

# Reeflections

GREAT BARRIER REEF MARINE PARK AUTHORITY

August, 1984

Free Issue No. 14

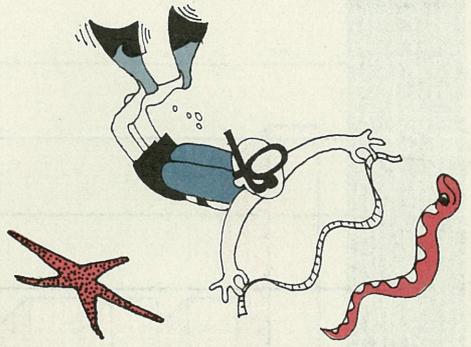
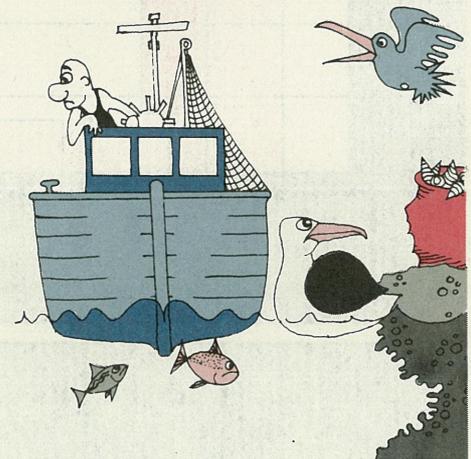
## ZONING THE REEF

**F**ollowing the proclamation of the Far Northern Section of the Great Barrier Reef Marine Park on 31 August 1983 a project team was set up within the Planning Section of the Authority to develop a zoning plan for the Section as a basis for the future management of that area.

A major aspect of the preparation of zoning plans for the Marine Park is the involvement of the various users of the Section to be zoned. In the recently concluded public participation program for the Far Northern Section, all people who use the Section were encouraged to make representations. The Authority was particularly seeking information on the activities they undertake and where they undertake them plus any comments and/or recommendations they would like to make concerning the zoning of the Section. To assist both the user in making a representation and the Authority in analysing the information received, a brochure with map was developed and widely circulated to users of the Section.

The high percentage (66%) of respondents who used the brochure in making their representations, facilitated the analysis of information and the subsequent drawing up of zoning plans. Hopefully, the apparent popularity of the brochure reflects the fact that it also helped the respondents in making their representations.

The response from the public to the



public participation program was excellent. A total of 116 representations were received from a broad cross-section of user groups with the commercial, recreational, conservation and research groups predominating.

As expected, commercial prawn trawling was identified as the major activity undertaken in the Far Northern Section. Mackerel trolling, reef fishing and cray fishing were also identified as important commercial activities in the Section. Fishing, in particular reef fishing and trolling, were identified as the major recreational uses, however, it was also discovered that a large and increasing number of recreational divers visit this still remote area of the Great Barrier Reef. A number of interrelated conservation and research issues were also raised. The most important of these being the need for protection of the dugong and its habitat in the Far Northern Section. Similarly, a concern was expressed in a number of repre-

sentations for the protection of turtle and bird populations within the Section. The Far Northern Section is recognized as containing some of the most important turtle and seabird nesting sites in the West Pacific area. Finally, in comparison to other Sections so far zoned this area is less disturbed by human impact and so the potential exists for complete outer barrier to inshore representative cross-sections (cross-shelf transects), to be protected as samples of near pristine interrelated reef sub-systems.

The zoning plan, compiled to a degree from information contained in the representations received, has sought to combine the wishes of all users of the Section with the primary objective of the zoning process: that of conservation of the Reef.

In late April another brochure was made available to the public, and in particular Reef users, inviting them to review the draft zoning plan. In addition a document entitled **Zoning the Far Northern Section** which outlines the zoning process was produced and made available. All those who forwarded representations during the initial phase of the zoning of the Far Northern Section were sent copies of the zoning plan, the booklet **Zoning the Far Northern Section** and the brochure which incorporates a zoning map on which they may register their comments on the zoning plan.

*Continued on page 2*



# Letters TO THE EDITOR

Dear Sir,

If I may comment quickly on your No. 12 issue:

The minke whale episode reflects Farley Mowatt's chronicle 'A Whale For The Killing'. Interference did not 'save' the whale, but killed other animals unnecessarily — even without the baits on which the sharks were presumably caught. The backward result came from interference. The lesson is worthwhile if it is remembered in future management.

I smiled at the criticism of Mark O'Connor's effort to 'put the Reef into words'. Despite the evident human arrogance in such efforts — in poetry, literature, photography, art, music — our attempts themselves are evidence of the impact of the living Reef. We can't blame Mark O'Connor for trying.

So while admitting that no verbal struggle can equal the Reef itself, I enclose some verses of my own, written as a gift to a friend. I hope B.J. Lewis will consent that I at least used a net — maybe a low one — for my poetic tennis. The subject is an island and reef philosophy.

Yours sincerely,  
Vic McCristal

President,  
Australian National  
Sportfishing Assn.

## THE WISDOM TREE

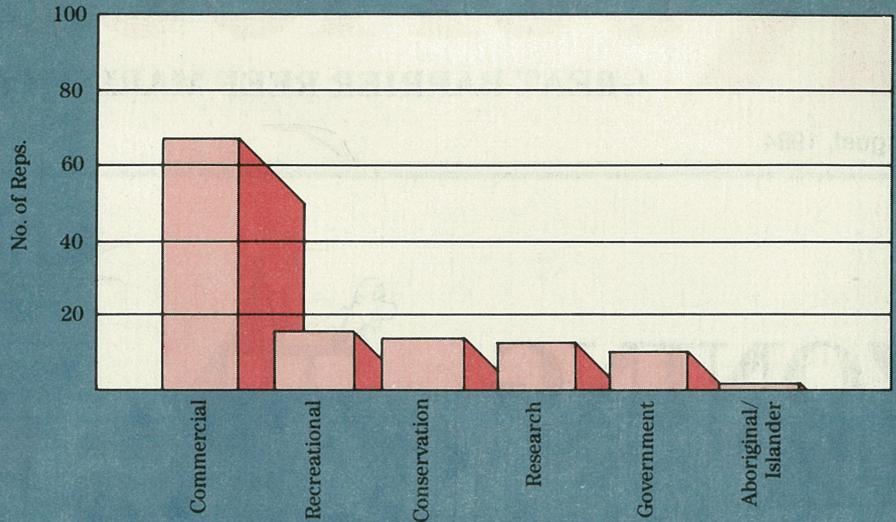
*I wouldn't lean on God, he said,  
for I  
Have sighted something in the  
cleaving wing  
Of seabirds, true as an echo  
Of the world they bring.*

*I have no final answer  
To where your truth might be  
Beyond the careless solace  
Of a sea-oak tree.*

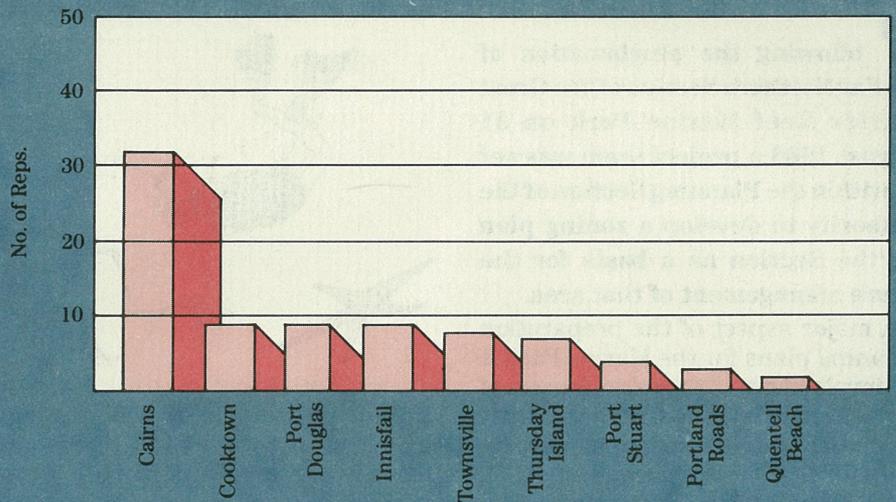
*The question brings its answer  
To those who wonder why  
In storms the sea-oak louder sings  
And doesn't sigh.*

