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**ANNUAL REPORT 1978-79**

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**Great  
Barrier  
Reef Marine  
Park  
Authority**

**ANNUAL REPORT 1978-79**

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**Great Barrier Reef Marine Park Authority  
94 Denham Street, Townsville  
Qld, 4810**

Senator the Honourable J.J. Webster,  
Minister for Science and the  
Environment,  
Parliament House,  
Canberra, A.C.T. 2600

My dear Minister,

It is with pleasure I submit to you the third Annual Report of the Great Barrier Reef Marine Park Authority, as required by the *Great Barrier Reef Marine Park Act 1975*.

The year under review has seen considerable interest in the Great Barrier Reef and the Great Barrier Reef Marine Park by the community and the Parliament.

The need to resolve jurisdictional issues and the nature of co-operative arrangements between the Commonwealth and Queensland Governments in seas and submerged lands matters have delayed the declaration of the Capricornia Section of the Marine Park during 1978-79. However I believe the announcement on 14 June 1979 on the future co-operative arrangements relating to the Great Barrier Reef Marine Park has now opened the way to early declaration of the Capricornia Section.

The activities of the Authority during 1978-79 have therefore concentrated on matters related to Marine Park definition, zoning strategies and an analysis of usage interests, in addition to the continued acquisition of information on the biology and geomorphology of the Capricornia Section.

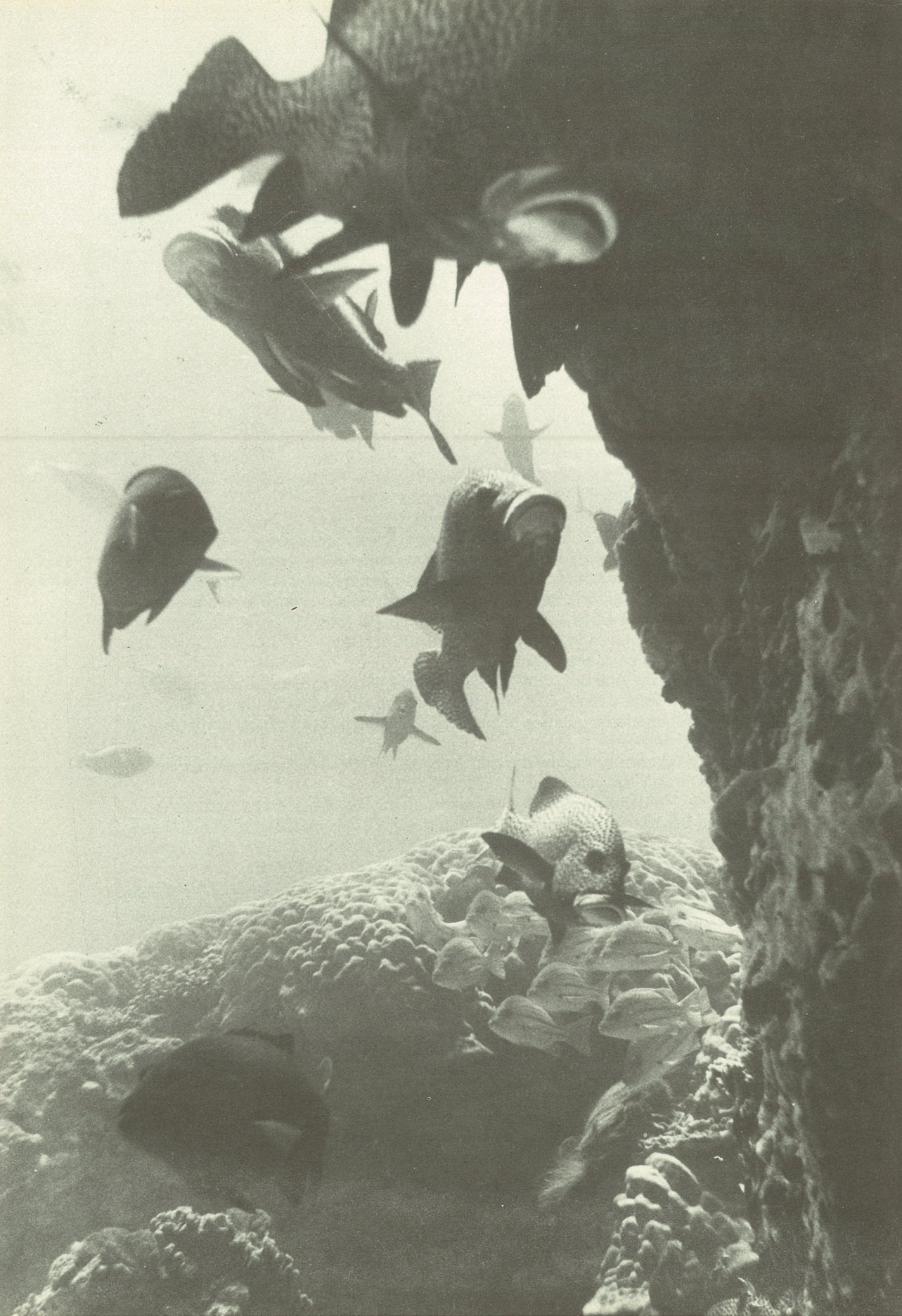
These activities took place under the able direction of Mr H. J. Higgs, and his retirement, due to illness, in July this year is viewed with regret.

In December Ministerial responsibility for the Authority was transferred to you and your early meeting with the Authority members in January 1979 was appreciated. The Authority expects that in due course the portfolio change will enhance liaison with the other agencies under your responsibility which have major responsibilities in the Region.

The activities outlined in the following pages have only been possible because of the high level of diligence and competence displayed by the Authority's small staff. Other members of the Authority and I wish to express our thanks for their efforts.

Yours sincerely,

Graeme Kelleher  
*Acting Chairman*



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Opposite: Fish line up at a cleaning station where small wrasse remove parasites.



# OVERVIEW 1978-79

The year ending 30 June 1979 has been one in which the Parliament and the community at large have continued to express very considerable interest in, and concern for, the Great Barrier Reef. One of the issues stimulating this interest was the likely effect of what has been called the 'offshore constitutional settlement' on the ambit of the *Great Barrier Reef Marine Park Act 1975* (hereinafter called the Act). This proposed 'settlement', which has been a matter of detailed consideration in and following recent Premiers' Conferences, seeks to redefine State powers and titles in the territorial seas following the 1975 judgement of the High Court of Australia on the extent of application of the *Seas and Submerged Lands Act 1973*.

This matter was resolved in respect of the Great Barrier Reef Region (see Figure 1 inside back cover) by the agreement between the Prime Minister and Premier on future consultative arrangements announced on 14 June 1979. However prior to this announcement uncertainties existed about the extent of the areas over which the Authority might have jurisdiction and the nature of alternative co-operative arrangements that might have to be established with Queensland. As a result the Authority was inhibited from developing a system of marine park sections in the Region and in examining the necessary administrative and enforcement arrangements for the management of declared marine parks. In particular it was not possible to proceed in 1978-79 with the proposed declaration of the Capricornia Section of the Great Barrier Reef Marine Park, or to enter into discussions with Queensland agencies on the part they might play in day-to-day management of zoned sections, in accordance with zoning plans to be laid before the Parliament. Clearly, neither the Authority nor the Queensland agencies could jointly get to grips with detailed issues whilst the jurisdictional question was unresolved between their respective Governments.

Another important issue affecting the work of the Authority during the year was the resurgence of Parliamentary and public concern as to the potential effects of oil drilling in the Great Barrier Reef Region. This matter was the subject of the Royal Commissions, appointed by the Commonwealth and Queensland Governments in 1970, which reported in 1974 prior to the enactment of the *Great Barrier Reef Marine Park Act 1975*. Some uncertainties have persisted as to what should be done about the pre-existing petroleum exploration permits that overlap the subsequently defined Great Barrier Region and what recommendations of the Royal Commissioners should be accepted. This uncertainty resulted from the lack of unanimity of the Commissioners in 1974.

The announcement by the Prime Minister in the Parliament on 4 June 1979 that the Government had accepted the recommendation of the Chairman of the Royal Commissions that 'petroleum drilling should be postponed and planned and permitted only in the light of and with the aid of full scientific knowledge of all the effects of oil pollution, direct and indirect, short and long term on the coral and other marine life . . . of the Barrier Reef', has clarified the immediate issue of oil drilling. This action is in accord with the view of the Authority reported in its 1977-78 Annual Report.

During the last year the Authority has been looking into two consequences that might flow from such a decision, namely:

- what, in its view, should be the nature of any research program into the various hazards the Reef might face; and

Opposite: Hermit crab scavenging at night.



- what should be its planning processes in oil prospective areas pending the outcome of such research.

These questions, neither of which have been taken to finality during the past year, are discussed more fully later in this Report.

The third Great Barrier Reef issue of some importance before the Parliament in 1978, was the Great Barrier Reef Marine Park Amendment Bill which covered a number of minor adjustments required to facilitate the administration of the Act. These did not cover more significant machinery changes that might be desirable in due course to take account of experience in planning zoning and enforcement processes.

One of the main changes proposed in the Bill was the amendment to the schedule closing the Region at Cape York, as some doubt existed as to whether the Region and operations of the Authority within the Region, such as declaration of marine park sections, were legally valid. Other changes related to the Authority's representation on the Great Barrier Reef Consultative Committee and to bringing the qualifications requirement for the Chairman into line with that of other members of the Authority, as it was considered that the original provision unduly limited the range of prospective appointees. The Bill was assented to on 20 November 1978.

Given these three major issues it has obviously not been possible for the Authority to demonstrate in a public way that it has effectively prosecuted its functions in accordance with s.7(i) of its Act (see Appendix A). Nevertheless the Authority has sought during the year to establish and enhance its professional and administrative competence to deal with the novel and complex issues it has to resolve in making its recommendations to the Minister and hence the Parliament. It is not widely appreciated that the concept of a marine park is a relatively new one, especially on the present scale and it is essentially up to the Authority through its advice to the Minister and the Parliament, to recommend how the Great Barrier Reef Marine Park should be defined and what provisions need to be made in, or adjacent to, the Marine Park for the multiple usage interests in the Region. The only mandatory directive in the Statute, as such, is that of s.38 which provides that 'no operations for the recovery of minerals shall be carried on in the Marine Park'.

Against the background of these wider issues the Authority has concentrated its attention during the year on matters related to Marine Park definition and zoning, and an analysis of usage interests. It has been able to make some progress in this regard as its appropriation for the year was effectively doubled (to \$740 000) and a modest increase in staff ceiling (to 16) was granted. This was sufficient for the study work reported later. Nevertheless it must be noted that this level of budget and staffing would have been inadequate to deal with zoning and management tasks arising from the declaration of the Capricornia Section or the full scale survey and definition of the Region which is needed to extend the Marine Park coverage within the Region in any reasonable time scale. These are the primary matters that the Authority expects to be addressing in the coming year.

# RESEARCH AND PLANNING ACTIVITIES

## INTRODUCTION

The work program of the Authority concentrated chiefly on three areas:

- gathering information relevant to declaration and zoning of the Capricornia Section of the Marine Park;
- developing, in collaboration with tourist and educational interests, materials and skills for interpretation and education regarding the Reef environment; and
- providing support and encouragement for scientific research relevant to the long term management of the Marine Park.

Work relating to the proposed Capricornia Section of the Great Barrier Reef Marine Park has continued to have high priority.

The area including Lady Elliott Island, its reef and the reefs and shoals of the Bunker and Capricorn groups of islands, was recommended by the Authority, at its 5th meeting in March 1977, for declaration as the first section of the Marine Park. In reaching this decision the Authority considered that the reefs of this area are heavily used and that, being the closest section of the Great Barrier Reef to the populous south eastern corner of Australia, were likely to come under increasing usage.



School of batfish (*Platax*) hovering up current of a large coral outcrop.

