

Great Barrier Reef Marine Park Authority

ANNUAL REPORT
1984-85

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FOR
LOAN

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Marine Park Authority
P.O. Box 1379
Townsville, 4810*



**Great Barrier Reef
Marine Park
Authority**

**Annual Report
1984-85**

Great Barrier Reef Marine Park Authority
Townsville 1985

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

Dear Minister,

In accordance with Section 60 of the **Great Barrier Reef Marine Park Act 1975**, I submit the Ninth Annual Report of the Great Barrier Reef Marine Park Authority on the operations of the Authority for the year that ended 30 June 1985.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Graeme Kelleher', with a long, sweeping horizontal stroke at the end.

Graeme Kelleher
Chairman

The Hon. Barry Cohen, M.P.
Minister for Arts, Heritage
and Environment
Parliament House
CANBERRA, A.C.T. 2600

THE PHOTOGRAPHS

The Great Barrier Reef is one of the most diverse ecosystems on planet Earth.

There are around 400 different kinds of hard and soft corals, about 4 000 molluscs (snails and their kin), and countless thousands of different sponges, worms, crustaceans (crabs, shrimps and their relations), echinoderms (starfish, sea urchins, sea cucumbers and their relatives) and other, less familiar creatures. This immense variety of invertebrate life forms provides part of the living reef complex that also includes some 1 500 species of fish vertebrates of all description.

The colour photographs which appear in this annual report introduce the reader to some of the myriad fascinating life forms which make up our Great Barrier Reef.

PHOTO CREDITS

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Nev Collins

Pages vi and 40

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S. C. Brown

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Reef Link Resort Pty Ltd

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Photography courtesy of
The Gladstone Observer

Produced by the Great Barrier Reef Marine Park Authority

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FROM THE CHAIRMAN

'This is your Park, and your children's.

Our task is to help you use and enjoy this Park in ways which conserve the beauty, diversity and abundance of the animals and plants which live here in the magic world of the Great Barrier Reef.

We hope that this kit will increase your knowledge and enjoyment of the Reef and its wild inhabitants and stimulate your curiosity about how they live and interact in this complex natural system.'

This was my message on the publication **Under Capricornia** which informed the public about the Great Barrier Reef Marine Park when the first Section was zoned in 1981.

There are several philosophical viewpoints embedded in the statement. The Authority does not believe that it owns the Park and it does not see itself as the master of the people who use it. We know that whatever authority we have, we exercise on behalf of the people of Australia. We are keenly aware that the value of the Great Barrier Reef lies in its living wildness, diversity and abundance. The Great Barrier Reef Marine Park must be managed so that these features are conserved.

Because the Marine Park occupies an area which is larger than the combined areas of the United Kingdom and the Republic of Ireland, conservation of the Marine Park must always be carried out to a large extent by its users. Australia could not afford to manage the Park in the absence of public support. The public must understand how the Great Barrier Reef works, be aware of the animals and plants which inhabit it, experience the sense of awe which this, the world's largest creation by living things inspires in an observer and develop a sense of responsibility and commitment to the conservation of the Great Barrier Reef.

A large part of our efforts is devoted to ensuring that the public does develop this sense of commitment. There is considerable evidence that the effort is succeeding. The level of co-operation in the zoning and management of the Marine Park continues to grow. Complaints are directed towards breaches of regulations by other users, rather than that activities are regulated at all, or too strictly.

We are aware that education and encouragement of responsible behaviour is not sufficient. The Authority and the Queensland National Parks and Wildlife Service (Q.NPWS), which carries out day-to-day management for the Authority, have agreed that seriously or repeated minor breaches of the regulations will be prosecuted rigorously.

We see Great Barrier Reef Wonderland as one of the principal tools for explaining to the users of the Marine Park the processes and attributes which occur within a coral reef and which are essential to its survival. This project, which I originally proposed in 1981, will incorporate, amongst other things, a living coral reef which will operate on the same physical and biological processes which control the Great Barrier Reef itself. There will be waves, tides, currents and, most importantly, the control of water quality through photosynthesis. Viewers will be able to observe the inhabitants of the reef and the processes which occur within it through a transparent walk-through tunnel

Opposite: This beautiful yellow comasterid feather star feeds by trapping plankton in its delicate outstretched arms.

and large transparent panels in the walls of the aquarium. It is described in more detail in this report. We are at present seeking formal governmental approval for the Authority to manage the aquarium and to occupy offices in the Great Barrier Reef Wonderland complex.

During the year we worked hard to increase the level of co-operation and collaboration with the Queensland National Parks and Wildlife Service. Inevitably, when two agencies with disparate backgrounds and philosophies commence to work together there are frictions and disagreements. We have established and continue to develop mechanisms to ensure that such differences are resolved amicably and productively. There is a general determination to succeed in our collaborative programs which is perhaps strengthened by the knowledge that such Commonwealth/State co-operation is rare not only in Australia, but worldwide. The advantages of managing the islands, reefs and waters of the Great Barrier Reef co-operatively cannot be seriously questioned.

The formal zoning process for the very large Far Northern Section of the Marine Park was largely completed during the year, with the acceptance by our Minister of the Zoning Plan. He will now table the plan in both Houses of Parliament. It is hoped that it will come into effect early in 1986. We are now proceeding to zone the Central Section and we have every hope that the Great Barrier Reef Marine Park will be completely zoned by our Bicentennial Year — 1988.

We believe that we in the Authority have some of the world's most interesting and rewarding jobs. We have recruited personnel of great talent and dedication. The Authority is grateful for all that they have done in this past year.

GREAT BARRIER REEF MARINE PARK AUTHORITY

**ESTABLISHMENT BY THE GREAT BARRIER REEF
MARINE PARK ACT 1975**

The Great Barrier Reef Marine Park Authority, which was established under the Great Barrier Reef Marine Park Act 1975, is a Commonwealth statutory body consisting of a full-time chairman and two part-time members, one of whom is nominated by the Queensland Government.

The functions of the Authority, defined in Section 7 of the Act as amended in November 1983, are as follows:

- (a) to make recommendations to the Minister in relation to the care and development of the Marine Park including recommendations, from time to time, as to —*
 - (i) the areas that should be declared to be parts of the Marine Park; and*
 - (ii) the regulations that should be made under this Act;*
- (b) to carry out, by itself or in co-operation with other institutions and persons, and to arrange for any other institutions or persons to carry out, research and investigations relevant to the Marine Park;*
- (c) to prepare zoning plans for the Marine Park in accordance with Part V;*
- (ca) to furnish information and advice to the Minister in respect of matters relating to the Marine Park, including —*
 - (i) information and advice in relation to any agreement (including any proposed agreement) between the Commonwealth and Queensland on such matters;*
 - (ii) information and advice on the following matters:*
 - (A) whether the Commonwealth should grant financial assistance to Queensland in respect of a matter relating to the Marine Park;*
 - (B) the amount and allocation of such assistance;*
 - (C) the terms and conditions (if any) on which such assistance should be granted; and*
 - (iii) information and advice on the following matters:*
 - (A) whether it is desirable that Queensland should make payment to the Authority in respect of a matter relating to the Marine Park;*
 - (B) the amount and allocation of such payment;*
 - (C) the terms and conditions (if any) on which such payment should be given;*
- (cb) to receive and disburse moneys appropriated by the Parliament for payment to the Authority for the purpose of payment of the moneys to Queensland by way of financial assistance to Queensland in respect of matters that relate to the Marine Park;*
- (cc) to receive and disburse moneys paid to the Authority by Queensland under an agreement between —*
 - (i) the Commonwealth and Queensland;*
 - (ii) Queensland and the Authority; or*
 - (iii) the Commonwealth, Queensland and the Authority;*
- (d) such functions relating to the Marine Park as are provided for by the regulations; and*

(e) *to do anything incidental or conducive to the performance of any of the foregoing functions.'*

Amendments to the Act, which received Royal Assent on 5 June 1985, include changes to Section 7. These confirm that the Authority has the responsibility for managing the Marine Park and that educational programs should be a major element in the Authority's planning and management programs.

The functions of the Authority now include: 7(1) '(cd)

- *to provide, and arrange for the provision of, educational, advisory and informational services relating to the Marine Park;'*
- *'7(1B) The Authority is responsible for the management of the Marine Park.'*

The Authority began operations in 1976. Following the agreement of 14 June 1979 between the then Prime Minister and the Premier of Queensland on constitutional and jurisdictional issues, the Great Barrier Reef Ministerial Council was formed to co-ordinate policy of the two Governments. This arrangement has enhanced the Authority's pursuit of its responsibilities and functions in co-operation with the Government of Queensland, local authorities and the public.

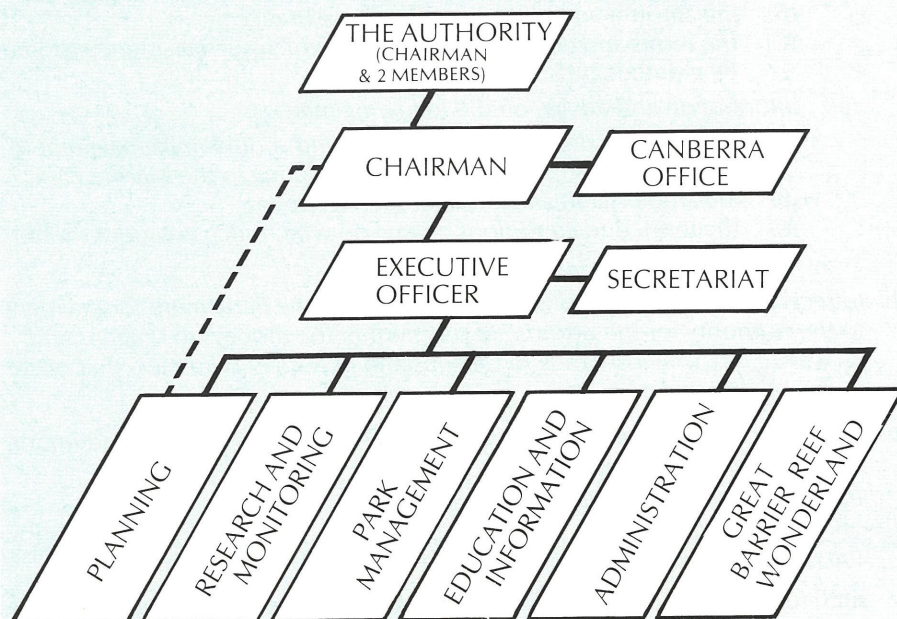
OFFICE OF THE AUTHORITY

The Authority has established an office in Townsville and a small office in Canberra. This arrangement arises from the need for the Authority to have its principal technical resources close to the Reef and also to maintain a presence in Canberra.

The Canberra office serves the Minister, consults with Commonwealth departments whose responsibilities are affected by or affect the Authority's

Figure 1

OPERATIONAL STRUCTURE AND LINES OF CONTROL

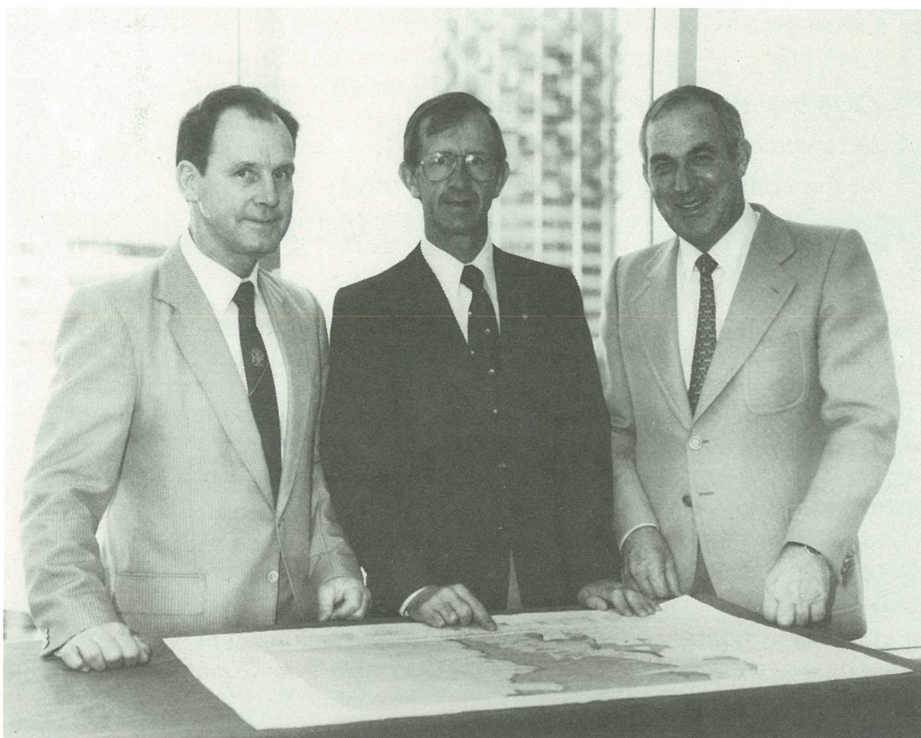


programs, and provides the secretariat for the Great Barrier Reef Ministerial Council and the joint Commonwealth/Queensland Committee on Offshore Developments in the Great Barrier Reef Region.

The Townsville office carries out nearly all the Authority's technical work.

MEMBERSHIP

The full-time Chairman of the Authority is Mr Graeme Kelleher, who was appointed on 21 December 1979 for a period of five years. On 20 December 1984, Mr Kelleher was reappointed for a further five years. Mr Kelleher has extensive experience in a wide array of activities concerned with the environment. He was one of the three commissioners on the Ranger Uranium Environmental Inquiry, which was instrumental in shaping Australian Government policies concerning uranium, non-proliferation of nuclear weapons and land-use in the Alligator Rivers Region of the Northern Territory. Mr Kelleher has also served as First Assistant Secretary of the Water and Soils Resources Division in the Department of Environment, and as an examiner of New Zealand's environment policies for the international Organisation for Economic Co-operation and Development (OECD). He is chairman of the National Committee on Environmental Engineering of the Institution of Engineers, Australia.



Dr Joe Baker, Mr Graeme Kelleher and Sir Syd Schubert.

Sir Sydney Schubert, Co-ordinator-General of Queensland and Secretary of the Queensland Premier's Department, is one of the two part-time members. He had been appointed on the nomination of the Queensland Government. In January 1985, Sir Sydney was appointed Knight Bachelor by Her Majesty the Queen for his most distinguished service as an officer of the Crown. As Co-ordinator-General, Sir Sydney has for many years had primary responsibility for advising the Queensland Government on natural resources development and management, and for implementing that Government's policies in such areas. As part of that responsibility he discharges significant functions in relation to the administration of the Queensland Marine Parks Act 1982. Sir Sydney's current five-year term expires on 30 June 1986.

Dr Joe Baker, O.B.E., is the other part-time member. Dr Baker is Director of the Sir George Fisher Centre for Tropical Marine Studies at James Cook University of North Queensland. He has had extensive experience in marine scientific research and administration and is a member of many of Australia's scientific advisory bodies. Dr Baker is Chairman of the Australian Heritage Commission. His current five-year term expires on 30 June 1987.

MEETINGS

During 1984-85, the Authority held the following meetings:

| 1984 | | 1985 | |
|--------------|-----------------|------------|---------------------|
| DATE | LOCATION | DATE | LOCATION |
| 12-13 July | Hamilton Island | 16 January | Brisbane |
| 22-24 August | Lizard Island | 19 March | Brisbane |
| 26 September | Brisbane | 3 April | Canberra |
| 4-5 December | Gladstone | 1 May | Great Keppel Island |
| | | 26 June | Townsville |

The December meeting was attended by Dr Graham Saunders, Director of Queensland National Parks and Wildlife Service and other staff of the Service involved in day-to-day management of the Great Barrier Reef Marine Park. Three-year programs for the management of each Section of the Marine Park (for 1985-86 to 1987-88) were examined in detail. Reports on surveillance of the Marine Park and on operations and staffing for the Capricornia Section were presented.

In conjunction with this meeting, members visited the Gladstone and Rockhampton offices occupied by Q.NPWS Marine Parks staff and toured day-to-day management facilities on Heron Island.

In April, the Authority met on the day of the ninth meeting of the Great Barrier Reef Ministerial Council to receive the communique from Council and adopt the zoning plan for the Far Northern Section of the Marine Park for submission to the Minister under sub-section 32(10) of the **Great Barrier Reef Marine Park Act 1975**.

GOAL AND AIMS

The Authority has adopted a statement of its goal and aims which has been derived from and is consistent with the objects, functions and powers specified in the Act.

1. GOAL

To provide for the protection, wise use, appreciation and enjoyment of the Great Barrier Reef in perpetuity through the development and care of the Great Barrier Reef Marine Park.

2. AIMS

These aims are subordinate to the primary goal and must be read in conjunction with it and with each other.

2.1 Social

- To involve the community meaningfully in the establishment and management of the Marine Park.
- To minimise regulation of, and interference in, human activities, consistent with meeting the goal and other aims of the Authority.
- To achieve management of the Marine Park primarily through the community's understanding and acceptance of the provisions of zoning, regulations and management practices.
- To achieve competence and fairness in the development and care of the Marine Park through the deliberate acquisition and use of relevant scientific and non-scientific information and techniques in decision-making and other activities.

2.2 Environmental

- To provide for the protection of the natural features of the Reef, whilst providing for multiple use of the Reef's resources.

2.3 Economic

- To minimise costs of developing and caring for the Marine Park consistent with meeting the goal and other aims of the Authority.
- To provide for development compatible with the conservation of the Reef's natural resources.
- To minimise inhibitions on economic activities consistent with meeting the goal and other aims of the Authority.

2.4 General

- To adapt the Marine Park and the operations of the Authority to changing circumstances.

THE MINISTER

During the year under review, the Hon. Barry Cohen M.P., initially as the Minister for Home Affairs and Environment and later as Minister for Arts, Heritage and Environment, exercised portfolio responsibilities for Great Barrier Reef matters.

The Act provides that the Authority *'shall perform its functions in accordance with any general directions given by the Minister not inconsistent with this Act'*. No such directions were given to the Authority during the year.



The Minister for Arts, Heritage and Environment, Mr Barry Cohen, unveils the plaque commemorating the inscription of the Great Barrier Reef on the World Heritage List. (Townsville office, September 1984).

EXECUTIVE OFFICER

In February 1985, Dr Alistair Gilmour 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. Dr Gilmour joined the Authority in May 1980 and during his five years took an important part in major developments in the Marine Park and in the Office of the Authority. During this time the Marine Park expanded from the single Capricornia Section to a series of Sections covering 98.5% of the Region.

Dr Gilmour was 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 at which he described and explained the concept of the Marine Park.

Members of the Authority express their appreciation to Dr Gilmour for his work with the Authority and welcome his successor, Dr Don Kinsey who took up his position on 17 June 1985.

Dr Kinsey has long held an interest in marine science. He has a PhD degree in Oceanography from the University of Hawaii and was Scientific Co-ordinator of the Hawaii Institute of Marine Biology and Director of the University of Georgia

Marine Institute. In 1982 he was appointed Assistant Director and Principal Research Scientist at the Australian Institute of Marine Science. He has recently been involved in international advisory work through the Australian Development Advisory Bureau (ADAB) and other bodies.

Dr Kinsey's main contribution to coral reef studies is at the overview (systems) level, particularly in the areas of plant (primary) production and limestone deposition in the formation of reef structures.

In his capacity as Executive Officer, Dr Kinsey is Secretary to the Great Barrier Reef Marine Park Authority.

SECRETARIAT

Staff of this section provide secretariat support for the Authority and the Great Barrier Reef Consultative Committee. In 1984, Mr Chris Smalley succeeded Mr David Chippendale as Secretary to the Consultative Committee.

THE GREAT BARRIER REEF MINISTERIAL COUNCIL

The Great Barrier Reef Ministerial Council was established in June 1979 to co-ordinate policy on the Reef between the Commonwealth and Queensland Governments at Ministerial level. The Council comprises two Ministers from each Government.

NINTH MEETING

The ninth meeting of the Council took place in Canberra on 3 April 1985.

Ministers who attended the meeting were:

- The Hon. Barry Cohen, M.P., Commonwealth Minister for Arts, Heritage and Environment — Convenor
- The Hon. John Brown, M.P., Commonwealth Minister for Sport, Recreation and Tourism
- The Hon. Sir Joh Bjelke-Petersen, K.C.M.G., M.L.A., Premier of Queensland
- The Hon. Peter McKechnie, M.L.A., Queensland Minister for Tourism, National Parks, Sport and the Arts

At the meeting Council:

- considered the revised version of the Far Northern Section Zoning Plan
- noted progress towards an agreement for day-to-day management of the Marine Park
- noted progress with the planning for the Great Barrier Reef Wonderland, a Bicentennial project located on the Townsville waterfront
- noted that action has commenced to enable the Queensland National Parks and Wildlife Service to assume responsibility for all Queensland marine parks in the immediate proximity of the Great Barrier Reef Marine Park
- noted that Queensland is producing a series of maps of islands and tidal lands in the Cairns Section, to complement a series already produced for the Capricornia Section
- noted the findings of the Crown of Thorns Starfish Advisory Committee which reported in January 1985, particularly the recommendation that further research be undertaken before more than limited local action was taken to remove starfish infestations
- noted that regulations for unzoned sections are being developed which would provide for protection of the Reef pending the development of zoning plans, and that more comprehensive legislation is being developed by the Commonwealth which would complement the Great Barrier Reef Marine Park Act and provide a legal basis for control and protection of Reef users and visitors. Council agreed that Commonwealth and State instrumentalities should co-operate to ensure that all developments on the Reef meet adequate health, safety, construction and particularly environmental standards
- noted a report on research in the Great Barrier Reef Region in 1984-85
- considered Interim Management Programs for the Central and Capricorn Sections, and Three Year Rolling Programs for the Capricornia, Cairns, Cormorant Pass and Far Northern Sections of the Great Barrier Reef Marine Park.

THE GREAT BARRIER REEF CONSULTATIVE COMMITTEE

ESTABLISHMENT BY THE **GREAT BARRIER REEF MARINE PARK ACT 1975**

The Great Barrier Reef Consultative Committee was established under the **Great Barrier Reef Marine Park Act 1975**. The functions of the Committee, defined in Section 21 of the Act are as follows:

- ‘(a) to furnish advice to the Minister, either of its own motion or upon request made to it by the Minister, in respect of matters relating to the operation of this Act; and*
- (b) to furnish advice to the Authority in respect of matters relating to the Marine Park, including advice as to the areas that should be parts of the Marine Park, referred to it by the Authority.*

The Consultative Committee represents a wide and varied cross-section of interests in the Great Barrier Reef, from both the public and private sectors and including tourism, fishing, science and conservation. The Committee consists of members appointed by the Minister and a member of the Authority appointed by the Authority.

MEMBERSHIP

- Professor Kevin Stark (Chairman)
James Cook University of North Queensland
- Dr Robert Bain
Commonwealth Department of Primary Industry
- Mr Dale Bryan
Queensland Commercial Fishermen’s State Council
- Dr John Bunt
Australian Institute of Marine Science
- Mr Paul Eccles
Commonwealth Department of Transport
- Mr Ernest Grant
Queensland Department of Harbours and Marine
- Mr Edward Hegerl
Australian Littoral Society and Queensland Conservation Council
- Mr Tor Hundloe
Australian Conservation Foundation
- Mr John Izatt
Queensland Game Fishing Association
- Mr Graeme Kelleher
Great Barrier Reef Marine Park Authority
- Mr Patrick King
Queensland Tourist and Travel Corporation
- Dr Patricia Mather
Australian Coral Reef Society (incorporating The Great Barrier Reef Committee)
- Mr Gordon McKauge
Far North Queensland Promotions Bureau Tourism Task Force

- Mr Keith Nielson
Commonwealth Department of Sport, Recreation and Tourism
- Dr Peter Saenger
Australian Underwater Federation and Queensland Amateur Fishing Council
- Dr Graham Saunders
Queensland National Parks and Wildlife Service.

Dr Bunt's appointment expired on 23 September 1984. The terms for all other members of the Consultative Committee, except Mr Kelleher conclude 3 October 1985. Mr Kelleher who is the Authority's appointee has an indefinite term.

Administrative and secretariat support for the Consultative Committee is provided by staff of the Authority.

MEETINGS

The Consultative Committee met three times in 1984-85 in Townsville, on South Molle Island and in Brisbane. In conjunction with the meeting at South Molle Island, members made an aerial inspection of the islands and reefs in the Whitsunday area (within the Central Section of the Marine Park). The Minister, the Hon. Barry Cohen, M.P., attended the Townsville meeting.

During the year, the Consultative Committee responded to requests by the Authority for advice on:

- the report of the Crown of Thorns Starfish Advisory Committee (COTSAC)
- policy aspects of offshore developments in the Great Barrier Reef Region
- zoning of the Central Section of the Great Barrier Reef Marine Park.

In response to a request by the Authority, appropriate members of the Consultative Committee have been arranging for the sectors which they represent to collect data on populations of the crown of thorns starfish and on coral state using the Authority's standardised reporting forms, thereby contributing to the assembly of data on the starfish.

During the year the Minister provided the Authority with particulars of advice provided to him by the Consultative Committee on the Committee's survey of users of the Capricornia Section of the Marine Park, conducted in 1983-84.

1984-85 HIGHLIGHTS IN REVIEW

29 July 1984 End of the period for receipt of public representations on the draft zoning plan for the Far Northern Section.

12 August 1984 The Prime Minister of Malaysia, the Hon. Dato Seri Dr Mahathir bin Mohamad, visited Townsville and received a presentation on the zoning of the Great Barrier Reef Marine Park and the use of remote sensing in planning.

28 September 1984 Unveiling of a plaque by the Hon. Barry Cohen, Minister for Home Affairs and Environment, to commemorate the inscribing of the Great Barrier Reef on the World Heritage List.

11 October 1984 The Southern, Inshore Southern, Central and Townsville Sections were amalgamated in the Central and Capricorn Sections, in order to improve efficiency of administration and management.

1 November 1984 Start of the period for receipt of public representations on the preparation of a zoning plan for the Central Section.