## Zoning the Reef cont.

No. of Representations by Major Operators



Analysis of Major Departure Points



Other interested persons can inspect copies of the plan, the booklet and brochure at the following centres:

- (i) Office of the Great Barrier Reef Marine Park Authority:
  - (a) Melton Place  
Denham Street, Townsville
  - (b) Gas Industry House  
Canberra
- (ii) State Libraries in the following cities:—  
Adelaide, Brisbane, Hobart, Melbourne, Sydney and Perth, and the Darwin Public Library.
- (iii) Queensland Government Tourist Bureau offices in the following capital cities: Brisbane, Sydney and Melbourne.
- (iv) Offices of the Queensland National Parks and Wildlife Service:
  - (a) Head Office

M.L.C. Building, Brisbane

(b) Regional Office

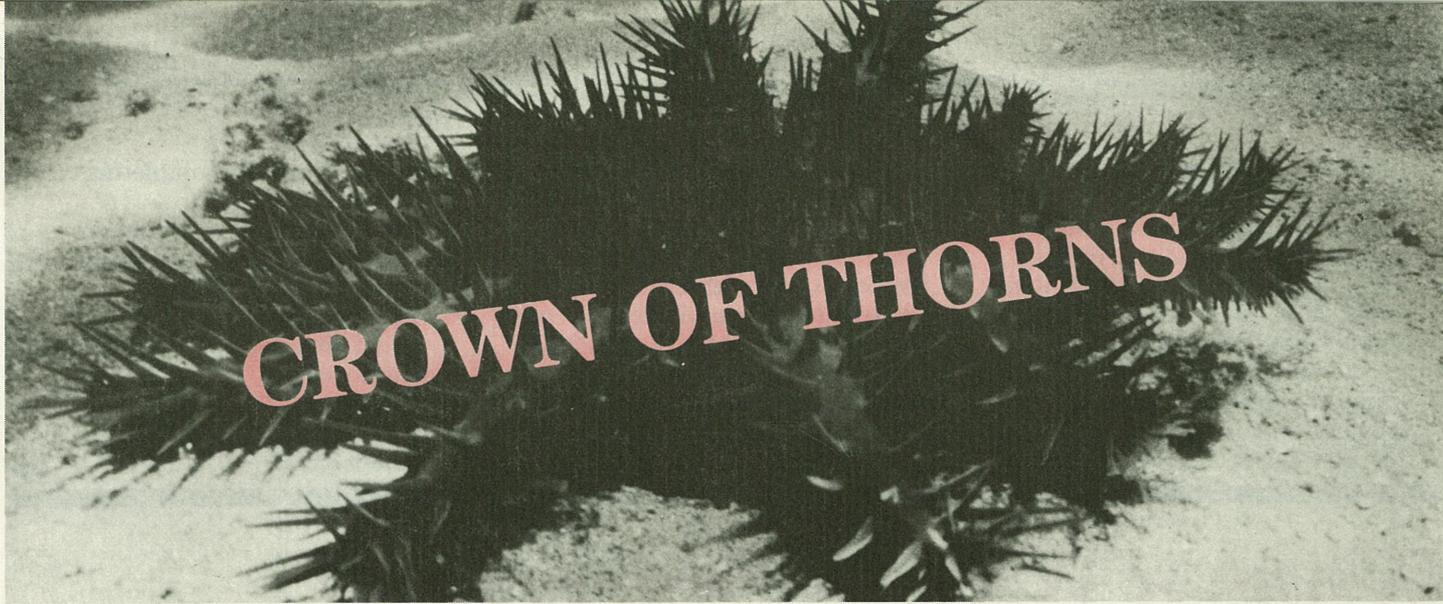
408 Sheridan Street, Cairns

- (v) Municipal or Shire Libraries in: Innisfail, Cairns and Mossman.
- (vi) Shire Council offices in: Cooktown and Thursday Island.
- (vii) Department of Harbours and Marine offices in: Weipa, Thursday Island and Cairns.
- (viii) Australia Post post offices at Thursday Island, Coen, Karumba, Bamaga and Iron Range.

Copies can also be obtained by writing to:

Great Barrier Reef  
Marine Park Authority  
P.O. Box 1379  
TOWNSVILLE, QLD 4810

Please note that the closing date for receipt of representations is 29 July 1984. 🐬



# CROWN OF THORNS

**I**ncreasing controversy at home and some misleading reports overseas on the impact of crown of thorns starfish on the Great Barrier Reef prompted the Far North Queensland Promotions Bureau to host a briefing for media representatives in Cairns during February.

Chairman of the Authority, Mr Graeme Kelleher led the briefing during which the representatives visited Michaelmas and Green Island Reefs. Marine biologists from the Authority, Mr Richard Kenchington and Dr Alistair Gilmour, answered questions on the destruction of coral and natural regeneration of affected reefs.

Mr Kelleher called for sound and balanced judgement in assessing the impact of crown of thorns starfish on the Great Barrier Reef, the need for widespread control of their numbers and whether such controls are effective. Mr Kelleher offered to members of the community with an interest in the issue, a substantial information kit designed to promote better understanding of crown of thorns impact on the Reef.

'It is essential that assessments of the extent of crown of thorns impact on the Reef be based on firm scientific evidence. It cannot be inferred, as has been the case in some recent reports, that the presence in one locality of large numbers means that the entire Reef will be affected,' Mr Kelleher said.

Extensive analysis of the presence and impact of crown of thorns starfish has been carried out by the Authority. To date records for 516 individual reefs have been compiled and analysed. These records provide reliable data going back to 1952.

The first year for which records are available for every degree of latitude of the Great Barrier Reef Region is 1983. This is due in part to the fact that in the past, the north Great Barrier Reef has rarely been visited by people likely to dive or otherwise observe crown of



## Issue Brings Media to Cairns

thorns starfish.

During 1983 reports were received for 151 reefs throughout the Great Barrier Reef Region. Analysis of these results indicates that on 77% of the reefs for which reports were received, starfish were either not seen or were uncommon. On the remaining reefs for which reports were received ten or more starfish were sighted on 9% of the reefs and aggregations of 40 or more starfish were sighted on 14%.

Records also suggest a high recurrence rate; that is, of the 21 reefs



Marine scientist taking samples in a study of breeding patterns of crown of thorns starfish.

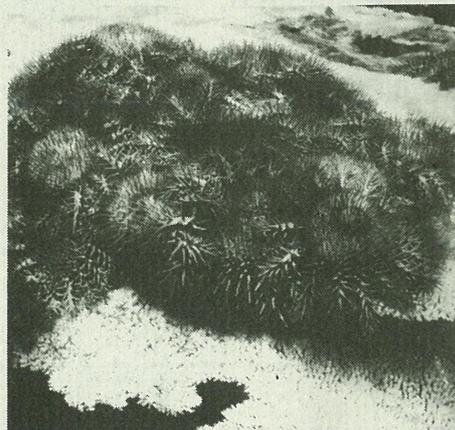
where 40 or more starfish were sighted during 1983, 16 of those reefs were also recorded as carrying similar aggregations in the period 1966 to 1970.

The Authority's crown of thorns survey and monitoring program was established in early 1982 and draws on formal surveys and spot checks by Authority staff and other marine scientists together with reported sightings by sport divers and other Reef users.

The program will continue as will the Authority's commitment to fund appropriate research projects which will help develop a better understanding of the crown of thorns phenomenon. Since 1976 the Authority has contributed \$302,000 towards research relevant to the incidence and distribution of crown of thorns starfish on the Reef.

