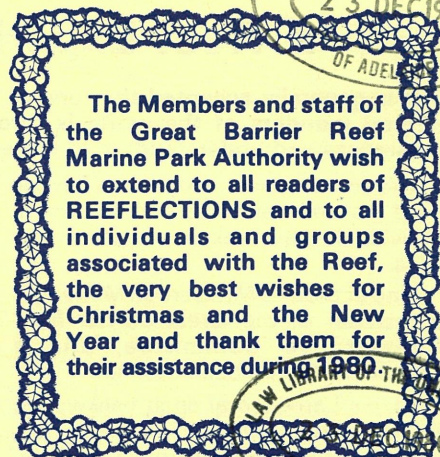




Reeflections

Newsletter of the Great Barrier Reef Marine Park Authority
P.O. Box 1379
TOWNSVILLE, QLD. 4810
Number 6 December 1980 ISSN 0314-6510

FREE ISSUE



The Members and staff of the Great Barrier Reef Marine Park Authority wish to extend to all readers of REEFLECTIONS and to all individuals and groups associated with the Reef, the very best wishes for Christmas and the New Year and thank them for their assistance during 1980.

REEF IS NOMINATED FOR WORLD HERITAGE LIST

The nomination of the Great Barrier Reef for inclusion on the World Heritage List is one of the significant events of 1980 for Queensland and Australia. If accepted, the Reef will join a unique international inventory of world wonders which already includes the Yellowstone and Everglades National Parks and the Grand Canyon.

Announcing the nomination on 14 September, the Prime Minister, Mr Fraser and the Queensland Premier, Mr Bjelke-Petersen said in a joint statement that the Reef clearly met the criteria for inclusion of natural properties on the World Heritage List.

These criteria require the Great Barrier Reef to satisfy one or more of the following conditions:

- be an outstanding example representing the major stages of the Earth's evolutionary history.
- be an outstanding example representing significant ongoing geological processes, biological evolution and man's interaction with the natural environment.
- contains unique, rare or superlative natural phenomena, formations and features or areas of exceptional natural beauty.
- be the habitat where populations of rare or endangered species of plants and animals still survive.

The Great Barrier Reef also satisfies the 'integrity' requirement — that is, it is large enough to contain and show the necessary interrelated and inter-dependent elements to enable viability and self perpetuation of the process or species involved.

Act Adequate

The World Heritage List is being compiled under the auspices of UNESCO, pursuant to the Convention concerning the Protection of the World Cultural and Natural Heritage.

The Prime Minister and the Premier stated that the joint authority exercised through the Commonwealth Great Barrier Reef Marine Park Act was perfectly adequate to satisfy the

obligations of the Convention. This legislation, in conjunction with the Great Barrier Reef Ministerial Council which is responsible for the co-ordination and development of policies in relation to the Barrier Reef at the ministerial level, was such that no further mechanism for planning or control was contemplated.

The Great Barrier Reef Marine Park Authority is preparing the nomination to the World Heritage Committee. The information in the nomination includes detailed description of physical aspects of the Reef as well as important historical facts such as the existence of ancient Chinese and Portuguese maps depicting part of the Reef Region, and

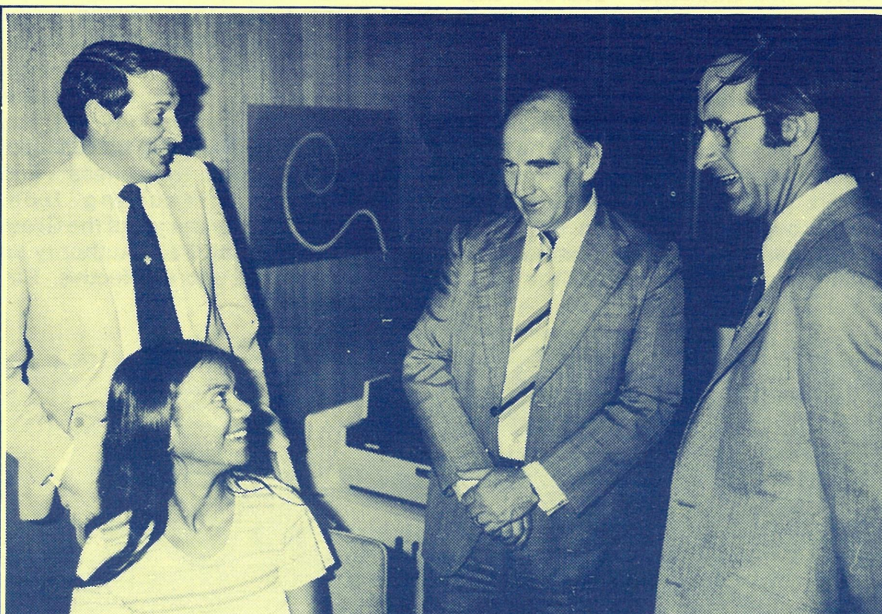
the mythological importance of some reefs to the Australian aborigine.

