MARINE STRATEGY FOR TORRES STRAIT

POLICY DIRECTIONS

Monica Mulrennan and Nicola Hanssen
with the Island Coordinating Council

April 1994

A project funded by the Ocean Rescue 2000 Program of the Commonwealth of Australia, with support from the Australian Nature Conservation Agency (CEPANCRM Program) and Queensland Department of Family Services and Aboriginal and Islander Affairs

Published jointly by the Australian National University
North Australia Research Unit and the Torres Strait Island Coordinating Council
A new Coordinator of the Marine Strategy for Torres Strait, Ms Tanya Leary, took up her appointment on Thursday Island in February 1994. Although Ms Leary was not a member of the Marine Strategy Team or involved in discussions, workshops and other events leading up to the publication of this document, readers seeking further information about the Marine Strategy are encouraged to contact Tanya at the Torres Strait Island Coordinating Council offices on Thursday Island: Telephone: 070-691446; FAX: 070-691868; PO Box 264, Thursday Island, Queensland 4875, Australia.
To the Reader

Torres Strait is a unique and bountiful environment. It is also the home of a culturally distinct society, the Torres Strait Islanders. The links between people and place are inextricable. Our culture and livelihoods, our past history and future prospects, all depend on the well-being of our sea and of the islands, reefs and shores which make up the region.

It is small wonder that Torres Strait Islanders feel a sense of responsibility about what happens in the Strait. We have paid the social, economic and environmental costs of past boom and bust, and of greed, policy miscalculation, and decisions made far from our regions. Today, with fears of sea level rise, ocean tanker accidents, mines, ports and other developments coming to the waters flowing into the Strait and the marine systems of which the Strait is part, we know that we must act.

The development of the Marine Strategy for Torres Strait is our response. It is an open public process through which the knowledge and needs of the people of Torres Strait will be integrated with the expertise of natural and social science disciplines, and the resources and legal and administrative authority of governments, to provide for the effective management of the marine environment. Over the years there have been many and various actions and studies carried out in our region. These have provided much useful information, and in the development of our Marine Strategy we have drawn on them as our principal non-Islander sources. The time has now come, however, when an overall strategic view, with comprehensive environmental management guidelines, is needed.

Torres Strait Islanders are the first people to be affected by any problems in the Strait. In recognition of this fact, the Island Coordinating Council (ICC) has taken on the responsibility for developing the Strategy. We know from past experience that unless Torres Strait residents manage this work, the results will be unsatisfactory, ending in squabbles, theorising, and inappropriate decision-making by interests and agencies far removed from and little concerned with our daily lives. Torres Strait is our life. We cannot abdicate our responsibilities for it.

As we embark on the development of this Strategy we must keep in mind two major political and legal facts which govern our region. The first is the existence of Islander rights predating European settlement of Australia, rights which have at last been recognised in the High Court’s decision of June 1992 in Mabo. A whole network of indigenous laws, rights and obligations, as well as management customs and ecosystem perspectives, lie beyond the present scope of Australian and Queensland law. Rather than fearing these, we must recognise that they strengthen the scope for sound environmental protection and sustainable development.

Another matter is the Torres Strait Treaty. This complex Treaty contains provisions which are virtually unique in international relations. Some of these are positive, but in the daily workings of
the Treaty we have found many problems. Some of the more sensational of these have reached Australian television viewers, while our people live daily with social, health and other quieter problems. The Treaty was in many respects a novelty. We should recognise that we have learned from it and make revisions on the basis of experience and new realities. Among those realities are surely the Mabo decision and Australia’s rethinking of the constitutional status of indigenous peoples.

The following pages present a broad overview of the issues and problems we have to deal with, and propose a number of strategies to address them. Many of these ideas were outlined in an earlier version of this document, ‘Towards a Marine Strategy for Torres Strait’, published in April 1993. Over five hundred copies of that paper have since been circulated among government agencies, industry and the scientific community, and their response invited. A Workshop was also convened on Thursday Island in June 1993 to provide further opportunity for feedback and discussion; representation from all of the major stakeholders was invited. The discussion paper has been revised and refined as a result of the public participation process and is presented here as a policy paper on the Marine Strategy for Torres Strait.

Consultation and cooperation will continue as an essential component of the development and implementation of the Strategy. With the best intentions in the world, and all the money, we could not solve Torres Strait issues without the goodwill of governments and other interests based outside our region. An essential part of the Strategy’s implementation will be the re-education, re-orientation, and re-shaping of public bodies in order to meet the challenges identified. Within our region, we must build bridges to non-Islanders who are part of the Torres Strait community. They too are an essential component of this project.

All around Australia the need to manage the marine environment is gaining recognition. Here in the Torres Strait the challenge is particularly great. As we begin our work on MaSTS, outside interest groups are watching us. They have heard of what we are doing, and they know it is a pilot project which may offer some solutions to an Australia-wide problem. We are proud to be taking a lead in this process.

In the preparation of our Marine Strategy we must especially thank the Project Coordinator, Dr Monica Mulrennan of the North Australia Research Unit, Australian National University, and the Assistant Coordinator, Victor McGrath of Thursday Island. I can tell every reader that the few pages here are only a very small part of the enormous amount of research, documentation and consultation which has been undertaken to bring us this far.

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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACIUCN</td>
<td>Australian Committee for the International Union for the Conservation of Nature and Natural Resources</td>
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<tr>
<td>AFMA</td>
<td>Australian Fisheries Management Authority</td>
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<td>AIDAB</td>
<td>Australian International Development Assistance Bureau</td>
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<td>AIMS</td>
<td>Australian Institute of Marine Science</td>
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<tr>
<td>AMCS</td>
<td>Arctic Marine Conservation Strategy</td>
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<td>AMSA</td>
<td>Australian Maritime Safety Authority</td>
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<tr>
<td>ANCA</td>
<td>Australian Nature Conservation Agency (previously ANPWS)</td>
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<td>ANPWS</td>
<td>Australian National Parks and Wildlife Service (now ANCA)</td>
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<td>ANU</td>
<td>Australian National University</td>
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<tr>
<td>ANZECC</td>
<td>Australian and New Zealand Environment and Conservation Council</td>
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<td>ATSIC</td>
<td>Aboriginal and Torres Strait Islander Commission</td>
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<tr>
<td>BRACS</td>
<td>Broadcasting in Remote Aboriginal Communities</td>
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<tr>
<td>CDEP</td>
<td>Community Development Employment Project</td>
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<tr>
<td>CEPA</td>
<td>Commonwealth Environment Protection Agency</td>
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<tr>
<td>CEPANCRM</td>
<td>Contract Employment Program for Aboriginals in Natural and Cultural Resource Management</td>
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<tr>
<td>CLC</td>
<td>Central Land Council</td>
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<tr>
<td>CMT</td>
<td>Customary Marine Tenure</td>
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<tr>
<td>CONCOM</td>
<td>Council of Nature Conservation Ministers</td>
</tr>
<tr>
<td>CSIRO</td>
<td>Commonwealth Scientific and Industrial Research Organisation</td>
</tr>
<tr>
<td>CYPLUS</td>
<td>Cape York Peninsula Land Use Study</td>
</tr>
<tr>
<td>DASET</td>
<td>Department of Arts, Sport, the Environment and Territories (Commonwealth)</td>
</tr>
<tr>
<td>DEST</td>
<td>Department of Environment, Sport and Territories (previously DASET)</td>
</tr>
<tr>
<td>DFAT</td>
<td>Department of Foreign Affairs and Trade (Commonwealth)</td>
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<tr>
<td>DFSAIA</td>
<td>Department of Family Services and Aboriginal and Islander Affairs (Qld)</td>
</tr>
<tr>
<td>DOGIT</td>
<td>Deed of Grant in Trust</td>
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<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<tr>
<td>EIS</td>
<td>Environmental Impact Statement</td>
</tr>
<tr>
<td>EMC</td>
<td>Environmental Management Committee</td>
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<tr>
<td>ENSO</td>
<td>El Nino-Southern Oscillation</td>
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<tr>
<td>ESD</td>
<td>Ecologically Sustainable Development</td>
</tr>
<tr>
<td>ESPA</td>
<td>Endangered Species Protection Act</td>
</tr>
<tr>
<td>GBRMPA</td>
<td>Great Barrier Reef Marine Park Authority</td>
</tr>
<tr>
<td>HORSERA</td>
<td>House of Representatives Standing Committee on Environment, Recreation and the Arts</td>
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</tbody>
</table>
IBIS  Island Board of Industry and Service
ICC    Island Coordinating Council
IDC    Interdepartmental Committee
IMO    International Maritime Organisation
IPCC   Intergovernmental Panel on Climate Change
ITCZ   Intertropical Convergence Zone
IUCN   International Union for the Conservation of Nature and Natural Resources
MARPOL Marine Pollution Act (International Convention for the Prevention of Pollution from Ships 1973/78)
MaSTS  Marine Strategy for Torres Strait (acronym no longer in use)
MOU    Memorandum of Understanding
MPA    Marine Protected Area
NARU   North Australia Research Unit
NCA    Nature Conservation Act (Queensland)
NCF    Nugget Coombs Forum
NLC    Northern Land Council
OR2000 Ocean Rescue 2000
OSSM   On Scene Spill Model
PCDS   Priority Community Development Strategy for Torres Strait
PNG    Papua New Guinea
PZJA   Protected Zone Joint Authority
QCFO   Queensland Commercial Fishermen’s Organisation
QDEH   Queensland Department of Environment and Heritage
QDoT   Queensland Department of Transport
RAC    Resource Assessment Commission
SOMER  State of the Marine Environment Report
SPREP  South Pacific Regional Environment Programme
TAFE   Technical and Further Education
TPHU   Tropical Public Health Unit
TI     Thursday Island
TSBS   Torres Strait Baseline Study
TSC    Torres Shire Council
TSFIICC Torres Strait Fishing Industry and Islanders Consultative Committee
TSFO   Torres Strait Fisherman’s Organisation
TSFSAC Torres Strait Fisheries Scientific Advisory Committee
TSPZ   Torres Strait Protected Zone
UN     United Nations
UNCED  UN Conference on Environment and Development
UNCLOS UN Convention on the Law of the Sea
UNEP   UN Environmental Programme
WGCRM  Western and Gulf Coastal Zone Management
WWF    World Wildlife Fund for Nature
PREFACE

In April 1993 the discussion paper *Towards a Marine Strategy for Torres Strait*† was released. Its purpose was to focus consultations for the development of the Strategy. The response received has been extremely encouraging. Even though different viewpoints have been put forward, a spirit of cooperation and goodwill has prevailed.

The present paper reflects the considerable evolution of the Strategy over the past year. It outlines emerging policy directions, summarised in the final section of the paper. The purpose and principles of the Marine Strategy provide standards towards which implementation will be directed. Implementation involves specific action plans which will evolve over time and be modified as necessary.

This paper also incorporates responses from the consultation process and new work resulting from such responses. In addition to written responses and the ICC Workshop, informal contact with various individuals and agencies is reflected. Shaded boxes contain extracts from the wide range of comments received.

Some material has been corrected where inaccurate, or supplemented where appropriate. A sub-section on the status of dugong and sea turtles has been introduced, detail on other conservation strategies has been provided, and a more complete list of relevant international conventions is included. The bibliography has been supplemented, not least by material provided since the April 1993 discussion paper.

One point of consensus from the consultation process was the style and layout of the discussion paper, so we have retained that format.

This paper also reports on the important results of two major events of the past year.