Research into crown of thorns has also been funded by the Australian Institute of Marine Science, the Marine Science and Technologies Grants Scheme and universities.

In April the Authority took another initiative in attempting to better understand the crown of thorns phenomenon by establishing an Advisory Committee on the starfish. The Committee which comprises fourteen people who are experts on the crown of thorns starfish, in marine science generally or in management will meet



An aggregation of crown of thorns starfish feeding on plate coral.

## Crown of Thorns cont.

several times in the near future to:

- review the results of research into crown of thorns starfish and relevant aspects of coral reef ecology;
- advise on future research and monitoring directions, with particular reference to cost and feasibility;
- advise on possible research programs or projects relevant to management and/or understanding of the relationship between crown of

thorns starfish and coral reefs;

- advise on a program for keeping the public informed on the crown of thorns starfish phenomenon and research and management actions which are being undertaken in relation to crown of thorns starfish.

Individuals undertaking diving or snorkelling in the Great Barrier Reef Region can assist the Authority in collecting data on the incidence of

crown of thorns by completing crown of thorns reporting forms.

Anyone wishing to obtain crown of thorns reporting forms or an information kit should contact:

The Information Officer  
Great Barrier Reef Marine Park Authority  
P.O. Box 1379  
TOWNSVILLE, QLD 4810  
Telephone (077) 71 2191



## What a Way to See a Reef

**D**uring a recent Authority field training trip to Grubb Reef off Townsville one of the trainee divers exclaimed, 'What a fantastic way to see a reef. She had just experienced her first 'manta tow'.

Manta towing is a technique developed by staff of the Authority and scientists from other Townsville marine research institutions which provides a fast and efficient method of surveying coral reefs. Such surveys are undertaken for two main reasons. First to obtain information about a reef such as its condition, resident coral species, growth forms and community structure. The second reason is to look at such aspects as effectiveness of management (for example in preventing undue damage), changes in reef condition, structure or composition, the incidence of crown of thorns starfish and the effects of natural phenomena such as cyclones.

The manta tow survey technique was developed originally to investigate coral conditions and population levels of crown of thorns starfish on the Great Barrier Reef.

Four divers were trained in the manta tow survey technique during

the trip to Grubb Reef. Following their training the divers began a survey of over 30 reefs in the Far Northern Section of the Great Barrier Reef Marine Park. This survey is being carried out to provide data on which future monitoring, planning, research and management decisions can be based. As very little information is presently available for this remote area of the Great Barrier Reef the data is badly needed.

During a manta tow survey a snorkel diver is towed slowly (at about 2 knots) 30 metres behind a small boat over and around a reef. The diver holds a rectangular 'manta board' which is attached to the boat. The manta board acts as a hydrofoil enabling the diver to alter his or her depth and move sideways with very little effort. The diver then is able to concentrate on the job at hand: observing a number of variables which when coded and entered into a computer, enable scientists to recognise different reef types.

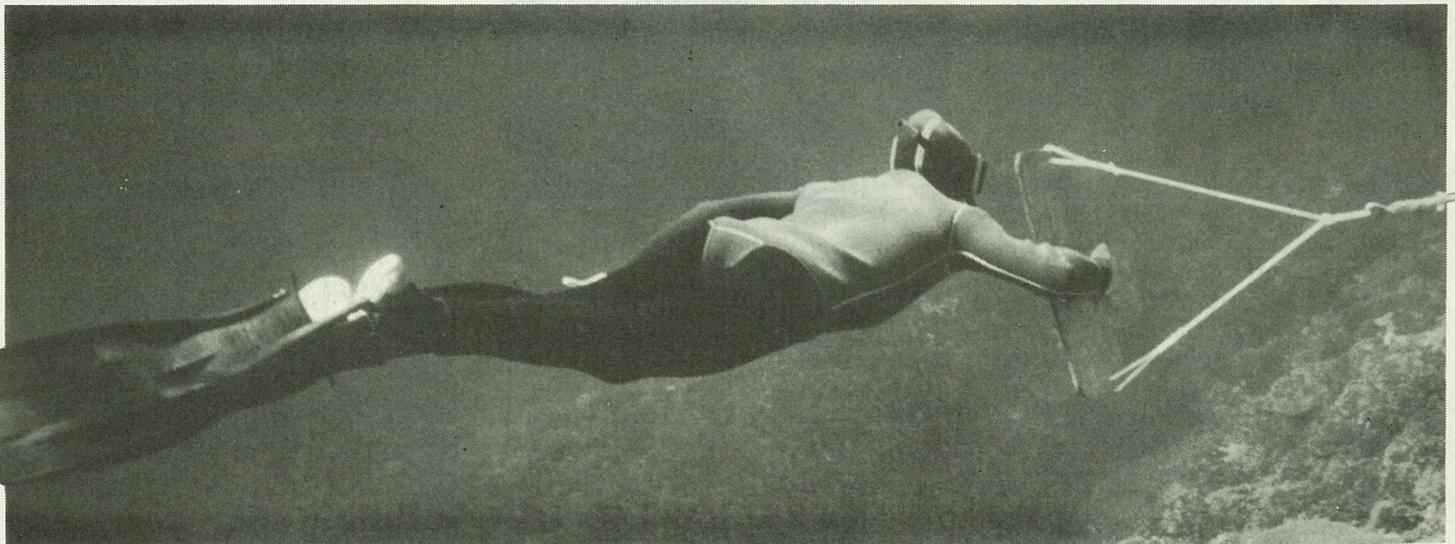
The variables which are observed include aesthetics, coral types and growth forms, position on the reef, percentage of cover of visually dominant species, substrate type, species

diversity and number of crown of thorns starfish.

Observations are coded onto a data sheet for entry into a computer. This is accomplished by the use of special debriefing and instruction sheets and a waterproof identification book with codes next to the photos of visually dominant species of coral.

The major advantage of the manta tow technique is that large areas of a reef can be surveyed quickly, with up to 3 km of reef being surveyed every hour. Another advantage is that relatively inexperienced divers with limited reef knowledge can be trained quickly to a stage where their observations and information reach a high standard.

The most difficult aspect of learning the manta tow technique is learning to concentrate on observing only those variables required. The first few times a diver is towed, he or she usually surfaces talking about 'that big fish' or 'that incredible bommie' or about how fantastic it was to just hold on and see the passing reef. It is usually a case of 'can't see the trees for the forest' or in this case 'can't see the corals for the reef'. The easiest aspect of manta towing is just enjoying it! 



# Another International Gateway to the Reef

**N**orth American travel agents will soon be receiving a colourful reminder from Qantas and the Queensland Tourist and Travel Corporation that Cairns is now an international gateway to the Great Barrier Reef.

The remainder comes in the form of 5000 eye-catching posters designed to encourage U.S. travellers to forgo resorts closer to home in preference for the far North's unspoilt tropical beauty and the splendour of the Great Barrier Reef.

The Environment and Administrative Services Minister and Member for Barron River, Mr Martin Tenni, launched the poster which features a Qantas jumbo jet over Green Island.

Mr Tenni officially presented the poster to the Far North Queensland Promotion Bureau's Chairman, Mr Chris Johnson, and Manager, Mr Alec Martin, and the Chairman of the Bureau's Airport Promotion Committee, Mr Peter Miller, in Cairns.

The Minister's Brisbane office produced the poster with the assistance of the Queensland Tourist and Travel Corporation Chairman, Sir Frank Moore, at the request of the Cairns Port Authority.

Mr Tenni said that as the Far North's representative in State Cabinet, he strongly supported every effort to create more local employment through the tourist industry.

The new poster includes a number of favourite Far North holiday attractions, Green Island, the Outer Barrier Reef Cruises by Jim and Joe Wallace to Agincourt Reef No. 1 off Port Douglas, Dunk Island, the Cairns marlin boats, the underwater coral beauty at Low Isles and windsurfing in the Lizard Island Lagoon.