20 December 1984 Reappointment of Mr Graeme Kelleher as Chairman of the Authority.

2 January 1985 Sir Sydney Schubert appointed Knight Bachelor by Her Majesty the Queen for his most distinguished service as an officer of the Crown.

1 March 1985 End of the period for receipt of public representations on the preparation of a zoning plan for the Central Section.

28 April 1985 Minister accepted the Zoning Plan for the Far Northern Section, for tabling in Parliament.

27 May 1985 Fifth International Coral Reef Symposium attended by the Chairman and three staff members of the Authority.



PLANNING

INTRODUCTION

The Planning Section is responsible to the Chairman for preparing recommendations on the declaration of sections of the Marine Park, and for developing zoning plans and making recommendations for regulations that establish the basis for management of those sections.

Planning is based on the synthesis and analysis of information on the character, resources and use of the Great Barrier Reef Region. This information is obtained from technical literature, specialist reports prepared by consultants, staff and other public instrumentalities, and from representations made by the public.

COMPLEMENTARY ZONING

The Authority continued to co-operate closely with relevant Queensland Government agencies in the development of zoning strategies and plans. Officers of the Queensland Premier's Department and Q.NPWS were appointed to the Central Section zoning team. A joint Q.NPWS and Great Barrier Reef Marine Park Authority public participation effort was organised as an integral part of the Central Section **Notice of Intent to Prepare Zoning Plan** phase. This appears to have been effective in obtaining information relevant to complementary management of the Great Barrier Reef Marine Park and adjacent Queensland Marine and National Parks.

Officers of the Authority took part in a Queensland Department Working Group developing a zoning plan for tidal lands and tidal waters of Queensland lying within the outer boundaries of the Capricornia Section. The Authority also commented in detail on the draft version of the **Queensland Marine Park Zoning Plan for Capricornia**.

NEW SECTIONS

On 15 October 1984, two new sections of the Marine Park, the Central and Capricorn Sections, were gazetted. These two new Sections arose following a rationalisation of the boundaries of the old Central, Townsville, Southern and Inshore Southern Sections. This rationalisation of Section boundaries was undertaken to facilitate planning and management operations by amalgamating areas of high usage such as the Whitsunday and Townsville areas into the one section and at the same time aligning Marine Park section boundaries with Q.NPWS management areas.

*Opposite: Sea snakes — air breathing reptiles with paddle-shaped tails and valved nostrils — are wonderfully adapted to life in the sea. This one (*Aipysurus* sp) is one of fifteen species found in Barrier Reef waters.*

FAR NORTHERN SECTION ZONING PLAN

The development of the zoning plan for the Far Northern Section continued throughout the year. Public review of the draft zoning plan ended on 29 July 1984. The Authority considered a total of 177 representations, originating from a cross-section of the community from all mainland States and Territories. Generally the draft zoning plan, also reviewed by State and Commonwealth inter-departmental committees, was well received. The draft was revised to take account of public representations.

On 3 April 1985, the zoning plan was endorsed by the Great Barrier Reef Ministerial Council and on the same day the plan was accepted by the Authority for referral to the Minister. It is anticipated that the plan, which was accepted by the Minister on 28 April, will be tabled before both Houses of the Commonwealth Parliament in September. The Plan will be available to the public upon ratification by Parliament. It is hoped that it will come into effect early in 1986.

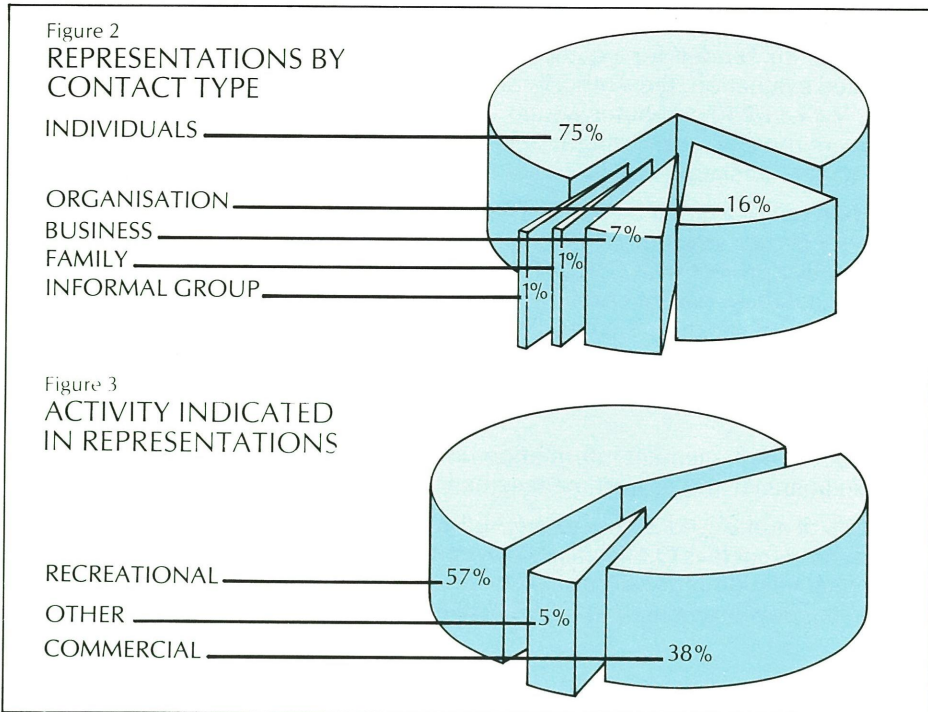
The zoning of the Far Northern Section was conducted under a project team concept. Representatives from all sections of the Authority combined under the overall guidance of a Planning Section Project Co-ordinator to maximize the use of expertise and skills possessed by Authority staff in the development of the plan. The team approach worked well and has been adopted again for the zoning of the Central Section.

CENTRAL SECTION

Preparation of the zoning plan for the Central Section began immediately following the proclamation of the Section on 15 October 1984. The planning team comprising representatives from the Authority, the Queensland Premier's Department and Q.NPWS will be able to provide greater scope for co-ordination of planning and management for both the Central Section of the Marine Park and proposed Queensland Marine Parks.

In the first stage of zoning the Central Section, the Authority compiled an inventory of the Section's resources and uses. As required by the Act, the public is encouraged to participate in the major stages of zoning. Accordingly, the public was invited to provide information on the uses and characteristics of the Section, to express any related concerns and interests, and to make recommendations for zoning and management. To assist the public in making representations, a leaflet **Help Zone The Central Section** was used to elicit responses. It contained a questionnaire which aided subsequent computer assisted analysis of the representations. Between November 1984 and March 1985, 434 responses were received from individuals, organizations and community interest groups. (See Fig. 2 and 3)

With the aid of information and recommendations offered by respondents, the inventory was revised and an initial draft zoning plan was prepared for review by Queensland and Commonwealth inter-departmental working groups. Following the inter-departmental review the draft zoning plan will be finalised and made available for public review between September and November 1985.



CAPRICORN SECTION

The Capricorn Section is the last section of the Marine Park to be zoned. The initial information gathering process commenced in June 1985. The first stage of the public participation program is planned for early 1986. Concurrent with the development of the zoning plan for the Capricorn Section the Authority will review the Capricornia Section Zoning Plan. The public will be invited to comment on the operation of the zoning plan for the Capricornia Section and to suggest possible improvements to the plan. It is anticipated that the review will result in the Capricornia Section, which lies within the outer boundaries of the Capricorn Section, being incorporated into the new Capricorn Section.

REMOTE SENSING DATA INTEGRATION

A comprehensive remote sensing based reef mapping procedure has now been established. The procedure was developed in co-operation with the CSIRO Division of Water and Land Resources and the Australian Survey Office (ASO). The ASO substantially completed a mapping program, involving some 24 Landsat scenes, to cover the entire Great Barrier Reef Region. The products delivered to the Authority consist of rectified Landsat imagery at 1:250 000 and 1:100 000 scales as well as standard thematic products indicating approximate bathymetry, reef biophysical zones and reef topography. It is intended that these map products will be published and available for sale through the Queensland Department of Mapping and Survey's Sunmap outlets. The data derived from these products is integrated in the Authority's zoning plan base and resource inventory map development process.

DATA PROCESSING ACTIVITIES

A 'Request for Tender' for a computer system was issued in August 1984. After a detailed evaluation, the Authority selected a Digital Equipment Corporation (Aust.) VAX-11/750 computer system. Principal software components of the system are the UNIX operating system and ORACLE, a relational database management package. Installation of the computer was completed in June 1985.

Development of a Great Barrier Reef resources database is well advanced, with a number of data sets already prepared for inclusion in the database. In a collaborative project with CSIRO Division of Information Technology research staff, this database will be combined with a spatial database to form a Geographic Information System. This will assist in planning and management of the Great Barrier Reef Marine Park by bringing together for evaluation, ecological, resource usage, economic and management data in accessible and usable forms.

A number of management information tasks have been initiated which will provide financial and project management information to the various Sections.

Methods of authorised access to the Authority's databases by interested, related organisations such as Q.NPWS are currently under consideration. It is expected that digital telecommunications will be an important function in future data processing developments within the Authority.



LEGISLATION

The Great Barrier Reef Marine Park Regulations are being developed to improve control of activities within zoned areas of the Marine Park and to make suitable provisions for the interim management of developments and activities in declared but as yet unzoned sections. It is anticipated that these will come into effect in July 1985.

More comprehensive legislation to control tourist structures is being developed to complement the **Great Barrier Reef Marine Park Act 1975**. Mr Graeme Kelleher, the Chairman of the Authority is also chairing the joint Commonwealth/Queensland State Committee on Offshore Developments in the Great Barrier Reef Region. The Committee is considering measures which will ensure that all developments on reefs meet adequate health, safety, construction and environmental standards.

THE FUTURE

The Planning Section is proceeding in accordance with the program accepted by the Great Barrier Reef Ministerial Council which provides for zoning plans of all sections of the Marine Park to be completed by the end of 1987.

Opposite:

During a 'manta tow' survey, a snorkel diver is towed slowly over and around a reef. The manta board, held by the diver, facilitates depth and direction changes and thus allows manoeuvrability. This survey technique, developed by the Authority, provides a rapid method for assessing overall reef 'health'.



PARK MANAGEMENT

INTRODUCTION

The function of the Park Management Section is to further the goal and aims of the Authority by implementing the provisions of zoning plans and regulations. This is done in conjunction with Q.NPWS. Management of the Marine Park involves, mainly, management of the people using the Park. In line with the aims of the Authority every effort is made to involve the community in management. Management of the Marine Park seeks to minimise interference in human activities consistent with conservation and to encourage community understanding and acceptance of management practices and the provisions of zoning plans and regulations.

The legal framework for management is provided by the Act, zoning plans and regulations. These not only lay down the basic policy for managing each section but also identify which activities are prohibited in particular areas, which activities are to be controlled by permit and what penalties may be incurred for non-compliance. Although zones identified in a zoning plan are fixed for the life of the plan (5 years), there are a number of discretionary limited access/activity areas (e.g. Reef Appreciation Areas and Replenishment Areas) which can also be brought into effect.

The public participation programs that are conducted during the preparation of a zoning plan lay the groundwork for implementation of the plan. Reef users have the opportunity to be involved in planning for the management of the Marine Park. Involvement is encouraged so that zoning plans will better reflect the views of reef users so that they may better understand and be willing to comply with the provisions of the finished zoning plan. Education is an important management tool and the educational and interpretative activities of Q.NPWS and the Authority have been expanded during the year.

QUEENSLAND CO-OPERATION

The **Great Barrier Reef Marine Park Act** has been recently amended to confirm that the Authority has ultimate responsibility for all aspects of the Marine Park. It was in this context that agreement was reached in 1979 between the Commonwealth and Queensland Governments on a complementary approach to the management of the Park. The Authority is responsible for the development of management planning, policy and guidelines, and general oversight of Marine Park management. Q.NPWS is the principal agency responsible to the Authority for day-to-day management of the Marine Park. Other agencies with ancillary responsibilities for day-to-day management are the Queensland Boating and Fisheries Patrol, the Federal Police and the Federal Sea Safety and Surveillance Centre.

Co-operation between the two organisations is achieved formally through the activities of the Great Barrier Reef Management Co-ordinating Committee, and less formally, through officers of the Authority and the Head Office and Regional Offices of Q.NPWS. Major co-operative activities during the year have included the development of a comprehensive agreement for day-to-day management

*Opposite: This species of ascidian (**Polycarpa aurata**) looks like a leathery bag of water. It is in fact an animal — and feeds by sieving food particles from water drawn in through its mouth-like opening.*

incorporating provisions for the control and ownership of assets. Q.NPWS is in the process of introducing a project management system for day-to-day management programming.

FAR NORTHERN SECTION

Interim management of the Far Northern Section began in 1984-85, as have preparations for longer term management arrangements. Management operations for the Far Northern Section were organised from Q.NPWS Far Northern Regional Office in Cairns and will be carried out in the coming year at least, in conjunction with operations for the Cairns and Cormorant Pass Sections. Day-to-day management staff carried out field trips to several parts of the Section to assess possible management base locations and to familiarise themselves with the area.

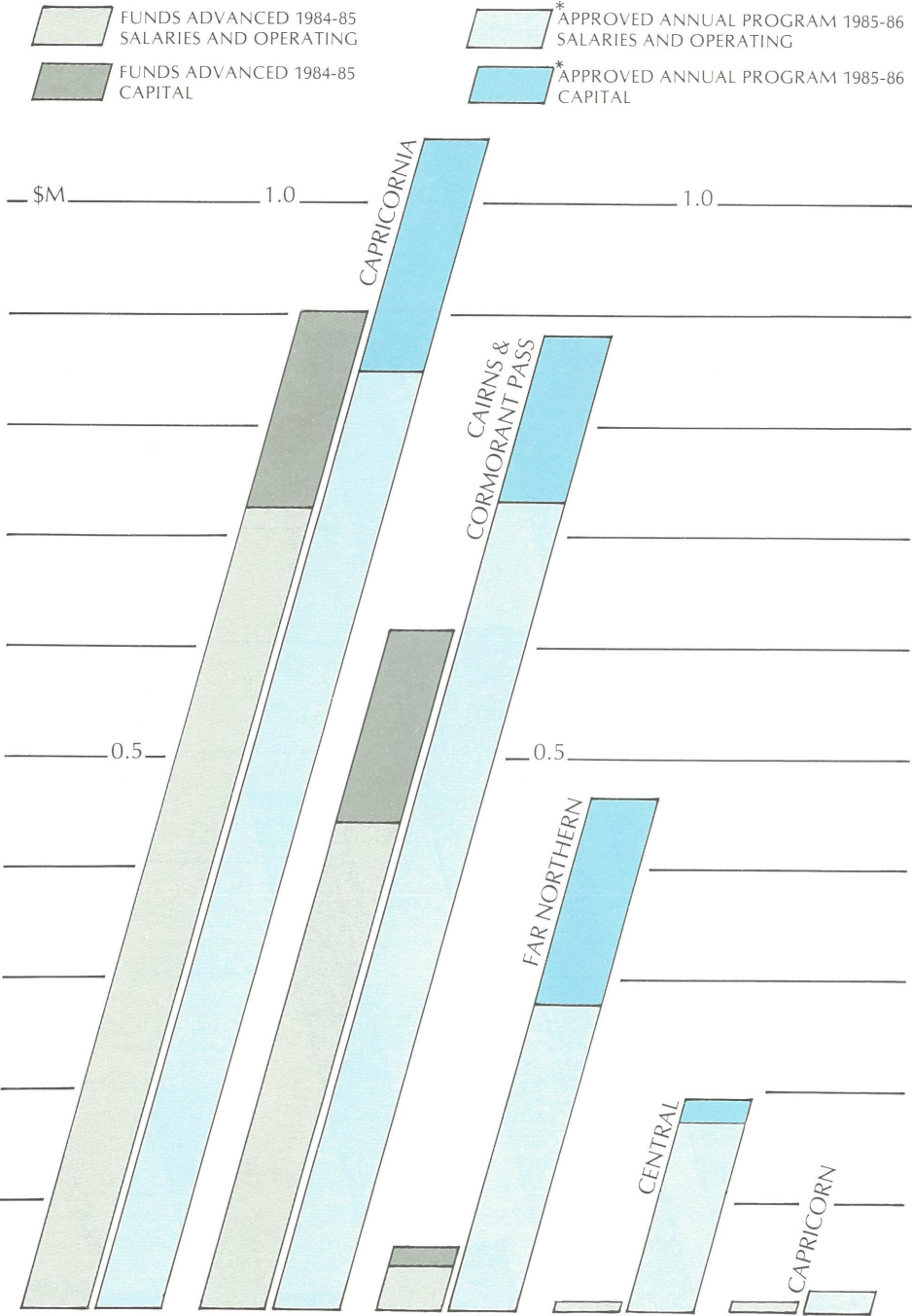
CAIRNS/CORMORANT PASS SECTIONS

1984-85 has been the establishment year for this Section with day-to-day management beginning to take effect. The emphasis has been on staff recruitment and training, the acquisition of accommodation premises and equipment and the establishment of programs. An additional 3 Management Officers and 6 Rangers were recruited and have undertaken a major training program. The former Bond Store near the waterfront in Cairns will be refurbished as long term office accommodation. Work within the Section has been hampered by problems with interim accommodation.

Aerial surveillance of the Section has been undertaken throughout the year. A new 7 metre vessel **Remora**, built and commissioned in November 1984, has facilitated Marine Park patrol by Q.NPWS officers. Green Island and Michaelmas Cay have received surface patrol emphasis. A management plan for Michaelmas Reef and Cay is being developed in co-operation with Q.NPWS.

As in 1983-84 twenty permits were issued to residents of the Hopevale Community for traditional hunting of dugong. A number of visits to the area were made by Authority and Q.NPWS officers. In order to convey information to all members of the Community about dugong, their conservation, and about the hunting permit system, a video tape was jointly produced by the Authority and Q.NPWS. The program's script was substantially revised by Hope Vale representatives and narrated by a member of the Community.

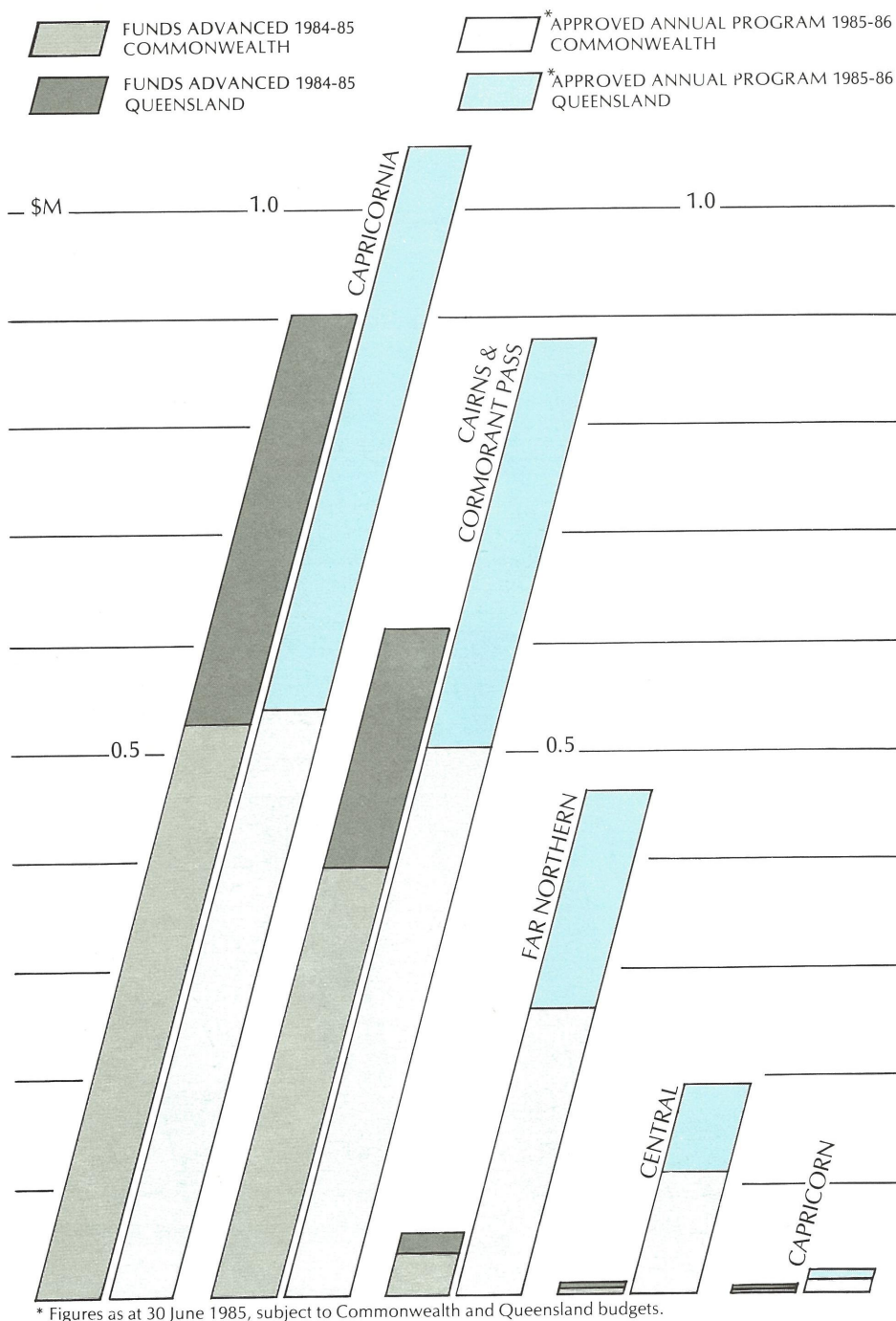
Figure 4
 ESTIMATED EXPENDITURE ON DAY-TO-DAY MANAGEMENT OF THE
 GREAT BARRIER REEF MARINE PARK 1984-85 AND 1985-86



* Figures as at 30 June 1985, subject to Commonwealth and Queensland budgets.

Figure 5

COST SHARING FOR DAY-TO-DAY MANAGEMENT OF THE GREAT BARRIER REEF MARINE PARK 1984-85 AND 1985-86

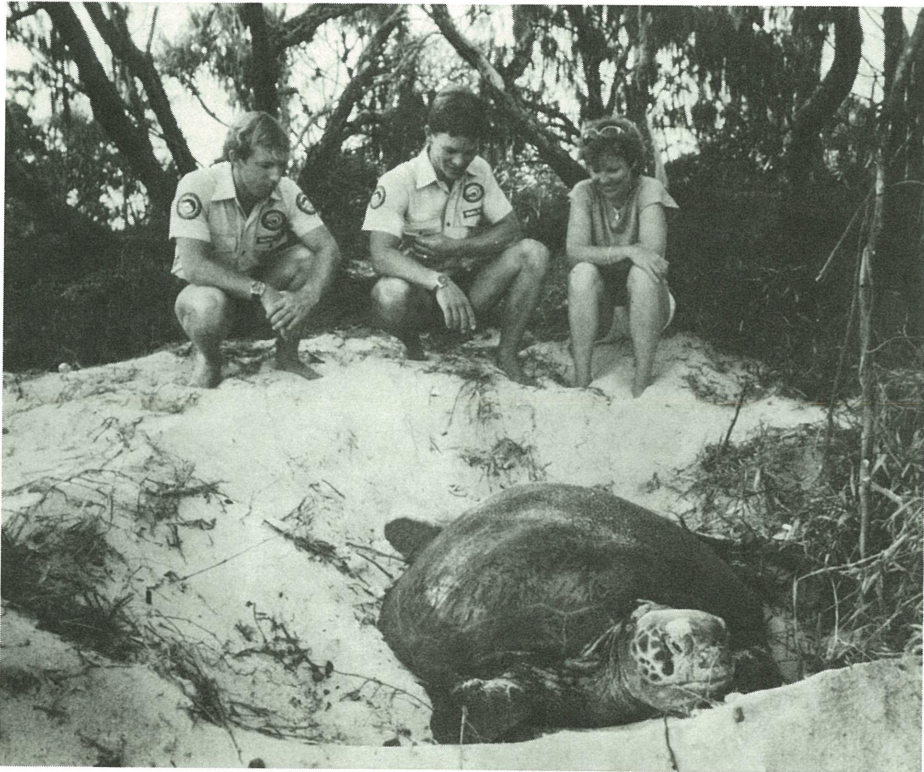


CAPRICORNIA SECTION

Day-to-day management of this Section is now well established. A major staffing review has resulted in a change to the ratio of management officers to rangers from 6:5 to 5:6. An officer-in-charge position has been established and two overseers have been recruited. Some problems which have been experienced during the present year with the Marine Park patrol vessel **Protector II** have been aggravated by staff shortages.

A number of 'Reef Appreciation Areas' will be declared on parts of heavily-used reefs in the Capricornia Section in the near future. These areas, where fishing and collecting are not permitted, will provide the public with opportunities to observe and appreciate relatively undisturbed marine life. The Authority has worked closely with the Premier's Department and Q.NPWS in the planning and public participation phases necessary for such declarations.

Surveillance and enforcement procedures for the Capricornia Section have been reviewed in the past year. The results of the review indicate that although the detection rate of infringements is high, the actual number of infringements is low and decreasing. Infringements were particularly noted among a minority of trawler operators and shell collectors. The need to improve the capacity for night surveillance was recognised.



Heron Island is a well-known breeding site for turtles. Here Q.NPWS Marine Park officers take the opportunity to explain turtle nesting behaviour to an interested island visitor.

Plans for an interpretative centre on Heron Island are well advanced. Heron Island Pty. Ltd. has agreed to sublease a site for the centre within its resort lease. Construction should be completed in early 1986.

In March 1985 the bulk ore carrier TNT **Alltrans** ran aground on Lady Musgrave Reef in the General Use 'B' Zone, Capricornia Section, in which shipping is a prohibited activity. She was refloated with minimal apparent damage to her superstructure although the coral in the area of impact, and that immediately surrounding it, was killed. A Commonwealth Department of Transport enquiry is taking place into this apparent breach of the Capricornia Section Zoning Plan.