In assigning this top priority the Authority was aware of concern at increasing human impact within the area through:

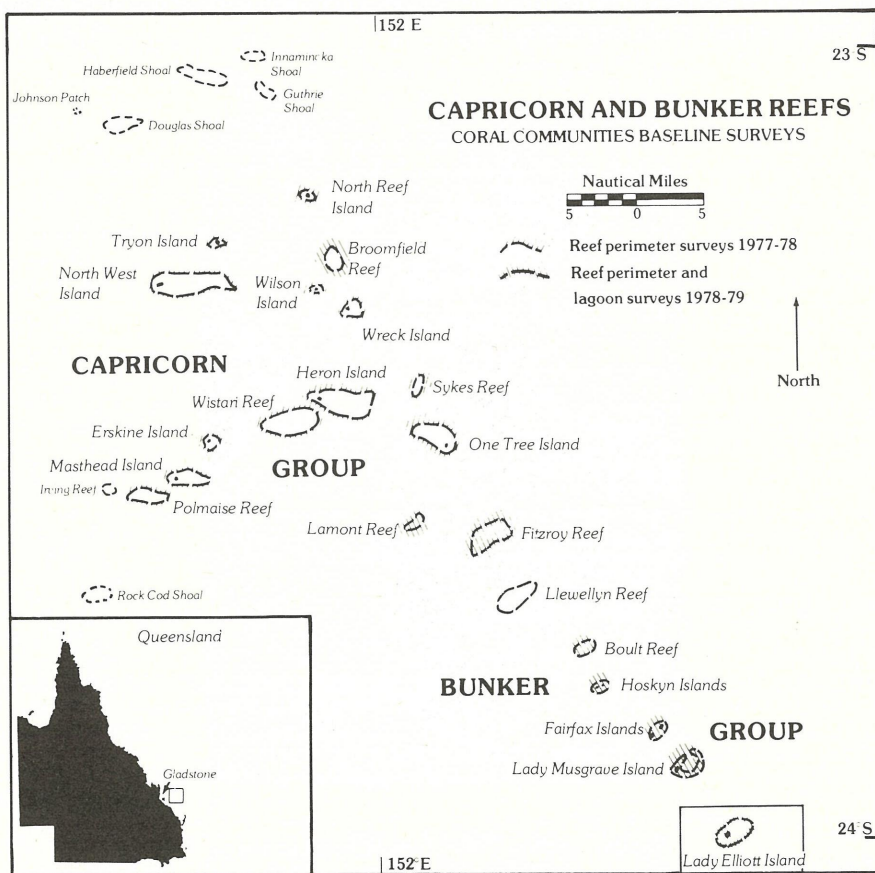
- depletion, through excessive removal of target exploited species;
- physical damage;
- environmental pollution; and
- severe disruption of populations of target and non-target species under conditions of heavy exploitation.

In reaching its decision the Authority set aside, for the time being, the alternative strategy of bringing remote and relatively little used areas of the Great Barrier Reef under management protection within the Marine Park before significant human impact reached these areas.

Although planning for declaration of further sections of the Marine Park has been subject to some uncertainty the Authority has commenced data collection on the condition and usage of the reefs of a more northerly section of the Great Barrier Reef between Innisfail (17°42'S) and Cape Melville (14°10'S).

### BENTHIC SURVEYS

The Authority's major field survey activity during 1978-79 was the continuation of the biological resource survey of corals and other benthic organisms of the Capricornia and Bunker groups of reefs (see Figure 2).



In the Bunker group of reefs, the survey of all but the exposed weather areas and Llewellyn Reef was completed. The survey of the Capricornia group of reefs will be completed by the end of 1979.

### **ECONOMIC STUDY OF THE CAPRICORNIA SECTION**

Economic considerations will play a major role in planning for reasonable use of the Great Barrier Reef.

A study of the economic structure of usage of the Capricornia Section was commissioned to determine the value of the Section to the economy of the adjacent coastal area, the State of Queensland, and Australia as a whole.

### **ZONING STRATEGY STUDY**

The major collaborative project during 1978-79 has been an investigation of zoning strategy options.

The Authority invited the Directors of the Queensland National Parks and Wildlife and Queensland Fisheries Services, and technical specialists in the fields of environmental management and statutory planning to join a study group designed to evaluate the potential effects of zoning options based upon information held by the Authority and State Government agencies. The Authority engaged a planning consultant to provide a professional planning input and to develop the work of the group into a series of reports.

There are three phases to the work of the study group. The first phase, which consisted of compilation of available information and the preparation of maps illustrating resource distribution, current usage and constraints on the development of plans, was completed in May 1979.

The second phase consists of exploration of zoning strategies through preparation of three theoretical zoning plans each based on maximising one of the components of any usable strategy, namely commercial return, recreational usage and environment preservation.

The final phase of the study, which will be completed in September 1979, will evaluate the three options and determine the extent to which they can be integrated in a working plan.

### **FISH STUDIES**

Fish, whether the large demersal predators such as coral trout which form the basis of recreational and commercial fishing, or the diverse and colourful small species which are valued for viewing and photography, are the central element of most Reef usage.

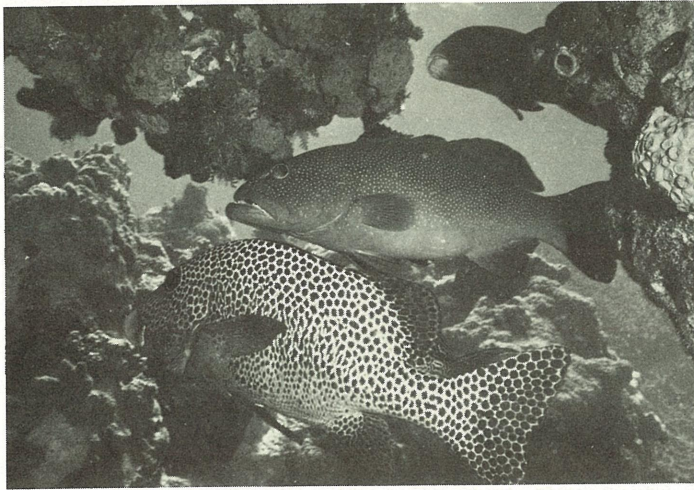
#### **Fish Population Assessment**

The Authority has been concerned at the lack of methods of assessment of fish stocks and population diversity which can be applied sufficiently rapidly to enable fish resources to be surveyed throughout substantial areas of the Great Barrier Reef. As a consequence of this, two workshops were organised by the Authority during 1978-79 to develop methods for the assessment of Great Barrier Reef fish populations.

In November 1978, the Authority convened a workshop at Heron Island of biologists specialising in Reef fish research to consider and evaluate the options for assessing Reef fish stock populations.

The workshop aimed to develop a technique for discriminating between fish assemblages (communities) around individual coral reefs and between coral reefs, and to develop a technique to estimate and evaluate populations of commercially and recreationally important species of demersal fish such as coral trout and sweetlip.

This workshop evaluated manta board, snorkel and scuba swimming techniques, and scuba search techniques using particular search patterns. The two-week workshop was



Coral trout (*Plectropoma*) and harlequin sweetlip (*Plectorhynchus*)  
sheltering in coral during day.

successful in identifying a scuba search pattern which promised to yield statistically significant results for the classification of stock size and abundance of commercially fished species around reefs. The duration of this workshop was however too short to permit complete statistical evaluation of the application of this technique. Consequently, a further workshop was held in May 1979 at which a smaller group of fish specialists applied the technique over a period of two weeks to accumulate a data base to assess the innate variability of the technique.

A list of participants at both workshops is provided in Appendix H.

### **Research into Amateur Fishing**

Much of the fishing effort directed at the demersal fish of the Great Barrier Reef comes from amateur fishermen. To date, all government statistics relating to Great Barrier Reef fishing have been derived from records of catches processed through Queensland Fish Board depots along the coast of Queensland. These are based almost exclusively on landings by professionals and a few very active amateurs, and the statistics thus derived suffer from under-representation of a very considerable amateur fishing activity.

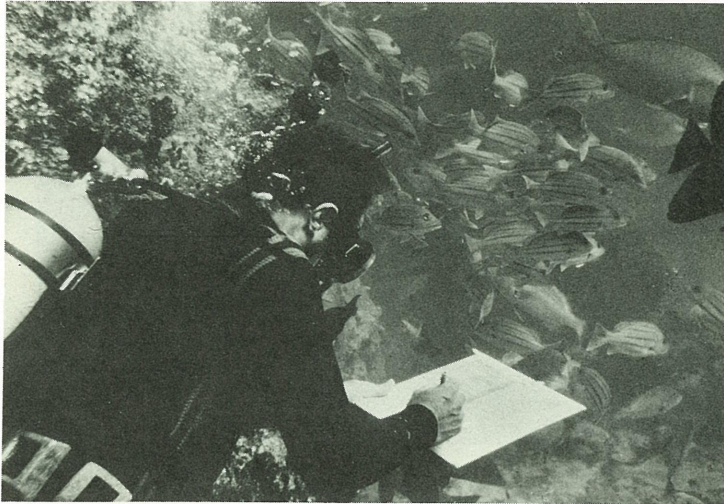
During 1978-79 therefore, a major Authority staff project was a survey study of amateur fishing along the Queensland coast. The study consisted of examination of records kept by amateur fishing groups that fish from charter boats, and extensive discussions with amateur fishing groups and charter boat operators.

The preliminary conclusions of the study are discussed later in this Report under the heading 'Topical Issues'.

This project is continuing and the Authority has prepared a data sheet for distribution to amateur fishing groups, to individuals contacted through boat-ramp surveys and to charter boat operators, with the aim of developing systematic collection of data on fish caught, the amount of effort applied and conditions at the time of fishing effort.

### **Economic Study of Fishing**

A study, to analyse the economics of recreational and commercial fishing in the Capricorn-Bunker area, is being undertaken for the Authority by the Institute of Applied Social Research of Griffith University. This study will complement the Authority's on-going amateur fish catch and effort research.



Diver recording fish species, size and numbers during a workshop developing fish population assessment techniques.

### **WORKSHOP ON DIVING CODE OF PRACTICE**

In November 1978, the Authority in collaboration with the Australian Institute of Marine Science arranged a workshop to consider a code of practice for scientific diving in the Great Barrier Reef Region. The need for such a code of practice became apparent when the Authority examined a number of scientific codes in operation in other parts of the world and attempted to draw up a code for adoption by its own field officers.

The workshop appeared to meet a more widely perceived need and was attended by representatives of universities, recreational diving groups, Commonwealth and State research organisations and research stations, as well as defence, civil and medical bodies with responsibilities for diving safety. A list of participants is provided in Appendix I.

The report resulting from the workshop took the form of an interim code of diving practice for scientific research in the Great Barrier Reef Region. This code has been adopted by the Authority and a number of other institutions and, following a year's experience with this code, a follow-up workshop will be held to consider revisions and a final draft of the code of practice.

### **TOURIST INDUSTRY STUDIES**

#### **Tourism Workshop**

In April 1979 the Authority, in collaboration with the Queensland Department of Tourism, conducted a workshop in Mackay on tourism and the Great Barrier Reef.

The major function of the workshop was to enable the Authority to become acquainted with the perspectives and problems of a major industry of the Great Barrier Reef Region. The workshop also enabled the Authority to discuss with the tourist industry the role environmental management can play in the development of environmentally compatible tourism and in the development of interpretative services to enhance tourists' appreciation of their holiday experience.

The workshop recognised the probability and potential for a large expansion in tourist activity in the Great Barrier Reef Region within the next decade.

A major result of the workshop was the establishment, by tourist industry representatives, of a steering committee which will represent Great Barrier Reef tourism as an entity. Its formation is welcomed by the Authority as a means of presenting a representative contact



Mr Peter Ogilvie (Queensland National Parks and Wildlife Service) addressing delegates at the Tourism Workshop.

point in a generally fragmented industry. The 123 speakers and delegates who attended the workshop are listed in Appendix J.

The proceedings of the workshop will be published for the Authority by the Australian Government Publishing Service and copies will be obtainable through A.G.P.S. bookshops.