Copies of the poster are available to business houses and tourist operators from the Far North Queensland Promotion Bureau, 44 McLeod Street, Cairns and the Airport Shop, 41 Shield Street, Cairns. 



**CAIRNS**  
*Gateway to the Great Barrier Reef*  
Australia

FLY THERE DIRECT WITH 

Join in the celebrations Cairns International Airport Opening Saturday, 31 March, 1984

Airport programme: Air Race • Aircraft Displays • Spectacular Flying Show • Foot Race • Opening Ceremony • World Record Parachute Jump  
Evening programme: Barbecue—Country and Western Show, Showgrounds • Governor's Ball • Aero Club Ball  
Sunday, 1 April, 1984: The Airport goes to The Great Barrier Reef—run and stroll on Green Island.

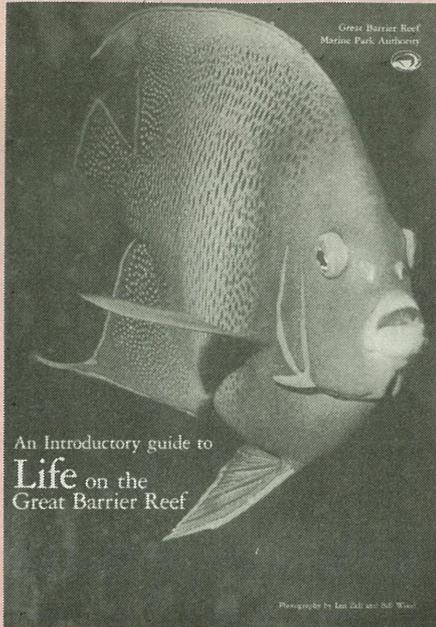
 Airport Shop, 41 Shield Street ph. (070) 51 8656, 51 5706

Produced by Minitel for Environmental and Administrative Services, Martin Tenni, M.S.A. Photos courtesy of Airline and Public Authorities

QUEENSLAND TOURIST & TRAVEL CORPORATION

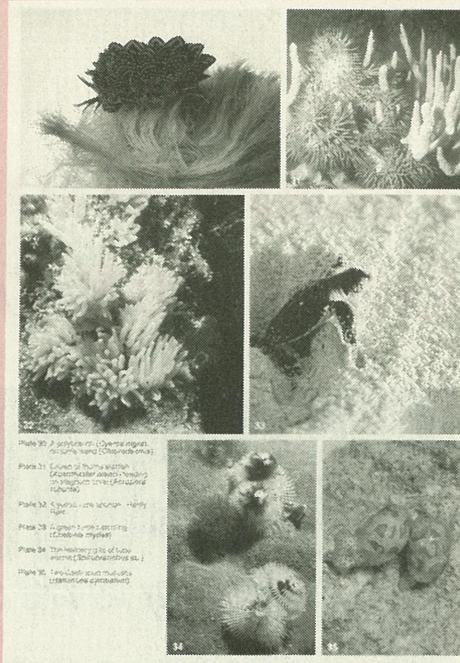
HP NORTH QUEENSLAND PROMOTION BUREAU

# Booklets & Brochures



## Introductory Guide to Life on the Great Barrier Reef

A pictorial guide to some of the creatures found on the Great Barrier Reef. **36 colour photographs. \$0.19 each.**



## Nomination of the Great Barrier Reef for Inclusion in the World Heritage List

A compendium of information on the Great Barrier Reef supporting its nomination for inclusion in the World Heritage List. **37 pages, 35 colour plates. \$2.15 each.**

### APPENDIX FOUR

#### Bibliography of the Great Barrier Reef

These listings are continuously updated and are available to the public. It can be obtained by contacting The Chairman, Great Barrier Reef Marine Park Authority, P.O. Box 1379, Townsville, QLD 4810.

**Popular Books and Articles**

Blackley, R. G. Islands among the coral. *Marine News* 24, 68-71, 1980.

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Island hopping in our tropical north. *Ridge*, 52(10), 17-21, 1978.

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Shelton, Robert and Bennett, Robert. A coral reef paragon: a guide to the fauna, flora and geology of Horn Island and adjacent reefs and cays. Brisbane: Great Barrier Reef Foundation, 1978.

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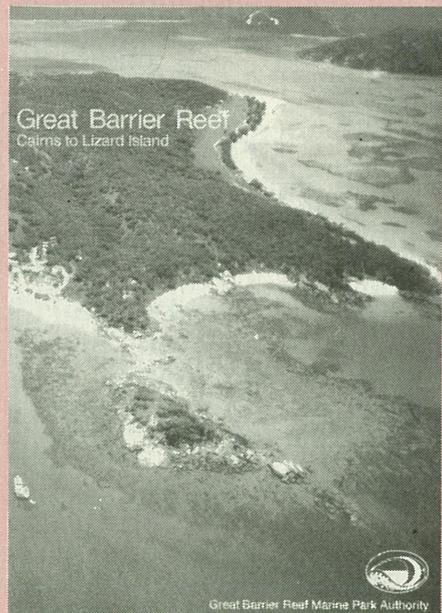
#### Botany

Dixon, A. B. Terrestrial vegetation of Tron Island. *Geography* 17, 182, 1953.

Dixon, A. B. and Burd, G. B. The vegetation of Tron Island. *Geography* 17, 182, 1953.

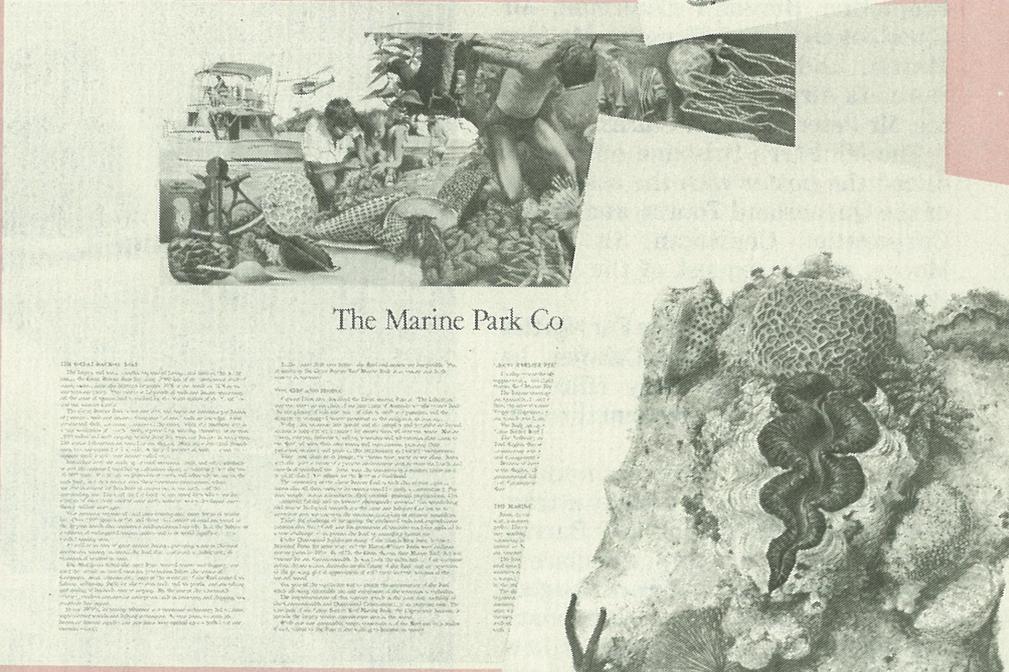
NOMINATION OF  
**The Great Barrier Reef**  
by the Commonwealth of Australia