1. The Conference on Indigenous Peoples and Sea Rights, *Turning the Tide*, held in July 1993 by the Law Faculty and Centre for Aboriginal and Islander Studies at the Northern Territory University, Darwin, brought together many impressive new studies. It also provided a unique forum for the exchange of information and insights among Aboriginal and Islander representatives, legal academics

† Readers will note the omission of the acronym ‘MaSTS’ from this publication. This has been necessary due to objections raised by a corporate body which operates under a similar name. We trust that you appreciate the legal dimension involved.
and practitioners, anthropologists, scientists, business persons and public servants.

2. The Final Report of the Coastal Zone Inquiry of the Resource Assessment Commission was released in November 1993. It contained a number of supporting and encouraging references to the Marine Strategy for Torres Strait and reinforced our awareness that the Marine Strategy is more than a local matter. The Final Report contained a chapter on indigenous peoples and made significant recommendations. The ICC Chairman, Getano Lui, Jnr, has written to the Prime Minister urging that government implement these recommendations immediately.

As a final comment, we remind the reader that the process of developing this Marine Strategy is as important as the product itself; the integrity of the process will determine the quality of its outcomes. The lives and future of the people of Torres Strait are at stake. That is why the Island Coordinating Council has undertaken this initiative. The cooperation of all those with interests and responsibilities in the region is required to ensure its effective implementation.

We take this opportunity to thank those of you who have submitted written comments, participated in discussions and workshops, or are contributing in any other way to the development of the Marine Strategy for Torres Strait. We look forward to your continued support.

Finally, we extend our special thanks to Peter Jull for his support and direction throughout the writing of this paper, to Marjorie Sullivan for her valuable advice on environmental planning issues; to Colin Scott for his comments; and to NARU and ICC staff for their assistance in putting this publication together, in particular Ann Webb (copy editing and production), Sally Roberts and Colleen Pyne (library research) and Ana Bisset (ICC Executive Secretary).

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Figure 1. Map of the Torres Strait region
Source: Lawrence & Cansfield-Smith 1991, 1
INTRODUCTION

1.1 The need for a Marine Strategy for Torres Strait

The relationship between indigenous peoples and the environment has become the fundamental defining characteristic of indigenous identity. Unless practical environmental action is taken soon, however, this association will become an empty one in many places. Torres Strait is one such region under threat.

The Torres Strait Islanders still live in their traditional homeland, despite the removal of some of their people from certain islands during the period of European settlement. Others have moved more recently to the mainland because of island flooding.) Islanders are still largely dependent on the food and livelihoods provided by the sea. A variety of threats to the marine environment, for example sea level rise and the potential for contamination from mining operations in neighbouring Papua New Guinea (PNG), have emerged in recent years and have received public recognition and the considerable attention of specialists (see Lawrence & Cansfield-Smith 1991). For these reasons Islanders strongly support ecosystem management and ecologically sustainable development. In 1991 they issued a telling statement of their concerns and needs, 'Principles and Objectives for the Future of Torres Strait'. It was here that the Marine Strategy for Torres Strait was born.

A comprehensive conservation and sustainable development strategy is needed as the foundation for future public policy and economic development in the Torres Strait region. A Marine Strategy for Torres Strait ... would be the largest element in this approach, building on the unique relationship between Islanders and the sea. This relationship is as important for cultural traditions and social forms as for our livelihoods and future well-being (Principles and Objectives for the Future of Torres Strait, May 16 1991, 10, corrected version).

The Brundtland Report, which has done so much to set the international agenda on environment and development issues in recent years, is very clear on the need for the countries of the world to support and 'empower' indigenous peoples in those remaining homelands where they have survived for thousands of years (Brundtland et al 1987, 114–16).
Importantly, it links environment and resource management with policies for social justice, a link too often forgotten by governments:

The starting point for a just and humane policy for [indigenous] groups is the recognition and protection of their traditional rights to land [and sea] and the other resources that sustain their way of life – rights they may define in terms that do not fit into standard legal systems. These groups’ own institutions to regulate rights and obligations are crucial for maintaining the harmony with nature and the environmental awareness characteristic of the traditional way of life. Hence the recognition of traditional rights must go hand in hand with measures to protect the legal institutions that enforce responsibility in resource use. And this recognition must also give local communities a decisive voice in the decisions about resource use in their area (Brundtland et al 1987, 115–16).

The Report also recognises the larger national and international context:

These communities are the repositories of vast accumulations of traditional knowledge and experience that links humanity with its ancient origins. Their disappearance is a loss for the larger society, which could learn a great deal from their traditional skills in sustainably managing very complex ecological systems. It is a terrible irony that as formal development reaches more deeply into rain forests, deserts, and other isolated environments, it tends to destroy the only cultures that have proved able to thrive in these environments (Brundtland et al 1987, 114–15).

Indeed, those wide interests seem to be the main reason advanced by the Brundtland Report for ‘Empowering Vulnerable Groups’ (as the Report entitles its section on indigenous peoples).

Programs and policies directed from the top have too often been viewed as the solution for indigenous peoples. Such approaches are rarely appropriate for distinct cultural groups like Torres Strait Islanders or for sensitivity to regional uniqueness. Increasingly efforts are being made to ‘recognise Aboriginal and Torres Strait Islander traditional interests ... and to provide such communities with a direct role in the management of [a particular area]’ (Whitehouse 1993, 1). The wider national purpose for action on marine issues in Australia has been focused by a number of recent reports and inquiries. These include the Coastal Zone Inquiry of the Resource Assessment Commission, the National Strategy for Ecologically Sustainable Development (ESD), the National Strategy for the Conservation of Australia’s Biological Diversity, Ocean Rescue 2000, and the reports of the House of Representatives Standing Committee on Environment, Recreation and the Arts (HORSCERA), The Injured Coastline: Protection of the Coastal Environment (1991), and the role of protected areas in the maintenance of biodiversity (HORSCERA 1993). Even though such reports
increasingly recommend the involvement of Aboriginal and Islander peoples in the development and implementation of related programs and policies, pressure must be brought to bear on the relevant government agencies to ensure that these recommendations are implemented.

Australia has signed various international agreements and made numerous statements through federal prime ministers and ministers, committing itself to a new direction in policy towards Torres Strait Islanders and Aborigines. Australia has also signed environmental and sustainable development commitments such as Agenda 21 of the 1992 Rio Earth Summit. This substantial document provides clear guidelines for implementing the Brundtland approaches, cited above, in indigenous homelands such as the Torres Strait. A thorough change in approach is needed in Australia. The Marine Strategy for Torres Strait is an attempt by the Island Coordinating Council of Torres Strait to carry out such a change - for the good of the people of the Torres Strait and for all Australians who care about the marine environment.

ATSIC considers that Aboriginal and Torres Strait Islander peoples should be directly involved in decision-making and management of issues which are likely to impact on their communities, and that the development of a strategy such as MaSTS is a vital first step in achieving such involvement in the management of the marine environment of the Torres Strait region (ATSIC, Submission 1).

1.2 The Torres Strait region

The Torres Strait is a 150 km wide passage between Cape York Peninsula of northeast Australia and the southwest coast of PNG. It incorporates the northernmost part of an internationally significant ecosystem, the Great Barrier Reef, other extensive reef areas, islands, islets, cays and mangroves, as well as some of the most extensive sea-grass areas in the world.

The region is culturally distinct within Australia, being home to Australia’s indigenous Melanesian people – the Torres Strait Islanders. Today there are an estimated 8000 Islanders living on 16 islands within the Strait and 1800 living in two additional communities on the northern tip of Cape York. This includes the 3500 Islanders living in the major commercial and administrative centre of Thursday Island and its nearby inner islands (Hoddey 1993, 9). Arthur (1990) estimated that there were approximately 15 000 Islanders living outside the Torres Strait region on the Australian mainland, although there are indications of some return migration.
The Islanders have a strong seafaring and trading tradition and hence a close relationship with the tropical seas, coast and regenerating reefs of the region (Section 1.3). The significance of the sea as the basis of their livelihoods and food sources can be appreciated by the fact that average rates of consumption of seafood in the Torres Strait are among the highest in the world (Johannes & MacFarlane 1991). The Islanders now wish to create and sustain a self-supporting economy based on their marine resources.

What makes this project unique is that it is the first project to be established as a result of local community recognition of the central importance of the marine environment to its well-being, and efforts to take the initiative in environmental protection and management as a means of achieving greater control over its destiny. In a very real sense the rest of Australia is watching what happens here (Gillies 1993).

In recent years the Torres Strait has seen a substantial growth in tertiary (service) sector jobs, although these jobs have often gone to outsiders. The proliferation of public sector bodies, both service delivery and policy planning functions, has been welcomed for the increased attention it has brought to local problems. Lack of coordination and lack of decision-making accountable to local elected bodies have brought new problems, however.

The Torres Strait community has significant social and economic problems in the form of high unemployment and under-employment, limited infrastructure, acute health and education needs, and alcohol abuse and related problems. The lack of job prospects in particular, coupled with feared loss of accustomed social and cultural traditions and stability, have generated a corrosive sense of alienation among many people. The great post-war out-migration of Islanders may have eased some pressures, but it has also highlighted the regional disparity experienced between this corner of Queensland and the rest of Australia.

The major determinants of federal and state government policy in Torres Strait today are inevitably: the difficulties of maintaining Australia's territorial integrity and a national frontier with countries to the north; protecting and managing a sensitive and hazardous physical marine environment which includes important international shipping routes; providing equitable living conditions and opportunities to a remote and chronically depressed region; and fulfilling evolving international standards for the survival, cultural autonomy, and appropriate political institutions of a distinct indigenous people. This is the policy and political context in which the Marine Strategy for Torres Strait must exist no matter what changes of party or personality may occur in Canberra, Brisbane or the Torres Strait.
1.3 A historical perspective: Torres Strait Islanders and the Sea

by Jeremy Beckett, University of Sydney

In recognition of his years of involvement with the Torres Strait, the ICC invited Professor Jeremy Beckett to the June Workshop to provide the historical context in which the Marine Strategy was being developed. His paper is reproduced here because, as Beckett explained at the Workshop, 'a little of the historical background and the cultural background is a useful starting point, because it is important to keep the people in the environment'.

It is impossible to understand the history of the Torres Strait Islanders apart from their relationship with the sea. That they were able to settle the islands at all, was due to an effective exploitation of marine resources. That they were able to go on living on their islands after colonisation was largely due to their participation in the marine industry. Even now that they are heavily dependent on government support. The catching of turtle, dugong and fish provides Islanders with their own independent sources of subsistence and the means for maintaining the feasts which bring Islanders together, not just from around the Strait but from all around Australia. Economics aside, the ocean has always inspired the Torres Strait Island cultural imagination, occupying a central place in its unique culture. This is vividly illustrated by an old Badu song that likens the white foam on the reef to the bobbing of dancers' white feather head dresses. The head dress is, of course, the dari that has become the official emblem of the Torres Strait Islanders and appears on their flag.

We do not know how long the Islanders have been living in Torres Strait. Certainly they were there when the Torres expedition passed through in 1606, but their arrival – according to one tradition from Daru – occurred much earlier than this. Obviously they arrived by boat, presumably the single outrigger canoe still used by coastal Papuans. They continued to get the dugouts from Papua since the islands lacked heavy timber, but they changed from single to double outriggers, and devised distinctive forms of sail and rigging. Early visitors to Torres Strait were impressed by these vessels, often as long as six metres and carrying as many as twenty crew (Moore 1979).