Management plans for specific areas such as Lady Musgrave Island and Lady Elliott Island are in preparation. Following public advertisements, a new lease has been let by the Department of Local Government and Administrative Services for the Lady Elliott Island resort area. The lease was developed in consultation with staff of the Authority. A major upgrading of facilities at the resort is proposed although the emphasis on low-cost, family-style accommodation is to be retained. There are plans for increased education and interpretative programs.

UNZONED SECTIONS

A task force has been jointly established with Q.NPWS to plan for and arrange the implementation of management for sections still to be zoned. The purpose of this task force is to ensure that day-to-day management of new sections is introduced smoothly and with minimum delay. To this end the task force will concentrate on planning for facilities, accommodation and staffing. The present objective is to establish management of a new section of the Marine Park in each of the years of 1986 (Far Northern), 1987 (Central) and 1988 (Capricorn).

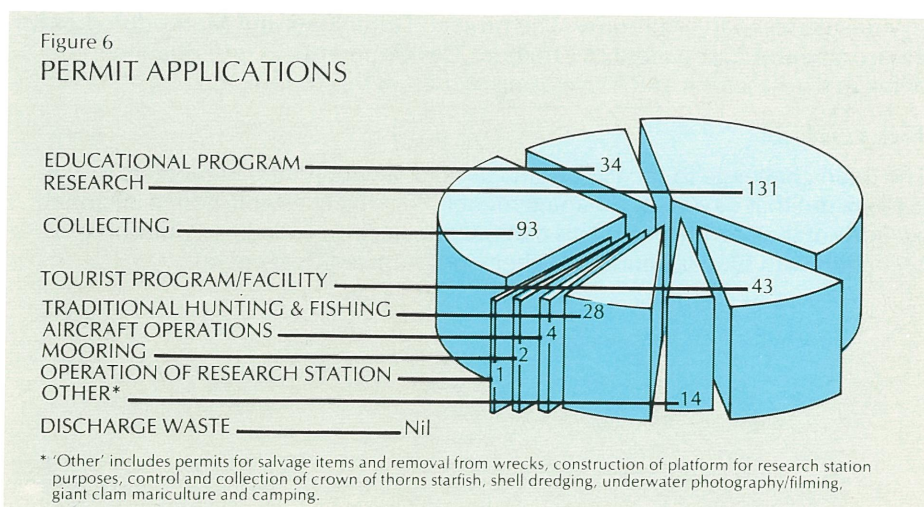
PERMITS

The purposes of the permit system are:

- to separate potentially conflicting uses
- to encourage responsible behaviour in reef users
- to limit certain activities when this is found necessary, and
- to collect data on reef use.

The number of permits issued during the year has increased over previous years (see Fig. 6).

Work has progressed on the provision of permits for research programs conducted by institutions. In particular, agreements have been reached with the Australian Institute of Marine Science and the Australian Museum. Institutional permits are single permits granted to the head of an institution. These permits cover an agreed program, parts of which may be undertaken by individuals or groups of research workers within the institution. The issue of such permits does not preclude individual research workers from applying for research permits in the usual way. The provision of data or reports arising from research performed under a permit remains a requirement of all individual and institutional research permits issued. Plans are underway to computerise the processing and the issue of permits and the associated handling of data.



OFFSHORE STRUCTURES

The tourist industry is continually investigating innovative approaches in providing first class facilities which allow visitors to see and experience the Reef at first hand.

The use of offshore structures, particularly to accommodate tourists during their stay 'on the Reef' is seen as having considerable potential. Visitors would be provided with access to a range of completely new reef experiences, while pressure on the islands of the Reef would be reduced.

The development of offshore structures would necessitate the use of new and sophisticated technology, such as that developed for offshore mining, to build, not on an island, but on a reef or the seabed itself.

The Authority has been involved in the development of policy relating to offshore structures during the past year.

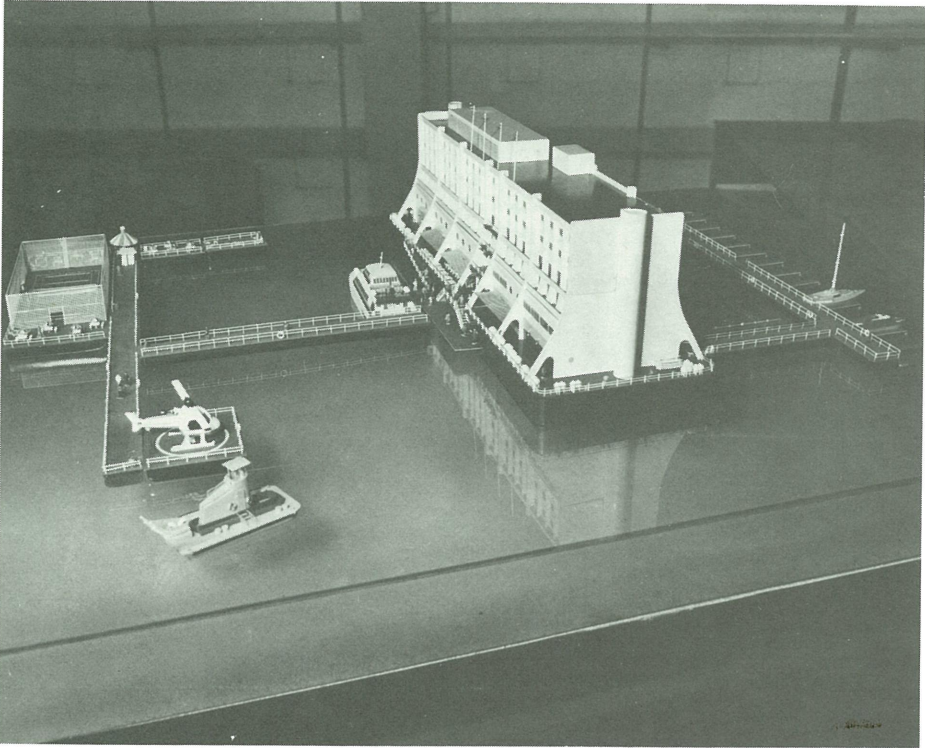
The Ministerial Council has taken a particular interest in this matter. At its sixth meeting in November 1982 the Council supported, in principle, the encouragement of any technically and environmentally acceptable developments which would enable people to use and enjoy the Great Barrier Reef. As a result of that meeting a joint State/Commonwealth committee was established to consider proposals. At its most recent (ninth) meeting on 3 April 1985, the Ministerial Council noted that further regulations and more comprehensive legislation are being developed. This legislation has been foreshadowed in the Commonwealth Government's statement of its program for the current Parliament and officers of the Authority have been involved in an advisory capacity.

The problems to be resolved include questions of jurisdiction, insurance and public liability, navigational safety and environmental impact. Although existing offshore structures are few and relatively small, a number of more ambitious proposals, at various stages of planning, have been referred to the Authority.

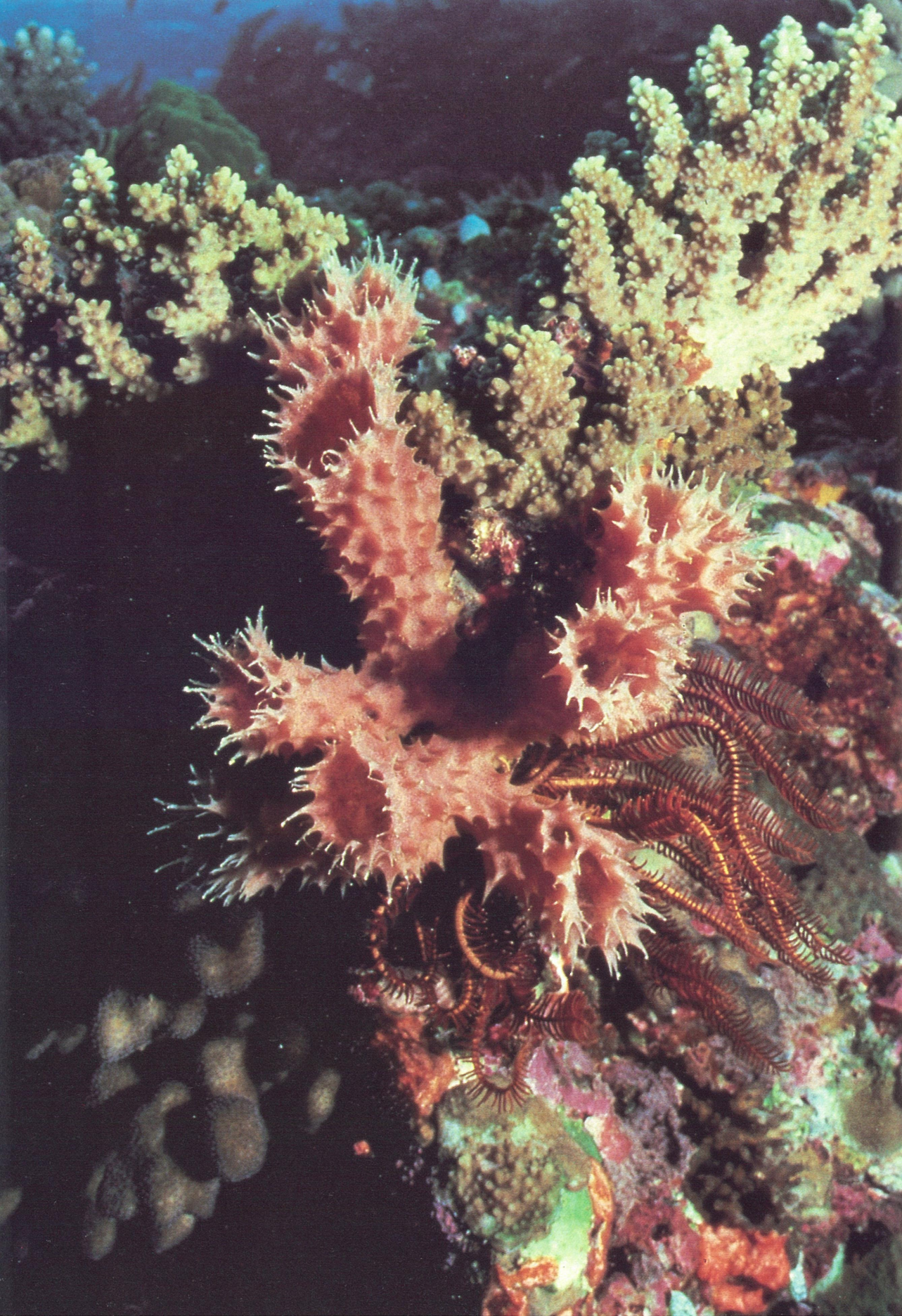
Procedures for the assessment of proposals have now been developed. These procedures and the administrative framework for assessment of and permission to construct and operate an offshore tourist facility are currently under review by consultants to the Authority. The project, **Guidelines and Methodologies for Environmental Assessment of Offshore Developments**, is described in more detail in the Research and Monitoring section of this report.

THE FUTURE

The main challenge to the Park Management Section in the immediate future is to ensure that day-to-day management is effectively established in all zoned sections of the Marine Park. This can only be accomplished by continuing co-operation with Queensland and other Commonwealth agencies.



*A new era in Barrier Reef holidays! Model of an offshore tourist facility proposal
— Great Barrier Reef Marine Park.*



EDUCATION AND INFORMATION

The Authority has always recognized that successful management of the Marine Park must rely to a large extent on self-regulation by Park users.

In keeping with the Authority's goal and aims the Education and Information Section provides education and information materials and services that help the community understand and accept the provisions of Marine Park zoning and regulations.

The emphasis of the education program is directed through three channels:

- the formal education program, designed to develop curriculum materials and services for teachers and students
- the extension program, aimed primarily at current Reef user groups
- the community education program, designed to promote understanding and support for the Marine Park concept by the community at large.

The Education and Information Section also provides general services support by publishing statutory and research materials and maintaining a specialised library service available to the Authority, its staff and the general public.

FORMAL EDUCATION PROGRAM

During 1984-85 the Formal Education Program continued to reflect the importance the Authority places on educating school students — the Marine Park users of the future and a group whose habits and attitudes are still amenable to change.

An important project of long standing, Project Reef-Ed, continued to be the Authority's major involvement in the curriculum area. Since 1982 a team of six educators from Queensland and New South Wales has been working to produce a comprehensive **Teachers Handbook for Great Barrier Reef Fieldwork**. The handbook is aimed at helping schools run Great Barrier Reef excursions and provides a range of detailed student activities, information on the logistics of field trips, and a discussion of the aims and objectives of Reef education.

It is planned to have the handbook and companion guides to individual fieldwork sites (e.g. Heron, North West, Lady Musgrave and Lady Elliott Islands and Reefs) published and available to teachers by the start of the 1986 school year.

A series of in-service education courses for teachers, initiated in April 1984, was completed in September 1984. The courses had the approval of the Queensland Education Department and were conducted jointly with Q.NPWS staff. The content of the courses included descriptions of the geology and life forms of the Reef, its history, the human use of its resources and the management of these resources through the Marine Park. Teachers were also advised on curriculum programs and resources that could be used to meet the particular needs of their students.

Opposite: The complexity of coral reef communities never ceases to capture one's imagination.

A total of 102 teachers representing 59 different schools attended the courses and their response, gauged by questionnaire, was extremely positive. Ninety-seven per cent of respondents said that the information presented was invaluable to them as teachers. The Authority also gained valuable feedback on how to improve aspects of its school oriented education program. Further in-service courses are planned, particularly for coastal centres that have not yet been course venues, and where teachers have asked that they be held.

As a result of talking with teachers at the various courses, Education and Information staff became aware that teachers did not have easy access to audiovisual resources about the Great Barrier Reef. To remedy this situation approval was sought and received to purchase seven sets of audiovisual resources to be placed in District Education Centres for teachers in those areas to use. The materials are on extended loan to seven Education Centres but remain the property of the Authority.

Encounters with the Reef, a series of audiovisual kits about the Reef is presently being developed. The first kit in the series, on the broad scale structure and evolution of the Reef, is nearing completion. It has been designed for classroom use with senior primary and junior secondary students.

During the year the Authority collaborated with Thomas Nelson Australia to publish **The Richest Reef**, a book in the Young Australia Readers Series. The book, produced in full colour and aimed at middle primary school students, provides information on the natural history of the Reef and discusses the need for careful management of the Reef's resources.

In response to requests from teachers for lists of materials suitable for school use, the Authority published **Coral Reefs: a review of some audiovisual resources** and **Coral Reefs: a reading list with notes**. These two books describe a selection of audiovisual kits and books covering most aspects of coral reefs — especially the Great Barrier Reef — from its ecology to human use.

Another avenue used to satisfy the ever-increasing demand from teachers and students for information on all aspects of the Reef and Marine Park is the newsletter **Ebb and Flow**. This year three issues were produced in a broadsheet newspaper format.

Formal and informal meetings and discussions with students, teachers and other educationalists, individually and in groups, continued to be an important activity for Section staff.

THE EXTENSION PROGRAM

People use the resources of the Great Barrier Reef in a variety of ways. A practical Marine Park management strategy must take into account particular user group needs and direct specific information at those groups. Direct contact with recreational and commercial fishermen, charter boat operators, resort managers, boaters, divers and scientists assist the Authority in developing and reviewing interpretative materials that explain the provisions of zoning plans and regulations.

Information on the Cairns, Cormorant Pass and Capricornia Sections of the Marine Park is available to Reef users as sets of zoning posters and complementary activities guides which explain zoning plans and regulations.

Following a workshop on Green Island in 1982 the first version of a **Reef Activities Manual** was developed in collaboration with Hayles Holding Pty Ltd and Q.NPWS. The manual is aimed at Great Barrier Reef resort staff wishing to provide their guests with exciting and educational activities as they explore the island and reef environments they are visiting. In the light of comments from operators who have used the manual at a number of resorts a new updated and improved edition will be produced. The revised manual is expected to be completed in late 1985.

A major development in the Education and Information Section's Extension Program occurred during the past year when two extension officer positions were created. By June the first of the two officers had been appointed; the second officer is expected to take up the position by October. Initially the two officers will devote their energies to formalising the Authority's extension activities through the development of policy and procedural recommendations in close collaboration with officers of Q.NPWS.

COMMUNITY EDUCATION PROGRAM

The Authority believes that it is important for all Australians to develop an increased awareness and understanding of the Reef and Marine Park. The Community Education program uses a variety of techniques and approaches to achieve this.

Reeflections, a community newsletter, provides the interested reader with articles on a wide range of Reef oriented topics, Marine Park management, and acts as a forum for discussion of important Reef issues. Three editions were produced during the period under review covering topics as diverse as traditional dugong hunting and the sightings of manta rays in the Capricornia Section.

Posters have a broad appeal and introduce the Marine Park concept in an unobtrusive way. This year two new posters were added to the popular large format 'Ours to use wisely' series — a snorkeller exploring a coral reef and an aerial view of Wistari and Heron Island Reefs.

The Authority and Q.NPWS have jointly launched another poster series titled **Reef Heritage**. The first of this series, featuring a dugong mother and calf, was painted by Gavin Ryan who has also illustrated a stamp series on marine life of the Great Barrier Reef released last year.

Complementing the Reef Heritage series poster a video program dealing with the dugong's biology, traditional hunting and related management issues has also been produced. The Aboriginal community at Hope Vale assisted in the production of the program.

A series of single topic information brochures titled **Reef Notes** has also been introduced jointly with Q.NPWS. Authors from a variety of disciplines and organisations have contributed to the series. So far authors from James Cook University, Q.NPWS and Griffith University have provided articles on hard corals, Reef Region fisheries, soft corals, turtle management, seabirds, coral cay formation and fringing reefs. Written in a non-academic style and complemented by full colour photographs, the series has already proved extremely popular with a broad range of readers.

Maps of the Reef Region published by the Authority are also very popular. In April 1985 a new edition of the **Companion Map to the Great Barrier Reef**, a road atlas style strip map indicating the new Marine Park section boundaries was produced. New editions of the Authority's smaller Region maps were also produced.

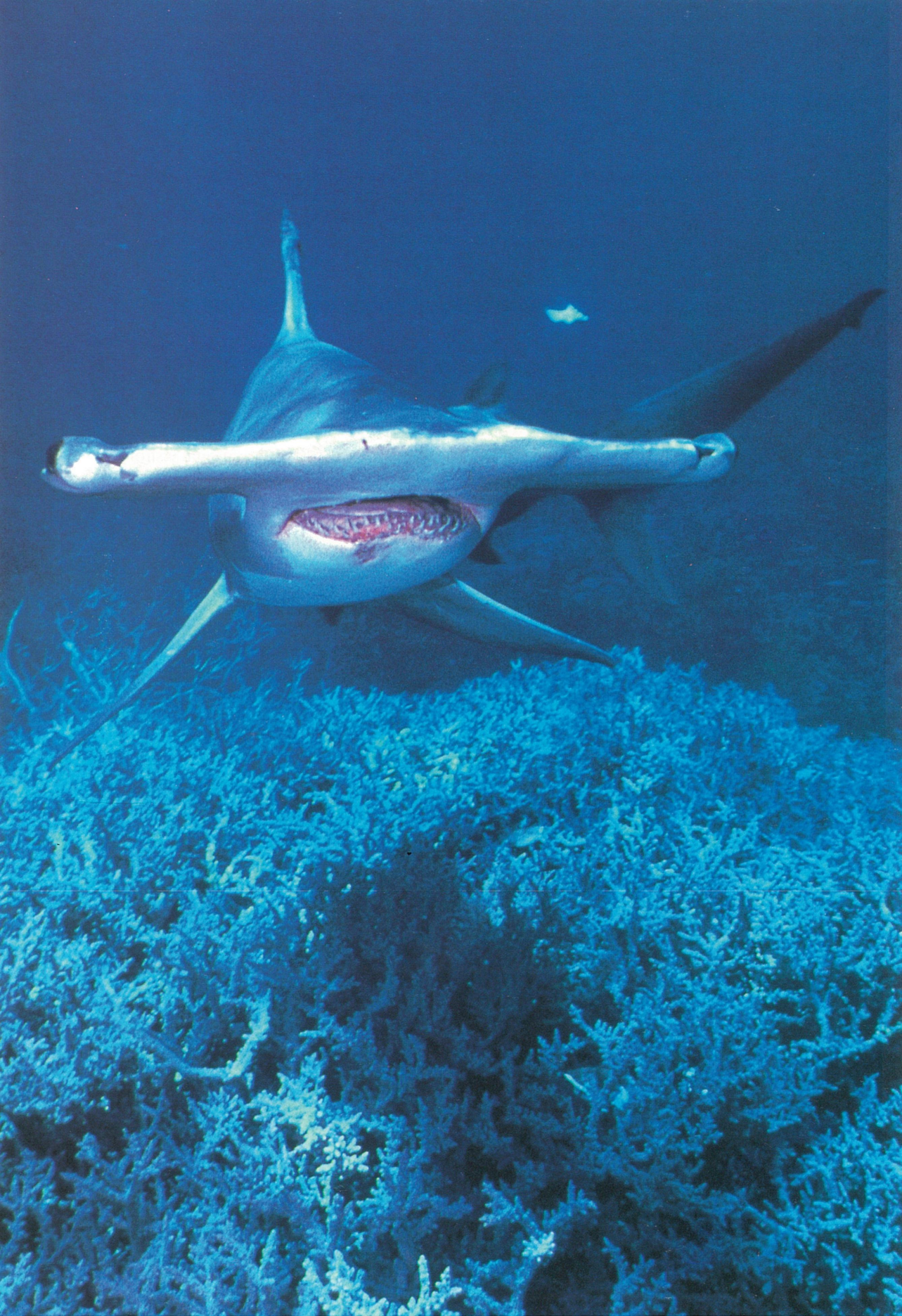
Radio and television have also been exploited by the Authority in reaching various community groups. A pilot series of five radio programs, well received by the ABC, has been extended to fifteen. Each two-minute program covers some aspect of the origin and history of the Reef, its inhabitants or management issues.

The Authority has contracted an independent film production company to research the possibility of producing a series of one-hour television programs on coral reef management. The series would expose some of the important issues relating to coral reef management in a global perspective but would have special reference to the Great Barrier Reef and the Commonwealth's initiatives in managing this natural resource of world significance.

The Authority continues to give financial support to the publication of well-written, broad appeal books that will enhance people's awareness of the Great Barrier Reef. It provided a production cost subsidy to the University of Queensland Press to publish a field guide titled **Plant Life of the Great Barrier Reef and Adjacent Shores**. Written by professional botanists Dr Alan Cribb and Joan Cribb the book contains over 200 colour photographs and offers an excellent introduction to a wide range of plants, both island and seashore species.

The Authority also provided financial assistance towards the production of a new edition of **A Coral Reef Handbook** edited by Dr Patricia Mather and Isobel Bennett (Australian Coral Reef Society 1984). The handbook describes the fauna, flora and geology of the reefs and islands of the Capricornia Section of the Marine Park. Originally published in 1978, the new enlarged edition is likely to prove even more popular than its forerunner.

*Opposite: The hammerhead shark (**Sphyrnidae** sp) — an infamous but little understood Barrier Reef predator.*



The crown of thorns starfish phenomenon continues to attract the attention of the community and media at large. In response, the Authority has produced an information kit and a **Reef Note** brochure which detail the natural history of the crown of thorns, theories on the population explosions and important research findings. The brochure, released only in February this year has been distributed to several thousand interested readers.

Throughout the year staff of the Education and Information Section designed and constructed displays to meet a range of needs, from academic conferences to public participation meetings. Towards the end of 1984 a large (23 square metres) permanent display was erected at Gladstone airport. This innovative display, produced jointly with Q.NPWS, introduces the islands and reefs of the Capricornia Section offshore from Gladstone. It features full colour images of activities, reefs and islands, as well as a large map of the Section.

Another permanent display at Townsville airport welcomes international visitors to North Queensland. It introduces the Reef Region and Marine Park in general, but includes an image of Davies Reef, an important site of reef research some 65 kilometres east of Townsville.

An innovation in the display area is the Authority's involvement in a Museum of Victoria experiment in the application of video-disc technology in the provision of information to the public. A system has been devised that allows the user 'touch screen' access to information produced in audiovisual form tailored to his or her individual needs. The Authority will trial this system with information based on the Cairns Section Zoning Plan using images of the physical, cultural and biological features of the Section. The system will be available to the public in late 1985.

Education and Information Section staff also produced media releases and a range of articles on the Marine Park for newspapers, journals and magazines throughout the year.



This attractive mural, introducing Gladstone airport visitors to the Capricornia Section of the Marine Park, was developed by the Authority and Q.NPWS.

PUBLIC PARTICIPATION

The Education and Information Section is also responsible for the planning and execution of the Authority's public participation programs.

Program development necessitates a multi-faceted approach using a variety of media. Television, radio, personal contact, displays, maps and brochures are used throughout two, 3 month campaigns to elicit public input into the zoning process of each section.

The public participation program for each Marine Park Section is developed in close liaison with the Planning Section, including the production of explanatory materials such as zoning maps and questionnaire-style mail-back brochures which assist the Authority in gaining relevant zoning information.

Television and radio are used primarily to alert the local community to the fact that their input is vital in developing practical management plans in their Section of the Marine Park whereas displays, which are erected at key regional venues, provide a focus for interested individuals and groups to discuss zoning principles and strategies with officers from the Authority.

Zoning information is also sent direct to interested reef-user groups and individuals through the Authority's contact database. This facility allows selection of target groups and individuals via specific user categories and/or coastal region adjacent to the area of the Marine Park undergoing zoning.

The community response to the Authority's public participation programs is encouraging. Four hundred and thirty-four submissions from groups and individuals in the first phase of the Central Section campaign strongly indicate that the Authority is reaching its desired target audiences, and, most importantly, that the Australian community is vitally interested in ensuring that management plans for their Marine Park allow for '*protection, wise use, appreciation and enjoyment*' of the Reef's resources.

GENERAL SERVICES PROGRAM

To give the public access to important and useful research data the Authority published two special reports in 1984-85. The first, **Fisheries of the Great Barrier Reef** by Mr Tor Hundloe, describes the economic characteristics and significance of the major fisheries of the Great Barrier Reef Region.