FOR INCLUSION IN THE  
**World Heritage List**



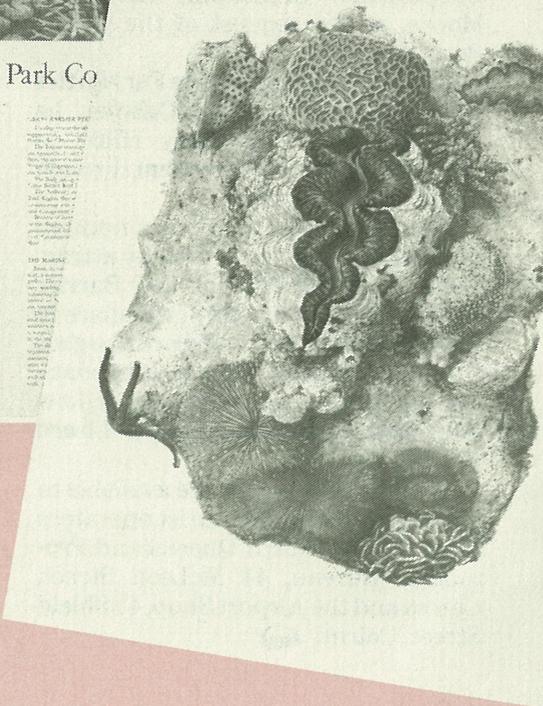
## Great Barrier Reef, Cairns to Lizard Island

An illustrated introduction to the physical and biological features of the Great Barrier Reef which focusses on the Cairns to Lizard Island area. **13 pages, 27 colour plates. \$1.90 each.**



## Portraits of the Reef

A large format, high quality production featuring two colour prints by well-known Australian artist, Robert Ingpen. Accompanying text on separate sheet describes the prints and outlines the Marine Park concept. **\$5.00 each.**



# PUBLICATIONS

available from  
**THE GREAT BARRIER REEF  
 MARINE PARK AUTHORITY**  
 for bulk purchase

To assist us in meeting your requirements, please note the following conditions:

- (1) All orders for GBRMPA publications require pre-payment.
- (2) Cheques should be made out to the 'Collector of Public Moneys'.
- (3) All orders sent by road freight, where possible, receiver to pay freight, unless otherwise requested.

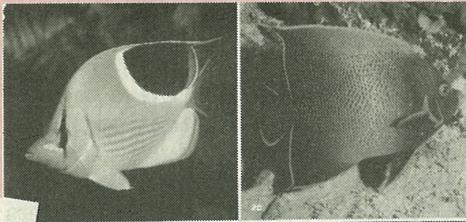
## Posters

### Posters

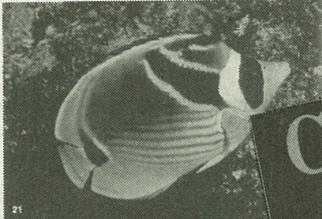
Full colour, A1 size posters carrying the message: 'Great Barrier Reef Marine Park, Ours to use Wisely'. Subjects include: Turret coral, Clown fish and Anemone. **Bulk orders require a minimum order of 50 posters. \$1.38 each.**

**Cairns Section Zoning Map Poster**  
 Full colour, A1 size interpretive map of the Cairns Section Zoning Plan. **\$1.10 each.**

## Books



1. Saddle wrasse fish, *Chromis opercularis*
2. Blue-lined wrasse fish, *Fammatia lineata*
21. Brown wrasse fish, *Thalassoma brownianum*
22. Orange wrasse fish, *Thalassoma orange*



### MUGILIDAE... MULLET

#### *Crenimugil crenilabrus*

*Mugil crenilabrus crenilabrus* Forskahl, 1775: 16 (Red Sea)  
*Crenimugil crenilabrus* — Woodland and Slack-Smith, 1963: 27 (Heron I.)  
*Ctenomimus* occurs in lagoons and reef flat habitats. Widespread in the tropical Indo-W. Pacific.

#### *Crenimugil labrusus*

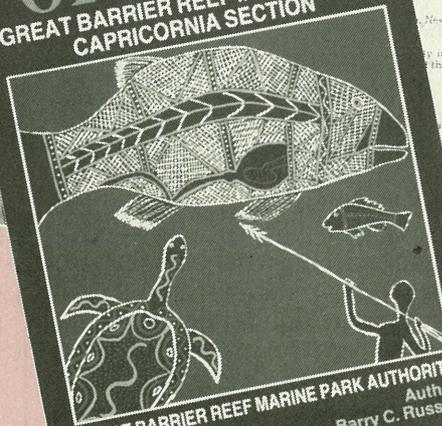
*Mugil labrusus* Valenciennes in Cuvier and Valenciennes, 1836: 393 (Red Sea)  
 Apparently rare. Five specimens (AMS 126463-631) collected at Gno-Tee Island represent the first record of this species from the Capricorn-Bunker Group. Widespread in the tropical Indo-W. Pacific.

#### *Liza dussumieri*?

*Mugil dussumieri* Valenciennes in Cuvier and Valenciennes, 1836: 347 (Hemlay, Cochin-China)  
*Mugil dussumieri* — Williams, 1968: 106 (North West I.)  
 Doubtfully reported from North West I. on the basis of an unconfirmed sight record by Williams (1968) in the tropical W. Pacific and S. Indian Ocean.

## CHECKLIST OF FISHES

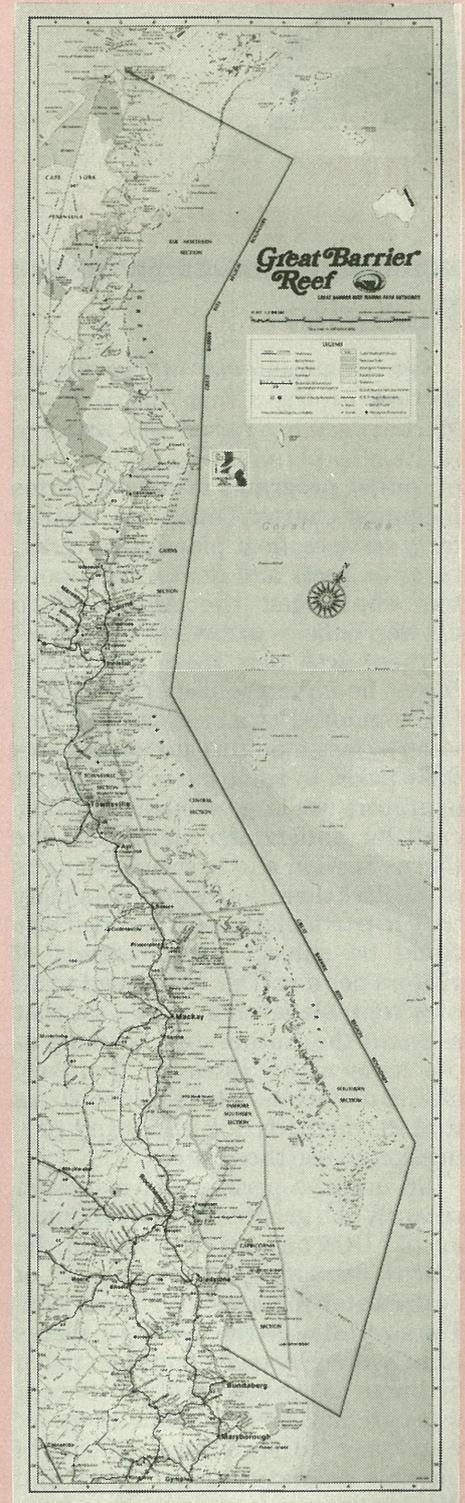
GREAT BARRIER REEF MARINE PARK  
 CAPRICORNIA SECTION



GREAT BARRIER REEF MARINE PARK AUTHORITY  
 Special Publication  
 Series (1)  
 Author  
 Barry C. Russell

**Checklist of Fishes** compiled by Dr Barry Russell.  
 An annotated, scholarly reference to 859 fish species of the Capricorn-Bunker group of reefs. **184 pages, 49 colour plates. \$12.00 each.**

## Maps



**Companion Map of the Great Barrier Reef (Strip Map)**  
 Full colour map of the Great Barrier Reef Marine Park with all Park Sections marked. Also shown is the Queensland coast. **\$0.75 each.**





## Park Management

### Permits

The establishment of the Cairns Section of the Great Barrier Reef Marine Park has raised new issues in relation to permits. The proliferation of tourist programs in various forms including charter boat trips, regular ferry services, float plane trips, structures on reefs and floating pontoons has challenged the Authority to develop policies to control the impact of these activities. There has been a recent boom in the use of large pontoons moored at a reef site and serviced by fast, modern catamarans on a daily basis. In some cases the tourist operators use large semi-submersible craft for underwater viewing. In the Cairns Section and in future sections of the Park there is a distinct possibility that a particularly popular reef site could be subject to thousands of visitors per day. This could lead to an unacceptable level of impact on that site and the Authority is working at the moment on assessing the likely effects of such numbers of people, as well as methods for allocating permission to use those sites.