### **Economic Study of Tourism**

As a follow up to the tourism workshop, the Authority commissioned a study to examine probable trends and the economic and social consequences of the development of Great Barrier Reef tourism. The study is based on available data and the application of a number of possible international and national economic and developmental situations.

### **O.E.C.D. Study**

In 1977, as a result of a world-wide study by the Organisation for Economic Co-operation and Development (O.E.C.D.) into the effects of tourism on the environment, the Authority was invited to prepare a case study on a particular area of the Great Barrier Reef.



Reef flat and beach rock edging a coral cay.

Heron Island, a coral cay and reef complex approximately 65 kilometres east of Gladstone, was chosen as the case study area. Heron Island is a unique area where the effects of human habitation since the 1920's can be studied.

Much of the economic information sought by the case study was not available from either the Tourist Resort or the Research Station on the Island. The case study nevertheless proved very useful as a base-line study demonstrating the relationship between tourism and the environment, and will provide a basis for the future measurement of yearly trends.

The O.E.C.D. is including the case study in a publication on tourism and the environment expected to be released in September 1979.

## **RESEARCH PROGRAMS**

### **Support for Research**

A new feature of the Authority's research support during 1978-79 was the development of the concept of augmentative support for 'outside' research programs. Under this scheme researchers, who are already supported by institutions such as universities for salary and basic facilities, but whose research could be extended to increase its relevance to the Marine Park, were invited to apply to the Authority for augmentative funds to enable them to visit the Reef or gain access to material about the Great Barrier Reef.

Twelve grants were made and the recipients of these grants and their research projects are listed in Appendix G.

### **Evaluation and Review Program**

In July 1978 the Authority contracted with the Department of Civil and Systems Engineering at the James Cook University of North Queensland to develop a work program and review chart and a set of tasks which the Authority could use to measure the achievement of its objectives for the coming year.

The chart critically assessed the work required to undertake the declaration, zoning and public participation involved in establishing the Capricornia Section of the Great Barrier Reef Marine Park. The chart and tasks gave a measure of the human resources involved and the time frame required to undertake each step.

## **RAINE ISLAND STUDY**

Raine Island, 620 kilometres north-west of Cairns, is recognised as a major world nesting site for sea birds and sea turtles. On a world-wide basis, the green turtle (*Chelonia mydas*) is listed by the World Wildlife Fund as an endangered species, and Raine Island is already recognised as an important site in the long-term studies of turtles by the Queensland National Parks and Wildlife Service. Their studies highlight the significance of Raine Island in the nesting behaviour of the green turtle, this island being the site of the recording in 1974 of the greatest number of green turtles ever recorded nesting in a single night. The number was approximately 11 500.

The biological significance and biological resources of Raine Island and its nearby reefs make it of great interest to a range of research organisations.

With common interests in this remote area, the Queensland agencies with statutory responsibilities in the Raine Island area, (Queensland National Parks and Wildlife Service, Queensland Fisheries Service, Queensland Department of Aboriginal and Islanders Advancement) and the Great Barrier Reef Marine Park Authority have established a committee to co-ordinate research planning for the area to ensure that scientists and institutions can have maximum use of, and access to, research facilities to be provided in the area.



A detailed proposal has been submitted to World Wildlife Fund (Australia), which has approved the project to be co-ordinated by the above Committee, and will devote a proportion of its funds raised in Australia to the Raine Island Study.

### INFORMATION SERVICES

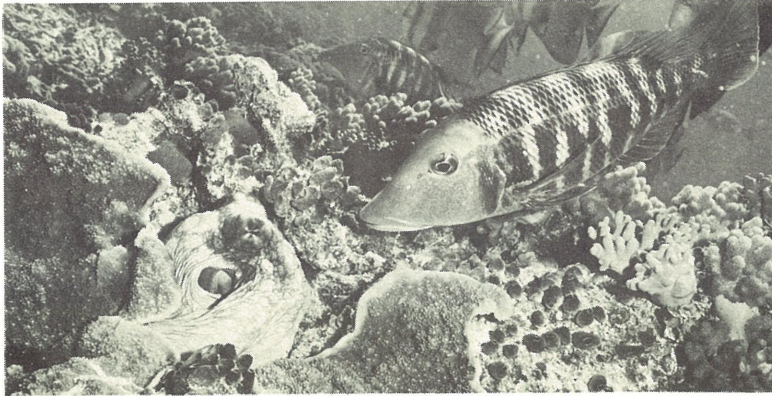
The Authority believes it has a responsibility to disseminate the information it acquires in the course of its research and investigations as well as general information on the Reef and on activities occurring in the Region. Accordingly the Authority has initiated an information program directed at both the general public and the scientific world which includes the following elements.

#### Reflections

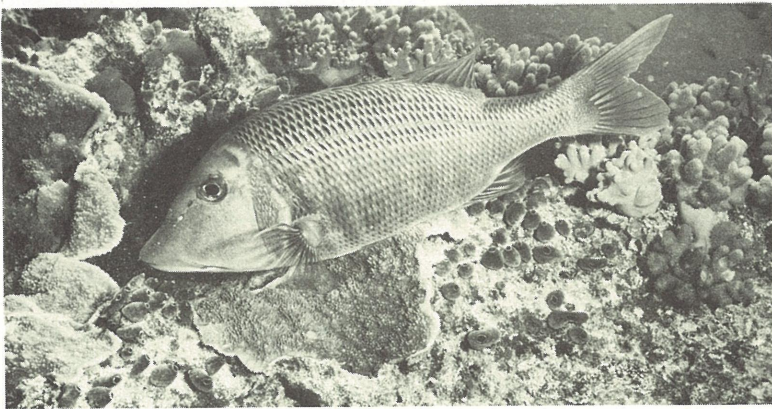
The Authority publishes a newsletter, entitled *Reflections* which provides a forum for discussion of Reef issues of general interest and serves to keep the community aware of current aspects.

#### Posters

In June 1979 five posters were printed for the Authority as the first set in a series of educational posters designed to provide an appreciation of the beauty and complexity of the Reef in a medium acceptable to a wide-ranging audience.



A sweetlip attacking an octopus with jets of water.



The octopus has retreated. The pattern change of the fish is the result of its different 'nervous' states.

## **Bibliography of the Great Barrier Reef**

In 1977 the Authority commissioned Dr E. Frankel of the University of Sydney to prepare a bibliography of the literature relating to the Great Barrier Reef. The preparation of this major reference work was completed in April 1978. It lists and indexes approximately 5000 books, technical papers, popular articles, charts and films.

The bibliography was published for the Authority by the Australian Government Publishing Service. Copies may be purchased from A.G.P.S. bookshops.

### **Technical Papers**

The Authority has produced two technical memoranda during 1978-79, entitled *Research on Fishes of the Great Barrier Reef* and *Fisheries Factors Affecting Marine Park Management*. Copies of these papers have been distributed to scientists in this field and to some libraries. A few copies are still available from the Authority. It is intended to submit these papers for publication in appropriate scientific journals in the near future.

### **Reconnaissance Data**

The compilation of a bibliography of maps and photographic (including satellite) coverage of the Great Barrier Reef is an on-going process by Authority staff. Sources such as the Division of National Mapping, universities and private industry have been approached for this information, much of which is unpublished. When completed the bibliography will benefit government agencies, private industry and researchers.

## **INTERPRETATIVE AND EDUCATIONAL ACTIVITIES**

When zoning plans have been established and regulation of activities within the Marine Park has begun, the Authority recognises that to rely on enforcement measures alone will not be effective. An important corollary to enforcement is a comprehensive interpretative and education program which points out the need for conservation and wise management and seeks public support.

The Authority is keen to encourage the development of interpretative facilities on the Great Barrier Reef and Queensland coast, and will assist resort staff and advising agencies on the preparation of trails, audio-visual presentations and brochures.

An extension of the information program is the provision of interpretative and educational material. In 1978-79 the Authority initiated and participated in the following activities in this field.

### **Reef Trails**

Many tourists visit the Reef, at least in part to learn about the Reef environment. Traditionally, developed interpretative services have not been available on the Great Barrier Reef and many of the visitors to the Reef come from the United States, Japan and West Germany where interpretative facilities are a feature of environmental tourist areas.

During 1978-79 Authority staff commenced the development of interpretative facilities for reef walks, snorkel and scuba diving with the object of providing interpretative programs that are compatible with the local environment.

The initial exercise, undertaken at Heron Island, consisted of laying out a series of reef walks that take visitors over the various zones on the reef top, providing descriptive literature to explain the major features of these zones and developing an audiovisual program of slides and notes.

This program will extend to the development of snorkel areas and accompanying literature, and eventually to the identification and description of prime scuba diving areas and routes for glass-bottom boat excursions.



Student participating in a project mapping zonation across a reef top. Reef walking is also a popular tourist activity.

### **Audio-visuals**

A high quality, 30 minute slide-tape presentation, entitled 'The Great Barrier Reef', was prepared by staff of the Authority during 1978-79. The audio-visual program has a commentary with original background music and is the first in a series of programs the Authority will produce for use by resorts, educational institutions and recreational groups. Future programs will cover such topics as reef walking and diving on coral reefs.

### **Education Resource Material**

As part of the development of an education program, the Authority joined with the Townsville College of Advanced Education to produce, on a pilot basis, education resource material on the Great Barrier Reef for general use by upper primary school students and teachers.

A trial-run of the material will be undertaken towards the end of 1979 and if successful, will be published by other organisations.

The Authority hopes that the program, once developed, will be used widely throughout Australia and overseas to increase public awareness and understanding of the Great Barrier Reef.

# TOPICAL ISSUES

## TORRES STRAIT PROTECTED ZONE

The 'Treaty between Australia and the Independent State of Papua New Guinea concerning Sovereignty and Maritime Boundaries in the area between the two countries, including the area known as Torres Strait, and Related Matters', sometimes referred to as the 'Torres Strait Treaty', was signed at Papua New Guinea House in Sydney on 18 December 1978 by the Prime Ministers and Foreign Ministers of Australia and Papua New Guinea.

The Treaty does not come into force until it is ratified by both countries. Ratification will not take place until legislation to enable the implementation of the Treaty provisions has been enacted in Australia and Papua New Guinea and any constitutional requirements have been met.

The Treaty established a Protected Zone in the Torres Strait to protect the traditional way of life and livelihood of the inhabitants of both countries who live in or near the Strait. This will enable them to continue to carry out their traditional activities, including fishing, and to move freely about the Zone for this purpose.

The Treaty also contains provisions covering agreed principles, parallel measures to be taken by, and co-operation between the two Governments for the protection and preservation of the marine environment in the vicinity of the Protected Zone. These measures will include action for the prevention and control of pollution or other damage to the marine environment such as the release of toxic substances from land-based sources, rivers, vessels and the atmosphere and by dumping at sea.

The Treaty prohibits mining and oil drilling of the sea-bed in the Protected Zone for ten years from the date the Treaty comes into force.

The significance of the Treaty for the Authority lies in the provision in the *Great Barrier Reef Marine Park Act 1975* for the possible extension of the Region north from the present boundary.

## SHIPPING IN THE GREAT BARRIER REEF REGION

The threat to the Great Barrier Reef from oil is not limited to possible oil drilling activities. Of more immediate concern are the risks associated with the passage of oil tankers and other shipping through the Region. Crude oil is currently transported through the Great Barrier Reef Region in up to 66 000 DWT tankers. Refined products are also transported in the Region in smaller tankers, while other ships carry up to 2000 tonnes of fuel oil.

The potential marine pollutants from shipping in the Region are not confined to oil and refined petroleum products. Other ship-generated pollutants include noxious chemicals, garbage and sewage.

The Authority believes that the national contingency plan in the event of an oil spill, known as the 'National Plan to Combat Pollution of the Sea by Oil', should be extended in the Region to include pollution by hazardous substances. Measures developed to minimise the risk of oil spillage should be developed and applied, as appropriate, to other hazardous cargoes.

The Authority also re-affirms its support for compulsory pilotage for all ships over 10 000 tonnes in areas of the Great Barrier Reef.