The development of the Torres Strait canoe indicates the dynamic character of the culture, that was adapting to one of the richest marine environments in the world. This
environment provided them with a far higher protein diet than their Papuan cousins enjoyed. And though most islands practised some agriculture (mainly of yams and bananas), fishing, and turtle and dugong hunting engaged more of their time. Islands such as Purema, Warabir and Aureed, which lacked cultivable soil, could be inhabited as long as their populations could exchange turtle and other sea produce for garden food grown on more fertile islands.

Trade, carried mainly by Torres Strait canoes, linked the twenty island communities as well as the Papuan and Australian mainlands into a dense network of transactions (Lawrence 1989). Islander canoes were spotted as far south as Princess Charlotte Bay. The traffic included the dugouts (without which life in the islands would have been impossible), spears and harpoons, stone and bamboo, but also 'luxuries' such as drums, feathers and ochre, as well as new dances and songs, and religious ceremonies. Although in Torres Strait a vessel was rarely out of sight of land, and the reefs on which so many European ships came to grief were less of a hazard to the shallow draught canoe, sailing required close knowledge of winds, tides and currents. Torres Strait languages include elaborate vocabularies describing such things. The hunting of turtle and dugong also required elaborate knowledge of the habitats and habits, as well as the skills needed in the making and use of the harpoon (Haddon 1912). At the same time, the Islanders never treated their canoes or harpoons simply as utilitarian items; they painted them and decorated them with cowry shells and feathers (Haddon 1912; Moore 1979).

The sea also provided Torres Strait religion and society with its social symbolism. The majority of the clan totems were marine creatures, including shark, dugong, turtle, stingray, sucker fish, whale and crocodile. The clans represented their totems in dance, wearing elaborate head dresses made out of turtle shell and feathers. The mythological hero, Gelam, who became the hill of Mer, set out from Moa in the form of a dugong. The Four Brothers, who became the objects of religious cults on Yam, Masig, Awridh and Mer, respectively, drifted to their final destinations in the form of a canoe, driftwood, a whale, a porpoise and a turtle (Haddon 1908, 33–5). As the gods of the headhunters, they shared the ferocity of sharks and crocodiles.

Not only human beings but the spirits of the dead were present on the sea, inside water spouts and in the ghostly boats that waited to take on the spirits of those about to die and carry them to the land of the dead to the west (Beckett 1975).

The sea, in short, was not an empty space, but a complex environment filled with meaning, both practical and
spiritual. In keeping with these, every rock, reef and sandbank was named. The sea also had an owner, who should be consulted when others made use of it, who knew the associated stories, and who had the right to represent it in song and dance.

The Europeans, whose ships began passing through the Strait from the beginning of the seventeenth century, were at first taken for spirits of the dead. Later, they were supposed to live their whole lives on ships. However, the Islanders soon discovered that the strangers possessed one extremely valued item, iron, which could be traded for fresh vegetables and curios (Haddon 1935, 93–7). The increasing number of wrecks also yielded up supplies of metal that proved a preferable substitute for shell and stone blades. Thus began the Islanders' dependence on European commodities that presently had them becoming wage workers on the pearlimg boats.

Europeans began exploiting the marine resources of the Strait in the 1860s, first trepang or bêche-de-mer and then pearl shell (mainly the gold lip oyster, though sometimes also black lip, green snail and — after 1916 — trochus) (Beckett 1987, 34–9). The first vessels were manned by Europeans or Pacific Islanders; later came Malays, Filipinos and Japanese. These enterprises required fresh food and water from the Islanders and a stretch of foreshore to repair the boats and process the catch. Here Islanders made the foreigners' acquaintance, sometimes clashing with them, but eventually learning to live alongside them. The encounter, soon supplemented by the presence of European and Pacific Islander missionaries, had a profound impact on the Islander way of life. In particular, Islanders developed cash needs that could only be satisfied by working in the marine industry. Although the subsistence economy persisted, in modified form, local trade declined as Islanders got what they wanted from the store with the money they earned on the luggers.

From the 1870s to the 1960s, most young Islander men worked each year on the fishing boats, either for foreign or Islander skippers. The work was hard, and also dangerous when Islanders began deep water diving after World War II, but it was also a matter of pride. Parents looked for a hard worker to marry their daughter; a successful skipper was a respected figure in the community. And although pay was meagre, workers tried to leave some money for the building of churches, which now stand as monuments to their labours.

The new working schedule resulted in a reorganisation of ceremonial and festive life. Christmas and New Year, when the men were home, became the time for dancing, weddings and tombstone openings. On such occasions, the luggers
would turn aside from the search for money and go out for turtle and dugong. Again, the sea affected not only the Islanders' working life, but also their creative life. To alleviate the monotony of life at sea, they composed songs, to which they set dances when they returned home. These songs celebrated the boats on which they worked, and described the run of the sea, the lie of the clouds, the cry of the birds. This Badu song, composed by Samuel Sagigi is a good example:

rain clouds gather over the island
hanging low they drift towards us
the north west wind is blowing
our work is here out on the sea
(translation by Ephraim Bani)

With the entry of Japan into World War II, Torres Strait came under military control. Fishing ceased and almost all able bodied Islander men were recruited into the Torres Strait Light Infantry Battalion (Hall 1989, 62–5). The military needed their services to negotiate the tricky reefs and channels of the Strait. Islanders also participated in the dangerous run down to Maremme in what was then Dutch New Guinea. Two men were seconded to the American navy. These experiences were also recorded in songs that are still remembered.

When the war ended, the Islanders looked to a better future. But the marine economy did not support their hopes (Beckett 1987, 67–73). Bêche-de-mer fishing had ceased in the 1930s with the outbreak of war in the Far East and it did not revive until the 1980s. Pearling resumed, but provided wages at only a fraction of what could be earned on the mainland. And as the population began to increase it became clear that the industry could not provide sufficient work. Then in 1960 the market collapsed. Pearling ceased, except for a few boats getting live shell for Japanese pearl culture stations.

The decline in the industry had left some islands without luggers. Saibai and Boigu revived the old crafts of canoe building, using lugger type sails and rigging. Other islands had to rely on dinghies. But with the opening up of the mainland labour market, young men headed south. As they got established they called for their families and in many instances settled permanently. Today, more than half the Torres Strait Islander population lives in the south, principally in Cairns, Townsville and Brisbane, but also in other towns and cities throughout Australia.

Those who remained on the islands adapted to the new conditions. Badu, the most successful of the pearling communities, took up cray fishing in the 1970s, diversifying
into trochus fishing as the market revived in the late 1980s (Beckett 1987, 214–22). Other communities fished for cray, trochus and other fish as small scale dinghy operators. Subsistence fishing also revived, though now with the use of outboard motors. This innovation changed the character of hunting, though with a population somewhat below its 1960 peak, and with far fewer luggers, it is doubtful whether the number of dugong and turtle taken by Islanders has substantially increased.

Motor dinghies also provided inter-island transport during the 1970s. As the islands got air strips, the sick and the elderly turned to this mode of transportation, and few now make long boat trips, though the dinghy remains important for visiting between adjacent islands. Under the liberalised controls on movement (following the treaty between Australia and the newly independent Papua New Guinea) there has also been an increase in visits to the area by the Papuans using a variety of vessels from dinghies and motorised canoes to the traditional outrigger canoe.

The Islanders' marine environment has undergone unprecedented changes over the last twenty-five years. There has been increased traffic of large vessels through the Strait, also large scale commercial fishing. The pearlers and trepangers often overfished, but they limited their attention to a few species and left the marine life otherwise undisturbed. Contemporary commercial fishing may have a broader and more serious impact. There have also been fears – although these have not been confirmed – of outflow from mining ventures in Papua New Guinea.† Within the communities, there has been an increase in the use of detergents, and the accumulation of refuse – especially plastics – left by a population depending more on packaged store foods. The full impact of these changes is as yet undetermined. However, it is clear that the Torres Strait Islanders can no longer leave the ocean and its myriad species to take care of themselves. Moreover, while Islander knowledge is essential to the formation of a marine strategy, it needs to be complemented by scientific research. This is because the scientists have ways of seeing what is invisible to the naked eye – as in the case of the metals occurring in certain organs of turtle and dugong. It is also because government agencies and private enterprise take more notice of statements that are supported by scientific observations.

Recognising these changes, the Island Coordinating Council and its component communities have begun to consult with

† According to a recent finding, less than 2% of the Fly river discharge finds its way into Torres Strait (Harris in Lawrence & Cansfield-Smith 1991, 59).
various government and scientific agencies to determine what is happening and what measures are to be taken. These consultations constitute a new phase in the Islanders' relationship with their marine environment. But as Torres Strait moves towards some form of self government, it is important that the Islanders do not become captive to scientific expertise or an agenda that subordinates their way of life to an abstract notion of 'the environment'. Scientific research must be communicated to Islanders in an accessible form, not only to keep them informed, but to allow it to be checked against what the people on the spot can see for themselves.

Throughout their history, the Torres Strait Islanders have demonstrated their openness to new ideas. However, their response to the new has never been indiscriminate: they have taken what seemed useful and attractive, and woven it into their way of life. One of the tasks of the Marine Strategy for Torres Strait must be to ensure that Islanders are able to make policy in the full understanding of the reasons for it and its implications for their way of life.

1.4 Purpose of the Marine Strategy for Torres Strait

The purpose of the Marine Strategy for Torres Strait is to establish a comprehensive framework for managing the limited resource base of the Torres Strait marine environment, consistent with the needs of indigenous Torres Strait Islanders, ecologically sustainable development, and minimal environmental disturbance. This framework will provide the foundation for future public policy and economic development in the Torres Strait region.

The Strategy is designed as a prototype marine and coastal management plan enabling Torres Strait Islanders and other local residents to work more effectively with Queensland and Commonwealth governments. It is intended to locate decision-making, management and accountability in the Torres Strait to the greatest extent possible, and to upgrade resource planning and environmental management in the region. The Strategy provides Torres Strait Islanders with a forum within which they are the central players. It represents and reflects their policies, and allows a more positive practical approach to management, rather than a hotchpotch of reactive responses to programs and policies imposed by outside agencies. In providing this coordinating framework, the Strategy also facilitates more effective cooperation with outside agencies.
The discussion paper [Mulrennan et al 1993] sets out clearly the view of the Torres Strait people, that there must be a greater local control, responsibility and authority in the decision-making process. The development of MaSTS is an important step in that direction. ANCA considers that the support that it has been possible to provide through the Ocean Rescue 2000 Program is an important initiative in facilitating increased community self-determination in management issues (ANCA, Submission 4).

It is worth emphasising that self-determination is not necessarily the same thing as sovereignty, which the High Court ruled out as a consideration. But self-determination is an important step on the way towards better land and sea management, the concordant sharing of resources, taking responsibility for the land, choosing a lifestyle, and living in a clean and healthy environment (ATSIC, Submission 1).

[A] locally based decision making and management system which integrates all stake holders agencies and resource users, and includes an emphasis on public participation and awareness, is the only way to successfully manage the Torres Strait marine environment (Evans-Illidge, Submission 11).

The Strategy reflects the socio-economic, cultural and environmental needs of the Torres Strait and is consistent with the six regional development goals as defined by the ATSIC Regional Development Plan for the year 2000 (ATSIC 1993, 6):

achievement of a good quality of life for all those living in the region; significant progress towards self-government; achievement of greater regional identity on land, sea and in the air; creation of a sustainable economic base; adequate protection of the Strait's unique culture and heritage; and achievement of appropriate environmental management and regional security.