An unusual permit was requested recently and granted for the sinking of an old DC3 aircraft at a reef in the Cairns Section for the purpose of underwater filming of a feature film. The aircraft was transported in pieces from Sydney by truck and then taken by barge to Anderson Reef where it was carefully sunk in about 30 feet of water, near coral bommies. Officers of the Queensland National Parks and Wildlife Service monitored the placement of the aircraft and regarded the entire operation as having been conducted in a very responsible manner. The aircraft has since been removed.

Several recent applications for the establishment of mariculture operations in the Cairns Section have required that the Authority assess how such activities should be regulated. Two applications have been received for permits for the experimental seeding of giant clams for the purpose of reproduction and sale of the meat to overseas buyers. These

permits have been issued subject to specific requirements to ensure minimal damage to the reef in the collection of brood stock and subsequent mortality during the establishment phase. The Authority is working closely with Commonwealth and Queensland Government fisheries authorities and with the proponents of these operations to establish future guidelines for similar ventures. A further permit application has been received for the establishment of a pearl culture farm in the Cairns Section.

### Identification

The Chairman of the Authority and the Director of the Queensland National Parks and Wildlife Service recently agreed on a concept for the joint identification of capital assets, publications and the uniforms of officers of the National Parks Service working in the marine environment. The concept features the use of the generic term 'marine parks' and the two logos of the organisations in various formats depending on the item being identified. The identification will appear on assets such as buildings, boats, aircraft, vessels and vehicles as well as on the uniforms of Marine Park Officers.

### Liaison

The Queensland National Parks and Wildlife Service has recently undergone a major reorganisation with an emphasis on regionalisation of its operations. Following this reorganisation the Director of the Service and the Chairman of the Authority agreed that senior officers of both organisations should hold a workshop to consider day-to-day management responsibilities of the Service. This workshop was held in Brisbane on the 11 April 1984 and reviewed the basis for the Service's responsibilities for Marine Park management and provided the ground work for future liaison between the two organisations at both head office and regional office levels. Apart from liaison, the workshop considered such matters as delegation of permit issue responsibilities, programming and financial planning.

Close working relationships between the Authority and Service staff are essential in order to develop policies and operations which ensure that not only is the letter of the law in day-to-day management carried out but that it is carried out in the spirit which underlies the Marine Park concept and which causes minimum inconvenience to the public. 

## Reef Education

A series of in-service education courses for teachers in coastal centres adjacent to the Marine Park are being conducted by the Great Barrier Reef Marine Park Authority.

Mr Graeme Kelleher, Chairman of the Authority explained that the courses are part of a major commitment being made by the Authority to education about the Reef.

'We want to ensure that students in coastal centres adjacent to the Reef understand its ecology and the reasons for management through the Marine Park,' said Mr Kelleher.

Six courses are being held in the following coastal centres:



Gladstone	31 March
Bundaberg	28 April
Townsville	19 May
Cairns	2 June
Rockhampton	14 July
Cooktown	11 August

The courses, which have the approval and support of the Queensland Education Department, are being conducted by the Authority's Education Officer, Mr Kirk Peterson, and officers of the Maritime Estate Branch, Q.NPWS, and are intended to assist primary and secondary teachers who wish to incorporate the Reef into their teaching programs.

'The Reef has potential for so many different learning situations in the school program: geology, biology, natural and marine sciences, geography, literature and the arts, environment and outdoor education,' Mr Kelleher noted.

The program for the courses will cover the geology and life forms of the Reef, its history, the human use of its resources and management of this use through the Marine Park. Teachers will be advised also on curriculum programs and resources that exist to meet the particular needs of their students.

'These courses will also be of great value to the Education Officers of the Authority in identifying further information and resources that are required by teachers,' said Mr Kelleher. 

# Lizard Island Research Station Doctoral Fellowships



Reef. The Fellowships are valued at \$12,000 over 3 years and are unique in Australia in that they provide substantial funds for travel to and from the Reef, bench fees for extended periods at the Lizard Island Research Station and funds for equipment. The funds for the Fellowships have been donated from private industry.

The two successful candidates have outstanding academic records.

Roland Pitcher was awarded a BSc degree with first class honours in May 1982 by the University of Adelaide. His

work will involve surveys of fish populations to try to build up a descriptive model of the population dynamics. He wants to look at the daily patterns of recruitment to reefs of several species from a number of families of fishes. This work is aimed at determining differences in settlement of larvae over the total area that the species occupies and whether or not there are variations in settlement times with latitude or other factors. Results are likely to be directly relevant to the management of various parts of the Great Barrier Reef. Mr Pitcher will be supervised by coral reef fish expert, Dr Peter Doherty.

John Chisholm obtained a first class Honours degree from St Andrews University, Scotland, in July 1981. His work is aimed at determining the importance of coralline algae in building coral reefs. Crustose coralline algae have long been regarded as fundamental to reef structure: the current view is that coral reefs would not exist in their absence. These plants have a major role in primary production, precipitation of calcium carbonate and, perhaps most importantly, in the cementation and consolidation of the reef matrix. Yet there are difficulties in taxonomy, field recognition and techniques for studying their ecology, physiology and reproductive biology. Mr Chisholm will look at the effect of environmental factors on their reproduction and growth. His supervisor is an established research worker on marine algae, Dr Ian Price.

The selection committee believes, 'that these research programs are exciting and dynamic and will make a significant contribution to reef science'.

The Lizard Island Research Station Doctoral Fellowships will be awarded annually subject to the availability of funds. In 1985 only one fellow will be appointed and applications will close 1 December 1984. Information can be obtained from: The Director, The Australian Museum, 6-8 College Street, Sydney, NSW. Information regarding the facilities at Lizard Island Research Station can be obtained by writing directly to: Dr Barry Goldman, Lizard Island Research Station, PMB No. 37, Cairns, 1870, Queensland, Australia. Preliminary notices for the 1985 applications will be available by June, 1984.