The second, **Australian Marine Research in Progress: Great Barrier Reef Region 1984-1985**, is a guide to marine research projects — in terms of topics, personnel, organisation and geographic area — at present underway and of relevance to the Reef. It is a hard copy product of the **Australian Marine Research in Progress** (AMRIP) machine-readable database. Management of AMRIP is co-ordinated by the Australian Institute of Marine Science, the Commonwealth Scientific and Industrial Research Organisation, the Great Barrier Reef Marine Park Authority and the Victorian Institute of Marine Sciences. It is proposed that this database will continue to be updated annually but that a hard copy of the full database be produced only biennially. So that information on Reef research is available on an annual basis it is intended to publish a hard copy of AMRIP for the Reef Region only in alternate years. This is the first year that this has been done.

Statutory publications produced during the year were the **Annual Report 1983-84** and the **Far Northern Section Zoning Plan**.

FREEDOM OF INFORMATION

The Authority received four requests under the **Freedom of Information Act** (FOI) during 1984-85. One of these was also referred to the Great Barrier Reef Consultative Committee. In line with the Authority's practice of making information readily available to the public, every effort was made to fulfil these requests and a satisfactory conclusion was reached in each case.

The Authority has fulfilled its statutory obligation under FOI by implementing internal procedures for processing requests, by updating as required the documentation called for under Sections 8 and 9 of the FOI Act and by regular reporting. Responsibility for granting or denying access to documents rests with the Executive Officer for requests made to the Authority and with the Secretary of the Great Barrier Reef Consultative Committee for requests made to that body. Responsibility for review of decisions rests with the Chairman of the Authority and Committee respectively.

LIBRARY

The function of the Library is to aid the Authority and its staff in the pursuit of their duties by providing rapid and efficient access to information in published material. To fulfil this function the library acquires and controls a collection of material and also actively co-operates with other libraries in sharing resources.

The library collection includes monographs, periodicals, photographs, slides, films, pamphlets, posters, maps and charts. Although its emphasis is on the Great Barrier Reef, subject coverage is wide and includes collection strength in the area of tourism and environment, environmental management, national parks and government administration.

The library is heavily used and during the year under review nearly 900 internal loans and almost 100 inter-library loans were provided. In addition over 400 loans or copies from other libraries were obtained on behalf of Authority staff. The collection was used by over 150 visiting students, research workers and members of the public. These figures indicate the level of library activity but do not reflect the large, important but unquantifiable area of reference work.

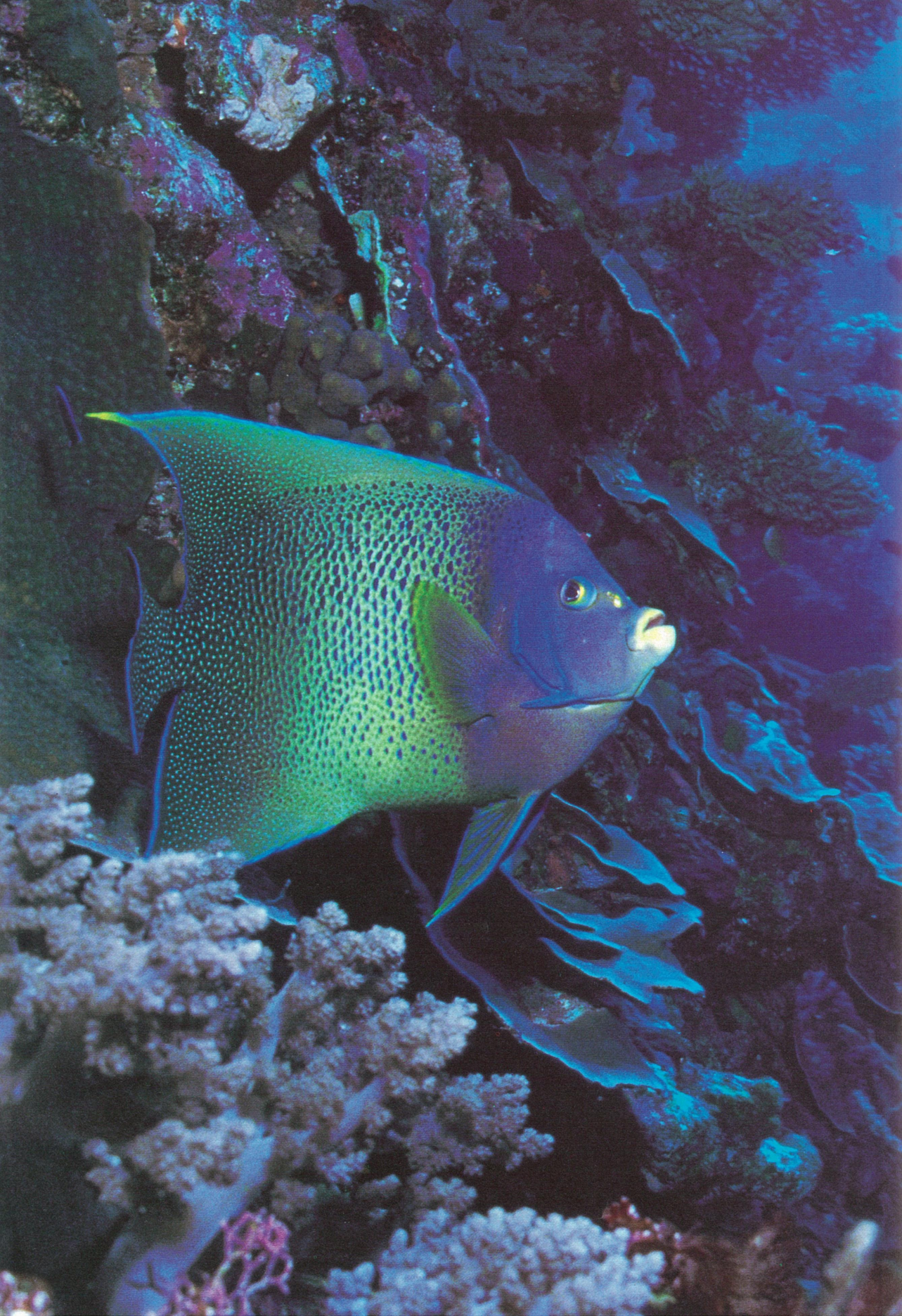
The librarian edits the REEF database which aims to index all published material about the Great Barrier Reef. REEF includes references to some 9000 items. A monthly **Current Awareness Bulletin** was produced throughout the year and accumulation of 1984 references was published. The **Current Awareness Bulletin** is distributed to approximately 200 interested institutions and individuals and will in future be distributed by the International Society for Reef Studies to all its members. REEF will be available to users of the AUSINET system in the near future.

The Librarian also participated as a corresponding member of the task force which drew up detailed proposals for an Australian Federal Libraries Committee.

THE FUTURE

During the coming year the second phase of the Central Section public participation program will be completed. It is anticipated that the Zoning Plan for the Central Section will come into effect by mid 1986. These developments will continue to involve staff of the Education and Information Section in the production of explanatory materials.

The success that the Authority has already attained in publicising the Reef and Marine Park is increasingly reflected in requests for further information from diverse and geographically dispersed individuals and groups. The Section will continue to meet this expanding demand with the most imaginative yet efficient and effective means available.



RESEARCH AND MONITORING

INTRODUCTION

The Research and Monitoring Section provides information for the effective planning and management of the Marine Park. The Authority is not primarily a research institution but it is empowered under the Act to commission or conduct research itself. Research is generally conducted by universities, government research agencies and private consultants. The Section's own staff carry out research not suitable for contracting.

The diverse information requirements of the Authority necessitate a multi-disciplinary and wide-ranging research program covering marine natural sciences, marine engineering and the social sciences. Program categories include oceanography, marine geosciences, marine chemistry, bathymetry and survey, marine biology, analysis of use, management strategies, environmental design, mechanics of information transfer and a Great Barrier Reef database. In addition to the Authority's research program a considerable effort is directed towards the development of a program to monitor the Great Barrier Reef Marine Park.

Such a broad ranging research program entails close co-ordination and liaison with Australian universities (particularly the James Cook University of North Queensland), the Australian Institute of Marine Science, the Commonwealth Scientific and Industrial Research Organisation, Commonwealth Government agencies (e.g. the Bureau of Mineral Resources, Geology and Geophysics), State Government agencies (e.g. the Queensland Department of Primary Industries), funding allocation bodies such as the Marine Research Allocation Advisory Committee, and other bodies. Monitoring involves close co-operation with the Queensland National Parks and Wildlife Service.

A total of 75 projects (including 14 Augmentative Grants Scheme projects) covering most program categories were funded in 1984-85. A further 26 projects funded in previous years were still continuing. Details of the projects are summarised in Appendix C. Total research expenditure in 1984-85 was approximately \$544 000. Some of the more important or topical projects conducted during the year are described below.

THE DISPERSAL OF CORAL LARVAE

The discovery that a large proportion of hard coral species spawn together at a fixed time of the year is one of the most important recent contributions to coral biology and has major implications to reef management.

In November 1983 Mr Gordon Bull, one of the James Cook University team who made this discovery, set out to track the coral larvae which resulted from a mass spawning at Bowden Reef off Townsville to determine how far they might travel. Spawning occurred on the predicted date, 26 November, with a peak between 8.45pm and 10.00pm. During the next 3 days most of the eggs and larvae were carried clear of the reef although a small proportion was caught in a backreef eddy and remained near the parent reef. Based on the observed currents, most of the larvae would be transported tens to hundreds of nautical miles during their 3 to 90 day planktonic stages.

*Opposite: The blue angelfish (**Pomacanthus** sp) is one of about 1 500 species of bizarre and beautiful Barrier Reef fishes.*

If this pattern of dispersal holds for many coral reefs in the Great Barrier Reef, it will be necessary to consider inter-reef as well as intra-reef transport in the selection of areas for replenishment or maintenance of coral populations by natural recruitment. It also indicates that a reef at which coral is killed, e.g. by cyclones or crown of thorns starfish could be re-seeded from neighbouring unaffected reefs.

CROWN OF THORNS STARFISH

The controversial crown of thorns starfish continued to be a matter of concern to the Authority during the year, particularly in the Central Section where it is estimated about 22% of reefs had aggregations of more than 40 starfish.

The Authority continued to maintain its computerized crown of thorns database adding information contributed by scientists, dive clubs, charterboat operators and others. The data provide the most comprehensive compilation of crown of thorns data in existence. This database assisted in the planning of a comprehensive survey of the starfish distribution being conducted by the Australian Institute of Marine Science under the Commonwealth Employment Program, in which up to 220 reefs in all sections of the Marine Park are to be examined. The Authority also contributed financially to this survey program. Other projects funded include experimental control programs in conjunction with tourist operators at Cormorant Pass and Beaver Reef, a geological study of reef sediments for crown of thorns remains, and a study of the pathogens involved in a disease of the starfish in the Fiji Islands.

The Great Barrier Reef Marine Park Authority convened the Crown of Thorns Starfish Advisory Committee (COTSAC) in 1984-85 to review the current situation, report on research and recommend necessary further research. The committee was comprised of Australian and overseas experts on crown of thorns starfish. COTSAC met on four occasions during the year and delivered its report in January 1985. It found that *'the destruction of hard coral by aggregations of A. planci poses a serious threat to the organisation and functional relationships within some reef communities within the Great Barrier Reef at least in the short term'*, but noted that scientific evidence was inadequate to assess the nature and significance of the phenomenon. It therefore recommended a major program of studies to be co-ordinated by the Authority. Aspects would include a risk analysis study to assess the need for control, a monitoring program, a study of biological controls, a study of reef sediments to determine whether infestations had occurred in the past, modelling studies to test hypotheses regarding causes of outbreaks, and an evaluation of the economic and social consequences of infestations. The Committee supports the Authority's actions thus far in limiting control to tactical measures designed to protect coral at specific sites of importance for tourism or scientific research.

MONITORING

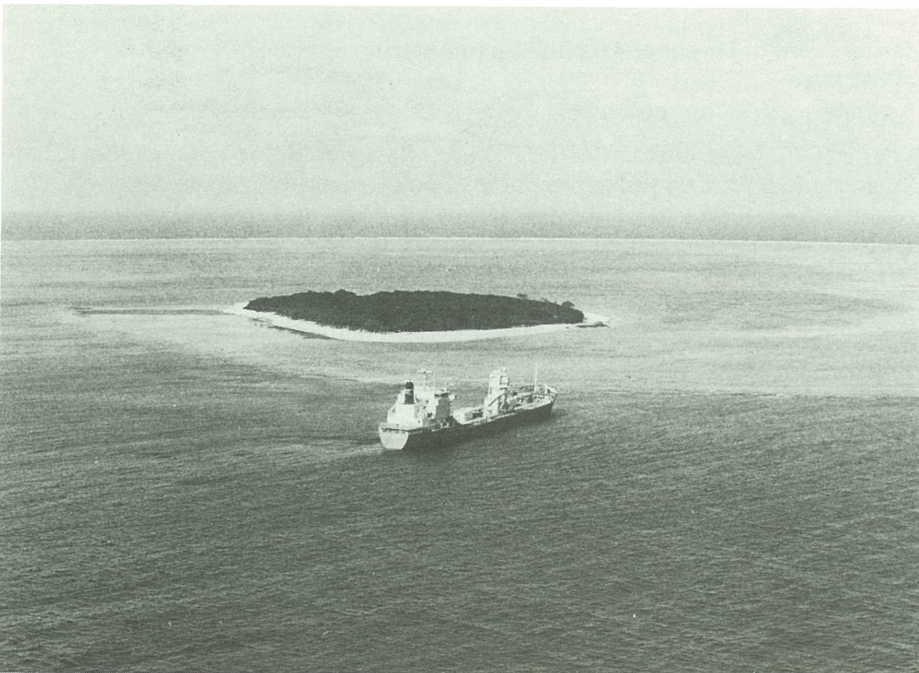
Giant clam mariculture, new shipping channels and associated shipping risks, and effects of changes in land-use and new offshore developments such as floating hotels, have underlined the necessity of monitoring the Marine Park. The following are notable monitoring projects undertaken during the year.

HYDROGRAPHER'S PASSAGE SURVEY

Following the discovery of an alternative shipping passage through the Great Barrier Reef off Mackay, the Department of Housing and Construction erected six large navigation towers on the Pompey Reef along the new route. A survey conducted by Authority staff and consultants in September 1984 indicated that while minor loss of reef habitat was incurred during the positioning of the concrete basal pads, the long term effects would be minimal.

THE STRANDING OF THE TNT **ALLTRANS**

On 25 March 1985 the 26 500 tonne bulk ore carrier TNT **Alltrans**, carrying alumina from Gladstone to New Zealand, went aground and was holed in 7-10 metres of water on Lady Musgrave Island Reef. The vessel was refloated two days later with no apparent loss of cargo or fuel. A joint survey of the site by Authority and Q.NPWS staff indicated that virtually all coral in an area of 90×40 metres had been killed by physical destruction and that many surrounding colonies appeared to have been killed by siltation. Compared to control areas, a decrease in coral-associated butterflyfish and an increase in algal grazers had also occurred. The incident provided the opportunity for monitoring techniques to be developed and tested with Q.NPWS.



*The Reef will always be a potential hazard to shipping; the bulk ore carrier, TNT **Alltrans**, aground on Lady Musgrave Reef, March 1985.*

CAPE TRIBULATION MONITORING PROGRAM

Following concern about the effects of siltation from the new Cape Tribulation to Bloomfield road on the adjacent mainland fringing reef in the Marine Park, the Authority has developed a monitoring program to determine the current state of the reefs, to indicate whether the silt has an effect. Developed after extensive consultation with scientists from the Australian Institute of Marine Science and James Cook University, the research and monitoring program involves regular surveys of corals, coral recruitment, invertebrates, coral trout and butterflyfish, the monitoring of sedimentation with traps, and general geological and geomorphological investigations of the effects of cleared catchments on sediment export. Monitoring will be continued for some years.

DUGONG MANAGEMENT

Dugong are an endangered species and under the World Heritage Convention, Australia is required to provide adequate protection for these animals. The Authority and the Marine Research Allocations Advisory Committee are funding a study by Dr Helene Marsh of James Cook University to develop a biological basis for the management of dugong in the Great Barrier Reef Marine Park. The program involves aerial surveys of dugong throughout the Region, biological examination of carcasses and collation of information on catches of dugong by Aboriginal and Islander groups and others. The latter study is being conducted in association with Mr Andrew Smith who is studying traditional hunting of dugong and other marine animals by the Hopevale Aboriginal Community for the Authority. The results should provide a basis for the determination of numbers of dugong which may be harvested on a sustainable basis in the Great Barrier Reef Marine Park.

The Authority also published a technical report in February 1985 titled **Management of Dugong: An Endangered Marine Species of Traditional Significance.**

GIANT CLAM SURVEY

In early 1985, researchers from the Fisheries Research Branch of the Queensland Department of Primary Industries, James Cook University and the Authority conducted a resurvey of giant clams (*Tridacna gigas* and *T. derasa*) within a marked plot on Michaelmas Reef. The project followed up a previous survey of the plot by Mr Robert Pearson, Director of the Fisheries Research Branch. The information gained from the surveys about growth, recruitment and natural mortality of giant clams should assist the Authority in establishing appropriate permit conditions for giant clam mariculture operations.

OFFSHORE DEVELOPMENTS

In March 1985, the Authority commissioned the consultant Cameron McNamara Pty. Ltd., in association with Coastal Ecosystems, to undertake a study on guidelines and methodologies for environmental assessment of offshore development projects. The study is being overseen by a reference panel with members from all sections of the Authority. Advice was also sought from relevant Queensland and Commonwealth agencies. The reports produced by the consultant are intended to outline a range of requirements and guidelines for impact assessment studies of offshore developments. It is proposed that the information generated will be used by the Authority and other relevant agencies to determine the need for, and extent of, environmental assessment of offshore development proposals. It is anticipated that a booklet outlining this information will be prepared as a guide to proponents and interested members of the public.

CHARTER BOAT SURVEY

Charter boats and regular ferry services are an important means of access to the Great Barrier Reef and provide for a range of activities on numerous reefs and islands. The industry has changed significantly in the past few years with, for example, the introduction of large high-speed catamarans and the growth of the Whitsunday bareboat yacht business.

A survey of commercial passenger vessels operating into the Great Barrier Reef Region was undertaken in 1984-85 by the Institute of Applied Social Research, Griffith University. The survey, conducted through personal interview of charter boat operators, sought information on reefs and islands visited, activities undertaken, passenger numbers, frequency and duration of trips, fish catch, facilities and industry economics. The survey was completed for boats operating in the Central Section of the Great Barrier Reef Marine Park in time for the information to be used in the draft zoning phase for this Section.

BRIAN

The highly successful BRIAN (Barrier Reef Image Analysis) system was used to complete the map coverage of the Marine Park using LANDSAT data. The Authority contributed funding to a research project (**Spectroscopy of Coral Reef Features, Coastal Features and Water Masses within the Great Barrier Reef Marine Park** being undertaken by Dr David Jupp and Dr Debbie Kuchler, through CSIRO Division of Water and Land Resources) which should permit the better definition of the spectral parameters in LANDSAT data. This is intended to improve the monitoring capacity of satellite imagery, e.g. in distinguishing live from dead coral cover. Four technical memoranda and research papers on applied remote sensing topics are in press; officers from the Authority attended international conferences and workshops on remote sensing during the year.

THE FUTURE

The increasing importance of monitoring such a large area and number of reefs will require the further development of a spectrum of suitable survey methods (from remote sensing to small area mapping) and a computerized Great Barrier Reef database with associated information transfer networks. Monitoring will also involve close co-operation with Q.NPWS. Research priorities, currently under review, will be increasingly oriented to management of the Marine Park and the special capabilities of Authority staff will be drawn upon more frequently for short-term and rapid response surveys.



ADMINISTRATION

INTRODUCTION

The Administration Section co-ordinates financial and human resource management and is responsible for purchasing, accounting, property, personnel, travel, communications (excluding Automatic Data Processing), word processing and registry services. The emphasis in human resource management is to improve the performance of the office through flexibility of organisation and the careful recruitment and development of staff.

Financial management aims to minimize the cost of developing and caring for the Marine Park consistent with meeting the goal and aims of the Authority.

Within the limits of Authority direction and regulation, the Section seeks to meet particular operating needs through informality and simplification of procedures and systems. The use of modern technology is an important element.

HUMAN RESOURCE MANAGEMENT

With the changing emphasis from planning to management of the Marine Park it is necessary, in selecting staff, to focus on a combination of skills, experience and qualifications which will anticipate future redeployment needs.

Organisational flexibility requires the employment of people who have already demonstrated versatility, not only in a technical sense, but also in relation to management and policy requirements; however, this emphasis does not preclude the employment of people with outstanding specialist skills provided they have shown versatility. A staff increase of 6 and high turnover caused intensive recruitment action during the year. From a structure of 73 positions, 25 vacancies were advertised for filling within approved average operative staffing levels. The approved level for 1984-85 was 64 and the actual average for the year was 63.8.

Job design and selection criteria have always reflected a policy of equal employment opportunity. The **Public Service Reform Act** 1984 formalises the requirement for agencies to introduce programs designed to eliminate discrimination and to ensure that measures are taken to enable women and persons in designated groups to compete for jobs as effectively as other persons. A draft policy and strategy document has been circulated to staff and staff associations.

The **Public Service Reform Act** 1984 also requires the development of plans designed to achieve appropriate participation by officers and employees in the decision making processes of any agency. During the year similar consultation began in relation to an industrial democracy plan.

*Opposite: Nudibranchs are marine snails without shells. This one (**Notodoris** sp) has just laid a bright yellow collar containing thousands of eggs.*

In accordance with his powers under Section 27 of the Public Service Act, the Chairman created the following positions during 1984-85:

Planning Section

Clerical Administrative, Class 9

Clerical Administrative, Class 6

Draftsman, Grade 2

Clerical Assistant, Grade 3

Research and Monitoring

Clerical Administrative, Class 4

Park Management

Clerical Administrative, Class 9 (2 positions)

Clerical Administrative, Class 6

Clerical Administrative, Class 4

Education and Information

Typist, Grade 1

Administration

Clerical Administrative, Class 6

Secretariat

Clerical Administrative, Class 6

Great Barrier Reef Wonderland

Engineer, Class 4

Clerical Administrative, Class 10

Due to increases in work value the following positions were reclassified:

Executive

from Steno-Secretary, Grade 1 to Steno-Secretary, Grade 2

Research and Monitoring

from Clerical Administrative, Class 7 to Class 8

Administration

from Clerical Administrative, Class 7 to Class 8

from Clerical Administrative, Class 5 to Class 6

Secretariat

from Clerical Administrative, Class 7 to Class 8

A position of Clerical Administrative Class 10, Secretariat was abolished.

The table opposite shows the distribution of staff at 30 June 1985.

Figure 7
 STAFF OF THE AUTHORITY AT 30 JUNE 1985

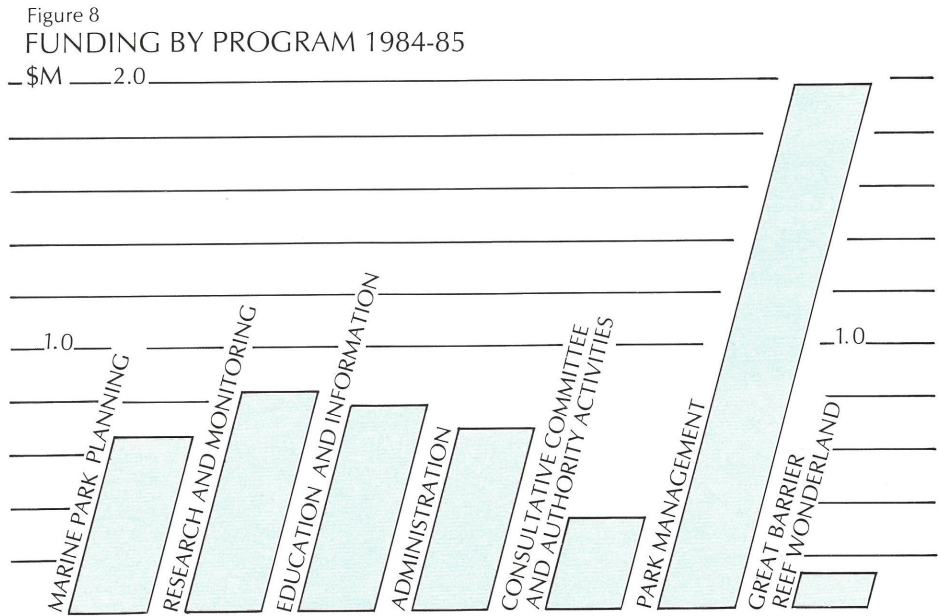
| | | PERMANENT | TEMPORARY Full-time | TEMPORARY Part-time | TOTAL |
|----------------------------------|----|-----------|------------------------|------------------------|-------|
| EXECUTIVE | 2 | | | 2 | |
| RESEARCH AND MONITORING | 5 | 2 | | 7 | |
| PLANNING | 8 | 3 | | 11 | |
| PARK MANAGEMENT | 7 | 1 | | 8 | |
| EDUCATION AND INFORMATION | 7 | 8 | 1 | 16 | |
| SECRETARIAT | 1 | 1 | | 2 | |
| ADMINISTRATION | 16 | 3 | 1 | 20 | |
| GREAT BARRIER REEF WONDERLAND | 1 | | | 1 | |
| TOWNSVILLE | 47 | 18 | 2 | 67 | |
| CANBERRA | 2 | 1 | | 3 | |
| TOTAL | 49 | 19 | 2 | 70 | |

In implementing its personal development program, the Authority selects from a number of training opportunities offered by the Public Service Board, management organisations and private consultants. While most courses are still away from Townsville, the Public Service Board and other organisations are increasingly attentive to training needs in North Queensland. The Public Service Board and the Authority recently co-operated in the organisation of an **Effective Negotiation Workshop** in Townsville. It is also Authority policy that staff may attend one conference or seminar each year which may not be essential for work purposes but which offers professional development related to the work of the Authority. Appendix D provides details of conferences attended by Authority staff during 1984-85. The Authority also enjoys a number of occasional presentations by visiting and staff experts.

