

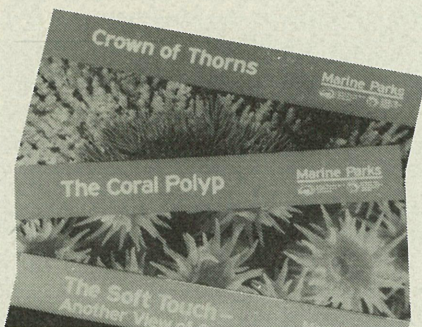
Reflections

GREAT BARRIER REEF MARINE PARK AUTHORITY

November, 1985

Free Issue No. 16

COMMUNICATING SCIENCE TO PEOPLE



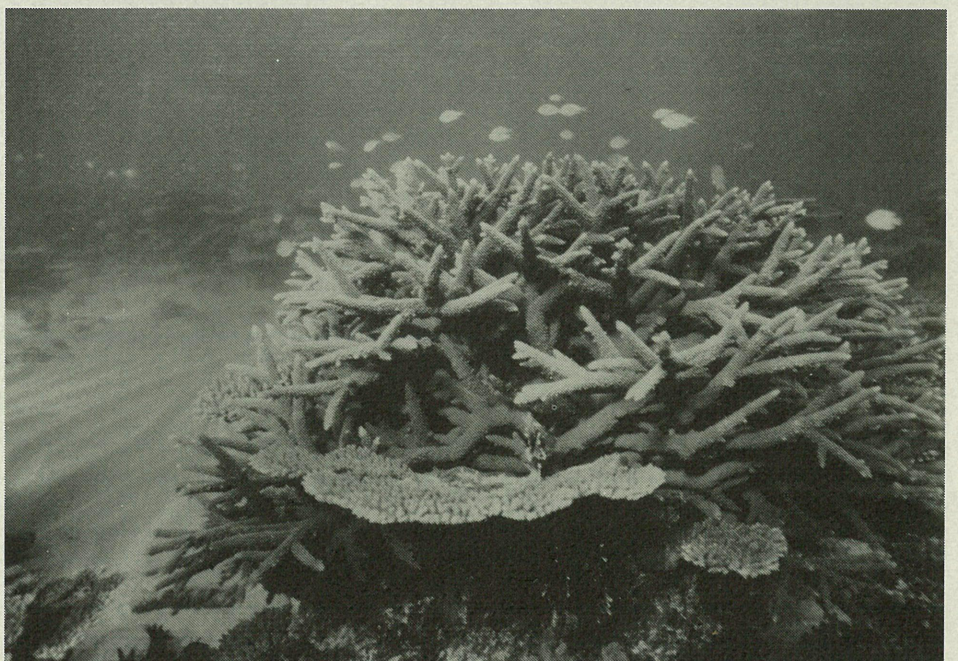
Did you know that reefs make their own coral cays? Have you ever wondered if fringing reefs are different to the outer reefs? Or asked what we know about the crown of thorns starfish phenomenon?

A new series of full-colour brochures titled **Reef Notes**, recently released will help answer many such questions.

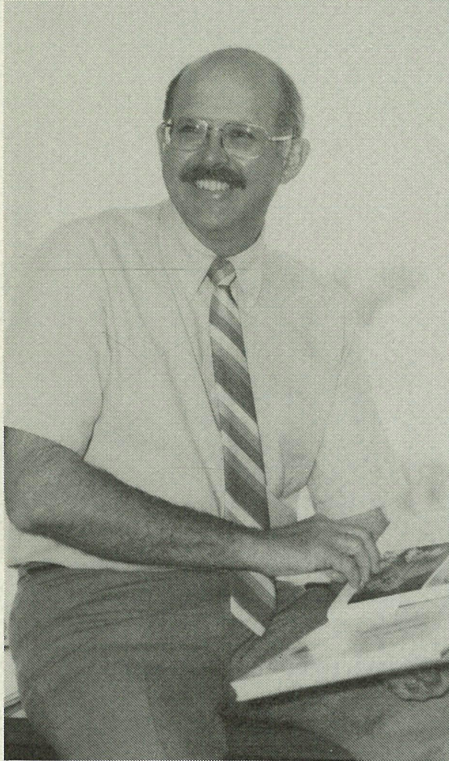
Produced co-operatively with the Q.NPWS under the Marine Parks logo, this new series is written for the lay person and student. It will provide an avenue for the Authority and Q.NPWS to communicate relevant reef natural history, management issues and topical subjects that you, the users of, and visitors to the Great Barrier Reef Marine Park will find both informative and interesting.

Authors from the James Cook University of North Queensland, Griffith University and the Q.NPWS have happily contributed articles in their areas of special interest. We sincerely thank them for their time and effort in making the series come to fruition.

Your ideas on suitable subjects that might be covered in the series are welcomed. Reef Notes so far include *The Crown of Thorns*, *Reef Region Fisheries*, *The Coral Polyp*, *Soft Corals*, *Turtles*, *Seabirds*, *Fringing Reefs* and *Coral Cays*. Copies are available through either the offices of the Authority or the Marine Park's Section, Cairns and Rockhampton Q.NPWS.



New Authority Executive



Don Kinsey took up the position of Executive Officer of the Great Barrier Reef Marine Park Authority on June 17. He brings to this demanding post a wealth of scientific and managerial experience and the Authority is fortunate to have obtained his services.

Dr Kinsey explains that his interest in coral reefs goes back to the wartime period when he lived in Townsville. 'My first experience of a reef was Nelly Bay on Magnetic Island' he said, 'In those days there was a beautifully developed reef there'. Actually, Don has been associated with beautiful marine environments throughout much of his life. Even though he has lived mostly in Sydney, he has worked on numerous islands, reefs and estuaries in the Great Barrier Reef, the Pacific, the Atlantic and the Caribbean. Between 1976 and 1982 he moved away from Australia living first on tiny Coconut Island in Kaneohe Bay in Hawaii, then in the sea islands of Georgia among the vast Atlantic salt marshes.

Nevertheless, it was a long time after Nelly Bay before Don was able to work in the marine environment for which he had developed such a strong attachment. He

took his first degree and early post-graduate training at the University of Sydney. He then pursued a career as a food technology and fermentation expert with Mauri Bros and Thomson Limited. During his 22 years with the company he worked not only in research but finally in the senior management of the organisation. During this period he developed a side interest in coral reef science and his reputation in the field was well established before he chose it as a full time career in 1976. In 1979 he was awarded his PhD degree in Oceanography from the University of Hawaii. Since 1977 he has held prestigious positions in marine sciences including Scientific Co-ordinator at the Hawaii Institute of Marine Biology and Director of the University of Georgia Marine Institute. Since 1982, and until commencing with GBRMPA, he has been an Assistant Director and Principal Research Scientist at the Australian Institute of Marine Science. He also has acted as Chief Technical Advisor to both the Australian Assistance Development Bureau (Department of Foreign Affairs) and ASEAN (Association of Southeast Asian Nations) in establishing the new ecological database program under the ASEAN/Australian Cooperative Agreement on Marine Science.