The environment and the economic base of Torres Strait, as addressed by the Marine Strategy for Torres Strait, are of no less importance for the long-term future of Islanders than regional government and service delivery. Governments often believe that social programs will 'solve' the problems of indigenous peoples, but the experience elsewhere in the 'first world' has shown they are wrong (Jull 1991). Cultural autonomy, significant measures of self-governance, and rights to ownership and management of traditionally used lands, waters and resources, form an indissoluble package of necessary measures embraced by the Strategy.

The Marine Strategy for Torres Strait provides a framework which enables the development of a comprehensive integrated approach to the management of the Torres Strait region. In this the ICC recognises the importance of working closely with the Torres Shire Council (TSC), a local government organisation with jurisdiction over Thursday, Horn and Prince of Wales Islands. The input of non-Islander residents to the Strategy is also formally recognised. Most of
this population sector live within the jurisdiction of the TSC and comprise a permanent population with long-term interests in the marine environment (Evans-Illidge, Submission 11).

Our concept of the future is one in which resident non-Islanders are every bit as much a part as those whose roots are in our islands (Lui 1999b).

The Marine Strategy will also involve close cooperation with Papua New Guinea and the Cape York communities (Section 1.9).

Numerous Australian and overseas officials, academics, indigenous groups and individuals, have recognised that the Strategy is a significant and promising step in the practical implementation of ecologically sustainable development (ESD); in the search for comprehensive Australian coastal zone management; in ‘grass roots’ environmental action and administration; and as a positive approach to the socio-economic problems of indigenous peoples. The ICC acknowledges that the Marine Strategy cannot be developed in isolation from central government and encourages the involvement of outside agencies in all stages of the development and implementation of the Strategy. The existence of a number of environmental initiatives already in place is recognised. Projects such as the Torres Strait Baseline Study provide a valuable source of information and direction. The Marine Strategy for Torres Strait seeks to maximise such resources and to develop and extend their findings.

1.5 Principles of the Marine Strategy for Torres Strait

The Marine Strategy for Torres Strait is guided by the following principles, both in its development and implementation phases:

1) Torres Strait has a limited resource base. The marine environment must be managed to protect and ensure the productivity of its resources for present and future generations.

2) Torres Strait Islanders have fundamental rights with respect to the islands, waters, and resources of the region. These must be recognised in legal, policy, and institutional arrangements, and in the full participation of Islanders in resource and environmental management.

3) The traditional ecological knowledge of Torres Strait Islanders, their culture and their needs, together with the interests of other local residents, must be reflected in management processes. This will require local
hiring preferences and the development of appropriate research, education and training programs.

4) A comprehensive approach to resource and environmental management in Torres Strait is needed. To be effective this will require rationalisation and coordination of the often complex and overlapping jurisdiction and administration.

5) A healthy and productive marine environment is the key to Torres Strait Islander well-being and future prospects, and must be managed as such.

1.6 The Strategy in operation

The concept of a Marine Strategy for Torres Strait was first proposed by the ICC as part of its ‘Principles and Objectives for the Future of the Torres Strait’ – a document released in May 1991 and subsequently endorsed at the 4th Environmental Management Committee (EMC) meeting held in Madang, PNG, in August 1991. In June 1992 the ICC received funding to support the development of its Strategy through the Commonwealth Ocean Rescue 2000 Program. Dr Monica Mulrennan (NARU) was appointed as Coordinator of the project and Victor McGrath (ICC & GBRMPA) as Assistant Coordinator. Over subsequent months the Torres Strait Islanders through the ICC, and with the assistance of the Marine Strategy team, engaged in consensus-building workshops on Thursday Island and in Darwin, in addition to informal discussions on the outer islands. The local radio service (BRACS) has also proven invaluable as a means of raising awareness and encouraging involvement of outer island communities in the development of the Marine Strategy.

The outcome of these preliminary meetings, including the guiding principles and objectives of the Strategy, was outlined in an earlier version of this paper, Towards a Marine Strategy for Torres Strait (MaSTS), which was published jointly by the ICC and NARU in April 1993. Five hundred copies of this paper were circulated among interested parties during April/May, together with an invitation for written submissions in response to the discussion paper. The document was endorsed at the 5th EMC meeting, on Thursday Island in April 1993. A two day workshop was organised on Thursday Island on 16/17 June 1993 to which the ICC invited representatives from government departments, industry groups, scientists and academics to attend to discuss the public response to the Marine Strategy.
The title of our preliminary discussion paper 'Towards a Marine Strategy for Torres Strait' makes it clear that the Strategy is not set in concrete, rather we are working towards its development and we have invited you here to participate in this development process. The more input we can get from government departments, agencies and interested individuals with a range of experience and expertise on these matters the better this whole process will be and the end product will reflect that. This meeting is to provide you with an opportunity to tell us how you see it (Lui 1993a).

The approach taken so far has been on a broad policy front, outlining issues and concerns, and securing long-term funding and support. The development of the Strategy is consistent with the six regional development goals identified by members of the Regional Council as part of their Regional Development Plan, including the attainment of regional autonomy and self-government by the year 2001.

Our timeframe for this Strategy is the year 2001 because everything must dovetail into the year 2001 – this is where we are heading in terms of our goal for self-government (Lui 1993a).

The development of many elements of the Strategy does not require new legislation. Several of the objectives and policies of the Strategy are already enshrined within the international requirements undertaken by Australia as part of the Torres Strait Treaty – although several of these requirements have yet to be fully implemented (see Section 2.1). The ICC is concerned that an additional suite of legislative provisions should not compound problems associated with the existing management and administrative structures. The Marine Strategy for Torres Strait will build upon these structures and attempt to ensure more effective implementation of the Treaty and other legislative provisions already in place.

The success of the Marine Strategy is dependent on an ongoing commitment from the Australian governments to provide the support and resources which will ensure its effective implementation. This will include financial commitments, as well as regulatory, administrative and legislative actions to enhance Islander control.

The transition from a centrally directed hotchpotch of policies and programs to a regionally centred comprehensive approach will not happen overnight. It requires significant adjustments to the thinking of officials, users, scientists, Islanders and others. The solutions may not be made easier by the fact that the Australian governments themselves must revise their policies in light of the Mabo decision and in light of nationwide and international moves to greater indigenous self-government. On the other hand, Mabo has provided a reason for change for which governments might otherwise have lacked the political will.
1.7 Geographic extent of the Marine Strategy for Torres Strait

The Marine Strategy for Torres Strait applies to all marine waters bounded in the west by the Carpentaria Shoal near longitude 141°E and in the east by the edge of the Great Barrier Reef along longitude 144°30'E. To the south, the extent of the Marine Strategy is delimited by latitude 10°41'S to the east of the tip of Cape York and to the west of Cape York by latitude 11°S, including the coastal strip between the tip of Cape York to a point south of Crab Island. The northern boundary extends eastward from the Irian Jaya/PNG border, along the PNG coast to Parama where it diverges from the coastline along latitude 9°S (see Figure 2).

Figure 2. Geographic extent of the Marine Strategy for Torres Strait
The Strategy deals explicitly with marine ecosystems and associated resources but also applies to the islands, cays and reefs surrounded by these waters. Coastal environments of the northern tip of Cape York are also included as these areas are relevant to the predominantly Islander communities at Bamaga and Seisia. The Aboriginal communities of Uimagico, Mapoon and especially Injinoo will also need to be consulted as the original inhabitants of the area.

The inclusion of coastal environments within the Strategy is important because they impinge on the quality of the marine environment. Similarly, because the Marine Strategy for Torres Strait deals with the quality of the marine environment, its interest extends beyond the immediate area of the Strait to any waters discharging into or flowing through the region.

Effective management at landscape and ecosystem scale will also require consideration of coastal and other terrestrial systems. Assessment of the potential impacts of infrastructure as other components of an expanded economic base for the area are developed will be particularly important. Inclusion of the islands as a component in the development of a marine strategy is thus essential, although there may be some resistance from agencies more accustomed to drawing clear and exclusive boundaries at the low water mark. The principle that downstream effects must be taken into account, which the discussion paper [Mulrennan et al 1993] considers important, is embodied in some existing marine conservation legislation; it is clearly important in an area which by its nature serves as a funnel for water bodies of the [Arafura Sea] and western Coral Sea (ANCA, Submission 4).

1.8 Agencies involved in strategy development

The Island Coordinating Council (ICC) of Torres Strait has initiated and is leading the development of the Marine Strategy for Torres Strait. As lead agency, the ICC is involved in an extensive consultation process with interested parties including Islander people, industry, federal and state government departments, educational institutions and non-government organisations. Workshops, providing for more general representation from the Islanders, ensure consensus on the purpose and principles which form the basis of the Strategy. An Advisory Committee consisting of nine members has been established by the ICC to assist it in the development of the Strategy.

The North Australia Research Unit (NARU) of the Australian National University, under the directorship of Professor David Lea, has assisted ICC in the development of
the Marine Strategy. Dr Monica Mulrennan† from NARU has served as the Coordinator of the Strategy, with assistance from Mr Peter Jull on political and policy issues, Dr Marjorie Sullivan on environmental planning and sustainable development and Ms Nicola Hanssen as research assistant.

The Marine Strategy for Torres Strait is funded under the Marine Protected Areas Component of the Ocean Rescue 2000 Program (OR2000) established by the Commonwealth Department of Environment, Sport and Territories (DEST). This 10-year program is aimed at the conservation and sustainable use of marine resources. It includes six key elements: (i) the development of a national marine conservation strategy for Australia; (ii) a State of the Marine Environment Report (SOMER), which will provide the first comprehensive description and assessment of our marine environment, its resources and the impact of human activities; (iii) the development of a national representative system of marine protected areas; (iv) a national marine education program; (v) a national marine information system; and (vi) a marine and coastal community network (a specific component of which is the development of links with Torres Strait Islander and Aboriginal communities). Within the Commonwealth government, administration of the Ocean Rescue 2000 Program is overseen by a Steering Committee comprising the Secretary of DEST, the Chief Executive Officer of the Australian Nature Conservation Agency (ANCA), and the Chairman of the Great Barrier Reef Marine Park Authority (GBRMPA).

The Marine Strategy project involves the development of a marine conservation strategy and will contribute to the development of a national system of marine protected areas. The statement on the environment released in December 1992 by the Prime Minister, Paul Keating, recognised the importance of the Marine Strategy for Torres Strait as one of two pilot projects involving indigenous communities in the development of regional marine conservation strategies and allocated additional funds to ensure greater involvement of Aboriginal and Torres Strait Islanders in marine conservation and management (Keating 1992). Current funding arrangements represent 'seed funding directed toward the development of the Strategy'; however, the possibility of additional funding from the Ocean Rescue 2000 Program to assist the ICC with the implementation of the Strategy has been indicated (Gillies 1993).

† Following Dr Mulrennan’s move to Canada, the ICC approved a replacement project Coordinator who took up the appointment, on Thursday Island, in February 1994.
Additional financial support for the development of the Strategy is also provided by ANCA through the Contract Employment Program for Aboriginals in Natural and Cultural Resource Management (CEPANCRM). These funds support the employment of a Torres Strait Islander undertaking community consultation as a component of the development of the Marine Strategy. The Department of Family Services and Aboriginal and Islanders Affairs (DFSAIA) provides financial support for a full-time Project Officer.

1.9  The Marine Strategy for Torres Strait and other conservation strategies

Much of the groundwork already exists for a Marine Strategy for Torres Strait. The importance of other initiatives aimed at conservation and protection of the Torres Strait region and adjacent areas is recognised. Through the Strategy, the ICC seeks to build upon these initiatives, utilising information already available, facilitating consultation between the various projects and developing strategies which are compatible with those of other projects.