FINANCIAL MANAGEMENT

In the 1984-85 budget, Parliament appropriated \$4 379 000 for the Authority's activities. Further funds totalling \$597 036 carried forward from 1983-84 were also available. Under the cost sharing arrangements for day-to-day management of the Marine Park, receipts from the Queensland Government were \$624 500. Receipts from other sources, including the sale of information materials, amounted to \$39 878.

Expenditure for the year was \$5 394 812, ninety-six per cent of funds available. Full details are provided in Appendix E. The expenditure of funds by function is shown in Fig. 8. This table reflects the allocation of salaries and overheads to each Authority function.



The introduction of a major in-house computing facility towards the end of 1984-85 has important implications for financial management. Records previously kept by contract accountants are being transferred to the Authority's

system. In the course of this conversion access, processing, financial management and performance indication features will be enhanced.

GENERAL SERVICES

During the year the Authority acquired further space in its Melton Place office in Townsville. The office now occupies the ground and four other floors of Melton Place, 67-71 Denham Street. This inner city location provides essential public accessibility and some facilities for public information, display and reference library purposes. A better permanent location for the Authority in Townsville is proposed in the Great Barrier Reef Wonderland Bicentennial project.

Word processing is a most important service to the organisation. It was affected during the year by two cases of repetition strain injury requiring redeployment. The investigation and adoption of preventative measures remains a high priority.

A stocktake of Authority assets was undertaken and found to be satisfactory. An improved system for the recording, control and maintenance of assets was implemented during the year.

THE FUTURE

A marginal increase in the average operative staff level has been sought for 1985-86 to enhance clerical assistance in various Sections.

In anticipation of completion of initial zoning plans for all sections of the Marine Park, the organisation is under review to take account of the changing emphasis from planning to Marine Park management. It is not expected that the overall size of the Authority will be significantly affected by this development.

The introduction of new computer facilities late in 1984-85 presents the challenge of the automated office. Once the accounting system is implemented the Administration Section will be looking at the use of this technology in registry and personnel management.

A comprehensive staff development and training program will be further developed with the objective of further increasing the skills, job satisfaction and self-regard of staff.



GREAT BARRIER REEF WONDERLAND

The inclusion of Great Barrier Reef Wonderland in the Commonwealth State Bicentennial Commemorative Program was announced jointly by the Premier of Queensland, Sir Joh Bjelke-Petersen and the Minister for Arts, Heritage and Environment, Mr Barry Cohen, on 28 September 1984. \$6 million (in 1982 prices) of bicentennial funds have been allocated to the project.

The objectives and components of Great Barrier Reef Wonderland are:

- To establish a national monument on the occasion of the Australian Bicentenary which will offer interpretative and educational services about the Great Barrier Reef for local, national and overseas visitors, and thus contribute to management of the Great Barrier Reef Marine Park.
- To recognise and record in an enduring manner the roles of the Queensland and Commonwealth Governments in the conservation of the Great Barrier Reef, and its inscription on the World Heritage List.
- To develop Great Barrier Reef Wonderland as a tourist attraction of international status, with an integration of outstanding facilities having wide appeal and involving Government and private sector funding. These facilities include:
 - an aquarium accommodating a functioning coral reef system with a walk through viewing tunnel providing a 'Reef experience' which is fascinating and realistic, stimulating the visitor to further explore the Great Barrier Reef. (Bicentennial funding)
 - a branch of the Queensland Museum concentrating on the natural sciences, history, culture and development of north Queensland and providing, amongst other things, specialist exhibits relating to the Great Barrier Reef. (Partial Bicentennial funding, partial Queensland Government funding)
 - Omnimax cinema and commercial precinct of shops, offices, restaurant and charter boat services. (Private sector funding).

During the year the Great Barrier Reef Wonderland Association, the body established to oversee the development of the project, met several times to consider proposals submitted by potential developers. After exhaustive evaluation processes the Association selected the Kern Corporation as the developer.

Opposite: Many crustaceans, such as this caridean shrimp, search for their food under cover of darkness.

The Great Barrier Reef Wonderland Aquarium Advisory Committee, a group of experts appointed by the Authority to provide unpaid technical advice on the aquarium and associated displays, met four times during the year and prepared a comprehensive set of technical specifications for the design, construction and operation of the aquarium complex. In May 1985, the Committee conducted a full day workshop with the developer to finalise the design of the aquarium.

Within the Authority, two officers, a Project Engineer and an Administrative Officer have been appointed to handle the Authority's involvement in Great Barrier Reef Wonderland.

Construction is due to commence in November 1985.

LIST OF APPENDIXES

- A. AUTHORITY STAFF
- B. PUBLICATIONS AVAILABLE
- C. RESEARCH IN PROGRESS 1984-85
- D. CONFERENCES ATTENDED BY AUTHORITY STAFF
- E. FINANCIAL STATEMENTS
- F. AUDITOR-GENERAL'S REPORT

APPENDIX A

AUTHORITY STAFF

| | |
|------------------------------|-----------|
| Number of Permanent Staff | 49 |
| Number of Temporary Staff | 21 |
| Total Operative Staff | 70 |

The Chairman has the powers of, or exercisable by, a Secretary of a Department under the Public Service Act.

EXECUTIVE

Dr Don Kinsey (Executive Officer)
Moirra Turner (Secretary)

SECRETARIAT

Chris Smalley
Julia Pannell

PLANNING

Richard Kenchington (Assistant Executive Officer)
John Baldwin
John Bastin
Dan Claasen
Gordon Claridge
Leanne Goodwin
Peter McGinnity
Martin Robinson
Trevor Shearn
Andrew La Spina
Bill Wallace

RESEARCH AND MONITORING

Dr Wendy Craik (Assistant Executive Officer)
Sally Driml
Ian Dutton
Elaine Eager
Debbie Laverty
Paddy McLeod
Dr Leon Zann

PARK MANAGEMENT

Simon Woodley (Assistant Executive Officer)
John Gillies
Bob Grady
Kim McClymont
Jim Muldoon
Bob Speirs
Ken Wano
John Williams

EDUCATION AND INFORMATION

Ray Neale (Assistant Executive Officer)

Bronwyn Berry

Gary Bridle

Jim Campbell

Louise Corica

Jean Dartnall

Andrew Elliott

Debbie Harding

Patricia Howorth

Tim Kahn

Gillian Matthew

Kirk Peterson

Sharon Pretty

Rose Wyles

LIBRARY

Moirá Dalton

Wendy Parsons

ADMINISTRATION

David Chippendale (Assistant Executive Officer)

PERSONNEL

John Barrett

Foster Barton

Margaret Bretherton

Gail Burston

Pauline Caterer

FINANCE AND SUPPLY

Linda Bochenek

Des Brushe

Eric Collins

Mike Hunter

Peter King

Mary Speedy

REGISTRY

Kay Bye

Jenni Kanaley

TYPING

Carol Devine

Karen Gill

Karen Huston

Rhonda Lane

Sandra Walden

Kerryn Wiseman

GREAT BARRIER REEF WONDERLAND

Ian Burston
Graeme Just

CANBERRA OFFICE

Trevor Garton (Assistant Executive Officer)
Kim Bland
Sheila Kellock

APPENDIX B

PUBLICATIONS AVAILABLE

BOOKS

Nomination of the Great Barrier Reef by the Commonwealth of Australia for Inclusion in the World Heritage List.

Townsville, GBRMPA, 1981. ISBN 0-642-52281-2.

Cook, Cays and Corals; a bibliography of publications about the Great Barrier Reef Marine Park Cairns Section.

Townsville, GBRMPA, 1982. ISBN 0-642-52297-9.

Research Report 1976-1982. Townsville, GBRMPA, 1983.

ISBN 0-642-52345-2.

Maps of the Great Barrier Reef: an indexed list of maps and charts of the Great Barrier Reef Region.

Townsville, GBRMPA, [1984]. ISBN 0-642-52361-4.

TECHNICAL MEMORANDUM/REPORT SERIES

CRAIK, Wendy. **Research on Fishes of the Great Barrier Reef.** Townsville, GBRMPA, 1978. (Technical Memorandum GBRMPA-TM-1). 30p.

CRAIK, Wendy. **Fisheries Factors Affecting Marine Park Management.**

Townsville, GBRMPA, 1978. (Technical Memorandum GBRMPA-TM-2). 30p.

GBRMPA-TM-3 not issued.

CRAIK, Wendy. **Amateur Fishing on the Great Barrier Reef.** Townsville, GBRMPA, 1979. (Technical Memorandum, GBRMPA-TM-4). 19p.

MIDDLETON, Jason H. **Report of Scientific Discussion Meeting on the Physical Oceanography of the Great Barrier Reef Region held at the University of New South Wales 5-6 July 1982.** Townsville, GBRMPA, August 1983. (Technical Memorandum, GBRMPA-TM-5). 42p.

BALDWIN, Claudia. **Management of Dugong: An Endangered Marine Species of Traditional Significance.** Townsville, GBRMPA, 1985. (Technical Report GBRMPA-TR-1). 26p.

WORKSHOP SERIES (ISSN 0156-5842)

Workshop on the Northern Sector of the Great Barrier Reef; Papers and Proceedings of a Workshop held in Townsville, 20-21 April, 1978. Townsville, GBRMPA, 1978. (GBRMPA Workshop Series No. 1), 462p. ISBN 0-642-91150-9 [Reprinted August 1983].

Workshop on Reef Fish Assessment and Monitoring held at Heron Island, 18-28 November, 1978. Townsville, GBRMPA, [1978]. (GBRMPA Workshop Series No. 2) 64p.

Workshop on Coral Trout Assessment Techniques held at Heron Island 21 April-4 May, 1979. Townsville, GBRMPA, [1979]. (GBRMPA Workshop Series No. 3) 85p.

Papers and Proceedings of the Workshop 'Tourism and the Great Barrier Reef' held in Mackay 9-11 April, 1979. Townsville, GBRMPA, 1981. (GBRMPA Workshop Series No. 4) 182p. ISBN 0-642-52273-1.

SPECIAL RESEARCH PUBLICATION SERIES (ISSN 0810-6983)

Annotated Checklist of the Coral Reef Fishes in the Capricorn-Bunker Group Great Barrier Reef by Barry C. Russell. Townsville, GBRMPA, August 1983. [i.e. October, 1983] [Cover title: Checklist of Fishes, Great Barrier Reef Marine Park Capricornia Section] 184p.

RESEARCH PUBLICATIONS

Green Island Economic Study. Economic Associates Australia. Townsville, GBRMPA, June 1983. 68p. ISBN 0-642-52337-1.

Data Review of Reef Related Tourism, 1946-1980. Australian Travel Industry Board. Townsville, GBRMPA, June 1984. 120p.

ANNUAL REPORTS (ISSN 0155-8072)

Annual Report 1981-82

Annual Report 1982-83

Annual Report 1983-84

POSTERS

Turret Coral. 1984

Clown Fish and Anemone. 1984

Snorkelling at Heron Island Reef. 1985.

Heron and Wistari Reefs. 1985.

Capricornia Zoning Map. 1984.

Cairns Zoning Map. 1983.

Portraits of the Reef. [2 prints + notes] Robert Ingpen. Ruskin Press, October 1981.

Dugongs. Reef Heritage Series. 1984. Joint Series GBRMPA and Q.NPWS.

Coral Trout of the Great Barrier Reef, 1985.

ZONING PLAN PUBLICATIONS

Capricornia Section Zoning Plan. Townsville, GBRMPA, August 1980. 30p. + separate map.

Cairns Section Zoning Plan and the Cormorant Pass Section Zoning Plan. Townsville, GBRMPA, May 1983. 16p. + maps. ISBN 0-642-52329-0. [another edition, November 1983]

BROCHURES

Under Capricornia; a Guide to the Capricornia Section of the Great Barrier Reef Marine Park. GBRMPA, 1981.

An Introductory Guide to Life on the Great Barrier Reef. Waterproof Version. Photography by Len Zell and Bill Wood, GBRMPA, August 1981 [i.e. 1982]

Great Barrier Reef; Cairns to Lizard Island. Townsville, GBRMPA. 1981.

Introducing Capricornia: Capricornia Section, Great Barrier Reef Marine Park. Townsville, GBRMPA, May 1983.

Permits and Collecting: Capricornia Section, Great Barrier Reef Marine Park. Townsville, GBRMPA, May 1983.

Activities Guide: Capricornia Section, Great Barrier Reef Marine Park. Townsville, GBRMPA, May 1983.

Spearfishing: Capricornia Section, Great Barrier Reef Marine Park. Townsville, GBRMPA, June 1983.

Recreational Fishing: Capricornia Section Great Barrier Reef Marine Park. Townsville, GBRMPA, June 1983.

Diving: Capricornia Section, Great Barrier Reef Marine Park. Townsville, GBRMPA, June 1983.

Boating: Capricornia Section, Great Barrier Reef Marine Park. Townsville, GBRMPA, June 1983.

Commercial Fishing: Capricornia Section, Great Barrier Reef Marine Park. Townsville, GBRMPA, June 1983.

Great Barrier Reef Marine Park: Cairns Section and Cormorant Pass Section: Activities Guide 1: Lizard Island Area. Townsville, GBRMPA. November 1983.

Great Barrier Reef Marine Park: Cairns Section: Activities Guide 2: Offshore Cooktown. Townsville, GBRMPA. November 1983.

Great Barrier Reef Marine Park: Cairns Section: Activities Guide 3: Offshore Port Douglas. Townsville, GBRMPA. November 1983.

Great Barrier Reef Marine Park: Cairns Section: Activities Guide 4: Offshore Cairns. Townsville, GBRMPA. November 1983.

Great Barrier Reef Marine Park: Cairns Section: Activities Guide 5: Offshore Innisfail. Townsville, GBRMPA. November 1983.

Coral Reefs; a review of some audio-visual resources. Townsville, GBRMPA. 1984. 12p.

SERIAL PUBLICATIONS

Reeflections. (ISSN 0314-6510)

Number 13, November 1983

Number 14, August 1984

Number 15, March 1985

Reef Notes. (ISSN 0814-9453). Joint Series GBRMPA and Q.NPWS

Crown of Thorns. February 1985

Reef Region Fisheries. February 1985

The Coral Polyp. February 1985

The Soft Touch — Another View of Coral. February 1985

MAPS

The Great Barrier Reef Marine Park 1:5 000 000. (A3 size, coloured) September 1982 (BRA Q5)

Companion map to Great Barrier Reef 1: 2 200 000. (Strip map, coloured) November 1982 (BRA Q6)

Great Barrier Reef Marine Park Capricornia Section, Zoning Plan — Zoning Map 1: 1:1 000 000. (A3 size, coloured) August 1980 (BRA Q17)

Cairns Section, Great Barrier Reef Marine Park Zoning Plans — Zoning Map (2) 1:300 000. (A3 size, coloured) May 1983 (BRA Q51)

Cairns Section, Great Barrier Reef Marine Park Zoning Plans — Zoning Map (3) 1:300 000. (A3 size, coloured) May 1983 (BRA Q52)

Cairns Section, Great Barrier Reef Marine Park Zoning Plans — Zoning Map (4) 1:300 000. (A3 size, coloured) May 1983 (BRA Q53)

Cairns Section, Great Barrier Reef Marine Park Zoning Plans — Zoning Map (5) 1:300 000. (A3 size, coloured) May 1983 (BRA Q54)

Cairns Section, Great Barrier Reef Marine Park Zoning Plans — Zoning Map (6) 1:300 000. (A3 size, coloured) May 1983 (BRA Q55)

Great Barrier Reef Region Australia 1:10 000 000. (A4 size) NMP79/093

OTHER PUBLICATIONS

Australia with Reef Explorer Cruises; the Great Barrier Reef and Coral Sea. Joint publication with Reef Explorer Cruises, Townsville, 1982.

Reef Activities Manual: a guide to providing environmental activities for guests during a Great Barrier Reef visit. Great Barrier Reef Marine Park Authority and Queensland National Parks and Wildlife Service. 1 volume, looseleaf, 1983.

The Richest Reef. Young Australia Reader Series. Thomas Nelson, Australia and the Great Barrier Reef Marine Park Authority. Melbourne, 1983.

Australian Marine Research in Progress, 1983. Victorian Institute of Marine Science, the Department of Science and Technology and the Great Barrier Reef Marine Park Authority. Melbourne, 1983.

Junior Survival: The Great Barrier Reef. Published for the Great Barrier Reef Marine Park Authority by the Gould League of Victoria with the assistance of the Australian Conservation Foundation. Melbourne, 1984.

Coral Reef Management Handbook. Editors R. A. Kenchington and Brydget E. T. Hudson. UNESCO Jakarta, Indonesia 1984.

A Coral Reef Handbook. Editors Patricia Mather and Isobel Bennett. The Australian Coral Reef Society. 2nd ed., Brisbane, 1984.

Plant Life of the Great Barrier Reef and Adjacent Shores. A. B. Cribb and J. W. Cribb. University of Queensland Press. St. Lucia, Queensland, 1985.

APPENDIX C

RESEARCH IN PROGRESS 1984-85

OCEANOGRAPHY

2. Drift Card Study of Great Barrier Reef Surface Currents

PERIOD: January 1981 – August 1985
PROJECT LEADER: Dr J. D. Collins (Marine Biology, James Cook University)
GBRMPA OFFICERS: Mr R. Kenchington, Ms E. Eager
SUPPORT: GBRMPA — \$67 040

OBJECTIVES: To produce an integrated picture of drift over the Great Barrier Reef lagoon. To establish correlations between drift and wind patterns.

MANAGEMENT IMPLICATIONS: This project will provide data which is important to understanding surface water movements in the Great Barrier Reef. It will enable production of predictive models for oil slick dispersal and dispersal of larvae. It will also provide a set of data upon which to base hypotheses for more refined studies of water movement in the Great Barrier Reef Region.

METHODOLOGY: Release of drift cards over 18 months. Computer analysis of data from returned drift cards and wind data.

STATUS: Final report received. Two articles published in **Australian Fisheries**.

LOCALITY: Great Barrier Reef Region

119. Circulation and Sediment Movement on and around North Queensland Bayhead Fringing Reefs

PERIOD: January 1983 – June 1986
PROJECT LEADERS: Prof D. Hopley (Geography, James Cook University)
Mr K. Parnell
GBRMPA OFFICER: Mr I. Dutton
SUPPORT: GBRMPA — \$15 440; Qld. Co-ordinator General — \$4 861

OBJECTIVES: To produce a model of bay dynamics, with applications to existing and possible resort sites, indicating the likely effects of development, with special emphasis on effluent disposal and changing water quality.

MANAGEMENT IMPLICATIONS: Further resort development in North Queensland is likely to take place in high island bayhead situations. Problems related to effluent disposal may occur. The study will indicate effects of different strategies and suggest possible solutions, providing a means of decision-making with limited field investigation at a variety of present and future resort sites.

METHODOLOGY: Field measurement and sampling; laboratory analysis of sediments.

STATUS: Final report to GBRMPA due June 1986.

LOCALITY: Central Section — Orpheus Island, other resort islands

149.* Boundary Layer Flows Past Patch Reefs

150. Flow Modelling in the Central Great Barrier Reef Region — A collaborative Research Project

PERIOD: January 1984 – December 1986
PROJECT LEADERS: Dr J. C. Andrews (Australian Institute of Marine Science)
Dr L. Bode (Civil and Systems Engineering, James Cook University)
GBRMPA OFFICER: Dr W. Craik
SUPPORT: GBRMPA — \$136 000

OBJECTIVES: To construct and validate numerical models of flows on the Queensland continental shelf and slope in the Central Great Barrier Reef Region. To use the models to understand fluid dynamics, advection and dispersion (oil, nutrients, larvae, etc). To use the models for prediction.

MANAGEMENT IMPLICATIONS: A 1983 expert review on knowledge of the physical oceanography of the Great Barrier Reef Region listed important questions remaining unanswered. This project should answer some of these questions concerning oceanographic events and provide a model to predict these events.

METHODOLOGY: Field measurement of relevant parameters, data analysis and model construction.

STATUS: Analysis of tidal data collected by Australian Institute of Marine Science is continuing.

LOCALITY: Central Section

191. Installation of Tide Gauges: Collaborative Research

PERIOD: January 1985 – January 1995
PROJECT LEADERS: Dr J. C. Andrews (Australian Institute of Marine Science)
Dr L. Bode (Civil and Systems Engineering, James Cook University)
Mr T. Savory (Bureau of Meteorology)
GBRMPA OFFICERS: Dr W. Craik, Mr I. Dutton
SUPPORT: GBRMPA — \$19 230

OBJECTIVES: To purchase and install tide gauges to monitor tides in the Great Barrier Reef Region and to gather long term tidal data in the Western Pacific in association with the Westpac program.

MANAGEMENT IMPLICATIONS: This project supports the Flow Modelling project (150) and will provide simultaneous tidal data throughout the Great Barrier Reef Region and Western Pacific.

METHODOLOGY: Installation and monitoring of tide gauges in collaboration with Australian Institute of Marine Science and Bureau of Meteorology.

STATUS: Tide gauges purchased and installed.

LOCALITY: Great Barrier Reef Region.

* Project number and title only are listed for projects which were included in the 1983-84 Annual Report and which were completed during the current financial year.

MARINE GEOSCIENCES

151. Biologic Reef Destruction — Products, Rates and Causes

PERIOD: October 1983 – August 1986

PROJECT LEADERS: Dr P. A. Hutchings (Australian Museum)

Dr P. J. Davies (Bureau of Mineral Resources)

Mr W. Kiene (Geology, Australian National University)

GBRMPA OFFICER: Ms E. Eager

SUPPORT: GBRMPA — \$45 149

OBJECTIVES: To determine the principal bioeroders and mechanisms of erosion on reef fronts, reef flats and in lagoons of juvenile, mature, and senile reefs. To determine whether the products and processes of bioerosion are related to evolutionary stages of reef growth.

MANAGEMENT IMPLICATIONS: Bioerosion is a destructive force on reefs. Natural rates of bioerosion need to be determined before man's impact can be assessed.

METHODOLOGY: Field survey, sampling and experiments using substrate blocks. Laboratory analysis of substrates.

STATUS: Experiments established February 1984; substrate collections started September 1984. Final report to GBRMPA due August 1986.

LOCALITY: Capricornia Section, Cairns Section

152. Coastal Processes Forming and Maintaining the Coral Cays of the Great Barrier Reef and their Implications for Marine Park Management

PERIOD: November 1983 – August 1985

PROJECT LEADER: Dr M. Gourlay (Civil Engineering, University of Queensland)

GBRMPA OFFICER: Dr W. Craik

SUPPORT: GBRMPA — \$5 000

OBJECTIVES: To collect and collate relevant available information on physical and geomorphological processes forming and maintaining cays.

MANAGEMENT IMPLICATIONS: This project is designed to provide information on the effects of dredged channels, groynes, seawalls etc.; guidelines on widths of buffer zones for buildings, maximum area of cay for development, locations of effluent discharges, etc.; and possibilities of catastrophic destruction of cays.

METHODOLOGY: Intensive library research and field verification.

STATUS: Field work at Raine Island and Low Isles has been undertaken. Draft report received.

LOCALITY: Great Barrier Reef Region

153. Stratigraphy of Lagoon Sediments and Reef Margins — Lady Musgrave Island

PERIOD: May 1984 – October 1985

PROJECT LEADER: Assoc Prof C. V. G. Phipps (Geology and Geophysics, University of Sydney)

GBRMPA OFFICER: Mr I. Dutton

SUPPORT: GBRMPA — \$3 000

OBJECTIVES: To relate reef flat stratigraphy and development to lagoonal stratigraphy. To define sedimentation rates in the lagoon and to expand upon existing understanding of sedimentation patterns and processes. Supplementary analysis of freshwater wedge under Lady Musgrave Island.

MANAGEMENT IMPLICATIONS: This project should improve understanding of lagoonal sediment variations and thus whether patterns and processes of erosion or sedimentation at Lady Musgrave Island have been affected by human activities.

METHODOLOGY: Field survey and sampling using vibrocores, boomer lines and shallow drilling.

STATUS: Project continuing.

LOCALITY: Capricornia Section — Lady Musgrave Island.

154. Stability of Coral Cays in the Capricornia Section of the Great Barrier Reef Marine Park

PERIOD: May 1984 – August 1985

PROJECT LEADER: Dr P. G. Flood (Geology, University of New England)

GBRMPA OFFICER: Mr I. Dutton

SUPPORT: GBRMPA — \$5 000

OBJECTIVES: To install permanent survey marks on five islands within the Capricorn Group (Heron, Erskine, Wilson, Tryon and North) in order to monitor changes in shoreline configuration over time. To calibrate survey works with earlier studies by researchers between 1972 and 1982. To provide supplementary training of Q.NPWS staff in cay stability survey and monitoring.

MANAGEMENT IMPLICATIONS: This project will enable comprehensive, long-term assessment of coral cay stability, and improve the understanding of erosion processes, the effects of human activities and cyclones.

METHODOLOGY: Field survey and training personnel.

STATUS: Report received.

LOCALITY: Capricornia Section

155. Role of *Acanthaster planci* in Reef Degradational Processes — a Preliminary Study

PERIOD: May 1984 – August 1985

PROJECT LEADER: Dr R. Henderson (Geology, James Cook University)

GBRMPA OFFICER: Mr I. Dutton

SUPPORT: GBRMPA — \$3 040

OBJECTIVES: To produce an atlas documenting the morphology of *A. planci* skeletal elements.

MANAGEMENT IMPLICATIONS: This project will contribute to understanding of *A. planci* in terms of long term dynamics, and the degree of threat which *A. planci* infestations may pose to reef stability.

METHODOLOGY: Examination of skeletal components of *A. planci* using a Scanning Electron Microscope.

STATUS: Report received.