Don's background, then, is strongly associated with scientific research but has also emphasised environmental management and administrative management. Naturally he has strong feelings about the inter-relationship of these disciplines. 'Most research has some applied value', he maintains, 'even if it is not always obvious to the people doing the research. The problem for management is to recognise that value and to interpret the research in practical terms'.

He believes that there is much management-relevant information still remaining unrecognised as such in the results of previously published research, and summarises 'I believe that the extraction of this information not only represents a very interesting challenge but is also likely to prove very cost effective.'

Admitting that his view of coral reefs is a romantic one, Don nevertheless maintains that his experience is broadly

based and grounded on reality. He is particularly interested in the interactions between land and the reef. 'There are both positive and negative influences in this interaction', he said 'but scientists have tended to focus research on those reefs away from the immediate influences of the coastal zone and we are consequently short of much of the information which we need to establish sound management practices for coastal and fringing reefs.'

Don Kinsey will certainly bring some fresh and stimulating ideas to his new job and his staff look forward to working with him in providing support to the Chairman Mr Graeme Kelleher and to the Authority in the development, management and care of the Marine Park and to the Queensland National Parks and Wildlife Service in its task of day-to-day management.



FAREWELL TO DR. GILMOUR

Alistair Gilmour has left his position as Executive Officer of the Great Barrier Reef Marine Park Authority to take up the Chair of Environmental Studies at Macquarie University. Alistair joined us in May 1980 and during his five years took a major and creative role in many developments of the Marine Park and of the office of the Authority. In this time the Marine Park has expanded from the single Capricornia Section to a series of Sections covering 98.5% of the Region and with steadily developing zoning and management regimes.

Dr. Gilmour was, of course, involved in all aspects of the Authority's work but made a special contribution in the area of liaison with other bodies and the scientific community. He attended a number of national and international conferences on behalf of the Authority describing and explaining the concept of the Marine Park. Macquarie University has gained an enthusiastic and imaginative Professor and he goes with our thanks for a job well done and with our good wishes for the future. We look forward to collaborative work with him and his department in the future.



A Thorn By Any Other Name

The crown of thorns starfish carries the scientific name *Acanthaster planci* which was given to it by Linnaeus in 1758. However, over the years its official name changed as taxonomists tried to find its proper place in starfish classification. These drawings, published in 1786, are labelled *Asterias echinites*.

The drawings are from *The Natural History of Many Curious and Uncommon Zoophytes collected from various parts of the globe* by John Ellis and Daniel Solander. They are reproduced here from the copy in the Sir Maurice Youge Collection of the library of the Australian Institute of Marine Science.



Australian Museum Invests In Scientific Research On The Great Barrier Reef



Winner of Internationally Important Award Announced.

Geoffrey Smith of Griffith University in Brisbane has been awarded the third LIZARD ISLAND RESEARCH STATION DOCTORAL FELLOW-

SHIP. The Fellowship, one of the largest made for post-doctoral research in Australia, will be sponsored by Readers Digest. Lizard Island Research Station is

operated by the Australian Museum to provide facilities for research in the northern Great Barrier Reef.

Geoffrey Smith will receive \$12 000 for air fares, equipment and lab fees at Lizard Island Research Station. The award is paid over a period of three years.

Mr Smith is studying *Aspects of the relationships between feeding and breeding of seabirds in a tropical reef environment*. The project is concerned with how food may become limited for seabird chicks during the breeding season, and the effects that this limitation would have on their growth and survival.

Dr Des Griffin, Director of the Australian Museum, said 'We live at a time when increasing human populations, greater mobility and increased awareness of what the Reef has to offer are leading to greater usage of, and pressure on, the natural resources of the Great Barrier Reef. Seabirds are an important part of this ecosystem and are part of the nutrient chain that maintains the dynamics of the system. This study will examine some important theoretical ecological principles and will also provide data basic to the formulation of longterm management plans.'

The Lizard Island area is an important region for breeding seabirds; certainly eight and possibly nine species breed there.



Humpback Whales

Return to the Great Barrier Reef

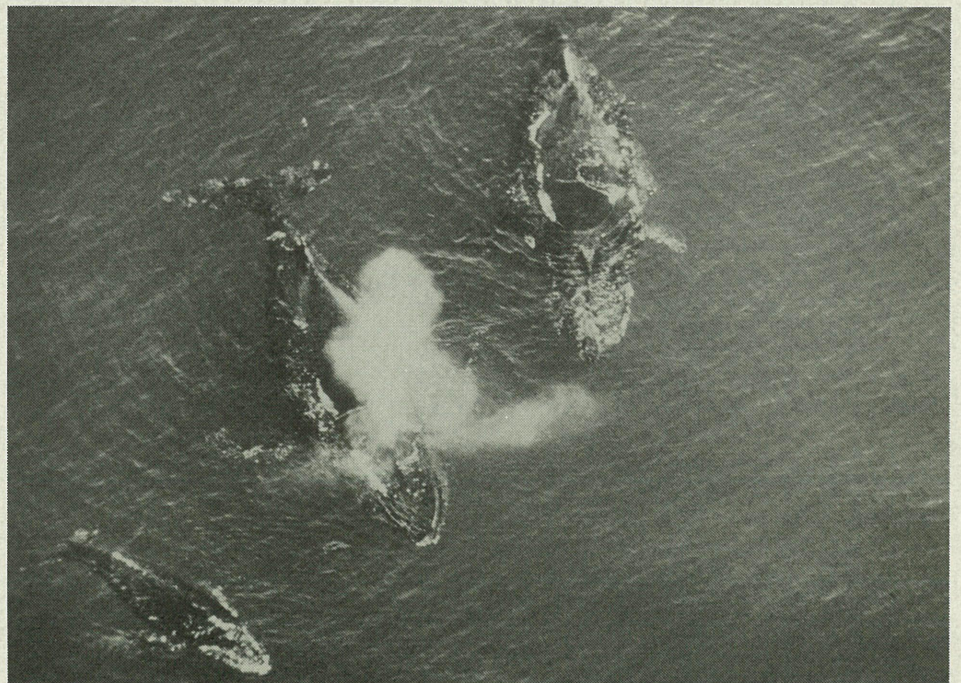
by Mark Simmons
Ranger Maritime Estate Management Branch
Queensland National Parks and Wildlife Service

The simple process of reproduction necessitates a great expenditure of energy and time for a female humpback whale *Megaptera novoangliae*. All of this effort begins with a long gestation period as the mother must carry her young for 12 months and the total process is only complete after almost another year following the birth. Not until this stage of growth is the calf capable of independence and large enough (7-8 metres) to look after its own defence. These yearlings as they are known, are then free to roam their huge ocean environment.

