic from the Reef can help save the life of a turtle, dugong, or even a dolphin.

To learn more about what you can do to help keep it great visit www.gbrmpa.gov.au and www.reefED.edu.au

GREAT BARRIER REEF MARINE PARK AUTHORITY

REEF BEAT

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THE NORTH'S OWN PAPER

OUR GREAT BARRIER REEF

THE GREAT BARRIER REEF YESTERDAY

The Great Barrier Reef has seen many changes in its history. No one really knows exactly how old the Reef is but in its present form scientists estimate that it's about 6000 years old. Today it is under more pressure than ever.
To understand the Reef and protect it for the future we need to understand its past.

It's hard to imagine but there was once a time when the Great Barrier Reef existed without any people impacting on it at all.

Can you imagine walking around your neighbourhood and finding no houses or roads, no traffic lights or stop signs? That's how it was on land and on the sea until recently.

The first people to interact with the Great Barrier Reef were the Aboriginies who lived along Australia's north east coast. To the Aborigines the Reef was an excellent source of food. We know that they caught turtle, dugong, shellfish and reef fish for their meals.

We also know that Torres Strait Islanders travelled up and down the Great Barrier Reef and traded goods with coastal communities and the people of what is now Papua New Guinea.

The coastal people bartered with their northern neighbours for 20 metre canoes.

Some of them who lived further south built their own smaller boats and used them for fishing and hunting expeditions.

There were 40 tribal groups living along the coast of the Great Barrier Reef in the 1700s.

Their impact on the Reef was very minimal with plenty of fish and wildlife to sustain the people on the coast and the ecosystem of the Reef itself.

When Europeans first came to Australia and began to settle at the end of the 1700s and the beginning of the 1800s the Reef was seen as an obstacle to shipping.

It was difficult to navigate through the maze of reefs and many ships ran aground or sank in the dangerous waters.

Europeans took an interest in the vast amount of oyster shells to be found along the coast. Sometimes the shells would contain pearls but what they were really after were the outer shells used to make mother of pearl buttons.

Europeans and Indigenous communities would often trade with one another and lived peacefully together but that wasn't always the case.

Indigenous people along the coast were often forced into labour for the pearl shell industry. There were differences in culture and misunderstandings that sometimes lead to violent confrontations.

As Australia grew into a modern nation with large cities along its coast pressure on the environment increased. Today the Reef faces threats from coastal runoff, overfishing and coral bleaching. All of these pressures come from the huge advancements in technology that came with European settlement over the past 214 years.

European settlement not only impacted on the coastal Indigenous communities it also impacted on the health of the Reef itself. As cities and farms grew along the coast more pollutants discharged into the waters in what is now recognised as a World Heritage Area.

The offshore pollutants grew in proportion as the coastal population expanded. Another impact on the Reef was over fishing. The rich resources of the Reef began to be exploited by new forms of fishing.

Sometimes the fishing boats would catch dolphins, dugongs and turtles in their massive nets.

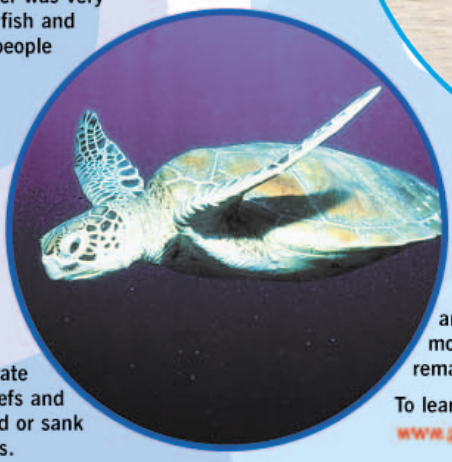
Other fish that weren't considered good for eating were just thrown back into the water dead.

The slaughtered fish were, and still are, referred to as trash fish.

ABOVE AND BELOW:
Traditional indigenous seafood, dugong and turtle.

ABOVE: Colonies of bleached coral at the Great Barrier Reef. The bleaching occurs because of higher than normal temperatures and damage by light.

LEFT: Indigenous people using traditional techniques of fishing in protected hunting grounds.



Today many fishers do their best to reduce the amount of 'trash fish' and threatened species their nets catch but there remains a negative impact on the life in the marine park from fishing.

The Great Barrier Reef Marine Park Authority is working with communities and users of the Reef to reduce the negative impacts. We all need to learn more about the marine life and ecosystems to make sure the Great Barrier Reef remains great for tomorrow.