LOCALITY: Cairns Section — Green Island Reef, Central Section — John Brewer Reef

156. Modern Sediment Disposal at the Burdekin River Mouth

PERIOD: May 1984 – November 1985

PROJECT LEADER: Prof R. M. Carter (Geology, James Cook University)

GBRMPA OFFICER: Mr I. Dutton

SUPPORT: GBRMPA — \$3 330

OBJECTIVES: To undertake a pilot study to investigate the patterns of sediment distribution and dispersal onto the river shelf at the Burdekin River mouth, with respect to: (i) locations of maximum sediment accumulation over the past 6,500 years; (ii) volumetric estimate of the shelf sediment wedge; (iii) establishing the seawards extent of the wedge; and (iv) establishing a sedimentary baseline.

MANAGEMENT IMPLICATIONS: The Burdekin is the largest single supplier of sediment in the Great Barrier Reef Region. This project will provide a basis for determining effects of the Burdekin Dam on the Great Barrier Reef.

METHODOLOGY: Standard techniques of low frequency seismic profiling, grab sampling, coring and laboratory analyses.

STATUS: Field work complete. Report due November 1985.

LOCALITY: Central Section— Burdekin River mouth.

157. * Comparative Structure and Growth of Windward and Leeward Fringing Reefs on Orpheus Island, North Queensland

158. * Geomorphology, Zonation and Sediments of Sanctuary Reef, Swain Reefs Area, Southern Great Barrier Reef

192. Initial Site Survey of Cape Tribulation Coast Fringing Reef

PERIOD: January 1985 – September 1985

PROJECT LEADER: Dr A. M. Ayling (Sea Research)

GBRMPA OFFICERS: Dr W. Craik, Mr I. Dutton

SUPPORT: GBRMPA — \$2 200

OBJECTIVES: To determine precise locations for monitoring stations as part of a program to determine the impact of run-off from the Cape Tribulation road on fringing reefs.

MANAGEMENT IMPLICATIONS: Will assist in the long term study to enable better understanding of nearshore sedimentary setting of fringing reefs and their susceptibility to the effects of land-use changes in the adjacent coastal zone.

METHODOLOGY: Reconnaissance of fringing reef sites by manta towing, diving, reef walking.

STATUS: Field work is being undertaken.

LOCALITY: Cairns Section

193. Sedimentary Setting of Fringing Reef at Donovan Point

PERIOD: May 1985 – January 1986

PROJECT LEADER: Dr D. Johnson (Geology, James Cook University)

GBRMPA OFFICER: Mr I. Dutton

SUPPORT: GBRMPA — \$5 470

OBJECTIVES: To determine geological sediment facies. To delineate shallow stratigraphy of peri-reef sediments.

MANAGEMENT IMPLICATIONS: Baseline data on sedimentary patterns and fringing reef growth will be gained.

METHODOLOGY: Field survey and collection of core samples for radiocarbon dating.

STATUS: Project underway.

LOCALITY: Cairns Section

194. Sediment Field of the North Queensland Coast

PERIOD: June 1985 – March 1986

PROJECT LEADERS: Assoc Prof D. Hopley (Geography, James Cook University)

Dr A. W. Pringle (Lancaster University)

GBRMPA OFFICER: Mr I. Dutton

SUPPORT: GBRMPA — \$4 332

OBJECTIVES: To assess and predict changes in sediment yield due to engineering works and land use changes.

MANAGEMENT IMPLICATIONS: This study will provide a broad overview of sediment yield on the North Queensland coast adjacent to the Great Barrier Reef Marine Park and should identify any areas which may require closer investigation in terms of possible impacts on the Reef.

METHODOLOGY: Literature review, data and aerial photo analysis, field survey.

STATUS: Project underway.

LOCALITY: Coastline adjacent to Great Barrier Reef Region

195. Terrigenous Sedimentation and Change on Low Isles since 1929

PERIOD: 1985

PROJECT LEADER: Ms C. Rasmussen (Geography, James Cook University)

SUPERVISOR: Assoc Prof D. Hopley

GBRMPA OFFICER: Ms E. Eager

SUPPORT: GBRMPA Augmentative Research Grant — \$700

OBJECTIVES: To determine the accuracy of reports of increased sedimentation from the land and deterioration of reef flat communities since the first Royal Society Expedition in 1929.

MANAGEMENT IMPLICATIONS: Information on the effects of mainland activities on nearshore reefs and the effects of increased tourist activity should be gained.

METHODOLOGY: Field survey and collection of samples for laboratory analysis.

STATUS: Field trips undertaken.

LOCALITY: Cairns Section — Low Isles

196. Past, Present and Future Changes in the Cairns Urban Coastline

PERIOD: 1985

PROJECT LEADER: Ms J. Spriggs (Geography, James Cook University)

SUPERVISOR: Assoc Prof D. Hopley

GBRMPA OFFICER: Ms E. Eager

SUPPORT: GBRMPA Augmentative Research Grant — \$825

OBJECTIVES: To analyse long-term physical coastal changes along the Cairns urban coastline from the time of first settlement. To locate sites with most rapid changes and investigate possible causes. To study current management policies.

MANAGEMENT IMPLICATIONS: Coastal changes resulting in alterations to sediment levels may adversely affect coral reefs close to the mainland.

METHODOLOGY: Study of maps, photographs and other written records in Brisbane and Cairns.

STATUS: Project underway.

LOCALITY: Coastline adjacent to Cairns Section

MARINE CHEMISTRY

160. Analysis of Soils from Coral Islands in the Capricornia Section of the Great Barrier Reef Marine Park

PERIOD: 1984 and 1985

PROJECT LEADERS: Chemistry students (Capricornia Institute of Advanced Education)

SUPERVISORS: Dr G. Pegg, Dr J. Hughes

GBRMPA OFFICER: Ms E. Eager

SUPPORT: Qld. Co-ordinator General — \$900

GBRMPA Augmentative Research Grant — \$630

Q.NPWS — logistic support

OBJECTIVES: To determine important physical and chemical properties of cay soils and to relate these findings to parameters such as location, depth, human usage (particularly camping), flora and fauna populations and possibly effluent disposal.

MANAGEMENT IMPLICATIONS: Information for planning island use should result.

METHODOLOGY: Collection and analysis of soil samples.

STATUS: Progress report received. Field work continuing.

LOCALITY: Capricornia Section — Heron Island, Tryon Island, North West Island

197. Organochlorine Pesticide Levels in Selected Sediments of the Great Barrier Reef

PERIOD: 1985

PROJECT LEADER: Mr R. Dyal (Organic Chemistry, University of Melbourne)

SUPERVISOR: Dr R. B. Johns

GBRMPA OFFICER: Ms E. Eager

SUPPORT: GBRMPA Augmentative Research Grant — \$800

OBJECTIVES: To analyse marine sediments to determine the extent of accumulation and distribution of organochlorine pesticides.

MANAGEMENT IMPLICATIONS: Information on levels of organochlorines and their distribution with respect to river run-off and mainland activities will be gained.

METHODOLOGY: Collection of core samples for laboratory analysis of sediment extracts

using gas chromatography with electron capture detection.

STATUS: Project underway.

LOCALITY: Cairns Section — Lizard Island Reef
Central Section — Bowling Green Bay

BATHYMETRY AND SURVEY

162.* Resource Inventory, Southern Area, Great Barrier Reef

198. Spectrographic Analysis of Reef Features

PERIOD: January 1985 – December 1985

PROJECT LEADERS: Dr D. Jupp (CSIRO, Division of Water and Land Resources)

Dr D. Kuchler

GBRMPA OFFICER: Mr D. Claasen

SUPPORT: GBRMPA — \$18 000; MSTGS — \$22 000

OBJECTIVES: To obtain field spectral measurements and develop an understanding of spectral signatures of reef and water features.

MANAGEMENT IMPLICATIONS: The development of a capacity to delineate reef and water features will greatly increase the utility of remote sensing for the Great Barrier Reef.

METHODOLOGY: Analysis of data from satellites and airborne scanners and comparison with field spectral measurements and observations.

STATUS: Project underway.

LOCALITY: Great Barrier Reef Region.

MARINE BIOLOGY

54. Systematics and Ecology of the Phytobenthos of the Swain Reefs

PERIOD: January 1981 – December 1984

PROJECT LEADER: Dr P. G. Saenger (consultant)

GBRMPA OFFICERS: Mr R. A. Kenchington, Dr W. Craik

SUPPORT: GBRMPA — \$10 570

OBJECTIVES: To document the phytobenthos of the Swain Reefs. To observe the functional role of phytobenthos in a southern reef ecosystem.

MANAGEMENT IMPLICATIONS: Identification of algal components of reef systems is important for interpretation and extension activities in the Marine Park. All algal flora which contains species of importance as indicators of pollutants or of the well-being of reefal systems may be identified.

METHODOLOGY: Systematic collection at various depths, habitats, etc. is being made to complete taxonomic studies already undertaken. Marked study sites will be revisited at various intervals to undertake quantitative studies and determine seasonal and long term changes in species composition, standing crop, growth rates and reproductive development.

STATUS: Final report received. Awaiting acceptance.

LOCALITY: Capricorn Section — Swain Reefs

64. Biology and Management of Trochus

PERIOD: June 1981 – August 1985
PROJECT LEADERS: Mr R. Pearson,
Mr W. Nash (Fisheries Research, Qld
Department of Primary Industries [Qld DPI])
GBRMPA OFFICER: Dr W. Craik
SUPPORT: GBRMPA — \$38 151; Qld DPI —
\$35 000

OBJECTIVES: To determine the basic biology, reproduction, recruitment, growth, population structure and the sustainable, harvestable yield of trochus and management principles for a possible collection fishery within the Great Barrier Reef Marine Park.

MANAGEMENT IMPLICATIONS: Considerable interest has been expressed by commercial fishermen in collecting trochus in the Great Barrier Reef Region. Present biological understanding is minimal and totally inadequate for determining the impact, sustainable harvest or reasonable extent of such a fishery.

METHODOLOGY: Field survey and laboratory studies.

STATUS: Awaiting final report.

LOCALITY: Cairns Section, Central Section

65.* Coral Trout Monitoring at Heron Island Reef

121. An Illustrated Key to the Parrotfishes of the Great Barrier Reef

PERIOD: July 1982 – December 1985
PROJECT LEADER: Dr H. Choat (University of Auckland, New Zealand)
GBRMPA OFFICER: Dr W. Craik
SUPPORT: GBRMPA — \$9 900;
MSTGS — \$6 645

OBJECTIVES: To produce an illustrated key to allow for rapid identification of the 25 species of parrotfishes (*Scaridae*) which occur on the Great Barrier Reef.

MANAGEMENT IMPLICATIONS: This project will provide assistance to scientists, reef users and educationalists etc. on identifying and separating what is probably the most difficult group of fishes to identify in the Great Barrier Reef.

METHODOLOGY: Field collecting and photography, museum work, publication.

STATUS: Required illustrative material collected. Publication by Australian Museum anticipated.

LOCALITY: Great Barrier Reef Region.

123. Survey of seabird colonies of the Capricornia Section of the Great Barrier Reef Marine Park

PERIOD: December 1982 – January 1985
PROJECT LEADER: Dr K. Hulsman (Australian Environmental Studies, Griffith University)
GBRMPA OFFICER: Ms S. Driml
SUPPORT: GBRMPA — \$13 940;
Qld Co-ordinator-General — \$10 411

OBJECTIVES: To census seabird colonies for distribution and abundance of each seabird

species. To measure reproductive output of colonies, to continue banding program, to determine the reliability of aerial photographs to estimate population size, to measure forage distance.

MANAGEMENT IMPLICATIONS: By identifying sources and numbers of recruits, habitats available, status of colonies, etc., this study will assist decisions for management and future revision of the Zoning Plan.

METHODOLOGY: Field survey and observation.

STATUS: Report received. Project complete.

LOCALITY: Capricornia Section

124. The effects of Fuel Oil, Oil Emulsifier, and Lower Salinity upon the common Indo-Pacific reef coral *Acropora formosa*

PERIOD: June 1983 – August 1985
PROJECT LEADERS: Mr P. Harrison, Dr C. G. Alexander, Dr J. D. Collins (Sir George Fisher Centre for Tropical Marine Studies, and Department of Marine Biology, James Cook University)
GBRMPA OFFICER: Ms E. Eager
SUPPORT: GBRMPA — \$2 784

OBJECTIVES: To determine the effects of oil emulsifier, oil plus emulsifier and lowered salinity on *Acropora formosa*.

MANAGEMENT IMPLICATIONS: Oil spills, use of oil emulsifier, and lowered salinity (increased run-off) may occur in the Great Barrier Reef Region. Laboratory information on reactions of *A. formosa* to such stresses will assist in predicting effects of oil spills, effects of cleanup and effects of increased run-off.

METHODOLOGY: Laboratory experiment and examination of effects at morphological, histological, and ultra-structural levels.

STATUS: Awaiting final report.

136*. Aspects of Community Dynamics and Biology of Scleractinian corals on the Heron Reef crest

137. Microbial Ecology of the Staghorn Coral (*Acropora*)

PERIOD: 1983, 1984 and 1985
PROJECT LEADER: Ms A. Duncan (Microbiology, La Trobe University)
SUPERVISOR: Prof J. Waid
GBRMPA OFFICERS: Dr W. Craik, Ms E. Eager
SUPPORT: GBRMPA Augmentative Research Grants — \$2 540

OBJECTIVES: To identify and characterise activities of microorganisms associated with coral. To evaluate the effect of perturbation on microorganisms e.g. nutrients, pollutants. To assess the viability of using *Desulfovibrio* as an indicator of coral stress.

MANAGEMENT IMPLICATIONS: Greater understanding of the possible effects of pollution and eutrophication from both catastrophic events and low level inputs should be gained.

METHODOLOGY: Field and laboratory experiments.

STATUS: Progress reports received. Field work continuing.

LOCALITY: Central Section — Magnetic Island
Cairns Section — Lizard Island Reef

138. Abundance, Schooling Behaviour, and Population Dynamics of Silversides (*Atherinidae*) and Sprats (*Clupeidae*)

PERIOD: 1983, 1984 and 1985

PROJECT LEADER: Ms P. Dupee (Zoology, University of Queensland)

SUPERVISOR: Dr K. Warburton

GBRMPA OFFICERS: Dr W. Craik, Ms E. Eager

SUPPORT: GBRMPA Augmentative Research Grants — \$1 660

OBJECTIVES: To quantify abundance and biomass of atherinids and clupeids. To evaluate their importance in the diet of predators and to calculate predation mortality. To study their population dynamics.

MANAGEMENT IMPLICATIONS: Silversides and sprats are primary prey species for many species of fish and seabirds. Understanding their ecology in greater detail is important.

METHODOLOGY: Field observation and sampling of populations.

STATUS: Progress reports received. Field work continued into 1985. Awaiting final report.

LOCALITY: Capricornia Section — One Tree Island lagoon

142. The Algal Bearing Ascidiens of the Great Barrier Reef

PERIOD: 1983 and 1984

PROJECT LEADER: Mr D. Parry (Chemistry, University of Queensland)

SUPERVISORS: Prof C. Hawkins, Dr P. Mather

GBRMPA OFFICERS: Dr W. Craik, Ms E. Eager

SUPPORT: GBRMPA Augmentative Research Grants — \$1 690

OBJECTIVES: To investigate the symbiotic relationship between algal cells and ascidian host. To establish a catalogue of algal bearing ascidiens at Heron Island Reef. To provide a chemotaxonomic method to assist identification. To investigate the ability of ascidiens to concentrate heavy metals and thereby act as indicators of pollution.

MANAGEMENT IMPLICATIONS: This project will provide information on oxygen levels on reef flats and on the ability of ascidiens to concentrate heavy metals and thereby act as indicators of pollution.

METHODOLOGY: Field observation and measurement, collection of samples for laboratory analyses.

STATUS: Awaiting final report.

LOCALITY: Capricornia Section — Heron Island Reef

143. An Investigation into the Relationship between Breeding and Feeding of Seabirds around Reef Environments

PERIOD: 1983 and 1985

PROJECT LEADER: Mr G. Smith (Australian Environmental Studies, Griffith University)

SUPERVISORS: Dr C. Catterall, Dr K. Hulsman

GBRMPA OFFICERS: Dr W. Craik, Ms E. Eager

SUPPORT: GBRMPA Augmentative Research Grants — \$1 900

OBJECTIVES: To test if food is a limiting resource to reproductive output and chick growth of tropical seabirds. To test if weather, tides, inter-specific competition and prey availability affect consumption.

MANAGEMENT IMPLICATIONS: The viability of seabirds may be affected by food supplies (overfishing), and/or pollution effects. This study should provide information for fish management decisions on boundaries related to management of bird populations.

METHODOLOGY: Field surveys, observation and experiments.

STATUS: Progress report received. Field work continuing.

LOCALITY: Cairns Section — Lizard Island area

146, 224. Evaluation of Biological and Economic Aspects of Coral Collecting in the Great Barrier Reef Region

PERIOD: June 1983 – August 1985

PROJECT LEADERS: Dr J. T. Baker, Assoc Prof

M. Pichon, Mr J. Oliver (Sir George Fisher

Centre for Tropical Marine Studies and

Department of Marine Biology, James Cook University)

GBRMPA OFFICERS: Dr W. Craik,

Mr P. McGinnity

SUPPORT: GBRMPA — \$82 230; \$887

(Sudbury Reef Coral Assessment)

OBJECTIVES: To investigate aspects of the biology of principal commercial coral species of the Great Barrier Reef from the view of management. To determine rates of production (supply) and collection to provide guidelines for harvesting and management.

MANAGEMENT IMPLICATIONS: Enforcement of the ban on Philippine exports was anticipated to create pressure on Australian corals. There is an urgent need for management guidelines e.g. best form of lease, quantities to be harvested, regrowth rates etc. to be determined.

METHODOLOGY: Field survey, observation and measurement; laboratory studies; survey of coral collectors. Associated assessment of coral cover on Sudbury Reef, a reef on which a large percentage of commercial coral collection occurs.

STATUS: Survey of coral collectors and field work completed. Final report anticipated.

LOCALITY: Great Barrier Reef Region

163, 225. Methods for the Re-establishment of Hard Corals in Denuded Reef Systems

PERIOD: August 1983 – June 1987

PROJECT LEADER: Dr V. Harriott (Sir George

Fisher Centre for Tropical Marine Studies and

Department of Marine Biology, James Cook University)

GBRMPA OFFICERS: Dr W. Craik, Dr L. Zann
SUPPORT: GBRMPA — \$9 940 (Phase I);
\$78 500 (Phase II)

OBJECTIVES: To compile, from available knowledge, a set of procedures for the re-establishment of hard corals on an area of reef where corals once flourished. To test these procedures and evaluate their effectiveness. To prepare a practical handbook.

MANAGEMENT IMPLICATIONS: This project should produce a handbook which will identify causes of reef deterioration likely to be encountered in recreationally and commercially important areas, and in particular which will outline methods for re-establishing coral communities in the different environments.

METHODOLOGY: Preparation, after appropriate research review and consultation, of a draft handbook (Phase I). Field experiments and observation to test methods proposed in handbook. Revision of handbook (Phase II).

STATUS: Phase I completed. Field testing phase commenced early 1985.

LOCALITY: Cairns Section

164. * Planktonic Dispersal of Larval Corals

165. Coral Reef Metabolism and Calcification

PERIOD: September 1983 – September 1985

PROJECT LEADERS: Assoc Prof M. Pichon, Dr J. Morrissey (Marine Biology, James Cook University)

GBRMPA OFFICER: Dr W. Craik

SUPPORT: GBRMPA — \$1 800; JCU Special Grant 1983 — \$2 000

OBJECTIVES: To obtain baseline data on coral reef metabolic and calcification rates to ascertain whether a coral reef contributes to the pool of organic matter in shallow water marine environments or whether it is a consumer of organic matter.

MANAGEMENT IMPLICATIONS: Organic production and rates of calcification are parameters which best provide accurate information on the state of health of a given reef and therefore are of direct relevance to the planning and management of the Marine Park.

METHODOLOGY: Field measurement and laboratory analysis of seawater samples.

STATUS: Awaiting final report.

LOCALITY: Central Section

166. Provision of Demographic Data and Recommendations for Management Guidelines for the Collection of Aquarium Fish in the Great Barrier Reef Marine Park

PERIOD: August 1983 – June 1986

PROJECT LEADER: Assoc Prof P. Sale (Biological Sciences, University of Sydney)

GBRMPA OFFICER: Dr W. Craik

SUPPORT: GBRMPA — \$41 302

OBJECTIVES: To collect demographic data on six species (including families Chaetodontidae, Pomacentridae and Labridae) to permit the development of size-age relationships useful for monitoring populations and to permit the as-

essment of turnover rate in the One Tree Island Reef populations. To investigate temporal variation in standing stock and rate of recruitment. To study social organisation, habitat requirements and mobility of adults of each species.

MANAGEMENT IMPLICATIONS: This project will provide firm demographic data on six representative species of interest to the aquarium trade. The techniques developed for determining such data will be available for subsequent application to other species.

METHODOLOGY: Field and laboratory studies; small manipulative field experiments.

STATUS: Field work continuing. Final report due June 1986.

LOCALITY: Capricornia Section — One Tree Island Reef

168. Reproductive Ecology of Eight Staghorn Coral (*Acropora*) Species

PERIOD: September 1983 – August 1985

PROJECT LEADER: Dr C. Wallace (Marine Biology, James Cook University/Bureau of Flora and Fauna)

GBRMPA OFFICER: Dr W. Craik

SUPPORT: GBRMPA — \$2 741

OBJECTIVES: To study the reproductive biology of eight species of staghorn coral.

MANAGEMENT IMPLICATIONS: This study will contribute information relevant to management of coral collecting, re-stocking damaged reefs and natural reef re-establishment after destructive events (e.g. *Acanthaster planci* predation).

METHODOLOGY: Laboratory examination of 500 reproductive specimens.

STATUS: Awaiting final report.

LOCALITY: Central Section

169. Monitoring Crown of Thorns Starfish

PERIOD: Ongoing since 1981

PROJECT LEADER: Mr P. McGinnity (GBRMPA)

GBRMPA OFFICER: Mr P. McGinnity

SUPPORT: GBRMPA staff and facilities

OBJECTIVES: To monitor the situation with regard to (i) the spread of crown of thorns starfish throughout the Great Barrier Reef Region; and (ii) the intensity of crown of thorns starfish predation of reefs throughout the Great Barrier Reef Region. To provide an historical database of (i) and (ii) above.

MANAGEMENT IMPLICATIONS: The reason for an apparent upsurge in crown of thorns starfish populations since the early 1960s is still not understood (i.e. man induced or natural). Therefore, the role of the Authority in monitoring the crown of thorns starfish will continue until reasons for population increases are established or populations decline into insignificance.

METHODOLOGY: Reef users are provided with crown of thorns sighting forms which they complete for individual reefs visited.

STATUS: Replies have been entered onto a computerised database which is updated regularly.

LOCALITY: Great Barrier Reef Region

173.* Analysis of Current Measurement in Lizard Island Area in Conjunction with Larval Fish Study

174. Juvenile Fish Nursery Areas: Pilot Study on By-catch of Trawlers

PERIOD: April 1984 – August 1984

PROJECT LEADER: Dr G. Goeden (Fisheries Research, Qld Department of Primary Industries)

GBRMPA OFFICER: Dr W. Craik

SUPPORT: GBRMPA — \$10 000

OBJECTIVES: To compare catch per unit effort of alleged juvenile fish nursery areas with catch per unit effort of similar non-nursery areas.

MANAGEMENT IMPLICATIONS: Public representations indicate a conflict of interest between commercial and amateur fishermen in this area. This study is designed to investigate the situation.

METHODOLOGY: Collection and analysis of trawled samples from alleged 'nursery' and 'non-nursery' areas.

STATUS: Report received.

LOCALITY: Cairns Section

177. Analysis of Fish Tagging Data

PERIOD: June 1984 – May 1985

PROJECT LEADER: Mr R. Giddins (consultant)

GBRMPA OFFICER: Ms E. Eager

SUPPORT: GBRMPA — \$2 750

OBJECTIVES: To analyse length-frequency data on reef fishes, information on breeding areas, and effects of fishing conditions on catch. To analyse the data using the ELEFAN programs for prediction of growth parameters.

MANAGEMENT IMPLICATIONS: More information on reef fish movements and growth will be useful for management particularly for interpreting the results of surveys investigating the effects of Replenishment Areas.

METHODOLOGY: Computer analysis of data records from fish tagging program using the Statistical Package for Social Sciences (SPSS) and ELEFAN programs developed by the International Centre for Living Aquatic Resource Management (ICLARM) in the Philippines.

STATUS: Analyses completed.

LOCALITY: Capricornia Section

180. Hereditary Structure and Genetic Exchange in Coral Populations

PERIOD: 1984 and 1985

PROJECT LEADERS: Mr A. Heyward, Mr R. Babcock (Marine Biology, James Cook University)

SUPERVISORS: Assoc Prof M. Pichon, Dr J. Collins

GBRMPA OFFICER: Ms E. Eager

SUPPORT: GBRMPA Augmentative Research Grants — 2 × \$900

OBJECTIVES: To determine the degree of larval dispersal between reefs by documenting genetic variation within populations and genotypic frequency variation between separate populations.

MANAGEMENT IMPLICATIONS: Information on the degree of larval exchange between reefs and on the relative importance of larval recruitment and recruitment by fragmentation should be gained. This information would allow evaluation of the effects of such influences as cyclones, trampling or *Acanthaster* predation, and the responses of populations to these events.

METHODOLOGY: Field sampling and laboratory analysis using electrophoresis.

STATUS: Analyses continuing (delay in obtaining chemicals).

LOCALITY: Central Section — Magnetic Island and Palm Islands

181. Detrital Fluxes of Carbon and Nitrogen on a Coral Reef

PERIOD: 1984 and 1985

PROJECT LEADER: Mr R. Johnstone (Biological Sciences, University of Sydney)

SUPERVISOR: Assoc Prof A. Larkum

GBRMPA OFFICER: Ms E. Eager

SUPPORT: GBRMPA Augmentative Research Grants — \$1 600

OBJECTIVES: To investigate factors determining bacterial distribution and examine aspects of bacterial metabolism related to carbon and nitrogen flow through coral sediments. (Comparisons to be made between healthy and stressed reefs.)