Humpback whales annually travel 5 000 kms between the Antarctic and the Great Barrier Reef Region. The waters off the east coast of Australia represent a major migration route for these animals. In days of not-so-old a knowledge of these movements was heavily exploited by the commercial whaling stations operating along the coastline at Tangalooma and Byron Bay.

The animals feed in the Antarctic during the summer months but their lengthy northern migration places them in warm and sheltered waters before the Antarctic winter. This is an ideal environment for the whales to breed since the new born calves, without a protective layer of blubber, are not immediately introduced to freezing polar waters. The females mate during one year on the Great Barrier Reef and calve in the following year after the 10 000 km round journey to the Antarctic. The humpback whale uses the Great Barrier Reef as the world's largest maternity ward.

Figs 1 and 2 show the numbers of humpback whales moving through the Capricornia Section in 1983 and 1984 respectively. From these figures it is clear that the whales first appear off the central Queensland coast during the last two weeks of June, heading north. The exact location of the whales' breeding grounds



is not known and their ultimate destination remains a mystery. The northerly migration through Capricornia continues through July but by the end of

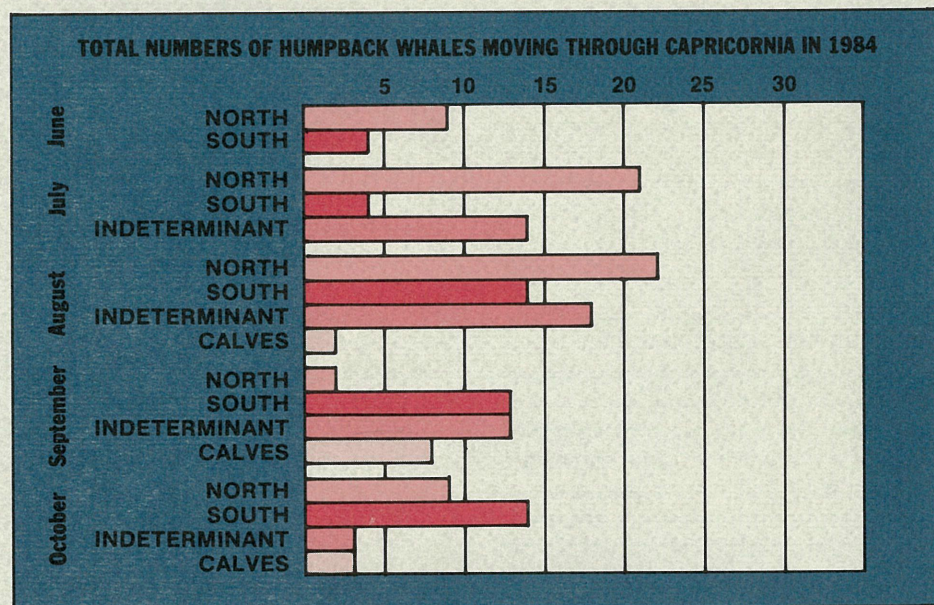
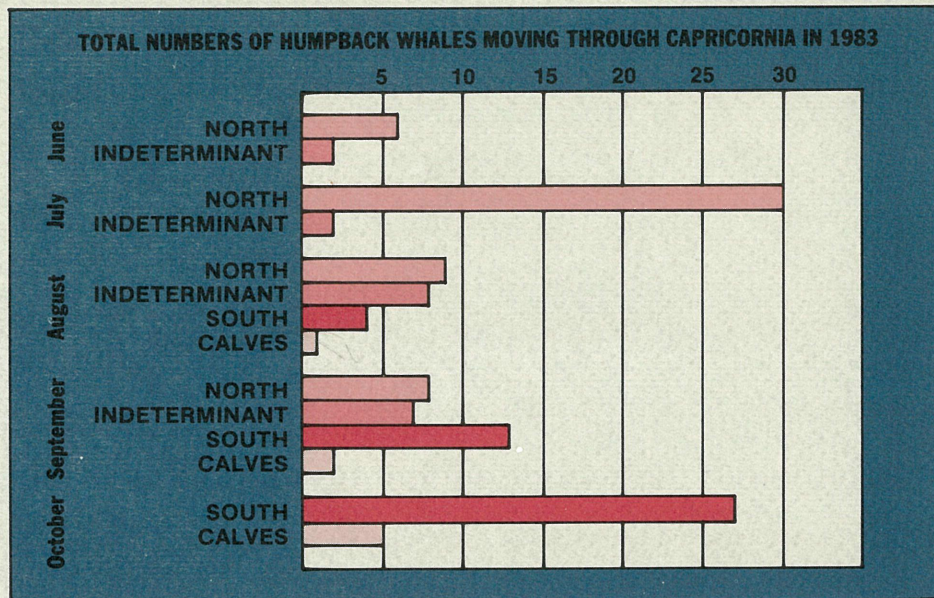
August some humpbacks are already returning towards the Antarctic. During September and October very few animals, if any, are still heading north.

The new born calves, the future of the species, are first observed in close association with their mothers during August and very nearly 50% of these mother/calf pairs are accompanied by an escort. This escort is possibly a large male animal waiting to mate with the female or a bodyguard ready to protect and defend the calf.

Being 5 metres in length and weighing 1.5 tonnes at birth the term 'calf' may seem inappropriate. However, the mothers have been observed to play with and suckle their progeny and the pair remain in almost constant flipper length contact of each other. The calf grows at the rate of 35 kgs body weight/day until it gains its independence at about nine months of age. This protracted period of dependence of calves upon their mothers helps ensure their survival by lowering infant mortality and offsets the relatively low birth rate.

The Whitsundays are a possible breeding area since some calves observed moving south through Capricornia are very small, obviously very young and could not have travelled very far since they were born. The whales may disperse upon reaching the Great Barrier Reef and breed along its entire length, however, the possibility of discrete and specific breeding sites also exists.

Future surveillance programmes for other Sections of the Great Barrer Reef Marine Park will help define the location of the breeding grounds of the whales. Sensible management plans can then be put into effect to give these special areas continuing protection for the benefit of this marvellous species.