To learn more about what you can do to help keep it great visit www.gbrmpa.gov.au and www.reefED.edu.au

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OUR GREAT BARRIER REEF

WATER THE KEY TO THE REEF

If we talk about coral and the Great Barrier Reef it's obvious to everyone that water is necessary for coral and fish to survive but you may not be aware of just how important water is to everything that interacts with the Reef.

The Great Barrier Reef is under pressure. Everything we do on the Reef, along the shore and even on the land, affects this diverse and fragile ecosystem. Water links the land to the Reef. What we do on the land affects the quality of water flowing into the Reef.

If we look at the earth from outer space it's obvious that most of our planet is covered in water. Some people have referred to earth as the 'big blue marble in space' because of its appearance from the moon.

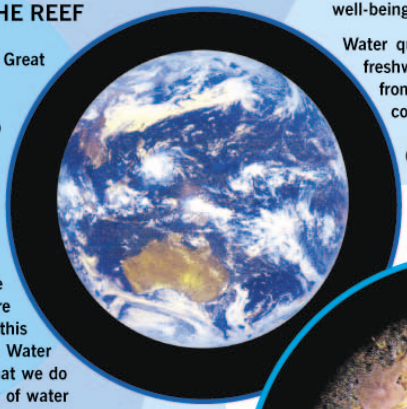
About 80 per cent of the world is covered by water and 97 per cent is salt water in the oceans. Fresh water makes up only 1 per cent and 2 per cent is frozen as polar ice.

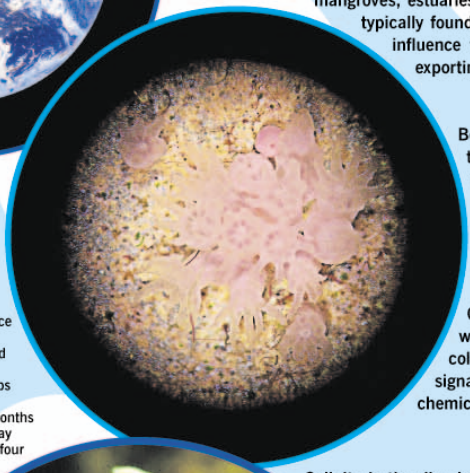
Coral reefs develop only in areas of the ocean with fairly shallow, clean, clear water with good penetration of sunlight. The water must have very low nutrient levels and the temperature must be warm (22° - 29°C), and very stable.

Given these conditions, remarkable coral reef ecosystems, representing some of the most species rich and complex ecosystems on earth, have developed on the Great Barrier Reef and in other tropical regions.

Reef-building coral polyps can survive only in water that has a stable temperature and chemistry, and there must be large amounts of direct sunlightall year-round.

If you live in North Queensland you may have wondered why there is no surf to enjoy on our beaches. That's because the waves break way out to sea on the Great Barrier Reef.

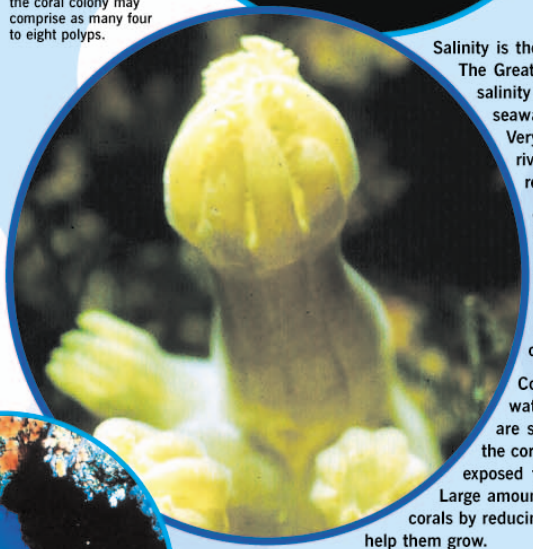


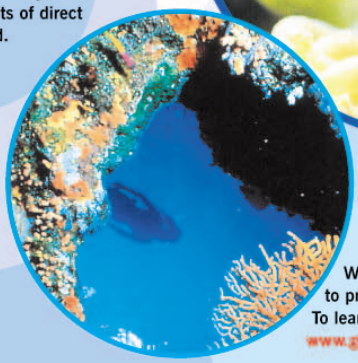


ABOVE: A view of the earth from space

RIGHT: A magnified view of the reef building coral polyps

BELOW: After 3 months the coral colony may comprise as many four to eight polyps.