MANAGEMENT IMPLICATIONS: This study will increase understanding of the role of microbes in regenerating nutrients in coral reef systems with implications for management of human pollutants and wastes which often contain high levels of carbon and nitrogen and often collect as sediment.

METHODOLOGY: Field sampling and laboratory analysis of sediments.

STATUS: Progress report received. Field work continuing.

LOCALITY: Capricornia Section — One Tree Island Reef, Heron Island Reef

182. Functional Morphology and Nutrition of the Dugong in relation to its Seagrass Diet

PERIOD: 1984 and 1985

PROJECT LEADER: Ms J. Lanyon (Zoology, Monash University)

SUPERVISORS: Dr G. D. Sanson, Dr H. Marsh (James Cook University)

GBRMPA OFFICER: Ms E. Eager

SUPPORT: GBRMPA Augmentative Research Grants — \$1 750

OBJECTIVES: To investigate seagrasses at the community, morphological and ultra-structural levels in relation to the functional morphology of the dentition and digestive tract of the dugong.

MANAGEMENT IMPLICATIONS: A possible relationship between seagrass nutrient levels and availability and the timing of breeding and migratory movements may have implications for planning to protect areas of seagrass important for dugong conservation.

METHODOLOGY: Field observation and sampling, laboratory analyses.

STATUS: Progress report received. Field work continuing.

LOCALITY: Central Section

183.* Bibliographic Database of Coral Reef Molluscs

184.* Production of Planulae in *Pocillopora*, *Stylophora* or *Seriatopora*

185.* Metabolic Studies of the Crown of Thorns Starfish

199. Troll Fishery Study

PERIOD: July 1984 – June 1985

PROJECT LEADERS: Mr R. Pearson, Dr G. Goeden (Fisheries Research, Qld Department of Primary Industries)

GBRMPA OFFICER: Dr W. Craik

SUPPORT: GBRMPA — \$4 860

OBJECTIVES: To investigate pelagic versus non-pelagic fish catch by trolling at varying distances from reef edges.

MANAGEMENT IMPLICATIONS: This project has direct implications for zoning, particularly with respect to distances zones should extend from reef edges and the effectiveness of Marine National Park Buffer Zones.

METHODOLOGY: Field work on catch composition versus distance from reef edge, log books, and analysis of gut contents of species caught.

STATUS: Project underway.

LOCALITY: Cairns Section

200. Demersal Reef Fish Study

PERIOD: July 1984 – June 1985

PROJECT LEADERS: Mr R. Pearson, Dr G. Goeden (Fisheries Research, Qld Department of Primary Industries)

GBRMPA OFFICER: Dr W. Craik

SUPPORT: GBRMPA — \$16 100

OBJECTIVES: To produce size and growth curves of demersal reef fish using otolith dating.

MANAGEMENT IMPLICATIONS: Knowledge of life history of reef fish species is important for management.

METHODOLOGY: Microscopic examination of previously collected otoliths of at least four species of reef fish.

STATUS: Project underway.

LOCALITY: Great Barrier Reef Region

201. Giant Clam Study

PERIOD: July 1984 – September 1985

PROJECT LEADERS: Mr R. Pearson (Fisheries Research, Qld Department of Primary Industries)

Dr J. Munro (James Cook University and International Centre for Living Aquatic Resource Management)

GBRMPA OFFICER: Mr I. Dutton

SUPPORT: GBRMPA — \$9 900

OBJECTIVES: To establish population parameters (growth, recruitment and natural mortality) for the giant clams *Tridacna gigas* and *Tridacna derasa*.

MANAGEMENT IMPLICATIONS: Information will be gained on population biology and life cycle of these species which have been illegally harvested on the Great Barrier Reef and are now the subject of commercial interest.

METHODOLOGY: Field survey and measurement of clams within a permanently marked grid on Michaelmas Cay Reef.

STATUS: Field work complete. Report being prepared.

LOCALITY: Cairns Section

202. Red Spot King Prawn By-Catch Study

PERIOD: July 1984 – December 1986

PROJECT LEADERS: Mr R. Pearson, Mr C. Jones (Fisheries Research, Qld Department of Primary Industries)

GBRMPA OFFICER: Dr L. Zann

SUPPORT: GBRMPA — \$77 000;

Qld Department of Primary Industries: Fishing Industry Research Trust Account — \$90 450 (for associated biology and fishery study)

OBJECTIVES: To investigate the by-catch component of the emerging red spot prawn (*Penaeus longistylus*) fishery.

MANAGEMENT IMPLICATIONS: Knowledge of the ecological impact of the fishery in terms of both target and non-target species is important for management.

METHODOLOGY: Regular trawls and recording details of by-catch.

STATUS: Project underway.

LOCALITY: Central Section

203. Evaluation of Biology, Distribution and Abundance of Dugong in the Great Barrier Reef for Management: Pilot Study

PERIOD: November 1984 – June 1985

PROJECT LEADER: Dr H. Marsh (Zoology, James Cook University)

GBRMPA OFFICERS: Dr W. Craik,

Ms C. Baldwin

SUPPORT: GBRMPA — \$47 257

OBJECTIVES: To undertake and develop aerial surveillance and other programs for monitoring dugong and other large marine animals, to collect data on biology of dugong and advise on management related to dugong.

MANAGEMENT IMPLICATIONS: Dugong are an endangered species subject to harvest, and evaluation of populations for management is required.

METHODOLOGY: Charter and Coastwatch aerial surveillance including controlled experiments, collection of dugong specimens, analysis of data.

STATUS: Progress reports received.
LOCALITY: Far Northern Section, Cairns
Section

204. Manta Tow Handbook

PERIOD: March 1985 – May 1985
PROJECT LEADER: Mr G. Bull (consultant)
GBRMPA OFFICER: Ms S. Driml
SUPPORT: GBRMPA — \$3 000

OBJECTIVES: To prepare a manuscript for a handbook outlining the manta tow survey technique.

MANAGEMENT IMPLICATIONS: The handbook will be of use in training and in field surveys where it will assist standardisation of methods.

METHODOLOGY: Preparation of a manuscript, review by experts in the technique and field trial of the draft handbook.

STATUS: Manuscript complete. Publication proposed for 1985-86.

LOCALITY: Great Barrier Reef Region

205, 206, 207. Crown of Thorns Starfish Monitoring and Experimental Control Studies (3 projects)

PERIOD: July 1984 – June 1985
PROJECT LEADERS: Royal Australian Navy.
Mr P. McGinnity, Mr K. McClymont (GBRMPA)
GBRMPA OFFICER: Ms S. Driml
SUPPORT: GBRMPA \$15 947

OBJECTIVES: To monitor crown of thorns starfish populations on selected reefs. To test effectiveness of hand collection of starfish at Beaver Reef.

MANAGEMENT IMPLICATIONS: The reason for an apparent upsurge in crown of thorns populations since the early 1960s is still not understood (i.e. man induced or natural). The role of the Authority in monitoring the crown of thorns starfish will therefore continue until reasons for population increases are established or populations decline into insignificance.

METHODOLOGY: Surveys using manta tow technique: (i) in the Central Section in conjunction with the Royal Australian Navy; (ii) in the Swain Reefs area; (iii) in the Cormorant Pass Section; and (iv) at Beaver Reef along with hand collection of starfish.

STATUS: Surveys complete and data entered onto the GBRMPA database.

LOCALITY: Great Barrier Reef Region

208. Coral Trout, Coral and Crown of Thorns Starfish Survey in the Central Section

PERIOD: November 1984 – March 1985
PROJECT LEADERS: Drs A. M. and A. L. Ayling (Sea Research)
GBRMPA OFFICER: Ms S. Driml
SUPPORT: GBRMPA — \$48 800

OBJECTIVES: To survey coral trout, coral and crown of thorns starfish in the Central Section of the Marine Park.

MANAGEMENT IMPLICATIONS: This project will provide reference data on the Central Section relevant to zoning and management. The survey will also provide a comparative basis for future monitoring.

METHODOLOGY: Counts of coral trout (*Plectropomus* species) and *Acanthaster planci* at 44 reefs using ten 50m × 20m transects per reef. Survey of coral using the manta tow technique.

STATUS: Report received.

LOCALITY: Central Section

209. Reef Monitoring Methodology for Crown of Thorns Starfish

PERIOD: March 1985 – March 1986
PROJECT LEADER: Dr R. Bradbury (Australian Institute of Marine Science)
GBRMPA OFFICER: Dr W. Craik
SUPPORT: GBRMPA — \$24 000

OBJECTIVES: To provide the salary of a team leader working with the major survey of crown of thorns starfish sponsored by the Commonwealth Employment Program (CEP). To support the transfer of consistent techniques to Q.NPWS Marine Parks staff at the completion of the CEP project.

MANAGEMENT IMPLICATIONS: This collaboration allows development and transfer of consistent Great Barrier Reef monitoring techniques.

METHODOLOGY: Field survey using standard technique developed for this study.

STATUS: Project underway.

LOCALITY: Great Barrier Reef Region

210. Role of *Acanthaster planci* in Reef Degradational Processes: Historical Perspective and Current Influence

PERIOD: June – August 1985
PROJECT LEADER: Dr R. Henderson (Geology, James Cook University)
GBRMPA OFFICER: Dr L. Zann
SUPPORT: GBRMPA — \$3 900

OBJECTIVES: To elucidate the prehistory of *Acanthaster planci* in the Great Barrier Reef Region and to determine the rates and processes of reef degradation which follow destruction of hard coral communities.

MANAGEMENT IMPLICATIONS: Rigorous establishment of the prehistory of *A. planci* in the Great Barrier Reef Region will show whether *A. planci* infestations are a contemporary aberration or part of a long-term ecological pattern. Management strategies with respect to *A. planci* must take account of this temporal perspective.

METHODOLOGY: Field survey and collection of sediment and core samples for examination and C¹⁴ dating.

STATUS: Project commenced.

LOCALITY: Central Section

211. Pathology of Crown of Thorns Starfish

PERIOD: April 1985 – December 1985

PROJECT LEADERS: Dr D. C. Sutton,
Dr. J. Lucas (Marine Biology, James Cook
University)
GBRMPA OFFICER: Dr L. Zann
SUPPORT: GBRMPA — \$2 024

OBJECTIVES: To isolate bacteria associated
with a disease affecting *Acanthaster planci* in
Fiji. To characterise potentially pathogenic bac-
teria at the Centre for Tropical Marine Studies,
James Cook University and test for ability to
cause disease in *in vitro* cell cultures of *A.*
planci from the Great Barrier Reef Region.

MANAGEMENT IMPLICATIONS: This is a
unique opportunity to obtain microorganisms
pathogenic to *A. planci*. In addition to contri-
bution to general understanding of the biology
and ecology of *A. planci*, the occurrence of dis-
ease has implications for the development of
control methods and strategies.

METHODOLOGY: Field collection of diseased
and healthy specimens of *A. planci* from Suva
barrier reef. Laboratory isolation of bacteria,
purification and pathogenicity testing.

STATUS: Collection completed. Testing in pro-
gress.

LOCALITY: Fiji Islands and Great Barrier Reef
Region

212. Recensus of Reef Fish at Sumilon Reef, Central Philippines

PERIOD: May 1985 – March 1986
PROJECT LEADER: Dr G. Russ (Australian
Institute of Marine Science)
GBRMPA OFFICER: Dr W. Craik
SUPPORT: GBRMPA — \$500

OBJECTIVES: To recensus reef fish at Sumilon
Reef, to determine current status of fish popu-
lation. (A previously closed area of this reef was
re-opened to fishing in late 1984.)

MANAGEMENT IMPLICATIONS: Replenish-
ment Area concept in GBRMPA zoning plans is
based on closing reefs to fishing to build up fish
stocks and subsequently re-opening them to
fishing. Sumilon survey should indicate effect
of re-opening reef to fishing.

METHODOLOGY: Visual census of reef fish;
evaluation of fish catch data.

STATUS: Project underway.

LOCALITY: Sumilon Reef, Central Philippines

213. The Role of Crustose Coralline Algae in Coral Reef Ecosystems

PERIOD: 1985
PROJECT LEADER: Mr J. Chisolm (Botany,
James Cook University)
SUPERVISORS: Dr I. Price (Botany, James Cook
University)
Dr B. Chalker (Australian Institute of Marine
Science)
GBRMPA OFFICER: Ms E. Eager
SUPPORT: GBRMPA Augmentative Research
Grant — \$1 000

OBJECTIVES: To establish models for photosyn-
thesis and calcification in selected species of
crustose coralline algae. To use models to esti-
mate productivity and calcification in specific
assemblages of these reef-building algae.

MANAGEMENT IMPLICATIONS: Crustose cor-
alline algae are important reef builders and pri-
mary producers. Greater knowledge of their
contribution is important for reef management.

METHODOLOGY: Field survey and measure-
ment.

STATUS: Project commenced in 1984. Field
testing model using oxygen and pH electrodes.

LOCALITY: Cairns Section — Lizard Island Reef

214. Analysis of Mollusc Benthic Community Structure in Capricornia Group Coral Reef Lagoon Sediments

PERIOD: 1985
PROJECT LEADER: Mr B. Long (Zoology,
University of Queensland)
SUPERVISOR: Dr T. Hailstone
GBRMPA OFFICER: Ms E. Eager
SUPPORT: GBRMPA Augmentative Research
Grant — \$900

OBJECTIVES: To investigate the degree of varia-
bility of mollusc abundance in the Heron Reef
lagoon and possible causal factors.

MANAGEMENT IMPLICATIONS: Greater
knowledge of the spatial and temporal varia-
bility of mollusc species will be useful for devel-
opment of monitoring programs and review of
zoning arrangements.

METHODOLOGY: Field survey, sampling and
experiment.

STATUS: Project underway. Exploratory samp-
ling in Heron Reef lagoon has been conducted.

LOCALITY: Capricornia Section — Heron and
Wistari Reefs, One Tree Island Reef

215. Sexual or Asexual Reproduction: An Electrophoretic Examination of the Brood Planulae of Scleractinian Corals

PERIOD: 1985
PROJECT LEADER: Ms J. Resing (Zoology,
Duke University, USA; Reef Ecology, Australian
Institute of Marine Science)
SUPERVISORS: Dr B. Nicklas (Duke University)
Dr R. Bradbury (Australian Institute of Marine
Science)
GBRMPA OFFICER: Ms E. Eager
SUPPORT: GBRMPA Augmentative Research
Grant — \$1 000

OBJECTIVES: To determine the mode of repro-
duction of species of scleractinian coral which
produce brooded planulae on the Great Barrier
Reef. To study substratum selection by the
planulae.

MANAGEMENT IMPLICATIONS: Coral species
which form a large part of the reef community
and some commercially collected species are
included in the ten known to brood planulae.
An understanding of life history strategies of
individual species will allow more accurate
predictions to be made about the reef system.

METHODOLOGY: Field sampling, laboratory
observation and electrophoretic examination
of planulae. Field and laboratory settling exper-
iments.

STATUS: Preliminary field trip made. Main field work to be undertaken December 1985.
LOCALITY: Cairns Section — Lizard Island Reef

216. Movements and Behaviour of Coral Trout at Heron Island

PERIOD: 1985
PROJECT LEADER: Ms M. Samoilys (Zoology, University of Queensland)
SUPERVISORS: Dr T. Hailstone, Dr K. Warburton (Zoology, University of Queensland)
GBRMPA OFFICER: Ms E. Eager
SUPPORT: GBRMPA Augmentative Research Grant — \$1 000

OBJECTIVES: To investigate the occurrence and constancy of assemblages of coral trout and their variability in time and space.

MANAGEMENT IMPLICATIONS: Detailed knowledge of the spatial distribution and movements of coral trout can be used to suggest practices for local management of the stock of one of the most commercially important fish of the Great Barrier Reef.

METHODOLOGY: Field survey and observation of tagged fish (freeze branding to be tested).

STATUS: Field work in progress.

LOCALITY: Capricornia Section — Heron Island Reef

ANALYSIS OF USE

95. Man-made Noise in the Ocean

PERIOD: January 1981 – December 1984
PROJECT LEADER: Dr G. H. Allen (Electrical and Electronic Engineering, James Cook University)
GBRMPA OFFICERS: Mr R. Kenchington, Ms S. Driml
SUPPORT: GBRMPA — \$3 000

OBJECTIVES: To measure the noise spectra of vessels and relate ship noise to ambient levels in the sea at various frequencies. This is a pilot project.

MANAGEMENT IMPLICATIONS: This study may enable the specification of a passive surveillance network to: (a) record use of areas of the Marine Park; (b) test the effectiveness of zoning plans; and (c) direct officers of management agencies to areas of high level use.

METHODOLOGY: Pressure sensitive detectors are fitted to a portable spectral analyser system carried in a small craft. This will measure ambient sea noise and boat noises between the mainland and the Great Barrier Reef.

STATUS: Final report received. Awaiting acceptance.

LOCALITY: Central Section

103.* History of Crown of Thorns Starfish Incidence on the Great Barrier Reef

147, 226. Compilation and Publication of Fisheries Economics of the Great Barrier Reef

PERIOD: April 1983 – July 1985

PROJECT LEADER: Mr T. Hundloe (Institute of Applied Social Research, Griffith University)
GBRMPA OFFICERS: Ms S. Driml, Ms T. Howarth
SUPPORT: GBRMPA — \$5 000; \$15 000 (publication)

OBJECTIVES: To compile and publish information on fisheries economics collected by the Institute of Applied Social Research.

MANAGEMENT IMPLICATIONS: Information on fisheries economics is required to aid zoning decisions and monitor the economic impact of zoning and management of Marine Parks.

METHODOLOGY: Preparation of manuscript from data previously collected by consultant; publication.

STATUS: Report has been published as a book in the Special Publications Series.

LOCALITY: Great Barrier Reef Region

186. Traditional uses of Marine Resources by Aboriginal Communities on the East Coast of Cape York Peninsula: Stage 1

PERIOD: December 1983 – June 1985
PROJECT LEADER: Mr A. Smith (Sir George Fisher Centre for Tropical Marine Studies, James Cook University)

SUPERVISORS: Dr J. T. Baker, Dr H. Marsh, Dr J. Taylor (Sir George Fisher Centre for Tropical Marine Studies, Department of Marine Biology, and Department of Behavioural Sciences, James Cook University)
GBRMPA OFFICERS: Ms C. Baldwin, Ms S. Driml
SUPPORT: GBRMPA — \$47 600

OBJECTIVES: To document the current and traditional hunting and fishing practices of the Hope Vale Aboriginal Community. To acquire indigenous knowledge of the biology and behaviour of tropical marine food resources. To utilise this information in the development of a management program for Aboriginal use of marine resources within the Great Barrier Reef Marine Park.

MANAGEMENT IMPLICATIONS: The presence of a sizeable population of dugong north of Cape Flattery was the reason for the 'Scientific Research' zoning of an area traditionally hunted by Hope Vale residents. The co-operation of these people in the management of the dugong population is essential. Knowledge of other marine resources could contribute to Marine Park planning and management.

METHODOLOGY: Field work for 15 months in the Hope Vale Community involving personal observation, participation and interview.

STATUS: Report received for Stage 1.

LOCALITY: Cairns Section — Hope Vale

187.* Application of Recreational Opportunity Spectrum Concepts to Marine Park Planning

188, 227. User Survey, Capricornia Section: Stages 1 and 2

PERIOD: June 1984 – December 1985

PROJECT LEADER: Dr D. Pitts (Environment, Science and Services)

GBRMPA OFFICER: Ms S. Driml

SUPPORT: GBRMPA — \$10 290 (Stage 1); \$30 000 (Stage 2)

OBJECTIVES: To design and conduct a survey of users of the Capricornia Section of the Great Barrier Reef Marine Park to ascertain perceptions and impacts of Marine Park planning and management.

MANAGEMENT IMPLICATIONS: This project will provide an evaluation of planning and management for input into the review of the Capricornia Section Zoning Plan.

METHODOLOGY: Design survey and select sample frame for all user groups, undertake pilot survey, review, and conduct survey.

STATUS: Report for Stage 1 received. Stage 2 commenced.

LOCALITY: Capricornia Section

189, 228. Survey of Charter Boats, Great Barrier Reef Region: Stages 1 and 2

PERIOD: June 1984 – August 1985

PROJECT LEADER: Mr T. Hundloe (Institute of Applied Social Research, Griffith University)

GBRMPA OFFICER: Ms S. Driml

SUPPORT: GBRMPA — \$14 980 (Stage 1); \$22 000 (Stage 2)

OBJECTIVES: To design and conduct a survey of Charter Boats operating in the Great Barrier Reef Region to investigate activity patterns, fish catch and economic characteristics. (Stage 1 was limited to the Central Section).

MANAGEMENT IMPLICATIONS: An updating of information on charter boats in the Great Barrier Reef Region is necessary for monitoring use trends. The specific information to be gathered will be used in zoning and in operating the permit system.

METHODOLOGY: Questionnaire developed in conjunction with GBRMPA staff; surveys by personal interview of charter boat operators.

STATUS: Stage 1 completed.

Project continuing.

LOCALITY: Great Barrier Reef Region

190. Application of Recreational Opportunity Spectrum to a Marine Park

PERIOD: 1984

PROJECT LEADER: Ms K. Means (Australian Environmental Studies, Griffith University)

SUPERVISORS: Mr T. Hundloe, Dr R. Rickson (Australian Environmental Studies, Griffith University)

GBRMPA OFFICER: Ms E. Eager

SUPPORT: GBRMPA Augmentative Research Grant — \$800

OBJECTIVES: To establish whether a marine park composed of heterogeneous units can be treated as one recreational resource amenable to Recreational Opportunity Spectrum classification.

MANAGEMENT IMPLICATIONS: Investigation of the demands for a range of recreational opportunities and available suitable sites is useful input into planning.

METHODOLOGY: Personal interviews of campers on islands in the Capricornia Section.

STATUS: Awaiting final report.

LOCALITY: Capricornia Section

MANAGEMENT STRATEGIES

217. Reef Walking Capability Assessment

PERIOD: July 1984 – May 1985

PROJECT LEADERS: Dr A. Kay, Dr M. Liddle (Australian Environmental Studies, Griffith University)

GBRMPA OFFICER: Mr I. Dutton

SUPPORT: GBRMPA — \$5 000

OBJECTIVES: To develop assessment techniques for evaluating the impact of reef walking and determine the capability of reef areas for walking activities and produce a field manual.

MANAGEMENT IMPLICATIONS: Reef walking currently has impacts on small, accessible areas of reef and may need to be regulated.

METHODOLOGY: Preparation of practical handbook based on previous field studies on Heron Island and Hardy Reefs.

STATUS: Report received.

LOCALITY: Great Barrier Reef Region

218. Shipping Risk Analysis

PERIOD: July 1984 – June 1985

PROJECT LEADERS: Prof K. Stark, Dr M. K. James (Civil and Systems Engineering, James Cook University)

Mr T. Jenssen (Det Norske Veritas)

GBRMPA OFFICER: Mr I. Dutton

SUPPORT: GBRMPA — \$7 000; JCU Special Grant; Det Norske Veritas

OBJECTIVES: To develop an approach to risk assessment in relation to shipping accidents in the Great Barrier Reef Region such as ship collisions or groundings.

MANAGEMENT IMPLICATIONS: Areas of greatest potential risks should be identified.

METHODOLOGY: Computer modelling and simulation of risks.

STATUS: Report received.

LOCALITY: Great Barrier Reef Region

219. Workshop on Response to Hazardous Chemical Spills

PERIOD: August 1984

PROJECT LEADER: Dr A. Gilmour (GBRMPA)

GBRMPA OFFICER: Dr W. Craik

SUPPORT: GBRMPA — \$4 300

OBJECTIVES: To consider necessity, feasibility and parameters of a scientific response team in the event of a spill of a hazardous chemical in the Great Barrier Reef Region.

MANAGEMENT IMPLICATIONS: This project should improve capability of making a rapid response in emergency situations.

METHODOLOGY: One day workshop involving invited experts.

STATUS: A report of proceedings anticipated for publication in late 1985.

LOCALITY: Great Barrier Reef Region

220. Assessment of Impacts Associated with the Construction of Navigation Aids

PERIOD: September 1984 – November 1984

PROJECT LEADER: Dr A. Ayling (Sea Research)

GBRMPA OFFICER: Mr I. Dutton

SUPPORT: GBRMPA — \$4 300

OBJECTIVES: To survey and identify the physical and biological impacts caused by construction of navigation facilities.

MANAGEMENT IMPLICATIONS: This project will provide a basis for determining longer term impacts and for assessing effects of similar projects.

METHODOLOGY: Resource surveys using standardised transect techniques.

STATUS: Project complete.

LOCALITY: Central Section — Hydrographers Passage

221. Guidelines and Methodologies for Environmental Assessment of Offshore Development

PERIOD: February 1985 – August 1985

PROJECT LEADERS: Mr P. Roe (Cameron McNamara Pty. Ltd.)

Dr P. Saenger (Coastal Ecosystems)

GBRMPA OFFICER: Mr I. Dutton

SUPPORT: GBRMPA — \$41 000

OBJECTIVES: To determine the potential environmental effects of offshore developments, develop guidelines for Environmental Impact Assessment (EIA), monitoring and management recommendations.

MANAGEMENT IMPLICATIONS: This study should assist GBRMPA in the administration and evaluation of applications to construct and/or operate offshore developments in the Great Barrier Reef Region.

METHODOLOGY: Desk-top study, with limited field assessment of in-situ structures and operations. Review legislation and administrative measures for EIA. Review and determine potential environmental impacts associated with the range of offshore developments and proposals within the Great Barrier Reef Region.

STATUS: Project underway.

LOCALITY: Great Barrier Reef Region

222. Monitoring of the Lady Musgrave Island Reef following Stranding of Vessel TNT Alltrans

PERIOD: April 1985

PROJECT LEADERS: Dr J. Davie (Q.NPWS)

Dr A. Ayling (Sea Research)

Dr L. Zann (GBRMPA)

GBRMPA OFFICER: Dr L. Zann

SUPPORT: GBRMPA — \$2 030

OBJECTIVES: To assess damage resulting from stranding of bulk ore carrier TNT **Alltrans** (25

March 1985) and salvage attempts. To monitor recovery of affected areas.