## MAJOR IMPACTS ON THE GREAT BARRIER REEF

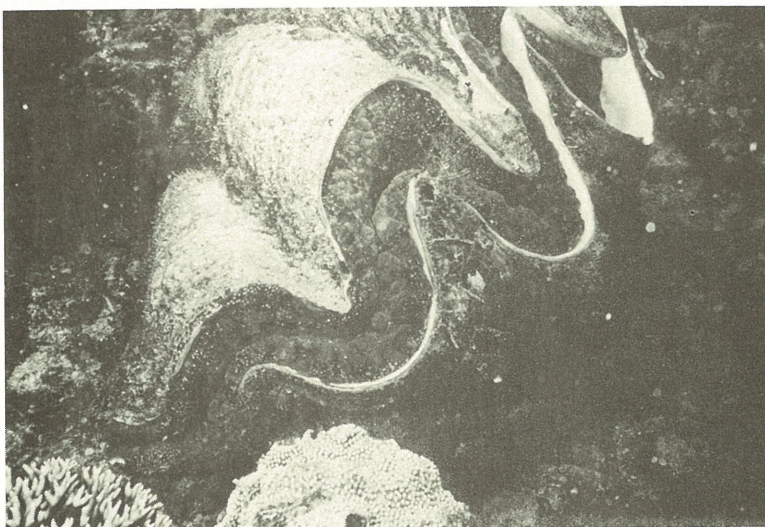
Although the possibility of oil drilling has attracted much attention as a potential threat to the Reef if a blow out were to occur, the Authority considers it is only one of a number of major human activities and natural phenomena with a potential to affect the Reef. As mentioned in the overview given at the beginning of this Report, the Authority considers that the effects of oil should be researched in the context of other forms of human and natural impact. The Reef has evolved in a dynamic environment and its present form owes much to the occasional impact of natural disasters.

Consequently, the Authority believes that any major research program on the effects of oil on coral reefs should be designed to take cognisance of natural impacts such as cyclones and massive flood run-offs from coastal streams, as well as of the potential hazards from shipping of toxic cargoes, ships' operational discharges and pollutants, and agricultural or industrial discharges from the mainland.

The Authority, in conjunction with other organisations responsible to the Minister for Science and the Environment, is currently developing a research proposal to investigate the effects, both short and long term, of such events.

In developing the proposal, the Authority is concerned to meet the following objectives:

- meet the recommendations of the Royal Commissions into Exploratory and Production Drilling for Petroleum in the area of the Great Barrier Reef;
- take account of the need to evaluate the risks associated with the passage of oil tankers and other cargo carrying vessels;
- relate current and potential hazards of oil spills to other man-made or natural impacts affecting the Reef;
- develop an adequate predictive model of the most likely path of spilled cargoes;
- review control and clean-up measures and develop codes of practice for management of oil spills and other human impacts in the Great Barrier Reef Region;
- identify critical factors which indicate modification of the Reef ecosystem;



Giant clam *Tridacna gigas* with a crop of feathery stinging hydroids on the lower shell. The mantle is almost fully contracted exposing part of the smooth white interior. These animals can weigh up to 300 kg and measure up to 1.5 metres in length. When harvested only about 1 kg of meat is taken; the rest is left to rot.

- determine the recovery time of coral reefs subject to natural disasters;
- determine the impact on reef habitats of physical development of islands or reefs e.g. harbour development, buildings; and
- identify measurable effects of intensive tourism and recreational activities on coral reefs.

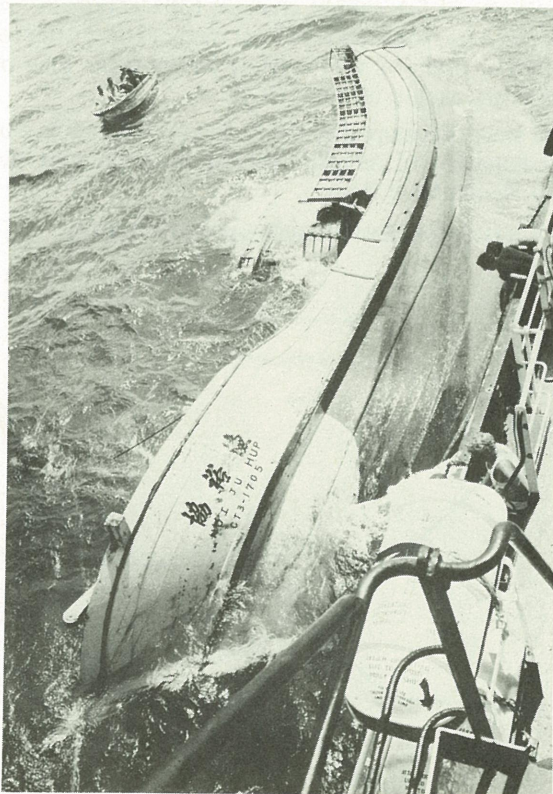
### CLAM FISHING ON THE GREAT BARRIER REEF

The Authority is concerned at the impact of illegal fishing for giant clams on the Great Barrier Reef. Little is known of the biology, ecology and population dynamics of the giant clam species, and research is needed to understand their role in coral reef ecosystems and the consequences of their exploitation.

There are at least five species of giant clams on the Reef. The largest, *Tridacna gigas*, grows to more than one metre in length. Recent studies have indicated that it may take up to 100 years for *T. gigas*, to reach this size.

During 1979, up to 30 June, nine Taiwanese fishing boats were apprehended for taking clams on the Great Barrier Reef. The arrest of these boats was accompanied by media coverage calling for increased surveillance and penalties and expressing concern at the costs associated with the apprehension, prosecution and repatriation of crews.

An account of the involvement, in April and May 1979, of the Authority's staff following the apprehension of the *Hui Ju Hup*, is given in Appendix K to illustrate some of the problems faced by authorities combatting illegal clam fishing.



The Taiwanese fishing boat *Hui Ju Hup* alongside a tug during attempts to remove oil from the fishing boat prior to sinking it.

## AMATEUR FISHING ON THE GREAT BARRIER REEF

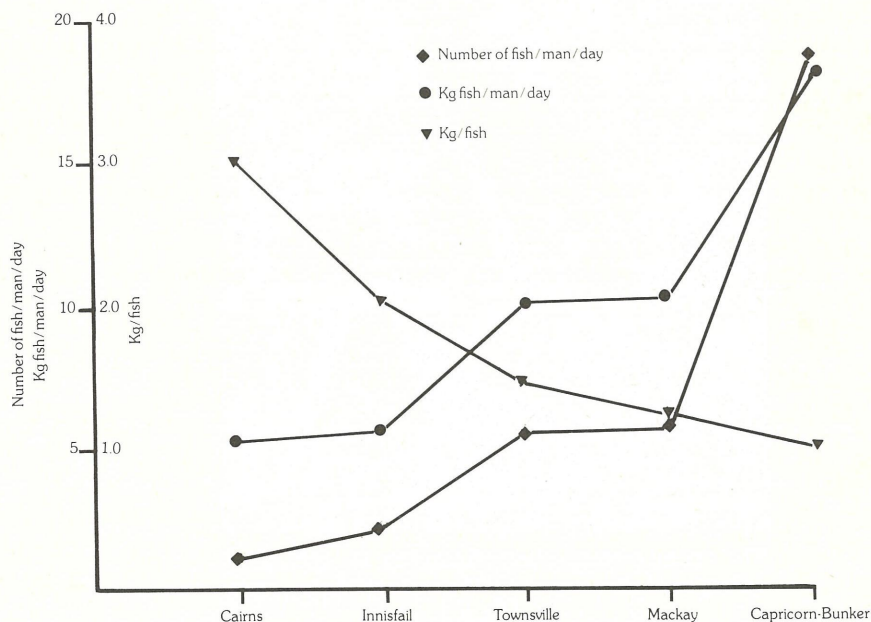
While one of the major recreational activities in the Great Barrier Reef Region is amateur fishing, little data are available on this activity.

During 1978-79 Authority staff undertook a survey study of amateur fishing along the Queensland coast from the Capricorn-Bunker area north to Cairns. The records of amateur fishing groups that fish from charter boats were examined and the following preliminary conclusions reached:

- where the reefs are varying distances from port, there is an increase in catch with increasing distance from port;
- where data are available over a period of years, changes in catch are evident (for example, on the reefs off the coast from Townsville the same number, but smaller, fish are now caught compared with 20 years ago, while catches from reefs off Innisfail are smaller but the fish are bigger compared with earlier years and in the Capricorn-Bunker area, catches have remained fairly stable for the last 20 years);
- there is some evidence that large coral trout and red emperor are less frequently caught;
- coral trout and sweetlip make up the majority of the catch from reefs off Townsville and Mackay, and the percentage of coral trout in the catch from reefs off Townsville is decreasing slowly while that of sweetlip is increasing;
- small boats catch more fish than very large charter boats; and
- the number and size of fish caught changes with latitude — in the south in the Capricorn-Bunker area many (about 15 per man per day) small (about 1 kg) fish are caught while further north off Cairns fewer (about 6 per man per day) but larger (about 3 kg) fish are caught (see Figure 3).

It is hoped the data sheet, developed by the Authority, will enable a better picture to be obtained of the development of amateur fishing over the next two or three years throughout the Great Barrier Reef Region.

**CATCH AND MEAN FISH WEIGHT BY LATITUDE**



# ADMINISTRATION

## MEMBERSHIP OF THE AUTHORITY

The Great Barrier Reef Marine Park Authority is a three member statutory authority comprising two part-time members and a full-time Chairman.

The Commonwealth Government invited the Queensland Government to nominate one of the part-time members and Mr S. Schubert was appointed to succeed Sir Charles Barton whose term of appointment expired on 30 June 1978. Mr Schubert's term of appointment expires on 30 June 1981. Mr Schubert is the Co-ordinator General for Queensland.

Dr J.T. Baker, Director of the Roche Research Institute of Marine Pharmacology, is the other part-time member. Dr Baker was appointed for three years, from 1 July 1976 to 30 June 1979.

The Authority has not had a permanent full-time Chairman since it was established by the *Great Barrier Reef Marine Park Act* 1975. Mr H.J. Higgs, Director of Environment in the then Department of Environment, Housing and Community Development, was appointed as Acting Chairman on 20 March 1978 to succeed Dr D.F. McMichael. Mr Higgs' term of appointment expired on 19 March 1979 and he was re-appointed as Acting Chairman in a full-time capacity on 3 May 1979.

Details of the Authority's functions and meetings during 1978-79 are given in Appendixes A and B respectively.

## THE GREAT BARRIER REEF CONSULTATIVE COMMITTEE

The Great Barrier Reef Consultative Committee was established under the *Great Barrier Reef Marine Park Act* 1975. At present it comprises nineteen members, eighteen nominated equally by the Commonwealth and Queensland Governments, and one representative of the Authority (see Appendix C). Its functions are to advise the Commonwealth Minister for Science and the Environment on matters relating to the operation of the Act and to advise the Authority on matters relating to the Marine Park.

The Authority sought advice from the Consultative Committee at the latter's 7th meeting on 4 October 1978 on future areas and priority for declaration as parts of the Great Barrier Reef Marine Park. No consensus advice emerged but a number of viewpoints were given at the meeting and subsequently which the Authority will take to account in its own considerations. Under the provisions of the Act the Authority complies with reasonable requests of the Committee for information relevant to the functions of the Committee. Administrative assistance is also provided to the Committee by the staff of the Authority.

## STAFFING

The continuing Government restraint on Public Service growth has been reflected in the staff ceiling of 16 set for the Authority in 1978-79.

The Public Service Board however approved during 1978-79 a revised establishment structure of 23 positions which has allowed the Authority a greater degree of flexibility in recruitment up to the staff ceiling.