We can always go surfing down south for our sport but for the Reef the waves are very important. As waves break on reef crests, they create powerful surges of clean, well-oxygenated water that is essential for the well-being of corals.

Water quality is central to the life of the Great Barrier Reef. Flooding by freshwater runoff, silt from muddy streams and rivers, and wastewater from human activities can create water conditions that make it hard for corals to survive.

Coastal environments, like mangroves, swamps and saltmarshes, are of tremendous importance to the function and existence of coral reefs. Reefs are exposed on one side to the vast open ocean and sometimes to land masses on the other. Communities like mangroves, estuaries, seagrass beds and lagoons typically found in the vicinity of coral reefs influence them by either importing or exporting nutrients.

Because water is so important to the Reef we need to ensure that the quality of the water is kept in a condition that will keep the plants and animals, large and microscopic, healthy.

Corals are good indicators of water quality. Changes in their colour and growth rates can signal the presence of harmful chemicals and toxins.

Salinity is the dissolved salt content of the water. The Great Barrier Reef needs a fairly constant salinity regime of 35gm of seasalt per litre of seawater.

Very low salinity water, originating from rivers during big flood events, rarely reaches the outer reef.

Oxygen is essential to reef organisms for respiration, a fundamental process that converts food to energy. Respiration of animals and plants consumes oxygen continually.

Few organisms can tolerate low oxygen levels for long periods of time.

Coral reefs only flourish in low nutrient waters, where nitrogen and phosphorous are scarce. Too many nutrients can harm the corals and may even kill them if they are exposed to high nutrient waters for too long. Large amounts of silt in the water can also affect corals by reducing light penetration that is required to help them grow.

Life on the Great Barrier Reef exists due to a delicate balance of oxygen, nutrients, sunlight and wave motion. If there is too much or too little of any of these the plants and animals struggle to survive.

When it comes to keeping the Great Barrier Reef great, water quality is one of the keys to preserving the Reef for the future.

To learn more about what you can do to help keep it great visit:
www.gbrmpa.gov.au and www.reefED.edu.au

GREAT BARRIER REEF MARINE PARK AUTHORITY

REEF BEAT

Townsville Bulletin
THE NORTH'S OWN PAPER

OUR GREAT BARRIER REEF

TOURISM ON THE REEF

If you have ever travelled somewhere to look and learn about a place then you have been a tourist. In fact most Australians have been tourists at some time or another.

One of the best places in the world to be a tourist is, of course, the Great Barrier Reef Marine Park. Its colourful corals, fishes and tropical waters make it a place almost everyone wants to visit.

As a matter of fact more than 1.6 million tourists visit the Great Barrier Reef every year and tourism is the largest commercial activity in the Marine Park. That means people come from all over Australia and the world and spend money to visit the Reef.

The visitors pay tourism companies to take them out snorkelling, sailing, scuba diving or just to have a look through a glass bottom boat.
Tourism brings in more than $1 billion each year to the Australian economy. That money helps keep businesses operating and gives people jobs.

The tourists come from all walks of life and of all ages. Some tourists are backpackers, some are families and some are millionaires visiting on luxury holidays. More than half of the visitors are from overseas and about a third are from interstate.