Reef Poetry In "A Big Country"

A documentary on the Australian poet Mark O'Connor was screened in the series *A Big Country* on ABC television on Tuesday 6th August.

Mark O'Connor, one of Australia's leading poets, has written extensively on the Great Barrier Reef. This film, *Voyage On My Dreams* described his vision and experience of one of the world's most remarkable natural environments least chronicled by serious writers.

The programme centres on the twin strands of O'Connor's work — his struggle to use poetry to change the way Australians look at their surroundings, and his exploration of the English language (he calls it a 'cold-

climate language') to adequately express the Australian environment.

ABC radio will be featuring Mark O'Connor's poetry in two programs, an interview in the *Encounter* series on Sunday, 17 November and a program of his Queensland poems in *A Poet's Tongue* scheduled for Sunday, 13 October.

The Authority is proud to have been associated with the publishers Hale and Iremonger in the production of a book of Mark O'Connor's poetry, enhanced by the sensitive colour photography of Neville Coleman. Publication is expected in August and the book will provide a more lasting version of the images presented so effectively by television.

NATIONAL MARINE EDUCATION WORKSHOP

A National Marine Education Workshop will be conducted on the Gold Coast from 29 November to 2 December for any person or representative of a group interested in Marine Studies Education for Australians. Convenor of the workshop, Bob Moffatt, has provided the following workshop details.

Venues: Gold Coast College of Technical and Further Education; Broadbeach International Hotel; Benowa State High School.

Accommodation: Broadbeach International Hotel. \$18 per day, Twin Share with meals at \$3.50 (B'Fast), \$5.00 (lunch), \$10.00 (Dinner).

Dates: November 29/30/Dec 1/2. The 2nd would be an optional day for people to see schools doing Marine Studies in action or to visit a local field study centre.

Possible Theme: Marine Studies: Where are we Heading?

Anyone interested in presenting a paper at the workshop or wishing to receive further information about it should contact:

Bob Moffatt,
Benowa State High School,
P.O. Box 5733, Gold Coast Mail Centre, 4217.
(075) 394222.

Creating a Living Reef i

by Graeme Kelleher Chairman of the Great Barrier Reef
Marine Park Authority (reprinted from *Marine Studies*)

Anyone familiar with the Great Barrier Reef will know that access is difficult and expensive and observation of reef life is often hampered by adverse weather conditions and turbidity. The Great Barrier Reef Marine Park Authority was established to develop and care for the Marine Park and to provide for protection, wise use, appreciation and enjoyment of the Reef in perpetuity. We always realised that this worthwhile aim would only be achievable through the co-operation of the public. Education and public participation are, therefore, at the centre of the Authority's program.

For the above reasons, in 1980 I formulated the concept of a shore based development which would allow everybody, including old and infirm people, children and members of the public who could not afford a trip to the Reef, to find out about the Reef and see some of its wonders. The centre of the proposal which I originally called Great Barrier Reef World, (but for copyright reasons is now known as Great Barrier Reef Wonderland) is an aquarium with a capacity of approximately 3 000 cu.m in which we will grow a living coral reef. The aquarium will enable people to walk under the surface of the water surrounded by the normal inhabitants of the Reef.

Other elements of the proposal include the North Queensland Branch of the Queensland Museum, an Omnimax theatre, restaurant, shops, an office building and the departure point for vessels servicing the Reef.

Subsequently the project was awarded \$6m. by the Commonwealth and Queensland Governments under the State/Commonwealth Commemorative Program for the Bicentenary. This will fund the aquarium and the first stage of the Queensland Museum. Other parts of the complex will be funded by the successful tenderer, who will operate them on a commercial basis. The project is to be located on the waterfront in Townsville and the Authority has

proposed that it will operate the aquarium and has sought the Federal Government's agreement to transfer its Townsville office to the complex. The Great Barrier Reef Wonderland Association, which was set up to establish the overall project is now in the last stages of finalising a contract for construction of the project.

The technology which is to be used in the aquarium was developed by Walter Adey and the Marine Systems Laboratory of the Smithsonian Institution in Washington D.C. Anyone interested in the details of the technology can refer to Adey, W. (1983.) *The microcosm: a new tool for reef research*, *Coral Reefs* 1, 193-201. Put simply, the technology uses the

growth of algae as a water quality control mechanism.

The algae remove nutrients

n an Aquarium

from the water and control pH and oxygen content. In other words, the water quality control mechanism is the same as that which operates on the Reef itself.

Adey calls the screens on which the algae grow *algae turf scrubbers*. This feature is what will make this aquarium unique in world terms. We will be growing a living reef and this will be used to demonstrate the features and processes which make up a living reef. It is this attribute which makes it so valuable from GBRMPA's viewpoint.

Many people have asked why this development should occur in Townsville and not, for instance, in Brisbane, Sydney or Melbourne. There are several answers to this question. The operation of the algal turf scrubbers depends on the receipt of adequate amounts of light energy, Townsville provides this. The cost of providing this energy artificially in places in Australia other than the extreme north would be prohibitive. Even in Townsville natural light must be supplemented at night by metal halide lights in order to ensure that the oxygen content in the tank does not fall below tolerable limits. As well, in places other than northern Australia, the cost of maintaining the temperature of the water within the range suitable for efficient coral growth would be very high indeed.

Also in Townsville are the Australian Institute of Marine Science (AIMS), James Cook University (JCU) and the Great Barrier Reef Marine Park Authority (GBRMPA), all of which are likely to provide technical advice and voluntary assistance in operating the aquarium. Periodically, the replacement of the animals, which will live in the aquarium (principally corals) will be necessary. It is intended that coral will be cultivated at the research station on Orpheus Island and transferred in modular form to the aquarium.

This would not be practicable in any southern area. Finally, Townsville is in the geographical centre of the Great Barrier Reef. The complex is designed to inform people about the Reef before they visit the Reef itself, so that they will comprehend the process and features which occur within the natural ecosystem and develop a commitment to the protection of this natural resource.

From the scientific viewpoint, the reef microcosm will provide a unique opportunity to study the effects of perturbations on a reef community and to assess the effects of scale changes on the processes within a reef. In association with JCU, GBRMPA intends to establish an intermediate scale microcosm at the University which will be used for scientific experiments, many of them directed towards improving management of the Great Barrier Reef Marine Park.

Australian in Ipswich. It is called the rolling loop transport mechanism; it completely eliminates movement between the film and transport spools and results in film life approximately 30 times greater than normal film mechanisms. The film itself is 70mm and the image is projected using a single lens, with the resultant definition about one hundred times better than normal full size movies. Already a film dealing with the Great Barrier Reef has been produced in the medium and is being shown in the USA.