The nomination identifies the diversity of flora and fauna within the Region including:

- more than 400 species of coral
- about 1500 species of fish
- 250 species of birds
- more than 4000 species of molluscs
- six species of turtle which have breeding grounds in the Region.

Two of the turtle species have breeding sites of world importance in the Region, and the dugong, an endangered species, also has extensive breeding areas in the Region.

The submission will be completed after consultation with the Queensland Government and submitted to the World Heritage Committee by the Minister for Foreign Affairs.



The Minister for Home Affairs and Environment, Mr. R.J. Ellicott Q.C., visited the Authority's office in Townsville shortly after being given responsibility for the Marine Park under new administrative arrangements. He met staff, including word-processing operator Rosie Wyles, and was accompanied by the Secretary of his Department, Dr. McMichael (left) and Authority Chairman, Mr. Graeme Kelleher.

A Reef Experience on Land

It is generally accepted that one of the most effective ways to protect the natural wonders of the world is through education, and increasing public awareness and understanding of the environment.

The conservation of the Great Barrier Reef is no exception, and many individuals have taken a lead in this area.

One of them is Mr. Gordon McKaige, a member of the Great Barrier Reef Consultative Committee, and a prominent Cairns businessman.

At his Laroc (coral spelt backwards) educational centre in Cairns, Mr. McKaige has made the unlocking of the full wonder and excitement of the Great Barrier Reef and the promotion of the conservation of the Reef through education, a full-time pursuit. This has been prompted by his own love of the Reef and his concern at the lack of knowledge and appreciation of it.

Mr. McKaige recently added a new facility to his Cairns premises, a unique floating amphitheatre designed to give people a simulated Reef experience.

Called "Windows on the Reef", the display creates the sensation that the theatre is actually diving beneath the waters of the Great Barrier Reef as it unfolds the story of the Reef, its evolution and its coral architects.

Mr. McKaige controls this "undersea adventure" through a panel of gauges and buttons, that would do justice to the cockpit of a 747. It features an 8 track sound system as well as the controls for an audio-visual program and the theatre's "underwater" dive.

Sights and Sounds

After the audience "boards" the theatre across a gang-plank and a floating floor to settle into comfortable seating, the theatre darkens and the sounds of a diving submarine complete with alarms and a depth gauge filling with water take over. A colourful and illuminated coral garden gradually appears around the audience as the theatre begins to rotate on its water base, powered by small pumps. The audio-visual program unfolds the story of the Great Barrier Reef.

The program concludes with the theatre giving the impression of rising to the surface from beneath the water. It completes its rotation, and the audience leave over the gang-plank after it has been lowered back into position, having experienced a small part of the beauty and wonder of the reef.

His newest development, "Windows on the Reef" is not the only weapon in Mr. Kauge's educational armoury.

He also uses "Polly the Polyp" a cartoon character depicting the Reef's chief builder, the coral polyp.

Polly's job is to help visitors of all ages understand the fascinating underwater world of the Great Barrier Reef. Polly is used in Mr. McKaige's audio-visuals including "Windows on the Reef". He has also developed a picture story starring Polly designed to introduce the Reef to children.

Other educational aids used at Laroc include an audio-visual program on the Reef in Japanese to cater for the increasing number of Japanese tourists visiting Cairns.

Local schools are encouraged to visit for the opportunity of learning more about the reef. Educational kits have been produced at Laroc for use by interested schools and other groups.

Mr. Kauge says that if people visit the Reef without any understanding of its corals and other life, then they are being denied the full enjoyment of such a natural wonder. He believes visiting the Reef without an understanding is like going to the ballet in a blindfold.

He also believes that through education, the need for severe restrictions and regulations for the protection of the Reef will be reduced. The increase in awareness and understanding resulting from education will make the job of the Great Barrier Reef Marine Park Authority so much easier and more effective, Mr. McKaige says.

FISH TAGGING PROGRAM

A fish-tagging program has commenced in the Great Barrier Reef Marine Park — Capricornia Section, and fishermen will receive a payment if they return tags and catch information to the Queensland Fisheries Service.