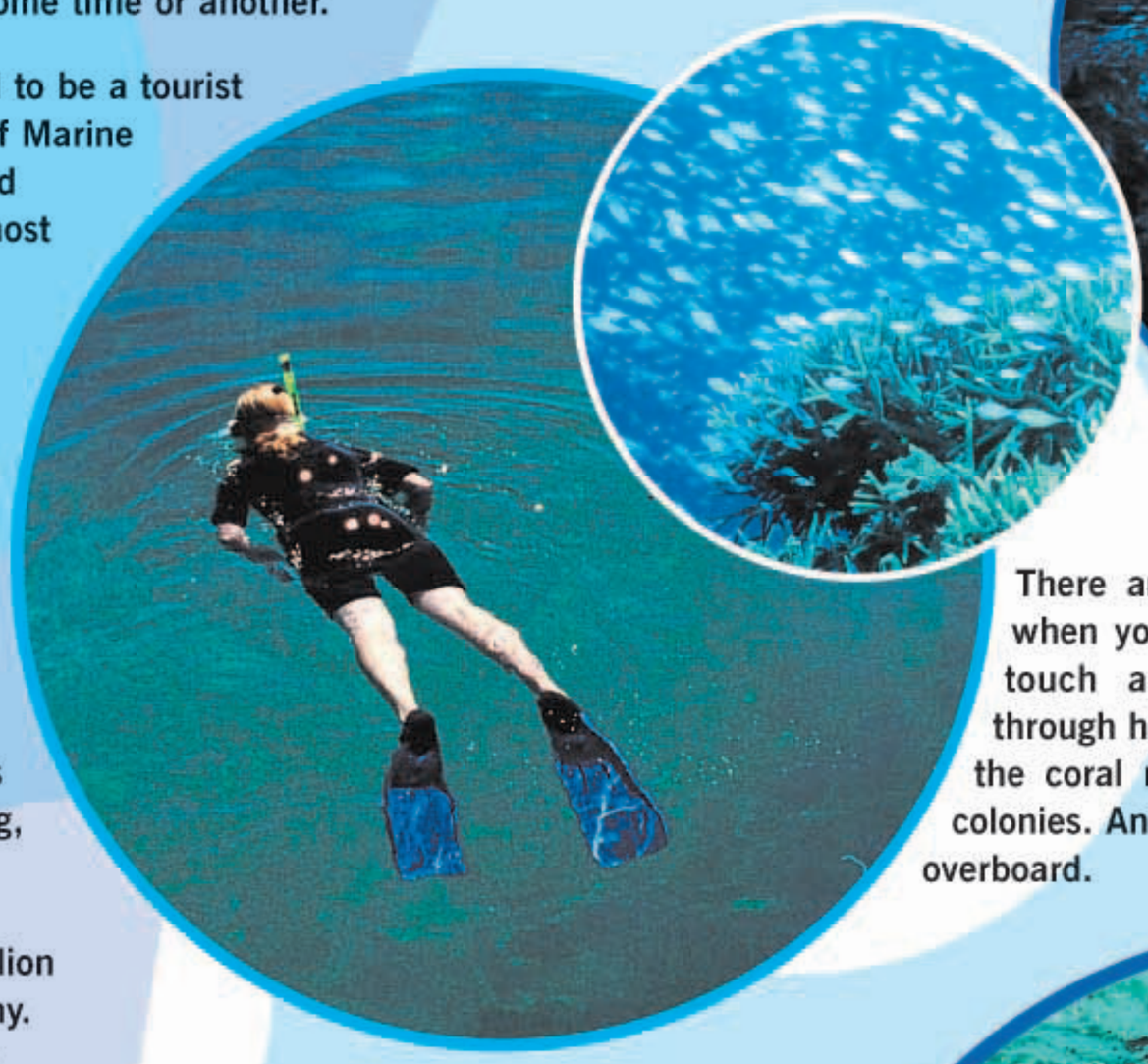
Although there are many visitors to the Great Barrier Reef, the activities they undertake usually have a small impact on the Reef Environment. This is because the Great Barrier Reef is so large and most ot the activities tourists get involved in are restricted to small areas.

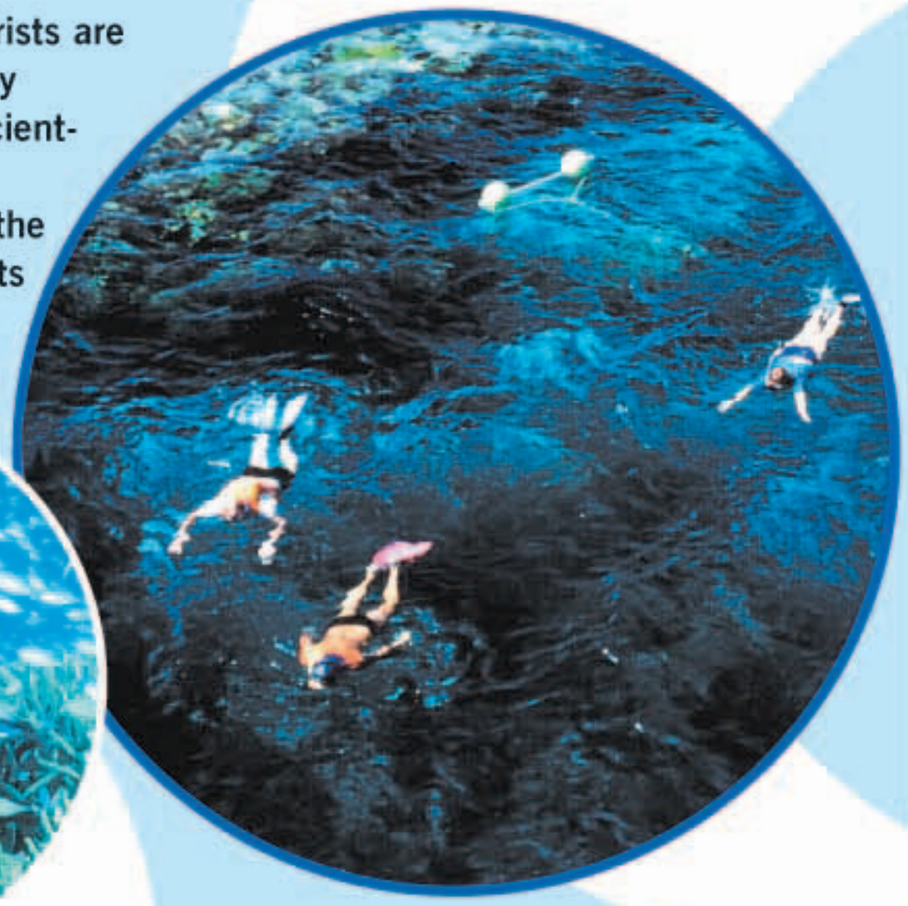
Most tourists access the Reef from Cairns, Port Douglas or the Whitsundays.