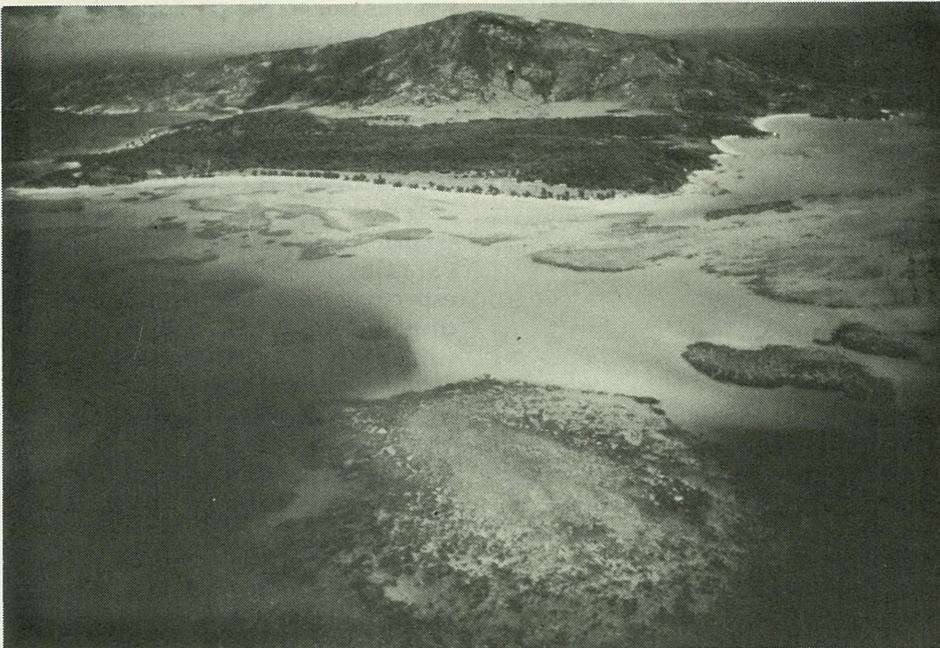
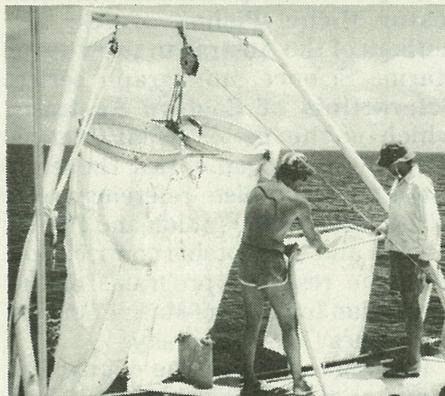


Photo courtesy of the Australian Museum →

**T**he first recipients of the Lizard Island Research Station Doctoral Fellowships were recently announced by Dr Des Griffin, Director of The Australian Museum, which runs the Lizard Island Research Station. The successful candidates are Roland Pitcher of Griffith University and John Chisholm of James Cook University of North Queensland.

Dr Griffin announced that two fellowships were awarded for this inaugural year of the Fellowships because of the high standard of the applications and of the importance of stimulating graduate research on the Great Barrier



work will involve surveys of fish populations to try to build up a descriptive model of the population dynamics. He wants to look at the daily patterns of recruitment to reefs of several species



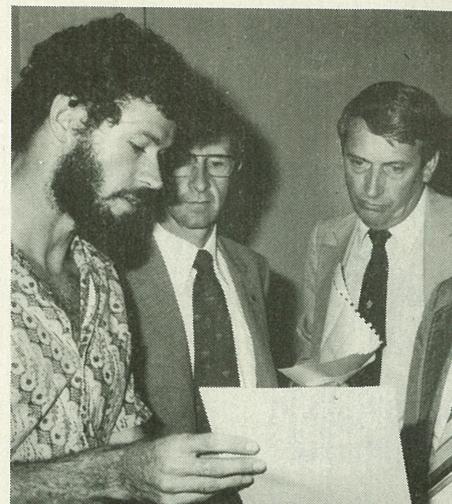
# Congratulations to Former Authority Chairman

Congratulations go to former Chairman of the Great Barrier Reef Marine Park Authority, Dr Don McMichael who was recently appointed as the first Director of the Museum of Australia from 1 February 1984 for a seven year term. Dr McMichael has been Secretary of the Department of Home Affairs from 1978-1980, and of the Department of Home Affairs and Environment since December 1980.

In 1973 Dr McMichael became the first permanent head of the Department of Environment and Conserva-

tion, established under the Whitlam Government. It was during this period that he made a major contribution to the development of the Great Barrier Reef Marine Park Act, 1975. He was appointed as Acting Chairman of the Authority for one year from 1 July 1976. Under Dr McMichael's Chairmanship the Authority initiated its first public participation program in relation to the Capricornia Section.

Dr McMichael was recommended for appointment, Director of the Museum of Australia, as the outstanding applicant for the position following



Mr. John Connell, Mr. Graeme Kelleher, Dr. Don McMichael.

national and international advertising last October. In announcing the appointment, The Minister for Home Affairs and Environment, Mr Barry Cohen said that the Government was very pleased that a person of Dr McMichael's calibre was to be appointed as the Museum's Director and that his transfer to the post was also consistent with the Government's recently announced policies on rotation of permanent heads after a number of years in the one position.

The Museum of Australia will feature the history of the Australian people and their interactions with the Australian environment. Dr McMichael's experience and qualifications are especially appropriate to developing these concepts and will be of great value to the Museum during its establishment period. 🌀

## Coral Science in Thailand

Two Townsville marine scientists flew to Thailand in February to conduct a training course and workshop on coral taxonomy.

The course, convened by UNESCO (United Nations Educational, Scientific and Cultural Organisation), and sponsored by UNESCO and UNEP (United Nations Environment Program), was held at the Phuket Marine Biological Laboratory, Phuket, Thailand, between 10 and 25 February.

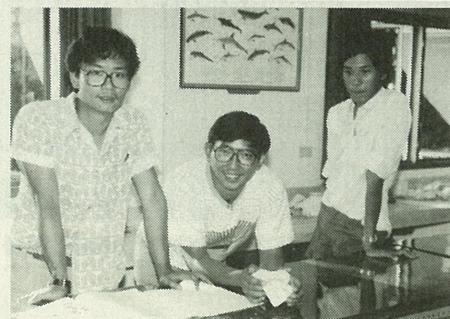
The trainees at the course came from eight countries: Thailand, Malaysia, Sri Lanka, the Republic of Maldives, Indonesia, Micronesia, Singapore and the Philippines. All of these countries have coral reefs and operate coral reef assessment and management programs. However, they lack knowledge of their coral faunas as well as personnel trained to identify corals and this hampers much of their survey and management work.

The two Australian scientists, Dr John Veron of the Australian Institute of Marine Science (AIMS) and Dr Carden Wallace of the Department of

Marine Biology, James Cook University of North Queensland (JCU) demonstrated to participants how to classify and identify corals. The course incorporated both laboratory work and field work.

Drs Veron and Wallace have worked together on problems of coral taxonomy for some years and with Professor Michel Pichon of JCU are authors of the Australian Institute of Marine Science monograph series, **Scleractinia of Eastern Australia** which is the major identification source for Australian corals. The series is the most complete reference work to the corals of the Indian and Pacific Oceans and is a notable contribution from the research programs of the Australian Institute of Marine Science and James Cook University.

In commenting on the course Drs Veron and Wallace said that it had enhanced knowledge of Indian Ocean distribution of coral species and had contributed to a study of the biogeography of Indo-Pacific corals presently under way. The report from



Three Thai students examine corals in the laboratory of the Phuket Reference Collection, a building, which was donated by the Danish Government to commemorate the Thailand Bicentennial.

the workshop will include a list of coral species from Thailand and a handbook for the identification of families and genera of corals in the Indo-Pacific Region.

At the close of the course, participants put forward a number of recommendations for the development of a sound basis for coral taxonomy in the Indo-Pacific Region and for the interchange of taxonomic information among the countries involved. 🌀

# Back to the Beach

Each year swimming on the beaches of North Queensland is restricted because of the possible presence of marine stingers. The most dangerous of these is the box jellyfish, *Chironex fleckeri*. A severe sting from this box jellyfish is extremely painful and can be fatal. Ironically the occurrence of these stingers is often worst when the water is calm and warm. The only easily available method of counter acting

the problem is for persons entering the water to wear an overall covering of clothes or nylon stocking material.

At the request of a North Queensland local Council, Mr K.H. Moss, Professor K.P. Stark and colleagues from the Department of Civil and Systems Engineering, James Cook University of North Queensland have designed and developed a marine stinger resistant swimming enclosure for use on tropical beaches during the summer season.