The purpose of the program is to determine the movement of reef fish, particularly coral trout. Tagging began at Heron Island on 10 December continuing until 20 December.

Further tagging will be undertaken in February under a joint project of the Queensland Fisheries Service and the Great Barrier Reef Marine Park Authority.

QFS Officers are using two types of tags — a small plastic streamer tag attached to the dorsal (back) muscles of the fish; or a metal tag on the gill cover.

Each tag is inscribed "Contact Queensland Fisheries". The headquarters of the Service is P.O. Box 344, Fortitude Valley, Qld. The tag should be sent as quickly as possible to the Service to allow the reward to be paid promptly. The fish are unaffected by the tagging, and are still edible. So the advice is — eat the fish, send the tag.

Letter to Editor

Dear Sir,

re: "Reeflections": Newsletter of the G.B.R.M.P.A.

We have both recently read the above mentioned newsletter for the first time and desire to commend your Authority on its style and content.

It would be greatly appreciated if you could advise us how we could be included on the mailing list for same.

As we are both involved in Town Planning in Cairns, we consider that the kind of information in the newsletter is not only of interest but also beneficial to our profession.

We look forward to your advice.

Yours faithfully,

C.G. Buckley,
I.V.G. Behrendroff.

• Thank you Messrs Buckley and Behrendroff. Any other readers interested in being added to our mailing list or wishing to contribute to REEFLECTIONS, should write to:

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Gordon McKaige's new "reef experience" theatre in Cairns.

Cyclone "Simon" Changes Cays

By P.G. Flood*

During February 1980, tropical cyclone "Simon" with central pressure 970 millibars passed on a southeast track through the reefs and islands of the Capricorn Group at the southern end of the Great Barrier Reef.

The cyclone was relatively slow-moving and at Heron Island the weather station recorded a minimum pressure of 989 millibars and wind gusts up to 100 knots were continually experienced over a three day period from the early morning of 24 to 27 February. The dominant winds were from the southeast but because the cyclone coincided with the period of neap tides, the associated storm surge and wave set-up had minimal effect on the reef flat or beaches of the islands.

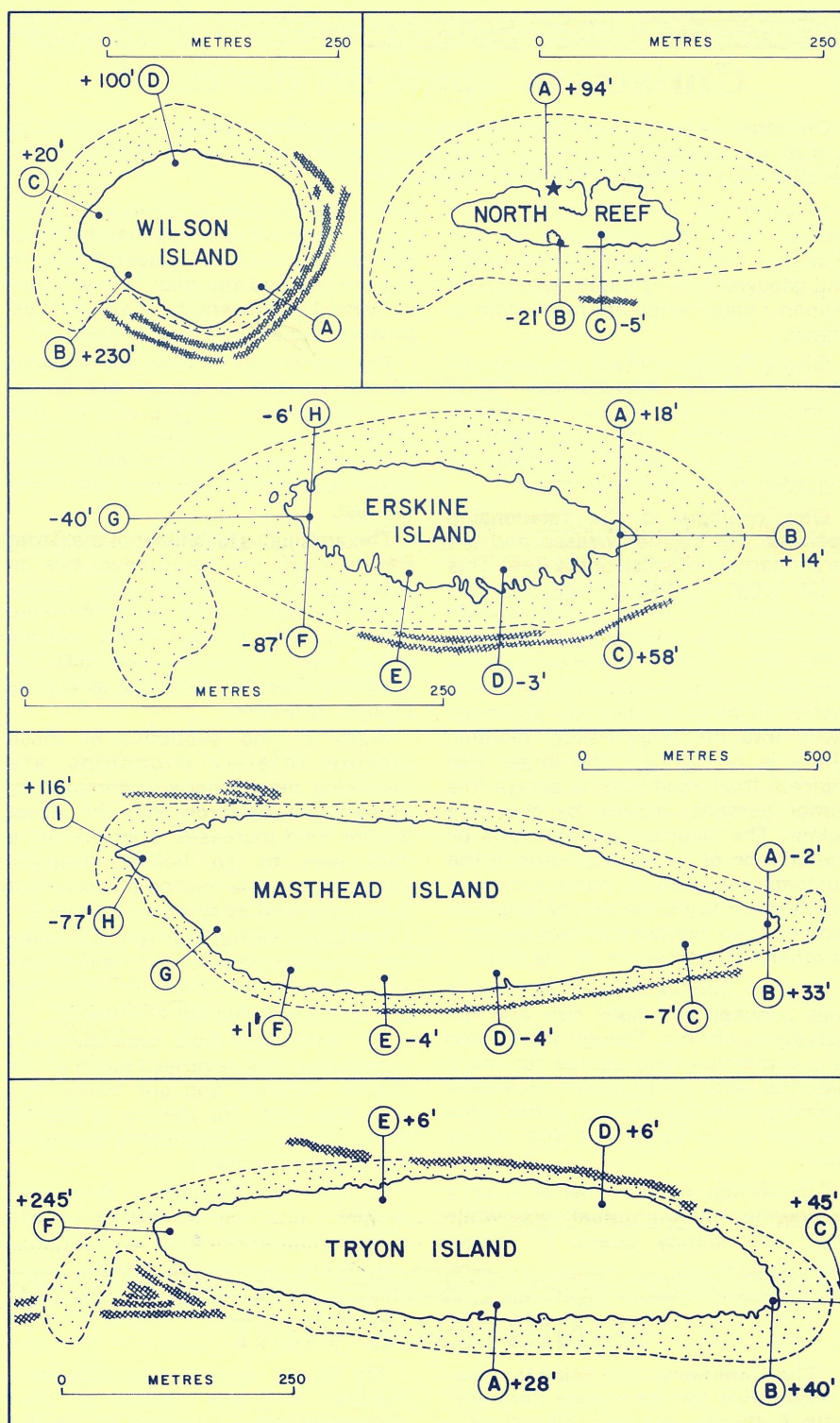
The only structural damage to buildings on Heron Island was caused by falling *Pisonia* trees; these were completely stripped of their leaves. However, the resident bird populations on the various islands were not so fortunate and numerous dead birds were evident amongst the leaf litter.