The Marine Strategy for Torres Strait also recognises a growing interest in similar initiatives in other indigenous coastal communities in Australia and overseas. Although the circumstances and needs of different communities vary, the ICC recognises the value of communication with the project teams and communities involved in these initiatives and invites external support to assist them in the development of these links and the transfer of information.

1.9.1 PNG Western and Gulf Provinces Coastal Zone Management Plan

Article 13 of the Torres Strait Treaty between Australia and PNG requires both parties to take legislative and other measures to protect and preserve the marine environment in, and in the vicinity of, the Protected Zone. In 1989, Papua New Guinea developed a proposal for the establishment of a coastal environmental plan after discussions with Australian agencies, including a Torres Strait EMC meeting. The overall objectives of the proposed project will be to design an integrated, community-based Coastal Zone Management (CZM) plan for the Western and Gulf Provinces of Papua New Guinea involving coordinating the following components: Tonda, Maza and Neiru Wildlife Management Areas (WMA) resource inventory; a sociocultural survey; an environmental management survey; a fisheries and wildlife survey; assessment and strengthening of WMAs; a communication and organisation framework capable of
supporting CZM activities; community resource management and local area management support (Cordell et al 1993, 2).

A study has recently been undertaken (June 1993) to establish the feasibility of this Coastal Zone Management Plan in the Western and Gulf Provinces of PNG. The project represents PNG’s first explicit attempt at coastal management and has been described as a very broad-based regional plan, while also being a community-based plan (Cordell 1993a). The approach taken is seen as a means of reconciling a territorial-based management system, comprising traditional land owners, with the needs of a broader regional framework which will consider development processes which have regional impacts, such as the downstream effects of mining. The project involves traditional land (and sea) owners from the outset; it acknowledges the competing aspirations of traditional and commercial users; and it seeks to integrate environmental management strategies into existing or proposed development plans (Sullivan & Mulrennan 1993).

The Australian International Development Assistance Bureau (AIDAB) will fund the project which will initially involve collecting information on fisheries, on existing wildlife management systems, and on socio-economic conditions within the communities along the border (Cordell 1993a). This information, to be collected during the first year, will assist in the design and planning of a strategy which will be implemented over the subsequent two or three years. Effective liaison between those involved in the formulation of the PNG plan and the Marine Strategy is essential as many activities undertaken by PNG and Australia ultimately affect the marine resources of the Torres Strait. In recognition of the importance of cross-border consultation and cooperation, the ICC invited representatives from the PNG Department of Environment and Conservation to participate at the June Workshop.

It is important that the principles of MaSTS be considered in developing the PNG Western and Gulf Provinces Plan. It will be beneficial to both Islander and Papuan communities sharing the waters of Torres Strait if the two plans are compatible. We should therefore be thinking along parallel lines with both sides making an effort to keep the other informed of progress and developments (Cordell 1993a).

1.9.2 Torres Strait Baseline Study

The Torres Strait Baseline Study (TSBS) was instigated in 1989 by the Australian Commonwealth Government in response to concerns expressed by Torres Strait Islanders, scientists and commercial fishermen over the possible effects on the Torres Strait marine environment from mining operations in the Fly River catchment area of PNG. These
concerns include: potential trace metal contamination of
commercial fisheries such as mackerel, prawn, cray (tropical
rock lobster) and the pearl fishery; the impact on the corals
of the Torres Strait and northern Great Barrier Reef;
detrimental effects on endangered species of cultural
importance to the Islanders, such as dugong and green
turtle; and potential human health problems from
consumption of higher levels of trace metals in seafoods.

The Pilot Study, completed in 1993, identified the Fly River
as a major source of sediment containing trace metals
(including aluminium, cobalt, chromium, copper, iron,
manganese, nickel, lead, silica and zinc) in the northern
Torres Strait area. Arsenic, cadmium, magnesium, mercury
and selenium are considered unlikely to have been
significantly influenced by the Fly River discharge.
Concentrations of arsenic, cadmium and selenium in the
edible portion of foods consumed by Torres Strait Islanders
are highest away from the Fly River delta and repeatedly
appear close to or above the National Health and Medical
Research Council's Maximum Permitted Concentrations for
seafood (Dight & Gladstone 1993).

The animal and plant part of the study indicated that, in
general, the trace metal levels were not elevated. The only
exception was cadmium; however, elevated cadmium levels
have also been found in Arnhem Land (NT) and Shark Bay
(WA) and it seems that high levels in these areas may be the
result of totally natural conditions and not related to human
activity (Gladstone, ICC Workshop, June 1993). Trace
metals in turtle and dugong were found to be high in the
kidneys, intestine and liver, but not in the muscle. This is
also considered to be a natural phenomenon as the levels are
comparable with those found in unpolluted waters of the
Great Barrier Reef and Gulf of Carpentaria (Marsh 1993);
however, even naturally elevated levels of trace metals have
potential health affects and one of the recommendations of
the TSBS is that a health study be carried out to look at
possible implications of these high levels. A food quality
survey, to be conducted in Torres Strait by the Tropical
Public Health Unit, will assess food supplies through the
stores, in addition to several aspects of the subsistence food
supply. Particular combinations of subsistence and store
foods will be examined to assess the effects for mineral
absorption (Leonard, ICC Workshop, June 1993). It is also
recommended that this survey include consideration of the
age of the animals consumed as metal concentrations in
marine animals (particularly dugong) are thought to
increase with the age of the animal (Marsh 1993).
1.9.3 Great Barrier Reef Marine Park

The Great Barrier Reef Marine Park shares a common boundary with the Torres Strait. This World Heritage area has been gazetted as a multiple use marine park, under the management of the Great Barrier Reef Marine Park Authority (GBRMPA). The broad management aims for this extensive marine area include the ecologically sustainable management of the area, the maintenance of biodiversity and marine ecosystem values, continued commercial, recreational and conservation issues of the area, and flexible consultative management involving a wide sector of the Australian public, both indigenous and non-indigenous. The management of the Torres Strait marine system has a direct influence on the Marine Park. Actions taken in the Park impact directly or indirectly on the Torres Strait. Given the connectedness of these marine ecosystems and environments, consultation and cooperation between GBRMPA and ICC are essential to ensure a holistic and integrated approach to marine environment management.

Where indigenous people design and implement their own conservation measures for regions of land and sea with which they have a close relationship, such areas can still be included, and should be recognised, in broader bio-regional assessments for complementary marine-coastal protection areas. The experiences, knowledge and wishes of indigenous communities should also be recognised in the planning and co/joint management of such adjacent areas (Brunckhorst 1993, 14).

1.9.4 Yolngu Marine Protection Strategy

The Marine Strategy for Torres Strait is seen as one of two regional pilot projects which, if successful, could be used as a model for other community projects elsewhere in Australia (DEST 1992).

The second project, known as the Yolngu Marine Protection Strategy, is also funded under the National Representative Marine Protected Area component of the Ocean Rescue 2000 Program. The project, which is being developed by the Yolngu people of north-east Arnhem Land, is managed by ANCA and coordinated by the Northern Land Council. A community-based workshop was held at Galiwin’ku, Elcho Island, in May 1993 to provide information to the Wessel Islands community about the project, to inform communities of marine management issues affecting the area and to seek the communities’ views on how the process of consultation should proceed (ANCA, Submission 4).

There have been enquiries from other Gulf communities interested in developing their own marine resource conservation projects. Indigenous communities in the Buccaneer area in Western Australia have already developed
preliminary proposals for the management of substantial areas of country (ANCA, Submission 4).

1.9.5 Other environmental initiatives: state level

At the state level, the Marine Strategy for Torres Strait will draw upon many Queensland initiatives and dovetail with them. The proposed Queensland Conservation Strategy, the Coastal Protection Strategy and the Cape York Peninsula Land Use Study are examples. The essential difference between these strategies and the Marine Strategy for Torres Strait is that the latter has the perspective of the regional population of Torres Strait at its centre rather than as one interest among many.

1.9.6 Other environmental initiatives: national level

Various Commonwealth initiatives, including a number of reports and strategies relating to environmental issues, provide for, or seek, the participation of Aboriginal and Torres Strait Islander peoples in the formulation and implementation of related policies and programs. These include the National Strategy for Ecologically Sustainable Development (ESD), the National Strategy for the Conservation of Australia's Biological Diversity, and the report of the House of Representatives Standing Committee on Environment, Recreation and the Arts (HORSCERA) on the role of protected areas in the maintenance of biodiversity.

Other federal initiatives include the recently completed Coastal Zone Inquiry of the Resource Assessment Commission (RAC) which examined Aboriginal and Torres Strait Islander management arrangements and issues as part of its work. Smyth (1993) provides an excellent summary of the concerns and aspirations of Australia's indigenous peoples with respect to the coastal zone in his consultancy report, commissioned by RAC for the Inquiry. The Final Report contains a chapter on indigenous peoples in which a number of significant recommendations are made. The proposed Aboriginal and Torres Strait Islander Fisheries Strategy, as outlined in Recommendation 23, is particularly relevant to the Marine Strategy and is strongly supported by the ICC. The key elements of the proposed Fisheries Strategy are as follows (RAC 1993, 187):

assessments by all fisheries authorities of indigenous interests in fisheries for which they have responsibility. Such assessments should include a review of the nature and extent of continuing customary marine tenure and traditional fishing practices in each fishery and how these might contribute to fisheries policy and management; impediments to indigenous people's participation in commercial fishing; and the impact of commercial fishing on fishing for traditional purposes; representation of indigenous people on advisory committees for all major fisheries (as recommended by the Ecologically
Sustainable Development Working Group on Fisheries) and identification of means by which indigenous communities can participate in the management of local fisheries and marine environments in which they have a traditional interest;

measures to improve economic development and employment opportunities for indigenous communities in fisheries and mariculture ventures. Options include the reservation of a proportion of fishing or other licences for indigenous communities, the purchase of such licences on behalf of indigenous communities by the Torres Strait Islander Commission, and the establishment of fishing zones adjacent to land owned or controlled by indigenous people in which communities could operate their own commercial enterprises, participate in joint ventures, or license access by other marine resource users;

measures to improve relations between indigenous communities, fisheries agency staff and commercial fishers, including cross-cultural awareness programs for agency staff and the organisation of local and regional workshops to discuss issues of mutual interest and concern.

The Marine Strategy for Torres Strait seeks to provide additional impetus to government agencies to implement recommendations arising from these reports.

While a number of reports and strategies provide for or recommend the involvement of Aboriginal and Torres Strait Islander peoples in the development and implementation of related policies and programs, it has been ATSIC’s experience that government agencies often have difficulties in obtaining such involvement in practice. There are a number of reasons why this situation has arisen including lack of awareness on the part of agencies of how to achieve such involvement and lack of awareness among Aboriginal and Torres Strait Islander peoples of environmental policies and programs of relevance to them ... In formulating MaSTS, we consider that the ICC and NARU should be cognisant of these impediments and, in particular of the need to raise awareness in relevant government agencies of the need for and objectives of MaSTS (ATSIC, Submission 1).

1.9.7 Environmental initiatives: international level

The latest version of the World Conservation Strategy, Caring for the Earth: A Strategy for Sustainable Living (Earthscan 1991), set a helpful pattern for planning the sustained use of living resources including a number of specific priority actions for oceans and coastal areas.