Together these areas attract more than 85 per cent of all tourists to the Marine Park yet make up less than 10 per cent of the total area.

Many tourists are interested in learning about the reef and how to best protect it. Activities like diving and snorkelling are usually operated by professional companies who teach visitors how to take care of the Reef and not to damage the environment.

More and more tourists are wanting to get actively involved in assisting scientists with their work.
This way they are seeing the Reef and helping scientists learn more about it.





There are also ways you can help protect the reef when you visit. The first rule on the Reef is to never touch anything. Many animals become stressed through human contact. Also you should never stand on the coral reefs. This could substantially damage coral colonies. Another important rule is to never throw rubbish overboard.

The Great Barrier Reef Marine Park Authority (GBRMPA) is the Commonwealth Government's agency responsible for managing the Great Barrier Reef.

The GBRMPA ensures that the Marine Park is used in a sustainable way. That means it needs to be used in a way that will see it preserved into the future.

One way the GBRMPA looks after the reef is by cooperating with the tourism industry.
An example of this is when the GBRMPA and tourism operators develop codes of conduct to encourage best environmental practices.

Community participation is also important in managing the Marine Park.
Many tourism operators get involved in voluntary programs, like the online coral bleaching program. Under this program tourists who see coral bleaching out on the reef can report it to the GBRMPA through the Internet.

ABOVE: Tourists enjoying snorkeling on the Great Barrier Reef

BELOW LEFT: A glass bottom boat during a tour of the Reef.

There is also the COTSWATCH program where tourists can report crown of thorns star fish. With the Eye on the Reef program, tourism operators report their daily Reef observations.

Tourism is a great way for people to enjoy the beauty of the Great Barrier Reef and to learn about its fascinating plants and animals. More and more tourism operators, and tourists themselves, are becoming involved in looking after the Reef and helping to keep it great.

To learn more about what you can do to help keep it great visit:
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OUR GREAT BARRIER REEF

WE REALLY NEED TO KEEP IT GREAT

Those of us lucky enough to live close to the Great Barrier Reef we often take it for granted. We know that it's the world's largest natural feature and that it can be seen from outer space.

We also know that right now it's under pressure from a wide variety of human and natural impacts. In this series of articles we hope to bring you useful information about the Great Barrier Reef, its geography, history and biodiversity. The Great Barrier Reef belongs to all of us and therefore, it's up to us to keep it great.

The Great Barrier Reef covers more than 348,000 square kilometres – that's larger than England, Scotland, Ireland and Wales combined and slightly smaller than Germany and Japan. The Reef is more than 2000 km long and comprises more than 2900 reefs and about 940 islands.

It's not just the luscious coral and colourful fish that make up the Great Barrier Reef. Other areas or "bioregions" also play an important role.

These areas can include; mangroves, estuaries, sandy and coral cays, continental islands, seagrass beds, algal and sponge gardens, sandy or muddy seabed communities, continental slopes and deep ocean trenches.