The project is expected to come into operation in our Bicentennial Year 1988.



The Omnimax

Theatre consists of a hemispherical dome tilted at 30° to the horizontal, on the inner surface of which are projected films. There are approximately a dozen of these theatres in the USA and a substantial library of films has been accumulated. The technological heart of the system is a film transport mechanism which was developed by an

Reef Survey Wins Award

by **Clinton Smith**
(Reprinted from *Wild Reporter*)

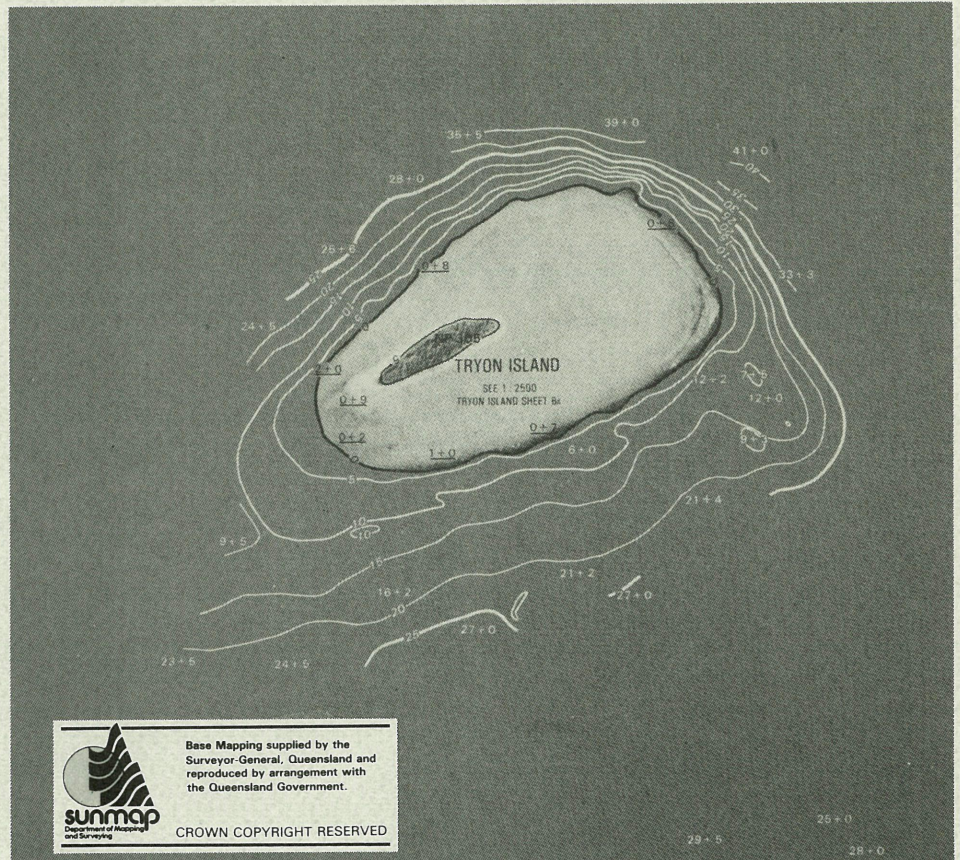
The Great Barrier Reef off Australia's East Coast is one of nature's most remarkable achievements. Endeavouring to preserve the unique Reef Islands in the outer boundaries of the Marine Park, Government had to establish guidelines for future land use.

In 1980, the Queensland Department of Mapping and Surveying (DMS) was asked to produce the necessary maps covering 13 islands and adjoining reefs in the Capricorn and Bunker Groups off the coast near Gladstone. The project recently won for DMS the first ever "Excellence in Surveying" Award — created by the Queensland Division of the Institution of Surveyors Australia to acknowledge outstanding achievements within the surveying profession.

DMS coordinated the project using resources from the Department of Harbours and Marine, Great Barrier Reef Marine Park Authority, Australian Survey Office (ASO) and private consultants. For land-tenure and environmental mapping DMS produced 23 map sheets at three scales — three 1 : 100 000 cadastral line maps covering the whole area, seven 1 : 25 000 photo maps of the islands and adjoining reefs and thirteen photo maps covering individual islands. The photo maps show selected spot heights, hypsometric and bathymetric contours and tourist and cadastral information. A total of 37 horizontal and 37 vertical control points was required for the 1 : 25 000 scale mapping.

The following work had to be carried out on each of the islands and proved especially difficult in many instances — emphasising the unique aspects of reef mapping:

- Establish Australian Map Grid (A.M.G.) coordinates from existing stations or by Doppler;
- Establish azimuth by astronomical observation;
- Establish Lowest Astronomical Tide (L.A.T.) and their heights by conventional traversing and levelling;



- Identify photo points on field prints;
- Make connections to existing cadastral surveys on the islands.

All islands except three already had A.M.G. coordinated control points, so the control network could have been extended to all of the islands by conventional survey methods. However, the necessity of erecting observation towers at considerable expense of money and time, prompted DMS to look for alternatives. It decided to use the Doppler translocation method to establish control on Fairfax, Wilson and Tryon Islands. The Doppler system was still very new to Queensland and very much in its experimental stage. A number of check observations on other islands were carried out and validated the accuracy of the system, as logistics, shortage of equipment and accommodation problems prevented checks on the three islands.

Part of the project was to establish Lowest Astronomical Tide (L.A.T.), the adopted datum used for all Australian

offshore mapping. Precisely establishing L.A.T. requires long-term (369 days) observation of tidal movement. Thus L.A.T. was determined by tidal analysis from the data obtained from permanent tide gauges maintained at Gladstone and Bundaberg. Once the datum (L.A.T.) was determined, it was adapted to the islands by tidal transfer. The tidal transfer involving setting up automatic tide gauges and tide boards. These boards were required to be read every hour over a continuous 38–42 hour period to monitor the full range of tidal movement. Readings had to be made at the same time as the recorded data on the automatic gauges. Rough weather, maintenance and communication problems made these readings most difficult. For almost two weeks the field parties were battered by 30–40 km/h winds and heavy rain. Automatic gauges broke down and tide boards were smashed. On one day, 60 km/h winds were recorded at Heron Island and fears arose for the safety of those involved.