In July and December of 1979, preceding cyclone "Simon", I had measured a series of beach profiles on the islands. These measurements were part of a research program being undertaken on a regular basis during the preceding eight years. On Sunday 2 March, immediately after the cyclone I revisited the islands to remeasure the beach profiles to determine what effect the cyclone had made to their shape.

Sand Build-up

The islands shown on the accompanying figure are all uninhabited. Other than Wilson Island, which is a mixed sand/shingle cay, the remaining four are sand cays. For each of the beach profiles measured, the change in the position of the beach/reef flat junction is indicated for the time just after the cyclone. Positive or negative adjustment are indicated in feet. Masthead Island, which is the largest, displayed least change; obviously additional sediment was added to the ends of the island. Tryon Island and Wilson Island both showed overall addition of sediment. Erskine Island had increased the width of its beaches on the eastern end but suffered erosion to the western end.

The cay on North Reef (star indicates the position of the lighthouse) was eroded on its southern beach whilst its northern beach increased. Several



Note — Changes are measured in feet.

beach profiles which were measured on Heron Island (details not shown) displayed a build up of sediment. Additional sediment (approx. 12,000 cubic metres) was deposited within the boat harbour and its bathymetry is similar to its shape after cyclone "Emily" (April, 1972).

Although insufficient evidence is available, it appears that some reef-top surfaces contain more unconsolidated

sediment per cubic metre than other reefs; this sediment may be removed during cyclone activity and added to the islands.

The measurements indicate that cyclone "Simon" did produce an overall build up in all the sand masses which form these islands. Obviously cyclones should be viewed as both constructive agents as well as destructive ones.

*Dr Flood is from the Geology Department, University of New England.



Christmas Spirit on the Reef

Christmas is the period for observing a most significant event for mankind. It is also an appropriate time to think about creations on earth that have no parallel. One of these is the Great Barrier Reef.

Beneath the waters of the Great Barrier Reef are examples of co-existence and interdependence, peace and goodwill among inhabitants which human relationships are rarely able to match.

Giving help to others is a regular part of the marine environment. Such relationships may involve completely differing species and often types of animals which would normally be regarded as food for each other.

One example is the relationship between the cleaner wrasse and the larger carnivorous fish of the Reef. This small, busy little fish operates from so-called cleaner stations, usually beneath reef overhangs, removing parasites and other growths from the larger species. The cleaner fish work on the gills, fins and other parts of the body, and even swim into the large fishes' mouths. There is no danger. The larger fish indicate their readiness to accept this rather personal service by changing colour. The cleaner wrasse knows by the change of colour that none of the customers is likely to make a meal of him. When the job is done, the large fish resume their normal activities and diet of other fish elsewhere on the Reef.