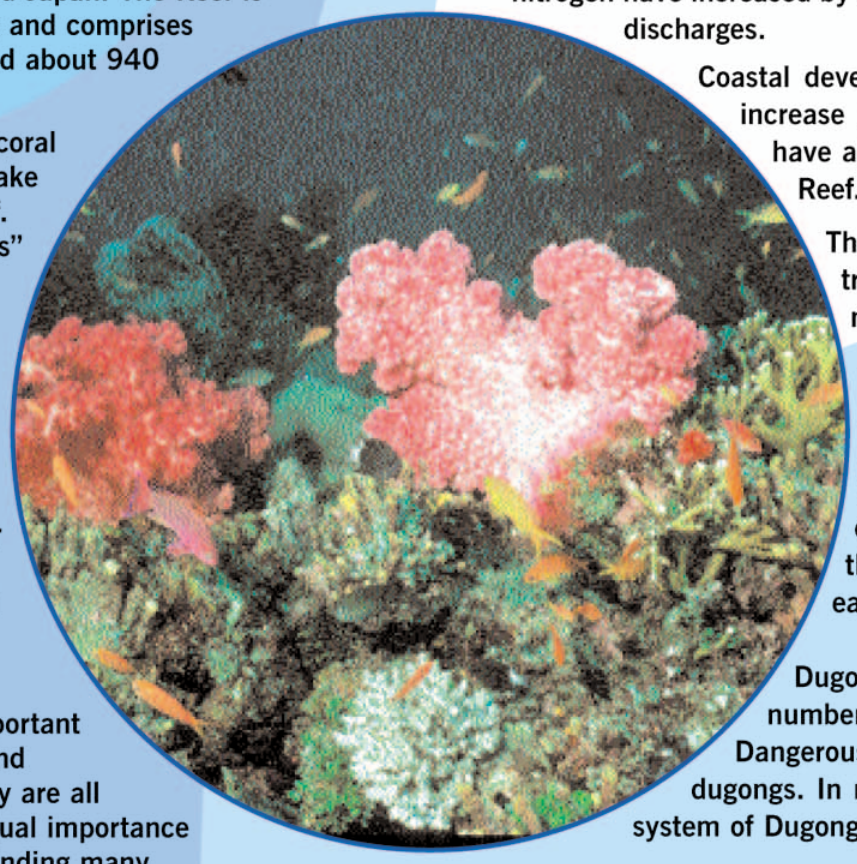
All of these areas are important in the life of the plants and animals on the Reef. They are all interdependent and of equal importance in the circle of life surrounding many plants and animals.

Speaking of plants and animals, did you know that the Reef is home to thousands of life forms?

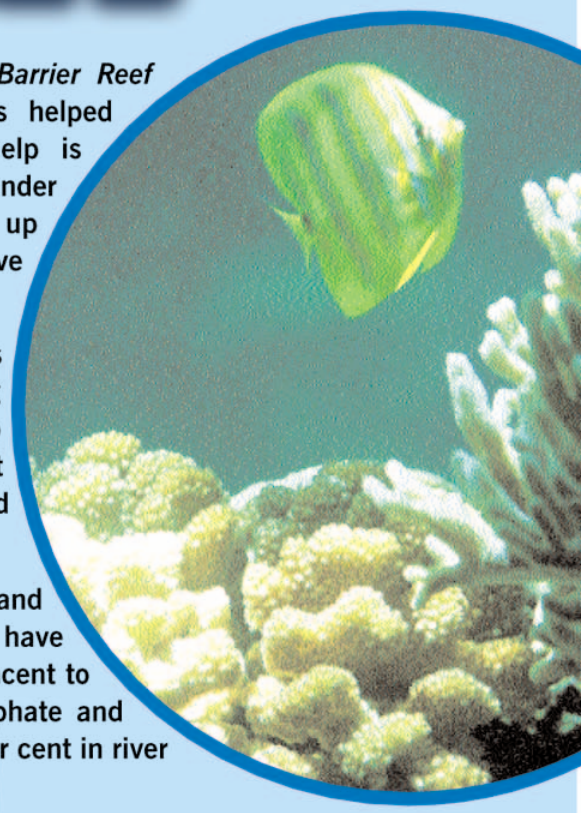
There are; 1500 types of fish, 360 types of hard corals, 4000 types of molluscs (eg shells), 1500 types of sponge, 800 types of echinoderms (sea stars, sea urchins etc), 500 types of seaweed, over 30 types of marine mammals and six types of marine turtles.