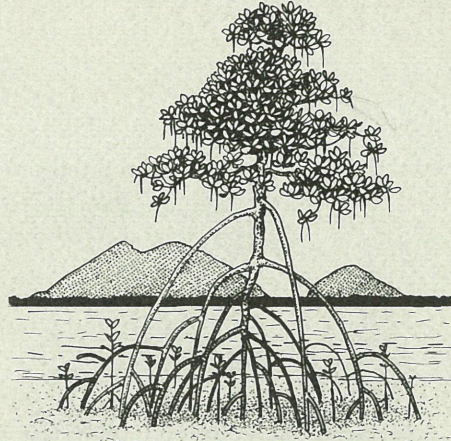
May Was Mangrove Month

May 1985 could quite conceivably have been thought of as a "month of mangroves" at the Australian Institute of Marine Science (AIMS) in Townsville, North Queensland.

For three very worthwhile weeks in May AIMS played host to two complementary groups of visitors; a UNDP/UNESCO backed Training Course on Ecophysiology of Mangroves; and a Research for Development Seminar dealing with Mangrove Ecosystems, held by the Australian Committee for Mangrove Research (ACMR) under the sponsorship of the Australian Development Assistance Bureau (ADAB).

AIMS Director, Dr John Bunt, said that the rationale behind the course was that mangroves are subject to a variety of natural stresses and to some which are attributable to the activities of man. In either event, the capacities of individual species to resist stress varies and the mechanisms of response are of several kinds. Understanding the circumstances likely to induce stress and the ability to detect stress and its likely effects are important for efficient management of mangrove resources.

Trainees spent just over two weeks examining topics including; the physical environment, coastal landforms, substrates, climate and hydrology; the chemical environment, physical chemistry and the chemistry of organic and inorganic nutrients; the essentials of plant anatomy; the physiological adaptations and processes of mangrove fauna and the management implications of ecophysiology.



Four days after the Training Course participants left AIMS to return to their home countries, 54 of the most active and highly respected researchers in the mangrove field from most of the countries engaged in mangrove research in the Indo-Pacific region arrived at the Institute to begin an eight day Research for Development Seminar organised by the Australian Committee for Mangrove Research. The delegates from 15 countries, including Australia, came together to discuss topics ranging from the undisturbed mangrove ecosystem, and the traditional uses of mangroves to exploitation and threats to mangrove systems, and the measurement and management of mangrove ecosystem.

In addition to the formal exchange of information from the 34 papers presented, the workshop set out to foster closer links between mangrove researchers from as large a number of Indo-Pacific countries as possible, many of these countries having similar mangrove ecosystems to Australia.

Selection of photo points was also a problem. Weather conditions had dramatically altered some of the islands and points indicated on the photos taken in 1978 could not be adhered to. Coral outcrops close to the islands were often used as identification points. Being underwater, more problems arose — particularly in photography where images were displaced by refraction.

While these problems considerably hampered operations, survey teams were able to adapt their plans to suit the varying conditions. Difficulties were overcome one way or another and the project was successfully completed.

Mangroves In The Marine Park

The Marine Park Authority was represented at the workshop by Dr Leon Zann of the Research and Monitoring Section.

Mangroves fringe much of the coastline of Queensland's mainland and offshore islands and their effects (energetically and as important nursery areas), extend far beyond their physical boundaries. Mangroves are mainly intertidal and therefore the Marine Park Authority and various State Departments such as Department of Primary Industries, Queensland National Parks and Wildlife Service and Premier's Department have jurisdiction over different aspects and areas of these environments. Care of the mangroves necessitates a policy of complementary management.



Crown Of Thorns Creates Work

In November 1984 the Federal Government announced a grant of \$1.016 million as part of its Commonwealth Community Employment Program. The grant was made to the Australian Institute of Marine Science to conduct extensive and detailed survey work and other studies of the crown of thorns starfish on the Great Barrier Reef.

This survey is now well underway. It has allowed a number of young people who have had difficulty in finding employment to take part in an interesting and worthwhile project. At the same time, the survey is providing scientists with some of the basic facts on crown of thorns distribution so badly needed for rational treatment of the subject. The survey is one of great challenge. It will cover some 200 reefs (about 10% of the total). These reefs have been selected to represent the range of reef types over the whole geographic area of the Great Barrier Reef. For each reef, records are being made of the relative frequency of crown of thorns and the condition and extent of the coral cover.

Results from the surveys are expected early in 1986 and should provide a valuable basis for further investigation of the crown of thorns phenomenon.

Reef Survey Wins Award

Continued

Working in a reef environment without vehicles slowed operations, as all equipment had to be physically moved around the islands. Work tended to revolve around the state of the tide rather than set working hours. Communication was difficult with parties so widely scattered. VHF radios, radio telephones, telegrams and telephones were all used with moderate success, but coordination of activities still proved very complicated, particularly when multiple communication was necessary.