The development of the Marine Strategy for Torres Strait has much in common with initiatives from overseas, for instance Canada, where three federal departments (Fisheries and Oceans; Environment; Indian Affairs and Northern Development) plus two northern territory governments represented by their Renewable Resources departments, and indigenous Inuit representative bodies have designed whole new approaches to comprehensive
marine environmental management. The Arctic Marine Conservation Strategy (AMCS) provided some useful ideas for the Marine Strategy for Torres Strait, and the Arctic Environmental Strategy, which later subsumed AMCS, highlights the comprehensive 'ecosystem' approach to maintaining the integrity of the natural environment while centrally involving the indigenous population. Canada's Aboriginal Fisheries strategy, especially as practised in British Columbia, parallels the work and objectives of the Marine Strategy for Torres Strait and will provide many useful lessons (Jull 1993). The ICC is also in touch with similar work going on in Northern Quebec, Norway, Alaska, and the South Pacific and has been sharing information and ideas back and forth.

1.10 The wider context: indigenous resource management

by Peter Jull, Consultant

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'The wider context' has been growing dramatically wider in recent weeks. The Marine Strategy for Torres Strait is developing in a very dynamic context.

A particular image springs to my mind. One night the first of the modern expeditions actually to reach the North Pole – in the late 1960s – ended a weary day trudging across the sea-ice with the usual taking of bearings. They were less than 10 miles from the Pole. But in the morning when they arose

† Dr Monica Mulrennan is presently working with Dr Colin Scott and other McGill University researchers (Montreal, Canada) on related issues of resource management among James Bay Cree Indian communities; exchange of experience and ideas between Cree and Islander communities will be facilitated through this work.
they found their equipment apparently acting up. Only after several readings did they realise that the ice, moving silently beneath them through the night, was actually delivering them to their destination. Soon it carried them right over the Pole.

I do not suggest that the Marine Strategy for Torres Strait can merely wait upon fortunate events. However, there are some very favourable trends today for such an undertaking, and these may be expected to continue for at least a decade.

The news of recent days has been of the Prime Minister, State Premiers, and Chief Ministers of the Northern Territory and the ACT trying – and failing – to agree on national principles for dealing with the Mabo decision of the High Court. At the same time, some indigenous individuals and groups have made sweeping claims to territory. The news media have been in a frenzy. After more than 200 years of ignoring the rights and needs of indigenous people, the White Man's governments now have to pay attention. A process has begun, one in which indigenous peoples for the first time since 1788 have the opportunity to negotiate terms for participation in Australia's future.

Even before the Mabo decision, the federal government and States had agreed to include consideration of indigenous issues in their constitutional review program leading to the centenary of the Australian federation in 2001. In early June 1993 a first conference on indigenous constitutional issues was held in Canberra by the Council for Aboriginal Reconciliation and the Constitutional Centenary Foundation. That conference reached a sort of consensus:

- that indigenous people were a distinct community in Australia with whom a basic political and constitutional settlement must be made, and
- that appropriate mechanisms provided with adequate resources must be quickly established to facilitate such processes.

Another important step was the inclusion in the Prime Minister's 'green paper' on Mabo and related issues, released a few days before that conference, of reference to self-government.

Issues such as self-determination (including greater autonomy and cultural integrity) are not well understood in the wider community, although they are key tenets of the modern approach to Aboriginal and Torres Strait Islander affairs. Some issues, such as self-government and new constitutional arrangements, are not yet defined and would require further development before being given detailed consideration, although the experience of Canada and New Zealand on these issues is instructive (Commonwealth of Australia 1993, 96).
The reference to Canada is appropriate. There has been much attention in Australia, including at cabinet levels in Canberra and Queensland, to Nunavut, the new indigenous-dominated self-governing territory being created from the coasts and islands of Northern Canada where a maritime people, the Inuit (Eskimos), form the overwhelming population majority. The Marine Strategy Coordinator, Dr Mulrennan, and I have written on the similarity of the Torres Strait and Nunavut (Mulrennan & Jull 1992), and some of the other work of Inuit in that region, notably in respect of relations with national and sub-national governments on marine and coastal issues has directly informed the development of the Marine Strategy. I will be looking into this question further in the next weeks and providing a report to Australia’s Resource Assessment Commission [published in September 1993 as A Sea Change: Overseas Indigenous-Government Relations in the Coastal Zone].

Nunavut has an importance far beyond any of its specific details: it shows that a modern industrial state can recognise the territorial rights, unique cultural imperatives, and ecologically sustainable development needs of even a large part of its national area, and of even vast mineral-rich lands and hydrocarbon-rich seas (Jull 1992). The Nunavut ‘political settlement’—has two main elements: a land claims settlement (including the seas among the mainland coast and islands of the great arctic archipelago) and a territorial government constitution, both enacted by the federal Parliament in recent days. The negotiation process lasting nearly 20 years whereby Nunavut Inuit have moved from being a powerless, remote, and scattered hunter-gatherer people to being custodians of one-fifth of Canada is rich in inspiration for Torres Strait Islanders.

Constitutional arrangements in Canada between indigenous peoples and governments have also been productive, at least in their early stages when the Inuit were playing a key role (Jull 1981). Significant amendments were negotiated during the winter of 1980–81 and these now form part of the Canadian Constitution. Later on as the constitutional process became more crowded and histrionic, it achieved less (Jull 1987) and has ended for the time being in some disappointment with the defeat in October 1992 of a referendum which included substantial rights for indigenous communities. That defeat, it must be added, was not on account of the indigenous package which was a small part of a much larger set of proposals. Nevertheless, the actual work of indigenous self-government and greater indigenous participation in resource management has continued. There are new and promising developments in regional self-
government and land (and sea) rights settlement, such as the new approach in the Province of British Columbia.

Canadian attitudes are well reflected in the remarks of Canadian prime minister Mulroney on signing the final agreement on Nunavut in recent weeks:

In the course of this transition [to creation of the Nunavut government], we will redraft the map of Canada – indeed of North America. But our collective achievement is far more than a simple exercise in cartography. It is, at its core, an act of nation-building. Step by step, agreement by agreement, we are advancing toward a set of common goals: strengthening the economic, social and political foundations of the North, and enriching an ancient and cherished culture – the Inuit culture. We are forging a new partnership – a real partnership – not only between the Government of Canada and the future government of Nunavut, but between Aboriginal and Non-Aboriginal Canadians. From the new climate of confidence that this settlement will engender in the North, all Canadians will benefit (Mulroney 1993).

Since Canada’s equivalent of the Mabo decision, the Calder decision of 1973, Canadians have worked positively through the same problems with the same legal and federal political system as Australia now faces in respect of indigenous peoples. Now all Canadian political parties – Conservatives, Liberals, and 'labour' (the New Democratic Party, or NDP) – endorse indigenous self-government and land rights. Across the country they have been devising locally appropriate solutions. As Prime Minister Keating’s green paper says, the Canadian experience can be helpful to Australians.

There are also important changes occurring at the international level. Some of these specifically target indigenous peoples, such as the elaboration of an international convention on indigenous rights, previewed in Australia in a speech by the United Nations working group chairperson, Erica-Irene Daes, on the evening of June 4, 1993 in Canberra. Among other things she said that indigenous autonomy and self-government would be specified as indigenous rights in the document soon to be released. In ‘first world’ countries other than Australia and Japan, the requirements for human rights, including indigenous rights, are tightening, eg through the Helsinki processes of the CSCE (Conference on Security and Cooperation in Europe) which involves all of Europe, Canada, and the USA. Australia will be expected to meet all emerging standards.

International work on the environment and ecologically sustainable development has also focussed on indigenous peoples. The Brundtland Report of 1987 and the United Nations Earth Summit in Rio held five years later to review progress on its implementation have highlighted the need in Australia (Brundtland 1987, 114–16) and elsewhere to return power in resource management to indigenous peoples.
Although the Australian media failed us badly in reporting the Earth Summit, in other countries such as Canada the large role at Rio of indigenous peoples and their agendas received much attention.

So, what can we expect here in Australia? The decade of constitutional reform now begun will ensure that Torres Strait Islander issues are prominent on the national agenda for quite a few years.

Queensland has made a significant contribution to the national debate through two important documents, both published in 1991 – a Public Accounts Committee report and a special review committee discussion paper, both dealing in calm and practical terms with indigenous self-government (PAC 1991, LRC 1991). The Premier has recently offered to hand over jurisdiction relating to indigenous affairs and the environment to the federal government, which may indicate that the State has no very strong preferences.

It would seem that there are two very clear messages coming from current developments.

For those in government and the non-indigenous community who wish for a quiet life, the status quo in indigenous affairs is well and truly over. Policy and institutional change are coming, directed from the highest levels of government in Australia, and pushed along no less by world currents running in favour of indigenous rights.

For Torres Strait Islanders, there are now international and nation-wide forces, activities, and experience which can and will help with the achievement of long-held aspirations like sea rights, self-government, regional development, and marine environmental protection.

A long overdue and fundamental debate is now in progress in Australia. When have the Prime Minister and Premiers been making news daily by exchanging their up-to-the-minute views on indigenous rights? When have the newspapers carried comment and analysis pieces in every edition, and editorials every second day, on these subjects? The quiet, understated, incremental approach to Islander and Aboriginal affairs has ended. The Marine Strategy is the sort of positive and practical initiative which everyone can support. The situation – the wider context – is excellent.

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JURISDICTION, RIGHTS AND INSTITUTIONAL FRAMEWORK

Torres Strait Islander communities through the ICC have engaged in consensus building workshops and discussions to develop the Marine Strategy for Torres Strait. The issues and concerns raised during those discussions fall into two broad categories. Firstly a number of problems relating to existing management and administrative arrangements, particularly the Torres Strait Treaty, are identified and discussed below. Substantive issues of environmental and resource management are dealt with in Section 3.

2.1 Torres Strait Treaty

The Torres Strait Treaty is a bilateral arrangement between the governments of Australia and PNG. It was signed in December 1978 after six years of negotiation and its enabling legislation, the Torres Strait Fisheries Act 1984 (Cwlth), was passed by the Australian Parliament in April 1984. It was ratified and entered into force on the 15 February 1985. The Treaty is concerned with sovereignty and maritime boundaries and defines both the seabed jurisdiction and the fisheries jurisdiction between Australia and PNG. It establishes the Torres Strait Protected Zone (TSPZ) within which traditional fishing and free movement of traditional inhabitants are permitted; it defines commercial fishing rights but requires that management of those fisheries acknowledges and protects the traditional way of life and livelihood of the traditional inhabitants; and it provides for the protection and preservation of the Torres Strait marine environment.

Contrary to their initial expectations, the Torres Strait Treaty is now identified by the ICC as the most significant jurisdictional/administrative problem with which it has to deal:

The big problem at the moment is with the Torres Strait Treaty ... at one stage when it was first implemented we all thought that it was there to protect our rights but now it seems that it is there to protect everyone else except us – the Torres Strait Islanders themselves – and this problem has built up over the years in frustrations (Lui 1994).

The Treaty has created a logistical and bureaucratic nightmare (Jull et al 1994). Simple community-based tasks such as policing, seeking funding, and exploring new
enterprise initiatives, are now plagued with paperwork, while needed resources disappear into administrative costs.

Outside experts have considered the Treaty to be good in principle with potential to become a powerful tool (Laffan 1991). They acknowledge, however, that it has proved to be disappointing in many respects. Allen (pers comm 1992) finds that 'For a document replete with promises and good intentions, it has seemed to lack teeth!' Others are even less positive in their assessment:

traditional inhabitants have a subordinate if not marginal position within the Treaty regime. This is clear from analysis of the Treaty text as well as from comments made by representatives of the TSPZ communities on the everyday impact of the Treaty. Such positioning of traditional inhabitants as marginal accords with the mundane paternalism of contemporary nation-state based frameworks for the protection of the rights of indigenous people. For different reasons both Australia and PNG continue to support administrative frameworks which enhance or maintain the place and role of the state as a primary actor in the daily life of its citizens. These reasons bear on the logics of the Treaty ... (Mfodwo & Tsamenyi 1993, 230).