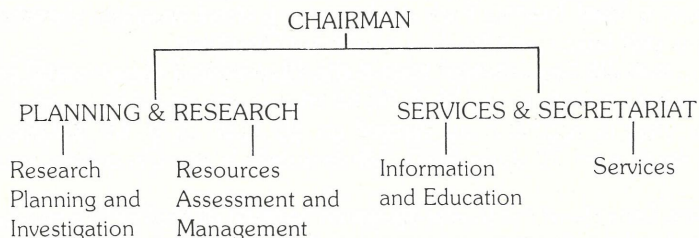
The increase in staff from 13 to 16 provided by the Government was used to recruit professional staff in planning and journalism to commence investigation of the Capricornia Section. The Authority is conscious of a general organisational weakness in its audit and management services capabilities. These are basic public administration requirements



which flow from the creation of any new authority but for which little initial provision is made. The Authority hopes that the Public Service Board will examine such basic needs for the Authority in the coming year and suggests that a basic administrative organisation might be specified for the establishment of all new authorities.

The new establishment structure consists of two branches (see Table 1) which report directly to the Chairman who has 'Permanent Head' powers (see s.40 of the Act).

**Table 1**



Permanent staffing was supplemented as far as possible by the appointment of temporary and part-time staff and the recruitment of trainees, particularly under the National Employment Strategy for Aborigines. Staff of the Authority at 30 June 1979, is shown in Table 2.

**Table 2**

<i>Branch/Section</i>	<i>Permanent</i>	<i>Temporary</i>		<i>Trainees</i>	<i>Total</i>
		<i>Full/Part-time</i>			
Planning and Research — Research, Planning & Investigation	1	—	—	—	1
— Resources Assessment & Management	4	1	—	1	6
	5	1	—	1	7
Services & Secretariat — Information & Education	2	—	—	—	2
— Services	5	2	1	1	9
	7	2	1	1	11
<b>Total</b>	<b>12</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>18</b>

### ACCOMMODATION

During December 1978 overcrowding in the Flinders Street, Townsville headquarters of the Authority forced the relocation of some staff into temporary premises in Sturt Street, Townsville, for about six months. This unsatisfactory arrangement has now been resolved with the acquisition of 350 square metres of new accommodation at 94 Denham Street, Townsville, but consideration will need to be given to longer term permanent accommodation and facilities. In considering the longer term permanent accommodation and facilities, the need for a close liaison and working relationships with the Queensland National Parks and Wildlife Service will also have to be taken into account.



The Great Barrier Reef Marine Park Authority pictured at Townsville airport after a familiarisation flight over adjacent reefs and islands (l. to r.) Dr J. T. Baker (Member), Mr H. J. Higgs (Acting Chairman), Mr S. Schubert (Member).

### BUDGETING

In the 1978-79 Budget, Parliament appropriated \$740 000 for the Authority work program. Further funds totalling \$48 305, which were virtually fully committed, were carried over from 1977-78. Total funds available in 1978-79 therefore totalled \$788 305.

The Authority's projected expenditure program included some funds allocated to the declaration and zoning of the proposed Capricornia Section of the Marine Park. The deferral of declaration pending the resolution of Commonwealth-State jurisdictions on the Reef caused a re-appraisal of work programs and expenditure priorities. In addition, a shortfall in expenditure occurred as salary charges for the Acting Chairman were borne by his parent Department.

The consequent major increases in expenditure occurred in the Research and Equipment areas. Savings of \$64 700 were declared in April 1979 due to advice from the Department of Finance and the Auditor-General's Office that the Authority was not liable to pay employer's contribution to the Superannuation Fund as a contingent liability.

No revenue was collected during 1978-79 but the Authority is developing its capacity to sell interpretative material, such as slides and films, maps and education resource material.

Details of expenditure are shown in Appendix L.

Opposite: School of juvenile fish and several coral trout (*Plectropoma leopardus*) sheltering near *Porites* coral outcrop.

# APPENDIXES



## APPENDIX A

### FUNCTIONS OF THE GREAT BARRIER REEF MARINE PARK AUTHORITY

The Authority is required, under the *Great Barrier Reef Marine Park Act 1975*, to make recommendations to the Minister for Science and the Environment for the establishment, control, care and development of a Marine Park within the Great Barrier Reef Region (see Figure 1).

The principal initial responsibility of the Authority is to recommend areas within the Region for declaration as parts of the Marine Park. Following declaration of an area, zoning plans must be prepared and appropriate regulations promulgated and implemented.

In the preparation of zoning plans, section 32(7) of the Act requires the Authority to take into account the need for:

- (a) the conservation of the Great Barrier Reef;
- (b) the regulation of the use of the Marine Park so as to protect the Great Barrier Reef while allowing the reasonable use of the Great Barrier Reef Region;
- (c) the regulation of activities that exploit the resources of the Great Barrier Reef Region so as to minimise the effect of these activities on the Great Barrier Reef;
- (d) the reservation of some areas of the Great Barrier Reef for its appreciation and enjoyment by the public; and
- (e) the preservation of some areas of the Great Barrier Reef in its natural state undisturbed by man except for the purposes of scientific research.

Section 32 of the Act also requires the Authority to invite and consider public representations at two stages in the preparation of a zoning plan — firstly, at the time of publicly notifying its intention to zone and secondly, following preparation of the draft zoning plan.

The Authority is also responsible for carrying out research relevant to the Marine Park, either by itself, or in co-operation with other organisations or individuals.

## APPENDIX B

### GREAT BARRIER REEF MARINE PARK AUTHORITY MEETINGS DURING 1978-79

20-21 July 1978	Brisbane	7-8 March 1979	Townsville
6-7 September 1978	Townsville	11-12 April 1979	Mackay
17-18 October 1978	Heron Island	24-25 May 1979	Townsville
17-18 January 1979	Canberra	6-7 June 1979	Townsville
7-8 February 1979	Sydney		

## APPENDIX C

### GREAT BARRIER REEF CONSULTATIVE COMMITTEE

#### Membership at 30 June 1979

Mr L.F. Backen	Commonwealth Department of National Development
Mr J.D. Ballingall	Queensland Commercial Fishermen's State Council
Mr J.F.S. Brown, A.O., M.C. (elected Chairman)	Queensland Confederation of Industry
Dr J.T. Bunt	Australian Institute of Marine Science
Dr. D. Connell	Australian Conservation Foundation
Mr P.B. Eccles	Commonwealth Department of Transport
Mr P. Ellis	Queensland Co-ordinator General's Department
Mr E. Hegerl	Queensland Conservation Council
Mr J.H. Izatt	Queensland Game Fishing Association
Mr J.P. Killoran	Queensland Department of Aboriginal and Islanders Advancement
Mr J. Leech	Queensland Department of Harbours and Marine
Dr P. Mather	Great Barrier Reef Committee
Professor J.D. Ovington	Australian National Parks and Wildlife Service
Mr E.A. Purnell-Webb	Commonwealth Department of Primary Industry
Dr G.W. Saunders	Queensland National Parks and Wildlife Service
Professor K. Stark	James Cook University of North Queensland
Mr J. Wilson	Queensland Department of Tourist Services
Mr J.T. Woods	Queensland Department of Mines
Dr J.T. Baker	Great Barrier Reef Marine Park Authority

#### Meetings During 1978-79

(1) 4 October 1978	Brisbane
(2) 24 May 1979	Townsville

## APPENDIX D

### STAFF OF THE AUTHORITY

During 1978-79 the following officers worked either full or part-time for the Authority.

Rod Williams (Executive Officer) B.E., B.Sc.	Annette O'Carroll
Margaret Carlson, B.A. (Hons)	Maureen O'Donnell
Ann Clair, B.A. (Hons)	Nuala Redhead
Pat Craig	Shirley Roberts
Wendy Craik, B.Sc. (Hons), Ph.D.	Les Scott, B.Ec.
Grant Hawley, B.A. (Hons)	Chris Smalley, B.Sc. (Hons)
Linda Hay, B.Sc.	Dianne Steffens
Laurie Kelso	Soames Summerhays, B.Sc.
Tor Hundloe, B. Econ. (Hons)	Garry Watkins
Richard Kenchington, M.Sc.	Koko Wigness
Paul Kok	Simon Woodley, B.A.
Rod Lacy	Rosaria Wyles
Ian Lea, B.Sc.	Len Zell, B.Sc.
Michael Loadsman, B.E. (Hons)	

## APPENDIX E

### CHRONOLOGY OF EVENTS 1978-79

#### 1978

- 1 July Mr S. Schubert was appointed as Authority member for three years.
- 7 July Staff member administered tourism questionnaire on Heron Island for OECD case study.
- 13 July Paper, 'Baseline Inventory Studies', presented by a staff member at the Northern Fisheries Conference, Townsville.
- 20-21 July Authority meeting MPA 12 held in Brisbane.
- 25 July Paper, 'The Role of Surveying in the work program of the Authority', presented at a seminar of the Queensland Branch of the Australian Institute of Surveyors.
- 5-12 August Staff member participated in South Pacific Commission working party in New Guinea which examined the current knowledge of coral and benthic communities.
- 14 August Completion of a case study on the impact of tourism on the environment of Heron Island for OECD Environment Committee Group of Experts on the Environment and Tourism.
- 17 August-5 September Aerial photographs of the Great Barrier Reef held by Division of National Mapping in Canberra were catalogued by a staff member.
- 1 September OECD Case Study on the impact of tourism on the environment of Heron Island forwarded to the OECD, France.
- 6-7 September Authority meeting MPA 13 held in Townsville.
- 20 September Joint submission on Raine Island by the Authority and the Queensland National Parks and Wildlife Service was sent to World Wildlife Fund.
- 21 September *Great Barrier Reef Marine Park Amendment Bill 1978* debated in House of Representatives.
- 28 September Copies of the proceedings of the Workshop on the Northern Section of the Great Barrier Reef were received and distributed.
- 28 September *Great Barrier Reef Marine Park Amendment Bill 1978* was read for the first time in the Senate. Debate adjourned on the second reading.
- 4 October Consultative Committee meeting CC7 held in Brisbane.
- 17-18 October Authority meeting MPA 14 held on Heron Island.
- 7 November Debate on the *Great Barrier Reef Marine Park Amendment Bill 1978* resumed and passed through the Senate.
- 8 November Joint workshop to formulate a code of practice for scientific diving was held at the Australian Institute of Marine Science complex.
- 18-28 November Workshop to consider fish population assessment conducted by Authority at Heron Island.

- 23 November Paper, 'How does the Great Barrier Reef Marine Park Authority affect tourist development on the Great Barrier Reef?', was presented by Dr J.T. Baker, member of the Authority, at the 8th Queensland Tourist Industry Seminar at Alexandra Headlands.
- 24 November Authority's 1977-78 Annual Report tabled in Parliament.
- 27 November Submission made by the Authority to the Green Island Management Committee.
- 30 November The Minister for Science and the Environment assumed responsibility for the Authority.
- 7 December Senator J. Webster sworn in as Minister for Science and the Environment.
- 1979**
- 17-18 January Authority meeting MPA 15 held in Canberra.
- 7-8 February Authority meeting MPA 16 held in Sydney.
- 9 February Staff member held discussions with the State Council of Queensland Commercial Fishermen's Organisation at Rockhampton.
- 9 February First meeting of Raine Island Co-ordinating Committee.
- 26 February Proceedings of the first fish population assessment workshop were received and distributed.
- 28 February Debate in the Senate on oil exploration on the Great Barrier Reef.
- 1-2 March Staff member collected fishing statistics from Mackay fishing clubs.
- 7-8 March Authority meeting MPA 17 held in Townsville.
- 8 March Premier screening of the Authority's audio visual on the Great Barrier Reef for invited guests.
- 10-17 March Temporary markers for reef walks were laid out on Heron Island Reef by Authority staff.
- 17 March Authority placed press advertisements seeking submissions to undertake an economic evaluation of Green Island and its Reef.
- 23 March *Bibliography of the Great Barrier Reef Province* by Dr E. Frankel received and distributed.
- 28 March Biological resource survey continued in the Capricorn-Bunker area.
- 9-11 April Workshop on 'Tourism and the Great Barrier Reef' conducted in Mackay by the Authority and Queensland Department of Tourism.
- 11-12 April Authority meeting MPA 18 held in Mackay.
- 20 April A Taiwanese vessel, the *Hui Ju Hup* was taken under escort to Cairns for illegal clam fishing on the Great Barrier Reef.
- 25 April The *Hui Ju Hup* was anchored and abandoned after taking water near Ruby Reef.
- 27 April Aerial photographic survey of the wreck and oil slick from the *Hui Ju Hup* was conducted by two Authority staff members.
- 27 April Authority chartered a boat to collect samples of reef organisms from the bommies adjacent to the wreck. Samples were despatched to a laboratory for hydrocarbon analysis.