MANAGEMENT IMPLICATIONS: This study will establish extent of damage to reef and develop suitable monitoring protocols and action plans.

METHODOLOGY: Underwater mapping and photography; line transect recording of benthos and fish.

STATUS: Initial survey April 1985. Monitoring ongoing.

LOCALITY: Capricornia Section — Lady Musgrave Island Reef

GREAT BARRIER REEF DATABASES

191. Collaborative Reef Geographic Information System (CORGIS) based upon Extensions of the Relational Database Model

PERIOD: December 1983 – June 1986

PROJECT LEADER: Dr D. Abel (CSIRO, Division of Computing Research)

GBRMPA OFFICERS: Mr W. Wallace,

Dr W. Craik

SUPPORT: GBRMPA — \$29 000; CSIRO,

MSTGS — \$21 000

OBJECTIVES: To provide a Geographic Information System (GIS) design and associated display system to tie data and graphics together to form an effective computer-assisted design tool.

MANAGEMENT IMPLICATIONS: The system will provide a base for storing and retrieving data for planning and management uses.

METHODOLOGY: Definition of cellular and polygonal representations; definition of GIS interfaces to a formatted relational database management system and graphic devices; implementation of basic operations on entities held in cellular representations; implementation of a GIS with treatment of spatial and attribute items separated.

STATUS: Project continuing.

LOCALITY: Great Barrier Reef Region

MECHANICS OF INFORMATION TRANSFER

17. Australian Marine Research in Progress

PERIOD: July 1984 – April 1985

PROJECT LEADERS: Australian Institute of Marine Science,
Great Barrier Reef Marine Park Authority,
Victorian Institute of Marine Sciences,
Central Information Library and Editorial
Section (CSIRO)

GBRMPA OFFICER: Dr W. Craik

SUPPORT: GBRMPA — \$8 860

OBJECTIVES: To continue collection of information for and to publish a Great Barrier Reef Region version of Australian Marine Research in Progress (AMRIP), a computer stored system of information on marine research projects in Australia.

MANAGEMENT IMPLICATIONS: This project is designed to produce a current summary of on-going research in the Great Barrier Reef

Region (and elsewhere), which is readily accessible and readily updated.

METHODOLOGY: National distribution of questionnaires on Research in Progress for gathering information for editing and classification, data entry and printing. Development of an interactive system proposed.

STATUS: A hard copy of AMRIP for the Great Barrier Reef Region published. Data collected for an Australia-wide AMRIP.

118. Aquatic Science Research Electronic Bulletin

PERIOD: May 1982 – June 1985

PROJECT LEADER: Dr D. Abel (CSIRO, Division of Computing Research)

GBRMPA OFFICER: Ms S. Driml

SUPPORT: GBRMPA — \$8 750

OBJECTIVES: To produce an on-line, interactive bulletin of research-related information. This is a pilot study.

MANAGEMENT IMPLICATIONS: This project should eventually result in a readily accessible up-to-date source of information being available on all research activities relating to the Great Barrier Reef Region and other areas of Australia.

METHODOLOGY: Development of specifications for the bulletin and preparation of

software to produce the bulletin. Survey of potential users to evaluate potential use before implementation.

STATUS: Pilot testing of the system completed. Development of the system is being evaluated.

223. Study of Participation in the Cairns Section Public Participation Program

PERIOD: June 1985 – December 1985

PROJECT LEADER: Mr P. Jenner (Geography, James Cook University)

GBRMPA OFFICER: Ms S. Driml

SUPPORT: GBRMPA — \$1 072

OBJECTIVES: To analyse characteristics of individuals and groups who participated in the Cairns Section Public Participation Program and reasons for participation. To analyse whether the participants differ from the Cairns population in general.

MANAGEMENT IMPLICATIONS: This project should provide insight into the impact of public participation programs and indicate areas for improvement if necessary.

METHODOLOGY: Data collection by mail questionnaire and personal interview of representative sample of Cairns population.

STATUS: Project underway.

LOCALITY: Cairns Section

APPENDIX D

1984-85 CONFERENCES ATTENDED BY AUTHORITY STAFF

| DATE | CONFERENCE DETAILS | ATTENDEE |
|-----------------------------|--|--------------------------------|
| 1984 | | |
| 17-20 August | Annual Conference, Australian Society for Fish Biology. Glenelg, S.A. | Dr W. Craik |
| 25-27 August | Landscape Architecture and the Nation Estate. Australian Institute of Landscape Architects. Brisbane. | Mr R. Kenchington |
| 30-31 August | Queensland Leisure Seminar. (Leisure and Recreation Management Planning). Brisbane. | Mr R. Kenchington |
| 3-7 September | National Plan to Combat Pollution of the Sea by Oil Workshop. Dept Transport. Townsville. | Mr I. Dutton |
| 13-14 September | Conservation and the Economy (Environmental Economics). Dept Arts, Heritage and Environment. Sydney. | Mr G. Kelleher Ms S. Driml |
| 20 September- 11 October | Regional Seminar on National Parks and Wildlife Management. Alice Springs & other venues including Green Island. | Mr B. Grady |
| 1-5 October | Remote Sensing of the Environment. The Environment Research Institute at Michigan (ERIM). Paris, France. | Mr D. van Claasen |
| 16-18 October | Panel on Coastal Systems (COMAR). UNESCO. Roscoff, France. | Mr R. Kenchington |
| 21-26 October | Royal Australian Institute of Parks and Recreation Conference. Launceston. | Mr I. Dutton |
| 22-26 October | 2nd National Prawn Seminar. (Prawn biological research modelling, commercial fishing, management). Kooralbyn (via Brisbane). | Dr W. Craik |
| 26-28 October | Workshop on Current Topics in Ecology of Coral Reef Fishes. Australian Institute of Marine Science (AIMS). Townsville. | Mr J. Gillies |
| 3-4 November | Annual Scientific Meeting Australian Coral Reef Society (ACRS). Brisbane. | Dr W. Craik Mr P. McGinnity |

| | | |
|----------------|---|--|
| 4-9 November | 11th Australian Computer Conference. Australian Computer Society. Sydney. | Mr W. Wallace |
| 1-2 December | Developments in Marine Education. Victorian Institute of Marine Science (VIMS). Queenscliff, Victoria. | Mr K. Peterson |
| 1985 | | |
| 11-14 February | Research on Torres Strait Fisheries and Related Matters. Port Moresby. P.N.G. | Dr W. Craik |
| 12-14 February | Annual Conference of Australian Agricultural Economics Society (AAES). Armidale, NSW. | Mrs E. Eager |
| 14-16 February | South Pacific Tourism Training. Hamilton Island, Australia. | Mr R. Kenchington |
| 15-21 February | 2nd CONCOM Technical Workshop on Marine and Estuarine Protected Areas. Jervis Bay, ACT. | Mr S. Woodley |
| 14-15 March | Science & Development in South-East Asia. Townsville. | Dr W. Craik |
| 15-19 April | Shallow Water Mapping. Port Moresby, P.N.G. | Mr D. van Claasen |
| 21-23 April | Queensland Tourist Industry Seminar (QTTC). Cairns. | Mr K. Peterson |
| 6-7 May | A Seminar & Workshops on Educating for the Environment. Canberra. | Mr G. Kelleher Mr R. Neale |
| 19-24 May | Mangrove Symposium. Australian Institute of Marine Science (AIMS). Townsville. | Dr L. Zann |
| 21-23 May | Science Oil Spill Modelling. Dept Arts, Heritage and Environment. Canberra. | Mr I. Dutton |
| 27 May-1 June | 5th International Coral Reef Congress (Reef and Man). International Association for Biological Oceanography. Tahiti. | Mr G. Kelleher Dr W. Craik Mr S. Woodley |

APPENDIX E

FINANCIAL STATEMENTS

GREAT BARRIER REEF MARINE PARK AUTHORITY STATEMENT OF RECEIPTS
AND PAYMENTS FOR THE PERIOD 1 JULY 1984 TO 30 JUNE 1985

| | Notes | 1984-85 \$ | 1983-84 \$ |
|--|-----------|------------------|---------------|
| Cash at bank and on hand 1 July | | 597 036 | 290 941 |
| RECEIPTS | | | |
| Appropriation from the Commonwealth Government | (2) | 4 379 000 | 4 139 000 |
| Day-to-day Management — Queensland Government contribution | (2) | 624 500 | 301 137 |
| Sale of promotional material | | 14 765 | 3 705 |
| Other receipts | | 25 113 | 15 035 |
| | | 5 640 414 | 4 749 818 |
| PAYMENTS | | | |
| <i>Operational</i> | | | |
| Expenses of Chairman and Members | (3) | 152 501 | 112 787 |
| Expenses of Great Barrier Reef Consultative Committee | (4) | 19 925 | 24 508 |
| Salaries and allowances | | 1 676 739 | 1 408 646 |
| Administrative expenses | | | |
| — Travel and subsistence | | 198 737 | 163 825 |
| — Office requisites | | 34 137 | 31 358 |
| — Postage and telephones | | 157 140 | 136 459 |
| — Office services | | 190 691 | 159 845 |
| — Computer services | | 145 495 | 49 155 |
| — Library services | | 21 631 | 24 679 |
| — Advertising | | 25 616 | 28 449 |
| — Recruitment expenses | | 50 862 | 91 364 |
| — Operating costs — equipment | | 30 539 | 37 820 |
| — Incidentals | | 26 465 | 35 471 |
| Research and Monitoring | (5) | 486 536 | 416 437 |
| Planning | (5) | 73 177 | 100 761 |
| Education and Information | (5) | 191 969 | 168 435 |
| Park Management | (5) | 21 683 | 9 574 |
| Day-to-day management | | | |
| — Capricornia Section | (2), (11) | 724 000 | 472 026 |
| — Cairns/Cormorant Pass Sections | (2), (11) | 440 000 | 99 000 |
| — Far Northern Section | (2), (11) | 36 500 | — |
| — Central Section | (2), (11) | 10 000 | — |
| — Capricorn Section | (2), (11) | 8 500 | — |
| | | 4 722 843 | 3 570 599 |

| | | | |
|---|-----|------------------|-----------|
| <i>Capital</i> | | | |
| Computer and word processing equipment | | 230 253 | 30 700 |
| Furniture, fittings and display equipment | (6) | 50 743 | 77 454 |
| Office machines | | 15 345 | 22 488 |
| Audiovisual and photographic equipment | | 30 454 | 38 626 |
| Marine and diving equipment | | 80 671 | 90 168 |
| Scientific and technical equipment | | 33 260 | 26 614 |
| Land and buildings | (7) | 142 000 | 234 867 |
| Vehicles and mobile plant | | 69 639 | 55 511 |
| Other plant and equipment | | 19 604 | 5 755 |
| | (9) | 671 969 | 582 183 |
| Cash at bank and on hand 30 June | | 245 602 | 597 036 |
| | | 5 640 414 | 4 749 818 |

STATEMENT OF CAPITAL ASSETS (AT COST) AS AT 30 JUNE 1985

| | Notes | 1984-85 | 1983-84 |
|---|------------------------|------------------|---------|
| | | \$ | \$ |
| Computer and word processing equipment | | 438 810 | 193 038 |
| Furniture, fittings and display equipment | | 170 395 | 251 598 |
| Office machines | | 71 393 | 67 912 |
| Audiovisual and photographic equipment | | 60 031 | 78 170 |
| Marine and diving equipment | | 141 128 | 111 938 |
| Scientific and technical equipment | | 64 120 | 28 706 |
| Land and buildings | | — | 13 000 |
| Vehicles and mobile plant | | 117 024 | 73 404 |
| Other plant and equipment | | 18 490 | 15 035 |
| | (7), (8), (9), (10) | 1 081 391 | 832 801 |

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 30 JUNE 1985

NOTE (1) Accounts are kept on a cash basis. The Authority's financial statements for 1985-86 are to be modified to comply with the Form and Standard of Financial Statements of Commonwealth Undertakings.

NOTE (2)

Day-to-day Management

The foregoing Statement of Receipts and Payments and Statement of Capital Assets were prepared on the basis of the draft agreement between the Commonwealth and Queensland Governments for day-to-day management and control and ownership of assets.

In December 1983 the Authority decided to establish interim management of non-zoned sections of the Great Barrier Reef Marine Park and to apply current arrangements as far as practicable. The non-zoned sections to which interim management applied in 1984-85 were Far Northern, Central and Capricorn.

Principles agreed between the Commonwealth and Queensland Governments relating to the day-to-day management of the Great Barrier Reef Marine Park provide for:

- the Queensland National Parks and Wildlife Service to carry out the day-to-day management of the Great Barrier Reef Marine Park, subject to the Authority
- the Commonwealth to fund 100% of an initial capital works program (in the first three years or so) required to establish management of the Great Barrier Reef Marine Park on a sound basis, with other capital costs of management of the Great Barrier Reef Marine Park being shared equally between the two Governments
- the Commonwealth and Queensland to meet in equal shares, the recurrent costs for management of Queensland national and marine parks within the outer boundaries of the Great Barrier Reef Marine Park
- the Authority to administer funds provided by the Commonwealth and Queensland for these purposes
- the Commonwealth contribution included \$616 116 for recurrent costs as follows:

| | |
|-------------------------|-----------|
| — Capricornia | \$362 000 |
| — Cairns/Cormorant Pass | \$220 000 |
| — Far Northern | \$ 24 866 |
| — Central | \$ 5 000 |
| — Capricorn | \$ 4 250 |

\$609 500 was expended with the balance of \$6 616 carried forward as cash towards 1985-86 commitments, as follows:

| | |
|----------------|----------|
| — Far Northern | \$ 6 616 |
|----------------|----------|

- the Commonwealth contribution included \$343 000 for the initial capital works program, as follows:
- | | |
|-------------------------|-----------|
| — Capricornia | \$151 000 |
| — Cairns/Cormorant Pass | \$176 000 |
| — Far Northern | \$ 16 000 |

\$343 000 was expended.

- The Commonwealth contribution included \$15 000 for post-initial capital works in the Capricornia Section.

NOTE (3) This item comprises:

| | 1984-85 | 1983-84 |
|-----------------------------|---------|---------|
| | \$ | \$ |
| Remuneration and allowances | | |
| • Chairman | 59 045 | 55 161 |
| • Part-time Members | 13 276 | 11 346 |
| Travel and subsistence | 51 811 | 30 098 |
| Charter costs | 20 533 | 8 402 |
| Other expenses | 7 836 | 7 780 |
| | 152 501 | 112 787 |

NOTE (4) This item comprises:

| | 1984-85 | 1983-84 |
|----------------|---------|---------|
| | \$ | \$ |
| Fees | 4 766 | 5 287 |
| Other expenses | 15 159 | 19 221 |
| | 19 925 | 24 508 |

NOTE (5) These program costs exclude salaries and allowances, administrative expenses and capital expenditure. The total cost of each program was:

| | 1984-85 | 1983-84 |
|---|-----------|-----------|
| | \$ | \$ |
| Research and Monitoring | 813 535 | 667 796 |
| Planning | 641 502 | 598 689 |
| Education and Information | 793 311 | 769 042 |
| Park Management (including day-to-day management) | 1 991 135 | 1 271 775 |

NOTE (6) This item includes an advance payment of \$45 557 to Department of Housing and Construction Townsville for fit out of the Authority's Townsville Office. At 30 June 1985, \$22 800 had been expended.

NOTE (7) An agreement entered into on 24 June 1985 provides for ownership of the Heron Island Interpretative Centre buildings, wholly funded by the Commonwealth, to be transferred to the Queensland Government. An amount of \$93 475 was subsequently paid to Queensland National Parks and Wildlife Service for the construction of these buildings. This payment is included under capital payments, but has been excluded from the Statement of Capital Assets. As at 30 June 1985 work in progress on these buildings amounted to \$4 731.

NOTE (8) Capital items funded equally by the Commonwealth and Queensland Governments under the post initial capital works program (\$28 681), have also been excluded from the Statement of Capital Assets in accordance with the draft agreement to retrospectively transfer ownership of these items to Queensland.

NOTE (9) 1983-84 figures for Capital Payments and Assets at Cost have been adjusted in accordance with the Authority's revised asset classifications to enable comparison with the 1984-85 figures (refer 1983-84 Statements).

NOTE (10) In 1984-85 the Authority changed its accounting policy with regard to the taking up of items as assets. Items with a value of less than \$400 (\$189 607) and items funded under the day-to-day management post initial capital works program (\$14 507) were written out of the assets register.

NOTE (11) NATIONAL PARKS AND WILDLIFE SERVICE
GREAT BARRIER REEF MARINE PARK
STATEMENT OF RECEIPTS AND PAYMENTS FOR THE YEAR
ENDED 30 JUNE, 1985

| | 1984-85 \$ | 1983-84 \$ |
|---|---------------|---------------|
| The balance at 1 July comprised: | | |
| Recurrent Costs | 58 957 | 55 974 |
| Capital Works and Services | 125 887 | 13 745 |
| | 184 844 | 69 719 |
| Receipts for the year were: | | |
| For Recurrent Costs | 1 219 000 | 571 026 |
| For Capital Works and Services | 373 000 | 422 526 |
| Disposal of Motor Vehicles | 12 300 | — |
| Total Receipts (Note 1) | 1 604 300 | 993 552 |
| From which the following payments were made: | | |
| Salaries, Wages, Superannuation and Payroll Tax | 539 101 | 297 569 |
| Operating Costs (Note 2) | 665 577 | 270 474 |
| Capital Works and Services (Note 3) | 361 193 | 310 384 |
| Total Payments | 1 565 871 | 878 427 |
| Resulting in an excess of receipts over payments of | 38 429 | 115 125 |
| Leaving a balance at 30 June comprising: | | |
| Recurrent Costs | 73 279 | 58 957 |
| Capital Works and Services | 137 694 | 125 887 |
| Disposal of Motor Vehicles | 12 300 | — |
| | 223 273 | 184 844 |

NOTES TO AND FORMING PART OF THE ACCOUNTS

- (A) Statement of Accounting Policies
- (a) Basis of Accounts
The Accounts have been prepared on a cash basis, consistent with the basis applied in the previous financial year. The accounts for 1984-85 include the initial financial transactions in relation to the Far Northern, Central and Capricorn Sections together with day-to-day management costs applicable to the Cairns/Cormorant Pass and Capricornia Sections of the Great Barrier Reef Marine Park.
- (B) Statement of Significant Items Outside the Ambit of the Statement.
1. Current Assets/Liabilities
Current assets and liabilities stood at a normal level at the beginning and end of the year.
 2. Contingent Assets/Liabilities
There were no known contingent assets or liabilities of a significant nature at 30 June 1985.
 3. Statement of Capital Assets (At Cost) as at 30 June 1985.

| | Funded by Commonwealth (cumulative from 1 July 1981) | | Funded by Queensland (cumulative from 1 July 1981) | |
|--|---|---------|---|---------|
| | 1984-85 | 1983-84 | 1984-85 | 1983-84 |
| | \$ | \$ | \$ | \$ |
| Vessels and associated equipment | 126 169 | 59 402 | 7 986 | 3 625 |
| Vehicles* | 103 033 | 49 170 | 8 563 | 8 563 |
| Diving equipment | 39 058 | 18 919 | — | — |
| Audiovisual and interpretation equipment | 55 569 | 32 020 | — | — |
| Air compressor | 3 496 | 3 496 | — | — |
| Plant and equipment | 78 510 | 10 507 | 12 300 | 2 320 |
| Moorings | 2 083 | 2 083 | — | — |
| Building lease | 13 000 | 13 000 | — | — |
| Monitoring facilities | 9 669 | 8 564 | — | — |
| Accommodation — Heron Island | 224 653 | 224 653 | — | — |
| Interpretative building — Heron Island | 4 731 | — | — | — |
| Office accommodation — Cairns | 93 644 | — | — | — |
| | 753 615 | 421 814 | 28 849 | 14 508 |

* The cumulative figure for Commonwealth funded vehicles in 1984-85 has been reduced by \$15 051 being the cost price of two motor vehicles which were disposed of during the year.

Stocktakes were carried out by officers of the Queensland National Parks and Wildlife Service and equipment on hand balanced with official equipment cards.

| | | 1984-85 \$ | 1983-84 \$ |
|---------|--|---------------|---------------|
| (C) | Explanatory Notes | | |
| Note 1 | Receipts during the year were provided from the following sources: | | |
| | Commonwealth Government: | | |
| | Recurrent Costs 50% | 609 500 | 285 513 |
| | Capital Works and Services: | | |
| | Initial Program 100% | 343 000 | 391 277 |
| | Post-Initial Program 50% | 15 000 | 15 625 |
| | | 967 500 | 692 415 |
| | Queensland Government: | | |
| | Recurrent Costs 50% | 609 500 | 285 513 |
| | Capital Works and Services: | | |
| | Post-Initial Program 50% | 15 000 | 15 624 |
| | | 624 500 | 301 137 |
| | Disposal of Motor Vehicles: | | |
| | Funded 100% by Commonwealth | 12 300 | — |
| | | 1 604 300 | 993 552 |
| Note 2. | Operating Costs | | |
| | Air travel | 35 692 | 21 982 |
| | Travel allowance | 41 250 | 26 897 |
| | Vessel charter | 23 719 | 15 216 |
| | Aerial Surveillance | 109 863 | 50 163 |
| | Vessel running expenses | 39 215 | 11 275 |
| | Motor vehicle running expenses | 21 548 | 9 759 |
| | Office supplies | 18 505 | 4 298 |
| | Appointment expenses | 21 063 | 1 087 |
| | Rates, services and rental | 82 011 | 40 461 |
| | Photocopy and printing | 6 970 | 7 111 |
| | Library | 4 712 | 2 229 |
| | Conferences and training | 11 145 | 513 |
| | General operating expenses | 82 578 | 44 162 |
| | Monitoring | 9 953 | 9 787 |
| | Photographic materials and processing | 21 268 | 7 741 |
| | Temporary accommodation: | | |
| | Rental — Heron Island | — | 3 893 |
| | Furniture and fittings | 91 546 | 494 |
| | * Professional fees | 17 378 | 5 006 |
| | Uniforms | 1 745 | 2 044 |
| | Building maintenance | 4 902 | 200 |
| | * Day Labour | 20 514 | 6 156 |
| | | 665 577 | 270 474 |

* Differ from 83-84 published figures through change in presentation.

| | | 1984-85 \$ | 1983-84 \$ |
|---------|---|---------------|---------------|
| Note 3. | Capital Works and Services | | |
| | — Initial Program | | |
| | Vessels and associated equipment | 62 407 | 5 569 |
| | Vehicles | 68 914 | 17 017 |
| | Diving equipment | 20 139 | 7 296 |
| | Audiovisual and interpretation equipment | 23 549 | 20 832 |
| | Plant and equipment | 58 023 | 4 969 |
| | Monitoring facilities | 1 105 | 1 033 |
| | Accommodation — Heron Island | — | 224 653 |
| | Interpretation building — Heron Island | 4 731 | — |
| | Office accommodation — Cairns | 93 644 | — |
| | | 332 512 | 281 369 |
| | — Post Initial Program | | |
| | Vessels and associated equipment | 8 721 | 7 249 |
| | Vehicles | — | 17 126 |
| | Plant and equipment | 19 960 | 4 640 |
| | | 28 681 | 29 015 |
| | | 361 193 | 310 384 |

We certify that, in our opinion, the foregoing Statement of Receipts and Payments and appended notes: fairly set out the financial transactions of the Great Barrier Reef Marine Park for the period 1 July 1984 to 30 June 1985 and show a true and fair view of the state of affairs at 30 June 1985 on a basis consistent with that applied in respect of the financial year last preceding. The receipt and expenditure of moneys were in accordance with the approved programs and in accordance with draft agreements and agreements executed between the Commonwealth and Queensland Governments with regard to day-to-day management and control and ownership of assets.

R. V. Kelly
Acting Accountant
Queensland National Parks and
Wildlife Service

G. W. Saunders
Director
Queensland National Parks
and Wildlife Service

I have examined the accounts of the Queensland National Parks and Wildlife Service in relation to the Great Barrier Reef Marine Park and I have obtained all the information and explanations that I have required. The foregoing Statement of Receipts and Payments and appended notes:

- (a) are in the form indicated in the prescribed requirements
- (b) are in agreement with the accounts and
- (c) have, in my opinion, been properly drawn up so as to present a true and fair view of the transactions for the financial year ended 30 June 1985 and the financial position at 30 June 1985 on a basis consistent with that applied in respect of the financial year last preceding.

V. C. Doyle
Auditor-General of Queensland

In our opinion, the above Statement of Receipts and Payments and Statement of Capital Assets (At Cost) have been properly drawn up so as to show fairly the financial transactions of the Great Barrier Reef Marine Park Authority for the year ended 30 June 1985.

DONALD W. KINSEY
Executive Officer

GRAEME KELLEHER
Chairman

APPENDIX F

AUDITOR-GENERAL'S REPORT

25 November 1985

The Honourable the Minister for
Arts, Heritage and Environment
Parliament House
CANBERRA ACT 2600

Dear Minister

GREAT BARRIER REEF MARINE PARK AUTHORITY AUDIT REPORT ON FINANCIAL STATEMENTS

Pursuant to sub-section 60(2) of the Great Barrier Reef Marine Park Act 1975 the Great Barrier Reef Marine Park Authority has submitted for my report its financial statements for the year ended 30 June 1985. These comprise a statement of receipts and payments, a statement of capital assets and accompanying notes.

The statements have been prepared in accordance with the policies outlined in Note 1 to the Accounts and are in the form approved by the Minister for Finance. A copy of the financial statements is enclosed for your information.

In accordance with sub-section 60(2) of the Act, I now report that the statements are in agreement with the accounts and records of the Authority and, in my opinion:

- the statements are based on proper accounts and records, and
- subject to finalisation of formal agreement between the Commonwealth and Queensland ownership of assets, the receipt and expenditure of moneys, and the acquisition and disposal of assets, by the Authority during the year have been in accordance with the Act.

Yours sincerely,



P. L. Lidbetter
First Assistant
Auditor-General



Great Barrier Reef Marine Park Authority

P.O. Box 1379
Townsville, Qld. 4810
Telephone (077) 81 8811

December 1985

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