2.1.1 The Protected Zone

One of the special provisions of the Treaty is the Torres Strait Protected Zone (TSPZ), an area encompassing most, but not all, of the inhabited islands in the Torres Strait region (see Figure 3). The purpose of the TSPZ, as described in Article 10, is:

- to acknowledge and protect the traditional way of life and livelihood of the traditional inhabitants including their traditional fishing and free movement.
- to protect and preserve the marine environment and indigenous fauna and flora in the vicinity of the Protected Zone.

Free movement and traditional activities, including traditional fishing, are defined in Article 1 and further clarified in Article 11. Traditional is to be 'interpreted liberally and in the light of prevailing custom', a definition believed by many to be responsible for much confusion and conflict in the region. For example, Mfodwo & Tsamenyi (1993) suggest that because PNG does not regard itself as a separate category of indigenous people requiring special protection 'in the international law sense', this has influenced the approach taken by PNG in implementing the Treaty through its national legislative and administrative practices.

All groups of Papua New Guineans generally follow a traditional way of life, and to single out traditional inhabitants of a particular area for special treatment could well be perceived as undesirable and unjustified (Burmester 1982, quoted in Mfodwo & Tsamenyi 1993, 234).
Figure 3. Lines of jurisdiction agreed under the Torres Strait Treaty
Source: Babbage 1990, 34

Problems related to the free movement provision of the Treaty are due to economic disparities between Australia and PNG with the result that PNG traditional visitors have more to gain from free movement in the Torres Strait region than their Australian counterparts. Problems arising from this free movement provision include: illegal fishing, directly or in support of others; illegal immigration; abuse of welfare facilities; drug-running; gun-running; and other customs and quarantine violations. Although such concerns are recognised by Australian government officials, any changes requiring substantial re-negotiation of the Torres Strait Treaty, including a revision of the present boundary system, are considered unlikely to benefit Torres Strait Islanders (French 1993).

There is considerable reluctance in Australian Government circles to consider revisiting the Treaty. This is because there is fear that the outcome of these negotiations may disadvantage the Torres Strait Communities. The Torres Strait people understand these concerns, but it is they who suffer the disadvantages and enjoy the advantages hence it is they who should decide the outcome in concert with the people of the coastal communities of Western Province, PNG (Haigh 1993, 150).
DFAT recommend that negotiations with PNG continue under existing jurisdictions but using a range of alternative approaches to resolve existing concerns with PNG. One approach currently being taken involves pushing to change the terms of Australia's aid relationship with PNG. This requires a shift from budget assistance to a system of program assistance through which Australia could target aid into particular programs and thereby provide direct and immediate assistance to PNG people on the northern side of the border. Through this process it is anticipated that there will be less need for PNG nationals to come down into the Torres Strait as often as they do, or to feel as disadvantaged as many of them feel at the present. Another approach is to increase the responsibility and role of Islanders in managing the border. A recent Queensland government indigenous policy study, *Towards Self-Government* (Legislation Review Committee 1991), has been encouraging on this matter, but further action is needed.

### 2.1.2 Management in the Protected Zone

The Protected Zone Joint Authority (PZJA) was set up, under Section 30 of the *Torres Strait Fisheries Act 1984*, to manage the consultative and decision-making mechanisms of fisheries in the Protected Zone (TSPZ). It is responsible for licensing, control, protection and conservation of all fisheries including: traditional fishing; those fisheries which Australia and PNG have agreed to jointly manage in the TSPZ (prawns, mackerel, pearl shell, tropical rock lobster, turtle and dugong); and the barramundi fishery in the territorial waters of the northwestern section of the TSPZ. Queensland manages all other commercial and recreational fisheries in the Australian area of the Torres Strait, with the exception of fishing by the operators of foreign boats.

The management objectives of the PZJA, as defined by the Torres Strait Treaty, include protecting the livelihood and traditional way of life of the Torres Strait Islanders and the Torres Strait marine environment. In addition, the PZJA is required to optimise the utilisation of commercial fisheries in the TSPZ; the rights of both countries are provided for by the complex catch-sharing arrangements defined in Article 22. In the interest of achieving all three objectives the PZJA has developed a policy of increasing opportunities for Islander participation by preventing further expansion of non-Islander involvement in fisheries. No additional non-Islander participants are being licensed to fish in Joint Authority fisheries (Elmer & Coles 1991), and growth in the tropical rock lobster (crayfish), mackerel, barramundi and pearl shell fisheries is now reserved for Torres Strait Islanders (TSPZJA 1990).
In a lot of respects fisheries management has already got many of the things that MaSTS talks about built into it. That is not to say it is perfect ... there are things that need fine tuning but we are not looking at a disaster in fisheries management that has to be thrown out and started again (Bishop 1993).

‘Community fishing’ is the main area in which the PZJA sees Islander participation in fishing increasing. This is defined in Section 3 of the Torres Strait Fisheries Act 1984 as ‘commercial fishing carried out by traditional inhabitants’ and allows Islander fishermen to fish without obtaining a licence of their own. Community-based fishing industries are now operating on several islands where crayfish tails and mackerel are stored in freezers before being sold to interstate buyers. Profits are distributed between the Island Council and the participating fishermen.

Though the concept of ‘community fishing’ in Torres Strait has received national and international approval, many Islanders express dissatisfaction with its operation on the ground. Islander-orientated initiatives are considered to be offset by the sheer strength of commercial fishing interests in the area, which are seen as overly represented on consultative committees set up by PZJA (see Section 2.1.4). Lack of funding also inhibits Islander access into the commercial fishery (see Section 2.3). Crayfishing is more successful than other fisheries because it can be operated by small groups of people from small boats in an ad hoc way, involving a seasonal approach and either free dive or hookah methods. Islanders operated 200 of the estimated 230 boats involved in the Torres Strait cray fishery in 1990 (Johannes & MacFarlane 1991). Prawn trawling, in contrast, requires large capital outlays ($1–1.5m to get established) and complex bureaucratic procedures and involves few Islanders. Marketing of products is another major factor in the growth and development of fisheries and is particularly complex in the Torres Strait due to its isolation from the market. Problems with the preparation of fish for the market are also significant (Lawrence 1993).

Much of the conflict that arises in the area can be explained by cultural factors and associated life style preferences, work practices and attitudes (Lawrence 1993). For example, participation in crayfishing is governed by family, community obligation and social relationships rather than just market price and distribution needs. Mackerel fishing, on the other hand, is largely a solitary experience operating either during the early morning or late evening, and has little appeal for many Islanders. Lawrence (1993) suggests that fisheries managers should recognise these factors as they largely determine the level of Islander effort or interest in a particular fishery.
In addition to a lack of control, the current system of licensing the community fisheries exerts considerable burden on community chairmen who are faced with the difficult task of deciding who in the community may fish and who may not. A general consensus on this issue is apparent throughout the industry and the introduction of a single jurisdiction, covered by the Master Fishermen's Licence, has been proposed to simplify the existing system (Bishop 1993).

*I am absolutely amazed at how many rules and regulations there are operating within the Torres Strait, and I often feel that there are more public servants than Torres Strait Islanders in the Torres Strait. The divisions between Commonwealth and State fisheries jurisdiction are complex and confusing ... and added to this is the operation of the Torres Strait Treaty and its catch sharing licensing arrangements (Lawrence 1993).

As all of you know, [the present licensing system] is extremely complicated. If you put a fishing line over the side and you catch a coral trout you need a state licence. You do not know what is going to get on the end of your line and the fish does not know what licence you have got. We need to rectify that situation. We want a system where there is one licence which covers everything (Bishop 1993).

The extent to which existing fisheries management arrangements can be 'fine tuned' to accommodate greater Islander involvement and control needs to be carefully examined by all parties.

Management of fisheries in Torres Strait is not perfect but it is achieving its aim of protecting both the resource and the way of life and livelihood of Torres Strait Islanders. Any adjustments are best developed by managers, fishermen and the ICC through the consultative and management structure already in place (Bishop, Submission 19).

The Torres Strait Fisherman's Organisation have recently proposed the development of a Torres Strait Fishing Policy to represent Islander perspectives on how their way of life and their livelihoods are best protected. The formulation of such a policy would dovetail with the principles and objectives of the Marine Strategy, and provides an opportunity for Islanders to enter a new phase of effective participation in management through the replacement of paternalistic consultation structures with effective negotiation processes. The extent to which this policy will work within existing institutional structures will not be fully determined until the legal status of CMT or traditional sea territories is clarified (Section 2.4). The Aboriginal and Torres Strait Islander Fisheries Strategy recommended by the RAC Coastal Zone Inquiry (see section 1.9.6) embodies many of the elements currently being sought by the Islanders.
2.1.3 Protection and conservation in the Protected Zone

The Torres Strait Treaty provides the primary basis for control and protection of the Torres Strait marine environment. An Environmental Management Committee (EMC) provides the mechanism for communication while research projects, such as the Torres Strait Baseline Study in Australia and relevant studies in PNG, provide information (see Section 1.9). The latter usually have very specific objectives relating to biological and ecological considerations rather than serving the wider environmental issues of the region.

Article 13 of the Treaty explicitly provides for the protection of the Torres Strait marine environment. For example Section 2c:

obliges each party to minimise to the fullest practicable extent pollution or other damage from installations and devices used in the exploration and exploitation of the natural resources of the seabed and subsoil thereof (Torres Strait Treaty, 13(2)c).

Section 5 relates specifically to the assessment of potential impacts of planned activities on the marine environment, while Section 6 provides for control over existing activities which already impact on the environment. But, as O'Rourke noted in the 1988 Report of the Interdepartmental Committee (IDC):

Australia has no legislation in place to implement Article 13. Implementation depends on the goodwill of the Queensland Government to require adequate environmental protection measures for developments and to consult the Commonwealth (O'Rourke 1988, 14).

The case of the Horn Island gold mine illustrates this point. There the Commonwealth had the opportunity to comment on guidelines for the EIS which the Queensland government required, but it was not consulted over the decision to grant a mining lease, nor over the final conditions for environmental protection which were imposed. The Commonwealth seems unable to guarantee the requirements of the Treaty at present. Some mechanism to implement the provisions for environmental management under Article 13 is urgently required (O'Rourke 1988).

Similar problems exist in relation to Article 15 of the Treaty which places a 10 year moratorium on any mining and/or drilling activity of the seabed within the Protected Zone. Article 15 suggests that when the 10 year moratorium ends in 1995 'the parties may agree to extend [that period]'. There are no guidelines as to what should occur if the parties agree not to extend the moratorium (Murray 1992). This is one of the areas, recommended by the Department of the Premier, on which the Marine Strategy for Torres Strait will focus:
The end of the 10 year moratorium on mining and drilling activity in the seabed within the Protected Zone ... is an important issue related to environmental management and the Treaty. It would be useful if MaSTS developed a statement on how the mineral and petroleum resources in the Torres Strait should be managed (Dept of the Premier, Submission 7).

The ICC welcomes the opportunity to participate in resource extraction and development decisions. Such matters should not be solely the preserve of the state but, as discussed by Mfodwo & Tsamenyi (1993), must involve all local communities directly affected by such decisions. They suggest that although controversial in their application, 'community rights to veto resource development [can achieve] significant status and credibility as a meaningful avenue for local participation in contexts where protection of the local community is proclaimed as a state objective' (Mfodwo & Tsamenyi 1993, 236).