3 May	Authority and Navy personnel arrived on a tug with the intention of towing the wreck out to sea.
4 May	The <i>Hui Ju Hup</i> towed to a position off Escape Reef following the failure of attempts to right the vessel.
5 May	The <i>Hui Ju Hup</i> was sunk with explosives in about 30 metres of water off Escape Reef.
8–23 May	Staff member gathered economic data from users in the coastal region adjacent to the Capricorn and Bunker groups of reefs.
14 May	Paper, 'Economic Evaluation of the Natural Environment — The Great Barrier Reef', presented by staff member at a workshop for measuring environmental damage costs, conducted by Department of Science and the Environment and the New South Wales State Pollution Control Commission.
15 May	Paper, 'Amateur Fishing on the Great Barrier Reef', was presented by staff member at the second Open Forum on Ecological Research conducted by the Ecological Society of Australia.
24 May	Consultative Committee meeting CC8 held in Townsville.
24–25 May	Authority meeting MPA 19 held in Townsville.
6–7 June	Authority meeting MPA 20 held in Townsville.

## APPENDIX F

### PUBLICATIONS, REPORTS AND PAPERS 1978–79

#### Publications

Frankel, E. (1978)	<i>Bibliography of the Great Barrier Reef Province</i>
Great Barrier Reef Marine Park Authority (1978)	<i>Workshop on the Northern Sector of the Great Barrier Reef</i>
Great Barrier Reef Marine Park Authority (1978)	<i>Great Barrier Reef Marine Park Authority Annual Report 1977–78</i>

#### Reports

Davies, P.	Geomorphological Study of Capricorn and Bunker Reefs
Environmental Science and Services	Zoning Strategy Study Phase I
Great Barrier Reef Committee	Scientific Advice — Cairns Region — Swain Region — Townsville Region
Great Barrier Reef Marine Park Authority — Australian Institute of Marine Science — James Cook University	Code of Practice for Scientific Diving.
Great Barrier Reef Marine Park Authority	Fisheries factors affecting marine park management — Technical Memorandum

Great Barrier Reef Marine Park Authority	Research on fishes of the Great Barrier Reef — Technical Memorandum
Great Barrier Reef Marine Park Authority	Workshop on reef fish assessment and monitoring
Great Barrier Reef Marine Park Authority	OECD Case Study — the impact of tourism on the environment: Heron Island
James Cook University of North Queensland	Economic and Social Research Program

### Papers

Baker, J.	'How does the Great Barrier Reef Marine Park Authority affect tourist development on the Great Barrier Reef?'
	'The role of the Great Barrier Reef Marine Park Authority in relation to tourism on the Great Barrier Reef'
Craik, W.	'Amateur Fishing on the Great Barrier Reef'
Hay, L.	'The Great Barrier Reef Marine Park'
Hundloe, T.	'Economic evaluation of the natural environment — the Great Barrier Reef'
Kenchington, R.	'Baseline inventory studies'
	'Marine Park Management Principles'
	'The role of surveying in the work program of the Authority'
Williams, R.	'Australia's Great Barrier Reef — the eighth wonder of the world'

## APPENDIX G

### RESEARCH AND STUDIES FUNDED BY GREAT BARRIER REEF MARINE PARK AUTHORITY 1978-79

<i>Project</i>	<i>Researcher/Institution</i>	<i>Purpose of Study</i>
<b>Humanities and Social Sciences</b>		
Economic and Social Research Program	Professor J. Rogers, James Cook University of North Queensland	Identify economic and social resource needs relevant to Great Barrier Reef Marine Park planning and management.
Economic Impact of Reef Usage	Dr R. Jensen, University of Queensland	The use of input-output modelling to assess the economic impact of selected activities associated with the Capricorn-Bunker reefs on the economy of the adjacent coastal region and on the whole of the State of Queensland.
Zoning Strategy Study	Ms D. Anderson and Mr D. Pitts, Environment Science and Services	Prepare zoning strategies for the proposed Capricornia Section of the Marine Park and includes <ul style="list-style-type: none"> <li>● inventory of existing data, usage impacts and constraints;</li> <li>● development of, and comparisons between, alternative strategies.</li> </ul>

Economic Analysis of Great Barrier Reef Commercial and Recreational Fishing	Dr G. McDonald, Griffith University	Accurately identify the economic value of the Great Barrier Reef as a fishery, using information on monetary value of Reef fish catches, fishing effects, investment and cost structure.
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Policy Options for Great Barrier Reef Tourism	Dr M. Gibbings, University of Queensland	Report on the likely future of Great Barrier Reef tourism by predicting changes in the important socio-economic variables affecting tourism. This will guide the Authority's future planning and will identify areas for further study.
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**Biological Sciences**

Benthos (coral baseline) Survey of Capricorn and Bunker Groups and Lady Elliott Island	Great Barrier Reef Marine Park Authority	A survey of coral communities to assess their distribution within the proposed Capricornia Section of the Marine Park.
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Analysis of Coral Baseline Data	Dr T. Done, James Cook University of North Queensland	Refine existing programs and methods for producing computer maps and produce maps collating the available coral baseline survey data.
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Refinement of Coral Baseline Methodology	Dr T. Done, James Cook University of North Queensland	Refine coral baseline and monitoring methodologies, analyse coral survey data and develop a classification of major reef community types.
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Fish Survey Methodology Workshop I	Great Barrier Reef Marine Park Authority	Define simple techniques to identify reef fish community types and assess population levels of commercially and recreationally important demersal species of fish.
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Fish Survey Methodology Workshop II	Great Barrier Reef Marine Park Authority	Refine the intensive fish survey techniques developed at Workshop I for the estimation of fish populations.
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Amateur Fishing Study	Great Barrier Reef Marine Park Authority	Assess, through the analysis of amateur fishing club catch records, the population fluctuations of reef fish stocks and the possible impact of fishing on these stocks.
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Recruitment of Reef Fish	Dr P. Sale, University of Sydney	Study the ecology of reef fish larvae with regard to their recruitment into the adult population.
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**Earth Sciences**

Geomorphological Study of Capricorn and Bunker reefs	Dr P. Davies, Bureau of Mineral Resources	Develop a classification of reefs, according to their age, which would be of use in reef management.
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**Engineering and Survey**

Map of reefs and islands of Great Barrier Reef between 14° S and 17° S (Cairns to Lizard Island)	Messrs N. Harvey, P. Isdale, D. Backshall, James Cook University of North Queensland	Produce descriptive and accurate maps in preparation for a proposed declaration of a section of the Marine Park off Cairns.
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Evaluation of LANDSAT	Great Barrier Reef Marine Park Authority and C.S.I.R.O.	Assess use of LANDSAT imagery, facilitate large scale surveys of coral growth and monitor the condition of reefs.
Ground truth evaluation	Ms D. Kuchler, James Cook University of North Queensland	Investigate the usefulness of LANDSAT imagery and aerial photography as remote sensing methods for small scale survey of coral reef communities.
Engineering Properties of Coral Reef Platforms	Dr H. Bock, James Cook University of North Queensland	A preparatory study towards the probable construction of artificial platforms on exposed reefs for use as research out-posts, navigational aids and tourist facilities.
Post-impact Survey	Great Barrier Reef Marine Park Authority and Commonwealth Department of Transport	Assess the impact on coral reef fauna of a diesel oil spill from the Taiwanese vessel <i>Hui Ju Hup</i> disabled at Ruby Reef, and the practicability of salvage in an oil spill situation.
Bathymetry of Capricorn-Bunker and Cairns reefs	Australian Survey Office	Provide detailed information on reef form and on bathymetry of waters adjacent to these reefs.
Aerial Photography of Capricorn-Bunker and Cairns reefs	Australian Survey Office	

### General

Bibliography of the Great Barrier Reef Province	Dr E. Frankel, University of Sydney	Compile a bibliography of scientific and general publications on the Great Barrier Reef.
Scientific advice on three areas along the Great Barrier Reef	Great Barrier Reef Committee	Provide scientifically based reports on the physical and biological resources of three areas of the Great Barrier Reef <ul style="list-style-type: none"> <li>● between Lizard Island and Innisfail</li> <li>● off Townsville</li> <li>● the Swain Reefs</li> </ul> and identify current and appropriate usage of these areas.

### Augmentative Support for Researchers

Augmentative Support for research projects relating to Marine Park planning and management	Ms C. Luddington, University of Sydney	Circulation and sedimentation in platform reefs.
	Dr G. Heinsohn, James Cook University of North Queensland	Biology of small cetaceans.
	Dr M. Liddle, Griffith University	Effects of tourism on the ecology of the Reef.
	Mr B. Hatcher, Sydney University	Algae-herbivore interactions.

Mr T. Pear, Griffith University	Accumulation and transfer of naturally occurring heavy metals in coral reef food web.
Ms E. Moodie, James Cook University of North Queensland	Food and feeding of loggerhead turtles.
Mr P. Doherty, University of Sydney	Ecology of territorial pomacentrid fish.
Mr G. Sutton, University of Sydney	Ecology of chaetodontid reef fish.
Dr P. Flood, University of Queensland	Palaeoclimate and dating studies.
Mr G. Bulgarelli, James Cook University of North Queensland	Review engineering design of reef structures.
Mr B. Kojis, University of Queensland	Reproductive biology of corals.
Mr N. Quinn, University of Queensland	Population studies of grazing species of reef fish.
Dr J. Leis, Australian Museum	Larval fish taxonomy and distribution ecology.

## APPENDIX H

### PARTICIPANTS AT THE WORKSHOPS ON FISH POPULATION ASSESSMENT

Mr G. Anderson, Australian National Parks and Wildlife Service  
 Dr J. Baker, Great Barrier Reef Marine Park Authority  
 Mr J. Bell, New South Wales State Fisheries  
 Dr W. Craik, Great Barrier Reef Marine Park Authority  
 Mr P. Doherty, Department of Biological Sciences, University of Sydney  
 Dr B. Goldman, Lizard Island Research Station  
 Miss H. Jasper, Australian National Parks and Wildlife Service  
 Dr D. Pollard, New South Wales State Fisheries  
 Mr B. Russell, Department of Environmental Studies, Macquarie University  
 Dr P. Saenger, Australian Underwater Federation  
 Mr G. Stroud, Department of Biological Sciences, James Cook University of North Queensland  
 Mr S. Summerhays, Great Barrier Reef Marine Park Authority  
 Mr H. Sweatman, Department of Environmental Studies, Macquarie University  
 Professor F. Talbot, Department of Environmental Studies, Macquarie University  
 Dr D. Williams, Department of Biological Sciences, University of Sydney  
 Mr K. Wigness, Great Barrier Reef Marine Park Authority

## APPENDIX I

### PARTICIPANTS AT THE DIVING CODE OF PRACTICE WORKSHOP

Dr D. Barnes, Australian Institute of Marine Science  
 Dr V. Callanan, Townsville General Hospital  
 Mr H. Ellery, Australian Institute of Marine Science

Dr B. Goldman, Lizard Island Research Station  
Mr B. Griffith, Commonwealth Scientific and Industrial Research Organisation  
Mr H. Higgs, Great Barrier Reef Marine Park Authority  
Dr B. Hill, Queensland Fisheries Service  
Dr P. Hutchings, Australian Museum  
Mr R. Kenchington, Great Barrier Reef Marine Park Authority  
Constable G. McDonald, Police Department  
Dr R. Olafson, Australian Institute of Marine Science  
Mr R. Pearson, Queensland Fisheries Service  
Mr J. Porter, Townsville Coastguard  
Professor J. Thomson, University of Queensland  
Mr I. Smith, Department of Environment, Housing and Community Development  
Dr P. Tibbs, Australian Underwater Federation  
Dr M. Unwin, Townsville General Hospital  
Dr J. Veron, Australian Institute of Marine Science  
Mr L. Zell, Great Barrier Reef Marine Park Authority