In designing the enclosure the group decided that it was highly desirable that:

- (1) local authorities and tourist resorts could afford the enclosure;
- (2) the enclosure should not detract visually from the beach;
- (3) maintenance and operation should be able to be carried out by non-specialist personnel; and
- (4) as the stinger problem is only a seasonal one the removal of the enclosure during the winter would be useful.

A prototype enclosure was developed and opened to the public at Trinity Beach on an experimental basis in late January 1983. A second trial installation is now in operation at Picnic Bay, Magnetic Island.

The form of construction selected uses a continuous flexible, air inflated, floating boom supporting a small mesh size trawl net weighted at its lower edge by a continuous length of chain in contact with the beach and seabed. The area covered by the enclosure extends from above high water level to below low water level to allow sufficient area for bathers at all stages of the tide. The enclosure is deployed from the beach without the aid of divers or boats in such a manner as to exclude all creatures and debris larger than the mesh size. The deployment is performed by pulling on ropes on the beach which pass through pulleys attached to seabed anchors and fastened to the top and bottom of a corner of the net. The basic construction and a typical layout of the enclosure are shown in Figs 1 and 2.

A successful first season's operation has sparked interest from a number of quarters, including Darwin City Council in the Northern Territory.

Being aesthetically pleasing to users and unobtrusive on the beach as a whole, the stinger resistant enclosure should prove a boon to the tourist industry of Far North Queensland by providing safe swimming conditions during the North's summer.

Complementing the development of the new stinger resistant enclosure is

*Continued on page 12*



Photo courtesy of the Townsville Bulletin

air inflated 200mm PVC — polyester hose with coaxial stainless steel tension cable

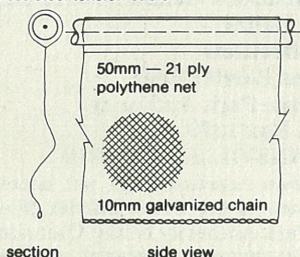


Figure 1. Basic Construction

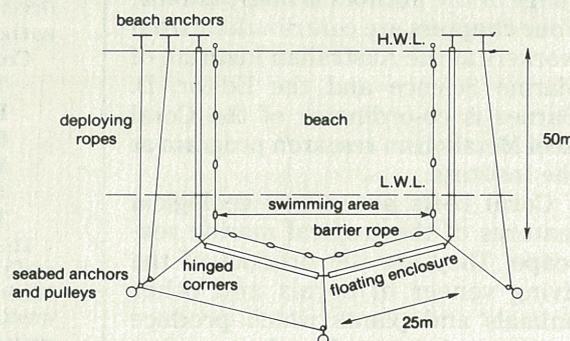


Figure 2. Layout for Trinity Beach Enclosure

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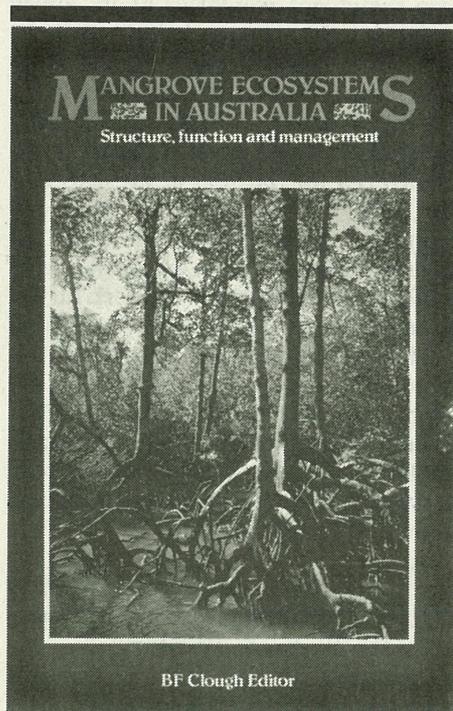
the Queensland Government's formation of a task force chaired by Dr Joe Baker, OBE, to examine ways to combat the fatal sting of the box jellyfish. The task force will report to the Northern Development Minister, Mr. Katter on the:

- incidence of box jellyfish stings in Queensland and other Australian waters;
- present methods of treatment against box jellyfish stings (including methods used by Aborigines);
- present methods of avoiding stings;
- level of concern among Government departments, local authorities and tourism operators regarding the presence of box jellyfish;
- current understanding of the predators of box jellyfish;
- current research in progress.

For further information about installation of the enclosures contact:

**Professor K.P. Stark**  
Head, Department of Civil and Systems Engineering  
James Cook University of North Queensland,  
Post Office  
**JAMES COOK UNIVERSITY, QLD 4811**

## Book Reviews



**MANGROVE ECOSYSTEMS IN AUSTRALIA: Structure, Function and Management. B.F. Clough, Editor. Australian Institute of Marine Science, 1982.**

Mangroves have intrigued naturalists for more than a century and, until

relatively recently, were regarded largely as a scientific curiosity. These trees and shrubs which live in the intertidal zone along tropical and subtropical coastlines have been used widely for timber and firewood, but in the last decade or so there has been a growing recognition that mangroves may be important biologically as a nursery and source of food for many marine organisms.

**Mangrove Ecosystems in Australia** documents the proceedings of the Australian National Mangrove Workshop held at the Australian Institute of Marine Science in April 1979. The book reviews recent research, much not yet published, on the distribution, biology and stability of mangrove ecosystems in Australia. The contributors, who are all active researchers in the field, clearly identify major gaps in our present knowledge of mangrove ecosystems and offer suggestions for further work. The Editor, B.F. Clough is a research scientist in the Mangrove research program at the Institute.

This work will be of particular value to scientists who have interests in mangroves and other coastal wetland systems, and for those concerned with coastal fisheries management. It should also be valuable for agencies involved in the development of coastal zone management policy. Although dealing primarily with Australian mangroves, it should have wide appeal in other countries where mangroves are found, since many factors are common to all mangrove ecosystems.

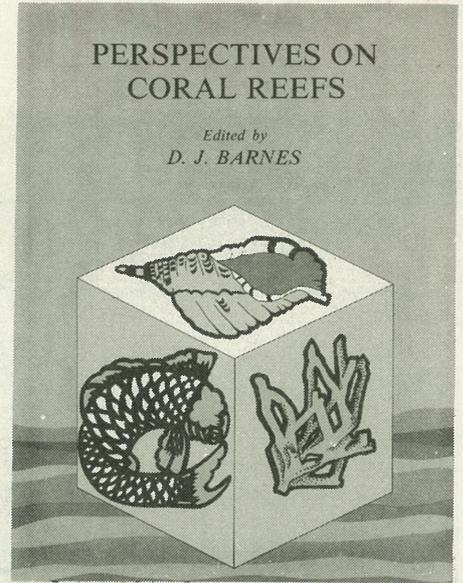


**PERSPECTIVES ON CORAL REEFS. D. Barnes, Editor. Australian Institute of Marine Science, 1983. Recommended Retail Price \$19.95.**

**Perspectives on Coral Reefs** is the result of a workshop on coral reefs held at the Australian Institute of Marine Science in August 1979. It consists of eighteen articles which review the geology, growth and biology of coral reefs. Australian research workers comprise a significant proportion of scientists working on coral reefs and the authorship of the book's chapters reflects this even though the range of the authors is international. Four chapters are contributions from workers at the Australian Institute of Marine Science and the Editor, D. Barnes is co-ordinator of the Coral Reef Metabolism research program at the Institute.

Coral reefs are major geological features of the tropical marine seascape. They are the product of the living veneer of corals and other animals and plants which produce limestone skeletons. In order to under-

stand how coral reefs have evolved, how they grow and how they live, it is necessary to involve the diverse skills and insights of biologists, chemists, geologists and geographers. **Perspectives on Coral Reefs** fulfills this synthesis for the research worker and student. It is also an important source book for those involved in the use and management of coral reefs.



## 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:**

**The Editor  
Reflections  
Great Barrier Reef  
Marine Park Authority  
P.O. Box 1379  
TOWNSVILLE, QLD 4810**

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