Because the Reef is such a special place, in 1975 the Australian Federal Government decided to create the Great Barrier Reef Marine Park Authority to look after it.

They even created *the Great Barrier Reef Marine Park Act (1975)*, which provides rules and regulations designed to help protect the Reef.



The creation of the *Great Barrier Reef Marine Park Act (1975)* has helped protect the Reef but more help is needed. Right now, the Reef is under more pressure than ever before. It's up to all of us to work together to preserve it for the future.



Most of the pressure on the Reef comes from people. We all contribute to polluting the Marine Park. Since Europeans started to settle the northeastern coast of Australia, about 150 years ago, pollution levels have increased and show no signs of decreasing.

There are fewer fish in a number of areas, and between 70 and 80 per cent of coastal wetlands have been lost in most of the major river catchments adjacent to the Great Barrier Reef and nutrients such as phosphate and nitrogen have increased by 200 to 1500 per cent in river discharges.

Coastal development, fishing and farming have all contributed to the increase in pollution. This has also led to worrying trends, which have also threatened the animals and plants on the Great Barrier Reef.

The Queensland population of loggerhead turtles is on a fast track to extinction with a 90 per cent decline in the annual number of nesting females since the 1970s.

The main causes of the decline were fox predation on nests laid on the mainland coast, and incidental capture in trawl nets. In 2001, the Australian and Queensland governments recently required the compulsory use of turtle excluder devices (TEDs) for trawlers. It is hoped that this will reduce the number of marine turtles that get caught in trawl nets each year.

Dugongs are also in trouble with a 90 per cent decline in dugong numbers south of Cooktown since the 1960s.
Dangerous organo-chlorine pesticide residues have been found in dugongs. In response to the decline in dugong numbers, a world's first system of Dugong Protection Areas was established in 1998.

Although the pressure on the habitats and on animals and plants of the Reef has increased, we can all help to reduce it. Everyone can do a bit to help the Reef and you should encourage everyone in your home to help keep it great.

To improve the quality of water reaching the Reef; do not put chemicals down the drain, keep drains and gutters clear of rubbish, limit your use of pesticides and fertilisers, take care not to spill petrol or oil when fuelling boats or changing the oil. Use biodegradable toilet paper and phosphate-free cleaning products.

When fishing ensure that you take only as many fish as you need, return unwanted or undersized fish to the water as quickly as possible, and take old fishing line, plastics and other rubbish home with you.

Remember everything that we wash off at home goes into the sewer and out into the Great Barrier Reef.

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GREAT BARRIER REEF MARINE PARK AUTHORITY

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OUR GREAT BARRIER REEF

PROTECTING THE GREAT BARRIER REEF

Who protects the Great Barrier Reef World Heritage Area? The Great Barrier Reef Marine Park Authority (GBRMPA) in Townsville holds prime responsibility for managing the Great Barrier Reef World Heritage Area.

It works in partnership with the Queensland Parks and Wildlife Service (QPWS), which is primarily responsible for the day - to - day management of activities that occur on the water and the land within the Great Barrier Reef World Heritage Area. The rangers we meet in Queensland Parks and on the water are QPWS staff.


1

Other organisations that play an important role in protecting the Reef include Customs Coastwatch, the Australian Federal Police, Department of Primary Industries, Queensland Fisheries, Queensland Boating and Fisheries Patrol, Water Police, and the Australian Maritime Safety Authority.

There are also community-based groups that work with the Commonwealth and State agencies to protect the Reef.

Local Marine Advisory Committees (LMAC) have been established in 10 regional centers along the coast of the Great Barrier Reef World Heritage Area.

They are made up of representatives from many different groups, including Indigenous peoples, commercial and recreational fishers, agriculturists, and representatives from the wider community.

These committees advise the Great Barrier Reef Marine Park Authority on issues affecting local communities, and provide a vital communication link between local communities and management agencies.

How is the Great Barrier Reef World Heritage Area protected?

The Great Barrier Reef Marine Park Authority uses a number of methods to protect the reef.

Zoning is one of the methods used to protect the Reef. Zoning gives legal protection to areas that are very important for maintaining a healthy environment. Colours are used to show zones on maps. The zones tell people which activities are allowed to happen in paticular areas.


2

The GBRMPA also uses management plans to control activities in the Marine Park. These plans deal with important issues like the size of tourist boats and the number of people they can carry. They also regulate access to special areas which include seabird nesting sites and whale protection areas.