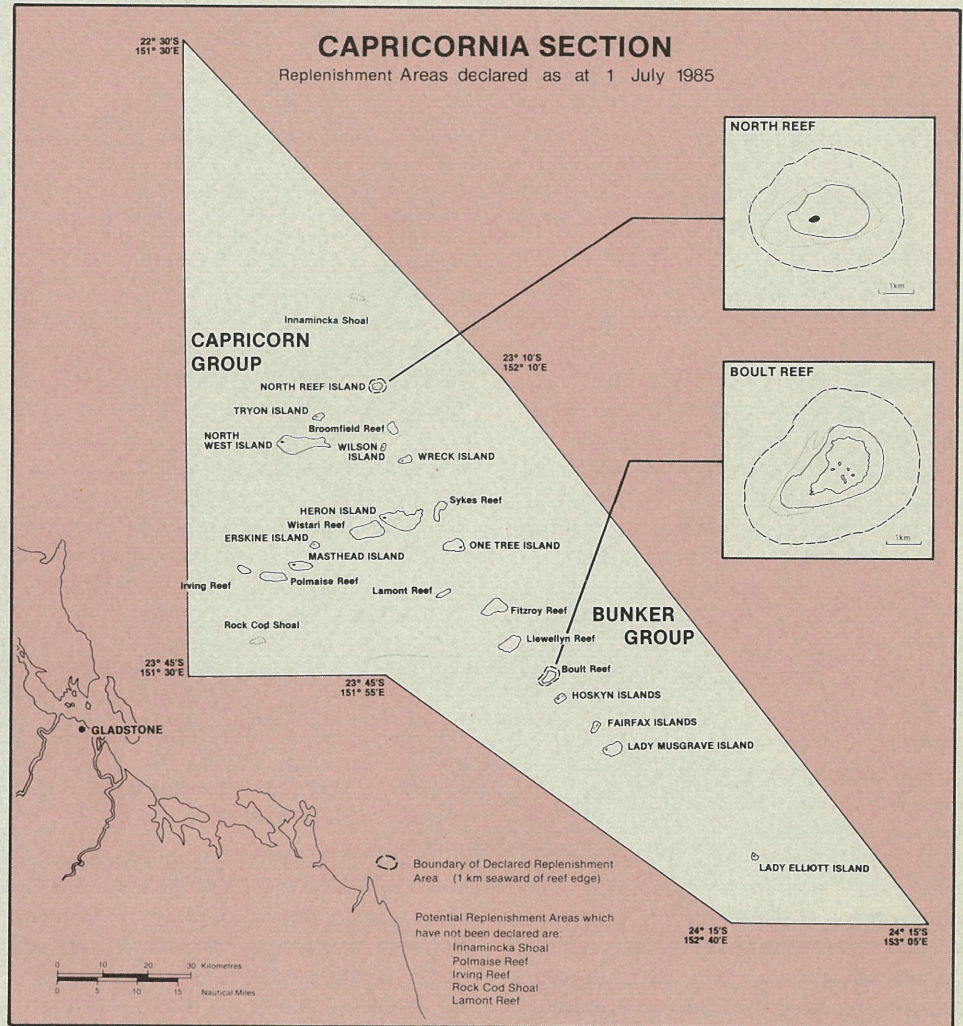
Capricornia Section Replenishment Areas

The purpose of a Replenishment Area is to protect parts of the Reef from fishing and other forms of resource collecting for a period that will allow stocks to restore themselves, thereby ensuring reef survival by wise use.

The Replenishment Area around Boulton Reef in the Capricornia Section of the Great Barrier Reef Marine Park has been extended for a period of 12 months from 1 July 1985. The Replenishment Area lies within a boundary 1 km seaward of the reef edge of Boulton Reef.

The extension of the Replenishment Area means that Boulton Reef will be closed to fishing and any other activities involving the removal of living reef resources, except that trolling for mackerel species may still be undertaken during the period 1 May to 31 August of the year the closure is in effect. It is important to note that the Replenishment Area may still be entered for all purposes other than the removal of living resources, provided that any equipment which is normally used for fishing or collecting is stowed or secured at all times.

Both GBRMPA and QNPWS have undertaken surveys of coral trout in the Capricornia Section since July 1983. The results of these surveys suggest that replenishment areas may well be effective in allowing coral trout stocks to increase. Extending the Boulton Reef Replenishment Area for another 12 months will allow for two additional surveys which will further clarify the effects of reef closures.



North Reef Island Replenishment Area, Declared from 1 July 1983 for a three year period is still in effect. With the extension of the Boulton Reef Replenishment Area for a further 12 months, both Boulton Reef and North Reef Island Replenishment Areas will be due for review before 1 July 1986.

First Reef Appreciation Area To Be Declared

The Great Barrier Reef Marine Park Act specifies a number of objects to be considered in the preparation of zoning plans. One of these is "the reservation of some areas of the Great Barrier Reef for its appreciation and enjoyment by the public". Reef appreciation areas are one way of achieving this.

Reef appreciation areas are small areas of heavily used reefs where the public can observe and appreciate marine life. These are areas of reef from which other influences such as fishing or collecting

have been excluded. The GBRMPA proposes to declare a number of Reef Appreciation Areas within the Capricornia Section of the Marine Park and invites the comments and views of the public about the proposed declarations.

The proposed areas are:

- to the north-east of Lady Musgrave Island
- at the Western end of Heron Island Reef
- at the eastern end of Wistari Reef

- to the north-west and to the south-east of Lady Elliott Island
- to the north of Masthead Island
- to the north and to the west of North West Island
- to the north-west of Tryon Island

Detailed descriptions of the boundaries and further information can be obtained by contacting Mr J Gillies at the GBRMPA Townsville office. Representations should reach the Authority not later than 3 September.

Cairns Section Management Officers

Day to day management of the Cairns Section of the Great Barrier Reef Marine Park is now in the hands of a team of 14 field staff of the Queensland National Parks and Wildlife Service. The Cairns based team, which includes six new Service appointees, has recently completed a six week comprehensive induction program. They are now initiating a program of routine field operations, encompassing surveillance, extension work, enforcement and regular park survey and presence, as well as various projects such as Marine Park Awareness Survey, monitoring key areas, surveying seabird populations, and island and reef management planning.

The team, introduced below, consists of:

Senior Management Officer

PETER HUNNAM is the team's supervisor and strategist; he has extensive overseas experience in marine conservation and park management, and has been with the Q.NPWS for 3 years.

Management Officers

JOHN HICKS one of the original Queensland Fisheries Service Marine Park Officers, is designing a management plan for Michaelmas Reef and Cay. His work includes studies on crown of thorns starfish control methods and development of underwater interpretive aids.

JACKIE ALDER is working on the design of biological and social surveys and the establishment of replenishment areas. Her experiences include fisheries management, computing and biometry in Australia and overseas.

PETER SHANAHAN a transferee from the Capricornia Section, is investigating the subject of moorings as well as new surveillance techniques. He is an experienced naturalist having worked in Australia and Papua New Guinea.

FRAZER MUIR is responsible for recommending and managing on a day to day basis restricted use areas and the planning of field bases. He has worked on various marine geomorphology projects on the Great Barrier Reef and in New Zealand.

Rangers

JOHN CORNELIUS also one of the original Marine Park Officers, is co-ordinating extension work, developing technical



*Sitting Left to Right: Jackie Alder, Gary Barnes, John Hicks, Peter Hunnam.
Standing Left to Right: Frazer Muir, John Cornelius, Margot Hodgkins (typist), Nigel Hedgcock,
Alan Oldroyd, Leigh Harris, John DeCampo.
Absent: Dennis Devine, Gary Silwood, Peter Shanaham.*

equipment facilities and keeping a routine eye on the central sector of the Cairns Section, off Port Douglas.

DENNIS DEVINE previously working in the Brisbane office, is assisting James Cook University in dugong survey work and is responsible for the northern area of the Section.

GARY BARNES is co-ordinating the routine field operations. He was a ranger for several years with the Victorian Department of Fish and Wildlife and more recently, an experimental officer with the Australian Institute of Marine Science.

NIGEL HEDGCOCK is initiating extension and interim surveillance over the Far Northern Section, as well as managing audio-visual and photographic equipment. He was a technician at the Queensland Agricultural College before joining the Service.

LEIGH HARRIS is planning signs for the Section and looking after the central sector off Cairns, including Green Island and Michaelmas Cay and their reefs. Previously he worked on Mainland Estate Management in South-east Queensland.