## APPENDIX J

### PARTICIPANTS AT THE TOURISM WORKSHOP

#### List of speakers

Dr J. Baker, Great Barrier Reef Marine Park Authority  
Mr R. Claringbould, Australian National Travel Association  
Mr D. Coleman, Townsville Tourist Organisation  
Dr D. Connell, School of Australian Environmental Studies, Griffith University  
Mr N. Ellis, Commonwealth Department of Industry and Commerce  
Mr W. Franklin, Trans Australia Airlines  
Mr E. Grimes, Day and Grimes Pty Ltd  
Mr N. Haysom, Queensland Fisheries Service  
Mr J. Izatt, Queensland Game Fishing Association  
Mr D. Jull, M.H.R., Member for Bowman  
Mr R. Kenchington, Great Barrier Reef Marine Park Authority  
Mr S. Le Page, Australian Tourist Commission  
Mr J. Luscombe, Islands Management Pty Ltd  
Mr D. Nettleship, Markman International  
Mr P. Ogilvie, Queensland National Parks and Wildlife Service  
Dr J. Pigram, Department of Geography, University of New England  
Mr J. Richardson, Australian Tourist Commission  
Mr P. Strangleman-Duc, Tour Contractors — Pacific Pty Ltd  
Mr P. Stringfellow, P. & O. Australia  
Mr P. Wakeling, Queensland Department of Tourism

#### List of Attenders

Ald. A. Abbott, C.B.E., Mayor of Mackay  
Ms M. Arbuckle, Grace Brothers Travel  
Mr S. Barnes, Lands Department  
Mr J. Bearman, Department of Mapping and Surveying and Office of the Surveyor  
General  
Ms L. Benfield, Grace Brothers Travel  
Mr T. Bolger, Hinchinbrook Island Pty Ltd

Mr K. Bowe, Air Whitsunday Amphibian Air Charter  
 Mr T. Carey, Wildlife Preservation Society of Queensland  
 Mr R. Catto, Caravan Parks Association of Queensland  
 Mr G. Chapman, Far North Queensland Promotion Bureau  
 Mr A. Chetcuti, Sun Plaza Motel  
 Mrs K. Chetcuti, Beachcomber Motel  
 Mr J. Clark, Office of Federal Minister for Science and the Environment  
 Mr J. Clarke, Kern Brothers  
 Mr J. Clayton, Ansett Airlines of Australia  
 Dr W. Craik, Great Barrier Reef Marine Park Authority  
 Mr N. Davidson, Ansett Airlines of Australia  
 Ms J. Deakin, Department of Tourism  
 Mr B. Dean, Royley Cruises Pty Ltd  
 Mr S. De Pinto, Coral Sands Motel  
 Ms L. Dougherty, Grace Brothers Travel  
 Mr J. Dow, Hinchinbrook Island Pty Ltd  
 Mrs T. Eastwood, Magnetic Island Bus Service  
 Mr T. Edmestone, Keppel Island Cruises  
 Mrs T. Edmestone, Keppel Island Cruises  
 Mr P. Ellis, Co-ordinator General's Department  
 Mr I. Emerson, Coral Coast Agencies  
 Mr B. Evetts, 'Elizabeth E' Cruises  
 Mr J. Finlay, Trans Australia Airlines  
 Councillor E. Ford, Mt Morgan Shire Council  
 Mr R. Gale, Department of Harbours and Marine  
 Mr M. Gibbings, Griffith University  
 Mr G. Gordon, Marlin Marina Tourist Services  
 Ms G. Haddock, Grace Brothers Travel  
 Mrs R. Harper, Alma Beach Resort  
 Mr G. Hawley, Great Barrier Reef Marine Park Authority  
 Ms L. Hay, Great Barrier Reef Marine Park Authority  
 Mr H. Hayles, Hayles Magnetic Island Pty Ltd  
 Mrs M. Hayles, Hayles Magnetic Island Pty Ltd  
 Mrs S. Hayles, Whitsunday Wonderworld Travel Council  
 Mr E. Hegerl, Great Barrier Reef Consultative Committee  
 Mr H. Higgs, Department of Science and the Environment  
 Mr E. Hodges, Lands Department  
 Mr M. Hooper, M.L.A., Member for Townsville West  
 Mr T. Hundloe, Great Barrier Reef Marine Park Authority  
 Mr A. Innes, M.L.A., Member for Sherwood  
 Mr P. Jennings, P.J. Studio One  
 Mr R. Jones, M.L.A., Opposition Spokesman on Tourism  
 Mr B. Katchor, Coral Point Lodge Motel  
 Mrs B. Katchor, Coral Point Lodge Motel  
 Mrs K. Katsberg, Grace Brothers Travel  
 Ms M. Khan, Grace Brothers Travel  
 Mr K. Kortum, Wanderers Paradise Tourist Park  
 Mr J. Landau, Whitsunday Yachting World  
 Dr M. Liddle, Environmental Studies, Griffith University  
 Ms S. Livery, Grace Brothers Travel  
 Mr P. Loeffler, Department of Tourism  
 Mr B. Lynne, Lindeman Island Pty Ltd

Mr K. McGill, Department of Tourism  
 Mr M. McInerney, Motel Shute Harbour  
 Mrs V. McInerney, Motel Shute Harbour  
 Mr G. McKauge, Laroc Pty Ltd  
 Mr J. McKechnie, Office of the Minister for Maritime Services and Tourism  
 Mr F. McLean, Brampton Island Pty Ltd  
 Mr G. McLean, 'Roylen' Cruises Pty Ltd  
 Mr J. McKlintock, Happy Bay Pty Ltd  
 Ms C. McMullen, Grace Brothers Travel  
 Ms P. Merrill, Australian National Parks and Wildlife Service  
 Mr H. Micallef, Department of Mapping and Surveying and Office of the Surveyor  
     General  
 Ms J. Morrow, Grace Brothers Travel  
 Mr B. Nicholson, Whitsunday Wonderworld Travel Council  
 Mr L. Nicolson, Lindeman Aerial Services  
 Mrs M. Nielsen, Hyde Park, Townsville  
 Ms J. O'Connor, Grace Brothers Travel  
 Mr T. Pear, Griffith University  
 Dr P. Pearce, James Cook University of North Queensland  
 Mr J. Picken, Qantas Airways  
 Mr C. Prideaux, Hertz Rent-A-Car  
 Mr C. Prior, Barrier Reef Diving Services  
 Mr J. Rodgers, Orpheus Island Resort  
 Mr T. Rogers, Grace Brothers Travel  
 Mr R. Rusan, Airlie Beachhouse  
 Ms J. Rutledge, Grace Brothers Travel  
 Mr S. Schubert, Co-ordinator General, Co-ordinator General's Department  
 Mr D. Sinclair, Capricorn Tourist Organisation  
 Mr C. Smalley, Great Barrier Reef Marine Park Authority  
 Mr A. Smith, Trans Australia Airlines  
 Mr B. Smith, 'Coral Seate'l'  
 Mrs M. Smith, Magnetic Island Holiday Flats  
 Miss L. Stewart, Department of Tourism  
 Mr E. Stock, Griffith University  
 Mr G. Sutton, North Brisbane College of Advanced Education  
 Mr R. Timperly, Freelance Writer/ Photographer  
 Mr T. Vollbon, Queensland National Parks and Wildlife Service  
 Mr N. Warburton, M.L.A. Opposition Spokesman on Culture, National Parks and  
     Recreation  
 Mr G. Watson, Capricorn Institute of Advanced Education  
 Mr B. Williams, Bush Pilots Airways  
 Mr R. Williams, Great Barrier Reef Marine Park Authority  
 Mr A. Wilson, M.L.A., Member for Townsville South  
 Mr E. Wilson, Development Bureau of Hinchinbrook and Cardwell Shires  
 Mr B. Wood, Australian Travel Scene  
 Mr S. Woodley, Great Barrier Reef Marine Park Authority  
 Mr L. Zell, Great Barrier Reef Marine Park Authority

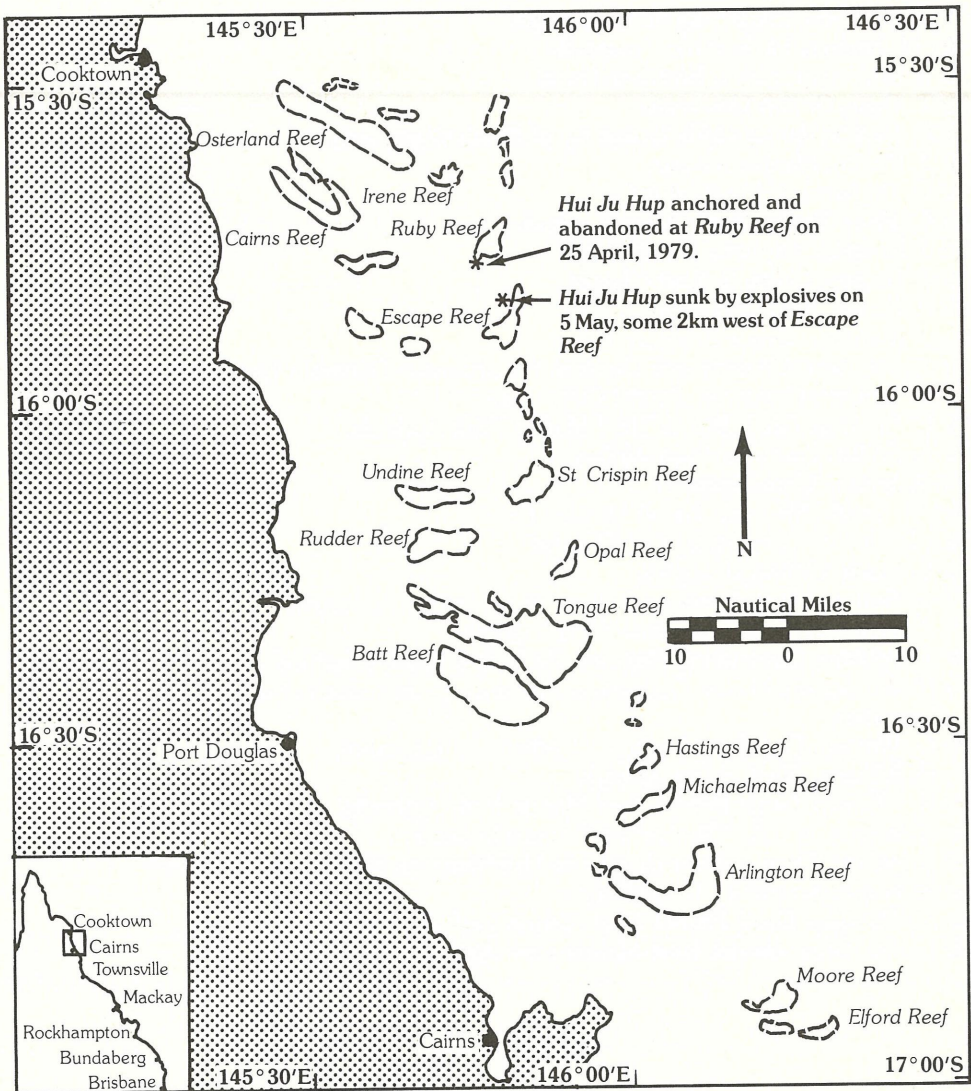


APPENDIX K

THE HUI JU HUP

On the 17 April 1979 four Taiwanese clam vessels were observed by a coastal surveillance aircraft. On the 18 April a boat was chartered, and sailed with one Commonwealth Fisheries Inspector and six Commonwealth Police on board. The *Hui Ju Hup* was sighted and taken under escort on the 20 April. The remaining three boats were unable to be located by the R.A.A.F. spotter aircraft. The Taiwanese boat was apprehended under the *Continental Shelf (Living Natural Resources) Act 1968* for illegal clam fishing.