3

For many activities people need a permit. Permits help people and companies use the Marine Park. They also help protect the Reef by regulating the number of people and activities that can take place at particular locations on the Reef

It is a legal requirement to obtain a permit to conduct many activities, such as scientific research in the Great Barrier Reef Marine Park. Permits tell people which reefs and islands they can visit, the type and number of boats they can use, the number of visitors they can take to any one site and the types of activities they can take part in at the site.

The Great Barrier Reef and the waters that surround it are directly affected by coastal towns and cities, which discharge stormwater and wastewater into the coastal zone.

Many activities carried out onshore can impact directly on the Great Barrier Reef. To minimize these impacts, the Great Barrier Reef, Marine Park Authority works closely with City Councils and other management agencies to help protect the Reef.

Kids are the future. The Great Barrier Reef Marine Park Authority supports programs, such as the Future Leaders Congress for Sustainable Seas and Reef Guardians Schools Program, to encourage and empower young people to become involved in protecting the Great Barrier Reef.

Ask your teacher to contact the Education Team at the Great Barrier Reef Marine Park Authority to find out more about these special programs and you too can do your bit to help 'keep it great'.

1. Mark Read and Ian Bell from Queensland Parks and Wildlife Service release Larry the adult green turtle back into Cleveland Bay. *Photo: Ned Kelly* NK395A33

2. Senior Constable Glenn Lawrence from the water police with a flare. *Photo: Evan Morgan* EM240310

3. Junior anglers Kirsty and Matthew Nelson with Queensland Boating and Fisheries Patrol education officer Karl Roebuck

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GREAT BARRIER REEF MARINE PARK AUTHORITY

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OUR GREAT BARRIER REEF

INDIGENOUS RELATIONSHIPS WITH THE REEF

Aboriginal and Torres Strait Islander people are the Traditional Owners of the Great Barrier Reef region. For over 60,000 years their traditional connections have been a part of the unique living maritime culture of more than 50 Traditional Owner groups along the coast of the Great Barrier Reef.

Aboriginal and Torres Strait Islander Traditional Owners hold a vast knowledge of the marine environment, marine animals, their habitats and their lifestyles.

Torres Strait Islanders travelled through reef waters to trade with mainland Aboriginal groups along the east coast, and to collect resources for their subsistence lifestyle.

Their myths and legends of the sea are expressed through dance and song, and there are many creation stories for the region's islands and reefs.

Some of the Aboriginal tribes along the coast have dreaming stories from when their ancestors lived on the coastal plain near the edge of the present continental shelf. The ancient coastline was drowned by rising sea levels at the end of the ice age.

The sacred places and accounts of the past provide the connection to traditional clan areas and a rich heritage.

After 1788, Colonisation of Australia led to major changes in Aboriginal and Torres Strait Islander societies, cultures and clan estates.

Cultural activities and customary practises have evolved through the use of modern technologies and major changes in the world.

Aboriginal and Torres Strait Islander traditional customs and spiritual lore continue to be practised today in their sea country areas.

Traditions like hunting and gathering are of high cultural importance. The social sharing during special events that require traditional resources is also significant.

The cultural and economic importance of marine turtles and their value as food has given Indigenous people a practical understanding of their natural history and habits.

Marine animal food resources such as turtles and dugongs strengthen Indigenous culture and demonstrate affiliation with tradition and traditional areas.

The activity of pursuing the turtle itself has great significance and is an expression of the continuance of a long cultural tradition, with great importance in the hunting and social sharing of meat.

The taking of turtles is restricted to hunting by Aboriginal and Torres Strait Islanders in the Great Barrier Reef Marine Park. A permit is necessary for traditional hunting.


1


2


3


4


5

Pictures:

1. Torres Strait Islander James Bon on his clan's traditional fishing grounds.
2. Girrigum Elder Russell Buttler interprets Indigenous culture to community groups.
3. Dugong mother and her calf, traditional Indigenous seafood.
4. Spear Fishing on Mer (Murray Island)
5. Diving for Sea Cucumbers.

Today, Traditional Owners are concerned about the future management of their sea country, and want to be involved through a number of management initiatives.

Traditional owners are working with marine management agencies to develop a range of options to enable them to continue the evolution of their culture and connection to the country for future generations. Traditional hunting, fishing and gathering activities in the Great Barrier Reef Marine Park are being considered as part of the Representative Areas Program.

To learn more about what you can do to help keep it great visit:
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