JOHN DE CAMPO is working on biological surveys, establishing interpretive materials, and completing a Marine Parks display in the Cairns Museum. His experience was gained while working with Department of Primary Industries.

ALAN OLDROYD is undertaking extension and routine field work in the southern sector off Innisfail. Previously he was responsible for establishing and maintaining environmental parks in the Cairns Region.

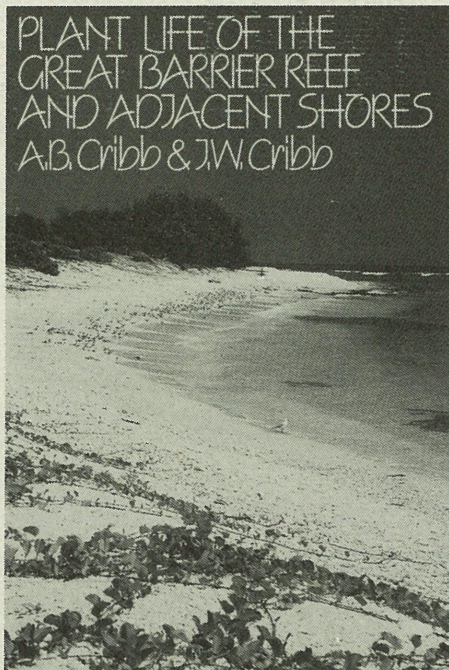
Overseers

GARY SELWOOD is the skipper of the *Remora*, and manager of the field equipment. He has extensive experience in skippering charter boats and fishing vessels in Australia and Papua New Guinea.

A second overseer is to be appointed.

Day-to-day management of the Marine Park is a complex task, comprising surveillance, enforcement, interpretation and education, resource management, planning and monitoring; but the diverse background and skills of the team members should provide the necessary expertise, and there is certainly no lack of enthusiasm. Although management has just begun, you can expect to read more about the Cairns Section since the team hopes to keep you informed on the progress of the programs and projects. They have moved into temporary offices on the first floor of the Commonwealth Bank building on the corner of Spence and Abbott in the centre of Cairns, telephone numbers are 51-9811 and 51-9279.

BOOK REVIEWS



PLANT LIFE OF THE GREAT BARRIER REEF AND ADJACENT SHORES


A.B. Cribb and J.W. Cribb,
University of Queensland Press,
1985, ISBN 0-7022-1984-3. 294p.

This well produced and beautifully illustrated field guide offers an excellent introduction to a wide range of plants. The larger and more conspicuous seaweeds are illustrated and described. Even those who generally find seaweeds rather dull will be fascinated by snippets of information such as a description of how a snapping shrimp weaves a home from algal filaments or how "sea grapes" are served as a salad in the Phillipines.

About half the book is devoted to land plants, those of islands and sea shores. These range from the familiar umbrella tree and coconut palm to the

inconspicuous but ecologically important creeping plants of the sand dunes. The illustrations enhance the descriptions, bringing to the readers' attention such things as the unexpected beauty of many mangrove flowers.

The final section of the book is on flotsam and will delight anyone who has strolled along a strandline and wondered at the strange objects there.

The authors are professional botanists, experienced writers of popular books on plants and enthusiasts for the Great Barrier Reef. All these attributes are used to advantage in this work. Mr Graeme Kelleher, Chairman of the Great Barrier Reef Marine Park Authority has written the foreword and the Authority is proud to have given financial assistance to the publication of this book. 


DAINTREE — WHERE THE RAINFOREST MEETS THE REEF

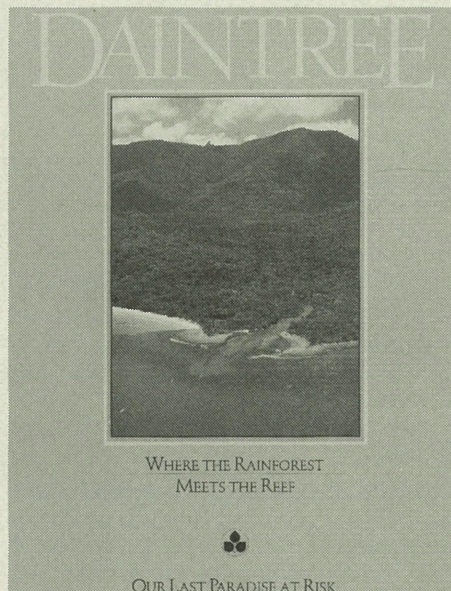
Rupelt Russell;
Photography by Leo Meier and Cliff and Dawn Frith,
Published jointly by Kevin Weldon & Associates Pty Ltd and Australian Conservation Foundation, 1985. 265p.

My initial impression was 'yet another large format coffee table book of glamorous photographs'. It is in fact this and more. A cursory glance leafing through pages reveals pictures of tropical seashore, fan palms, misty mornings in the rainforest and various poses by rainforest creatures.

A further look at the text and my attention was caught by a comment on page 57 quoted from Peter Stanton, now Regional Director of the Queensland National Parks and Wildlife Service in Cairns.


'The scenic beauty of the region is a result of the intimate mixture of sea, coast and mountains. White sandy beaches are abruptly smothered by a solid wall of lush green forest which drapes all but the steepest rock pinnacles in the ranges beyond ... tropical scenery and atmosphere at its very best'

I read on with interest about the intriguing and unique animals which inhabit the area - fluffy gliders, brush-tailed bettong, and a story of a couple rearing a Bennet's tree-kangaroo. Other accounts of local people, who are conservation minded occur in the book. 



A chapter on land use reveals the traumas associated with logging, bushfires, clearing, tin mining, and hippies. A discussion of Aboriginal concerns is included.

Rupert Russell's text seems well researched, and reveals his love of the area, and his concern for its preservation. The photographers are well known for their professional portrayal of natural scenery on film, and lovers of their work will not be disappointed.

It is to be hoped that the book will strike a chord with the Australian public and become a tool to ensure that this area remains for the enjoyment of future generations. 

Notes

Reflections is published by the Great Barrier Reef Marine Park Authority on a quarterly basis with the intention that it should cover a range of topics and serve as a forum for discussion. Your contributions are important to ensure that representative points of view are presented and items of interest are brought to the attention of our readers.

We ask that contributions be kept to a maximum length of 1,500 words and accompanied by the author's name, designation and address. Photographs (preferably black and white prints) drawings and diagrams will be gratefully received.

The Editor will assume that material submitted for publication has appropriate organisational approvals where necessary. The Editor reserves the right to reject or modify contributions. If modification is considered necessary, it will be referred to the author for approval.

Contributions should be sent to:
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