Another relationship of interest is that between the goby fish and the burrowing shrimp. Though the shrimp is a traditional food source for many fish, the goby in fact lives in complete harmony with the shrimp in the same burrow on the sandy sea floor of the Reef.

The shrimp spends most of its time burrowing out their mutual home while the goby stands guard. If danger

threatens, the goby is last into the hole, and the first out to check that the coast is clear. The interesting fact is that both the shrimp and the goby are efficient individual burrowers, but have decided to work and live together in harmony.

There are many other examples, such as the remora or sucker-fish which attaches itself to large predators, like sharks, in complete safety. It gets free transport around the Reef and in turn feeds upon scraps and parasites from its host.

The architect and builder of the Great Barrier Reef, the coral polyp, has its own symbiotic relationship. Living within the coral is plant tissue known as zooxanthellae (algae) which utilises waste from the polyp, and aids the essential limestone building, as well as producing oxygen.

Many of the subtleties of these marine inter-relationships are becoming more clearly understood by humans as research into the Great Barrier Reef increases. There is still a long way to go before scientific knowledge of the marine environment is as advanced as science is on land.

The Great Barrier Reef is host to some of the world's giants of evolution as well as primitive and delicate life-forms that pre-date the existence of humans.

On land, mankind's expansion and exploitation has destroyed much of our natural heritage and our living links with the past. On the Great Barrier Reef, there is the opportunity to prevent this happening again.

In the first Christmas of a new decade, that is something worth thinking about.

Boat Ramp Survey

More than 300 people were interviewed at boat ramps between Tully and Port Douglas, during a survey of recreational fishing activities in the area conducted by the Great Barrier Reef Marine Park Authority during August and September. About 60% of those interviewed fished on the Reef.

Variable weather, during the survey, enabled the results to show a clear relationship between wind speed and the number of boats going to the Reef.

Most interviews were conducted at the Cairns and Port Douglas boat ramps. From Cairns, the most popular reefs were Green, Sudbury, Michaelmas and Arlington and from Port Douglas, Batt and Tongue reefs. The further away the reef is from the port, the longer people spend fishing and the larger the boat in which they travel.

Catches at reefs out from Cairns and Port Douglas averaged about 5 to 6 fish per angler day of about eight hours. Catches were highest at Hull Heads (about 11 fish per angler day) and intermediate from reefs in the Mourilyan/Innisfail area (about 7 fish per angler day). Catches at popular reefs increased slightly with increasing distance from shore.

Cairns Results

In the Cairns area, the top 10% of fishermen took 38% of the catch, and the top 50% of fishermen 84% of the catch. On average, about half the number of fishermen caught one fish or none at all.

Coral trout made up about 30-40% of the catch, with sweetlip, red emperor and nannygai filling the minor places. Catch composition varied quite considerably between the popular reefs.

The most frequently given reason for going on a fishing trip was enjoyment of the sea. Providing food, the sport of fishing and getting away from work were next most important. The purpose of the survey was to determine the importance of recreational fishing in this area of the Great Barrier in both recreational and economic terms. The survey was conducted in association with the Queensland Fisheries Service and the Queensland Amateur Fishing Council and with the voluntary assistance of fishermen and clubs. The Authority would be grateful for any further information from amateur fishermen in the area.



MINISTER'S VISIT

The Commonwealth Minister now responsible for the Marine Park and the Authority, Mr R.J. Ellicott QC, visited the Authority's main office in Townsville on 13 November.

Mr Ellicott, who was appointed Minister for Home Affairs and Environment following the Federal Election, was accompanied during the visit by the Secretary of his Department, Dr D.F. McMichael.

The visitors were introduced to all members of staff and were hosted by the Chairman, Mr Graeme Kelleher. They viewed the Authority's audio-visual "The Great Barrier Reef Marine Park Concept" and examined a new display in the Authority's offices.

Mr Ellicott is a former Solicitor-General and was elected to the Commonwealth Parliament in 1974, representing the Sydney seat of Wentworth. He was Attorney-General from December, 1975 to September 1977. In December, 1977 he was appointed Minister for the Capital Territory, and Minister for Home Affairs. The Minister formerly responsible for the Authority, Mr David Thomson MC, is now Minister for Science and Technology.

Dr. McMichael is no stranger to the Authority. He was the first Acting Chairman of the Authority when it was established in 1976.

REEFLECTIONS is published by the Great Barrier Reef Marine Park Authority to provide information about the Great Barrier Reef, and to give people an opportunity to express opinions on related issues.

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