While being escorted back to Cairns the *Hui Ju Hup* started to take water, and was anchored and abandoned on Ruby Reef (see Figure 4) on 25 April. The boat was left four-fifths full of water and lying on its starboard side.



At 4.00 p.m. on 26 April an oil slick was sighted by a plane chartered by the Department of Primary Industry. Authority staff were in radio-telephone contact with the pilot at the time of its discovery. The oil slick was 4 kilometres long, 75 to 100 metres wide and connected to the half submerged vessel which was located approximately 100 metres from Ruby Reef.

A Department of Transport vessel visited the site shortly after and confirmed the extent of the slick. They described the oil as being a diesel fuel, slightly heavier than distillate.

On 27 April the Authority conducted an aerial photographic survey of the wreck and oil slick which had reduced to about 200 metres in length. The Authority then chartered a boat and collected samples for hydrocarbon analysis of reef organisms from the bommies adjacent to the wreck.

The Department of Transport chartered a tug with the intention of pumping the remaining oil from the wreck before sinking it in deeper water. The tug left Cairns on 2 May with experts from the Authority and the Navy aboard, and arrived at the wreck on 3 May.

The wreck had first to be cleared of dangling lines, gas bottles and other hazards before divers from the Authority and Navy could begin the task of righting the wreck. Several attempts were made to right the *Hui Ju Hup*. When these failed it was decided to tow the wreck as it was into deeper water and sink it with explosives. Weather conditions made it impossible to tow it out to sea.

On 4 May the *Hui Ju Hup* was towed almost upright with the decks awash about one metre, to a position some 2 kilometres west of Escape Reef (see Figure 4). Four charges were set by the Navy clearance divers and the *Hui Ju Hup* settled in about 30 metres of water on 5 May.

The master of the *Hui Ju Hup* was prosecuted and fined \$750 on each of four charges, plus costs. The vessel was forfeited.

The Authority will continue to monitor Ruby Reef to record the effects of the oil pollution which occurred.

APPENDIX L  
**FINANCIAL STATEMENTS**  
**GREAT BARRIER REEF MARINE PARK AUTHORITY**  
**STATEMENT OF RECEIPTS AND PAYMENTS**  
**FOR THE PERIOD 1 JULY 1978 TO 30 JUNE 1979**

	1978-79	1977-78
Cash at bank and on hand 1.7.78	\$ 48 305	\$ 8 272
<b>RECEIPTS</b>		
Appropriation from the Commonwealth Government	577 795	370 000
	<u>626 100</u>	<u>378 272</u>
<b>PAYMENTS</b>		
Salaries and payments in the nature of salaries	220 195(a)	143 784
Chairman and part-time Members — remuneration and allowances (b)	— 6 006	6 503
Travel and subsistence	61 237(a)	31 645
Consultative Committee fees and expenses	6 910	9 194
Superannuation — employer's contribution (c)	—	37 500
Office requisites and stationery	24 489	13 475
Postage, telephone and telegrams	22 130	5 348
Office rental and cleaning	16 817	10 842
Publicity and advertising	12 496	6 605
Research and investigation	83 322	22 421
Capital expenditure		
— Furniture and fittings	8 272	8 804
— Plant, vehicles and equipment	60 526	9 826
— Library services	1 309	557
Other expenses		
— Incidentals	16 300	9 706
— Reimbursement to Departments of Defence and Science and the Environment for administrative costs	16 399	13 757
	<u>556 408</u>	<u>329 967</u>
Cash at bank and on hand 30.6.79	69 692	48 305
	<u>626 100</u>	<u>378 272</u>

- (a) Salaries and payments in the nature of salaries, and travel and subsistence include amounts of \$5951 and \$172 respectively on account of N.E.S.A. payments made during the 1978-79 financial year. Recovery of these costs is to be made from the Department of Employment and Youth Affairs.
- (b) The Director of Environment, Department of Science and the Environment was acting as Chairman of the Authority during 1978-79. Thus no remuneration was paid.
- (c) The Department of Finance agreed that as no clear legal liability exists on the Authority to make this payment, the amount of \$64 700 appropriated in 1978-79 could be declared as savings.

GRAEME KELLEHER  
*Acting Chairman*

SIMON WOODLEY  
*Acting Executive Officer*

## STATEMENT OF CAPITAL ASSETS (AT COST) AS AT 30 JUNE 1979

	1978-79	1977-78
	\$	\$
Plant and motor vehicles	5 422	3 149
Furniture, fittings and office equipment	56 098	18 827
Field equipment	38 975(a)	4 770
Library services	2 204	895
	102 699(b)(c)	27 641(d)

- (a) The 1978-79 figure for field equipment includes \$4951 being purchases for assistance with research carried out by the Heron Island Research Station Board. Expenditure has been recorded against 1978-79 research and investigation and the assets have been brought to charge in the 1979-80 assets register.
- (b) In addition during June the Authority had taken delivery of assets to the value of \$7667. These have been entered in the 1979-80 assets register as claims for payment had not been lodged prior to 30 June 1979, and will be reflected in the 1979-80 financial statements.
- (c) Stocktaking conducted during the financial year revealed minor discrepancies which are yet to be adjusted.
- (d) Dissection details of 1977-78 expenditure have been adjusted, where necessary, to allow comparison with 1978-79 figures.

GRAEME KELLEHER  
Acting Chairman

SIMON WOODLEY  
Acting Executive Officer

APPENDIX M  
AUDITOR-GENERAL'S REPORT

Auditor-General's Office  
Canberra House, Marcus Clarke St  
Canberra City, A.C.T. 2601

12 November 1979

The Honourable the Minister for  
Science and the Environment  
Parliament House  
Canberra, A.C.T. 2600

Dear Sir,

GREAT BARRIER REEF MARINE PARK AUTHORITY

In compliance with section 60(2) of the *Great Barrier Reef Marine Park Act 1975*, the Authority has submitted for my report financial statements, in the form approved by the Minister for Finance pursuant to the provisions of section 60(1) of the Act, comprising:

- Statement of Receipts and Payments for the period 1 July 1978 to 30 June 1979;
- Statement of Capital Assets (at cost) as at 30 June 1979.

Copies of the statements are enclosed for your information.

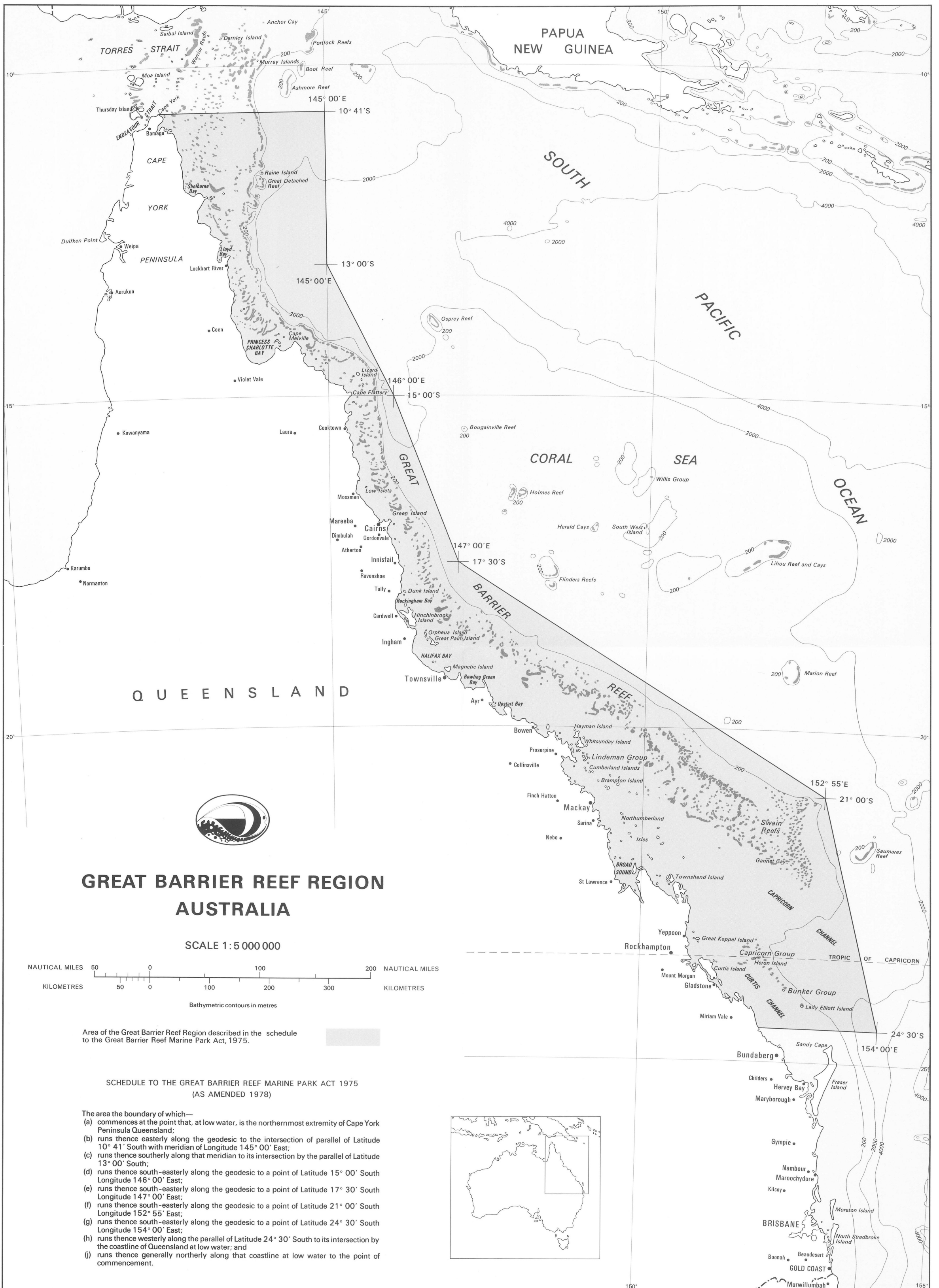
I now report in terms of section 60(2) of the Act that the statements are in agreement with the accounts and records and in my opinion:

- the statements are based on proper accounts and records; and
- the receipt and expenditure of moneys, and the acquisition of assets by the Authority have been in accordance with the Act.

No assets were disposed of during the year.

Yours faithfully,

D.R. STEELE CRAIK  
*Auditor-General*



# GREAT BARRIER REEF REGION AUSTRALIA

SCALE 1:5 000 000



Bathymetric contours in metres

Area of the Great Barrier Reef Region described in the schedule to the Great Barrier Reef Marine Park Act, 1975.

## SCHEDULE TO THE GREAT BARRIER REEF MARINE PARK ACT 1975 (AS AMENDED 1978)

- The area the boundary of which—
- commences at the point that, at low water, is the northernmost extremity of Cape York Peninsula Queensland;
  - runs thence easterly along the geodesic to the intersection of parallel of Latitude 10° 41' South with meridian of Longitude 145° 00' East;
  - runs thence southerly along that meridian to its intersection by the parallel of Latitude 13° 00' South;
  - runs thence south-easterly along the geodesic to a point of Latitude 15° 00' South Longitude 146° 00' East;
  - runs thence south-easterly along the geodesic to a point of Latitude 17° 30' South Longitude 147° 00' East;
  - runs thence south-easterly along the geodesic to a point of Latitude 21° 00' South Longitude 152° 55' East;
  - runs thence south-easterly along the geodesic to a point of Latitude 24° 30' South Longitude 154° 00' East;
  - runs thence westerly along the parallel of Latitude 24° 30' South to its intersection by the coastline of Queensland at low water; and
  - runs thence generally northerly along that coastline at low water to the point of commencement.



GREAT BARRIER REEF MARINE PARK AND ITS ANIMALS



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