The Treaty is recognised as having a 'major environmental protection dimension' and 'although originally drawn up in the 1970s ... is still a good tool for achieving environmental protection of the Torres Strait region' (Laffan 1991, 453). The ICC acknowledges that the Treaty contains elements of sound environmental protection; however, it has not lived up to its potential. Through the development of the Marine Strategy for Torres Strait, it is intended that the Islanders will have a greater role in development decisions and environmental management, and thereby facilitate many of the objectives of the Treaty.

Responsibility for negotiations aimed at increasing provisions for the protection and preservation of the marine environment rests with the Department of Foreign Affairs and Trade (DFAT). Its powers are constrained by the international legal environment which requires that Australia negotiate with the rest of the world in order to improve circumstances in areas such as the Torres Strait (French 1993).

Australia is a big country in this part of the world but it is a small country compared to the rest of the world. We have our work cut out for us when we are attempting to negotiate a better deal for our people and for our environment (French 1993).

The International Maritime Organisation (IMO) provides one possible avenue for change through multilateral agreement; for example, exclusion zones can be established and countries required to take pilots on board their vessels to reduce the likelihood of collisions or spills. DFAT's involvement in this forum includes negotiations regarding compulsory pilotage and more recently regarding the Kutubu oil terminal. An invitation has been extended to the ICC to send a representative to the IMO in London so that local
concerns can be expressed directly to this international forum (French 1993).

Many of the concerns raised by the ICC in relation to the Treaty cannot be dismissed as a product of either PNG's failure to uphold its obligations or Australia's powerlessness within the international legal regime. Improvements in the day-to-day operation and effectiveness of many provisions relating to environmental protection could be negotiated without the need for IMO or multilateral intervention. For example, the present format of the EMC meeting is heavily biased towards western scientific knowledge and provides an ineffective platform for Islanders to raise their environmental concerns.

A review of existing administrative/legislative arrangements is urgently required to identify areas where changes can be made. Such changes are unlikely to require a re-negotiation of the fundamental principles of the Treaty if all parties demonstrate a willingness to cooperate and compromise. Australia has signed a number of international agreements relating to the rights of native people and the protection of the natural environment (Section 2.5). The commitment of the Australian government to those undertakings can be reflected through a more effective implementation of the Torres Strait Treaty.

2.1.4 Islander consultation

Article 30 (Consultations) states that 'the parties shall consult, at the request of either, on any matters relating to this treaty'. The PZJA has established a structure of several committees and consultative bodies to assist in this regard (Figure 4). The PZJA forms the top layer and consists of the Commonwealth Minister for Fisheries and the Minister responsible for fisheries in Queensland. The TSFMC which sits below the PZJA is the management body which puts its views forward to the two Ministers. ICC representatives sit on this committee together with representatives from government and the Queensland Commercial Fishermen's Organisation (QCFO), which comprises local fishermen including Islanders.

The next level includes the TSFIICC and the TSFSAC. The TSFIICC is a larger body with greater Islander representation. Individual fisheries have established working groups which include fishermen and representatives from Torres Strait Islander communities. The TSFSAC does not include Islanders and most of the funding allocated to fisheries research generally goes into special projects concerned with prawning and cray. Research into Islander involvement including stock management, infrastructure development, training, preparation and marketing needs urgent attention and funding (Lawrence 1993). A recent
survey, conducted by CSIRO (Dews 1993; Harris 1993), provides estimates of the traditional catch in the TSPZ, and establishes a methodology for on-going monitoring of the marine catch by local people. A proposal exists to assess the local depletion of stocks around home reefs; initiatives of this kind are encouraged and supported by the Marine Strategy.

| PROTECTED ZONE JOINT AUTHORITY (PZJA) |
| Commonwealth Minister (Chair) and Queensland Minister |

| TORRES STRAIT FISHERIES MANAGEMENT COMMITTEE (TSFMC) |

| TORRES STRAIT FISHERIES SCIENTIFIC ADVISORY COMMITTEE (TSFSAC) |
| TORRES STRAIT FISHING INDUSTRY AND ISLANDERS CONSULTATIVE COMMITTEE (TSFIICC) |

**Figure 4. Protected Zone Joint Authority – advisory and consultative bodies**

*Source: Lawrence & Cansfield-Smith 1991, 287*

The exclusion of the Torres Strait Fisherman’s Organisation (TSFO), a local organisation representing local fishermen, from these consultations is soon to be rectified (Bishop 1993). This will further increase the level of involvement by Islanders in the management of local fisheries. Torres Strait Islanders do not, however, constitute a majority on any of these advisory committees and have no express abilities under the Treaty or the *Torres Strait Fisheries Act* to initiate consultations of any kind, except at a local level (Murray 1992). International problems with regard to fishing are dealt with by the Commonwealth government, as only they have the capacity to enter international agreements. For Torres Strait Islanders, advisory committees are useful to allow their voices to be heard, but the end of the line of action is a Foreign Affairs or Primary Industries Minister who may or may not feel it necessary to consult with PNG (Murray 1992). To the Islanders this seems a cumbersome and frustrating way to tackle immediate and local concerns and affords them little control over local resources or decisions affecting their livelihoods.

The fact is, today Australia tries to manage our affairs through the representations of nearly forty official agencies and departments, none of whose officials are accountable to our region or our people. To participate in Australia as citizens we must change this status (Lui 1993b).

Details of the communication surrounding the wreckage of the Taiwanese fishing vessel, the Sheng Fu No. 16, were provided in the preliminary discussion paper (Mulrennan
et al 1993, 17) as an example of the low level of Islander involvement in local decision-making. A second example concerned communication relating to the Kutubu oil terminal and the associated increase to be expected in tanker traffic transiting the Torres Strait (Mulrennan et al 1993, 16). Both incidents illustrate the urgency of an institutionalised voice for Islanders in responding to environmental risk.

...the [Sheng Fu] incident does, as intended, provide an example of the difficulties of coordinating across the range of agencies involved. It should be possible, however, to ensure that channels of communication are improved as a result (ANCA, Submission 4).

...these problems have been recognised and improvements have been made to overcome the deficiencies (AMSA, Submission 2).

Recent improvements in Islander consultation include the scheduling of regular meetings and posting of information notices on the outer island communities to encourage community input on fisheries issues. A weekly Fisheries Radio Program has been introduced, and efforts are being made through AFMA to develop closer working relationships with local fishermen, particularly through the Torres Strait Fisherman's Association.

Better communication alone, however, will not fix the need the Torres Strait Islander people have identified to take responsibility and make decisions locally (ANCA, Submission 4).

At present, decisions affecting the regional environment remain outside the powers of the Islanders. The extent of consultation on such matters is in many cases little more than receipt of official notification of decisions already taken by government bodies in Canberra or Brisbane (see Ross 1991 and Wolfe 1993a&b):

...We need to be able to make decisions about social, cultural, economic and environmental matters in our region, not just the right to attend advisory meetings which may, or may not, pass our ideas up the line (Lui 1993b).

Both Commonwealth and Queensland fisheries departments claim to have an explicit policy of employing Torres Strait Islanders. Queensland Boating and Fisheries Patrol recently advertised two officer positions for Torres Strait Islanders. AFMA have reclassified and upgraded a vacancy to encourage Islanders to become more involved in management. According to Bishop (1993), the long-term goal of both organisations is to have Torres Strait Islanders in management positions; no timescale for the achievement of that goal has, however, been established. CSIRO has recently given a commitment to ensure that 2% of its scientific population will be Aboriginal/Torres Strait Islander by the year 2000 (Poiner 1993). Given the costs involved in managing the Torres Strait fisheries, including research, enforcement, consultation and training, it is difficult to
envisage how any substantial changes to the present management structure would be accommodated but such initiatives are nevertheless encouraging.

2.2 Local government

The Island Coordinating Council (ICC) was established under the Community Services (Torres Strait) Act 1984 (Qld). This Act requires the ICC 'to secure the progress, development and well being of Islanders by way of Commonwealth or State government grants, and to employ such agents and servants as are necessary for the proper and efficient discharge of its functions and powers'.

The ICC is made up of the elected chairpersons of the individual Island or Community Councils. Apart from the islands under the control of the Torres Shire Council (Thursday, Horn and Prince of Wales Islands), all other inhabited islands in the Torres Strait region and the two Cape York communities (Bamaga and Seisia), are controlled by Island or Community Councils. Each Island Council, with the exception of the Murray (Mer) Island Council, holds title of their land under the Deed of Grant in Trust formula (DOGIT), governed by the Community Services (Torres Strait) Act 1984 (Qld). DOGIT represents a form of inalienable title, that is, owners cannot sell it or give it away and it is revocable only by Act of Parliament (Brennan 1992). Avenues for exploration have, however, been opened by the precedent set by the Mabo judgement (Section 2.4).

Despite the relative lack of funds and powers available to the ICC, it enjoys a semi-autonomous position and in recent years has become the primary focus for Islander political, economic, social, cultural and environmental aspirations: 'It was our 1988 call to secede from Australia that really was the turning point' (Lui 1994, 71). The demand for independence was a culmination of historic events, combined with a growing dissatisfaction with government policy and administration at all levels (Babbage 1990). It prompted the Commonwealth Department of Aboriginal Affairs to investigate and address the Islanders' listed concerns. A Report of the Interdepartmental Committee (IDC) on the Torres Strait Islands ensued, concluding that:

Islander problems have been caused by a lack of coordination of the activities of all the agencies at the various levels of government, rather than the lack of funds. We found no evidence of an overall plan for regional development and, in particular, little sign of any coordinated efforts to plan for economic development of the area. In our opinion, many of the concerns of the Islanders could be met by the development of a more coordinated overall approach by governments (O'Rourke 1988, 6).
The IDC Report (1988) saw the instigation of ATSIC (the Commonwealth Aboriginal and Torres Strait Islander Commission) as a solution for improving government coordination in the Torres Strait region. The ATSIC Torres Strait Regional Council was established to provide a mechanism for Islander input into federal policy development in the region, while the ICC (established under State legislation) was to undertake a similar role in relation to State government programs.

The ICC has coordinated and developed many initiatives stemming from the IDC Report. For example, its search for a means of increasing local coordination and developing a local management structure resulted in the drawing up of a 5 year Regional Development Plan (see Arthur 1990 and Lea et al 1990). The ICC has gained considerable experience over recent years in identifying the specific needs of its people and in seeking solutions through contemporary governmental processes. To date, however, both State and Commonwealth governments have tended to want to administer the islands and Islanders through programs, rather than turning over management and decision-making to the Islanders themselves. The extent of this outside involvement in the running of Islander affairs is illustrated by the presence in 1987 of fifteen Commonwealth and eleven State departments on Thursday Island (Kehoe-Forutan 1991). A more recent source suggests that some thirty-five public service departments are presently based on Thursday Island, servicing a population of 10,000 (Getano Lui Jnr cited in Mulrennan & McGrath 1994, 78).

Thursday Island presents a case study of unplanned development by government agencies and lack of consultation with the local governing authority ... or with Torres Strait Islander people (O'Rourke 1988, 37).

As a result, the roles of most of these organisations either overlap or lack focus and impinge upon each other's ability to achieve concessions and goals. There is an urgent need for some type of more localised coordination and/or management structure (Kehoe-Forutan 1991). Reluctance to allow indigenous people to run their own lives results in a continuation of many social problems and grievances. The ICC has been active in highlighting the need for change. On May 16, 1991, it served notice in a letter and attachments to the Queensland Premier its 'Principles and Objectives for the Future of Torres Strait'. These principles and objectives represent a statement of Islander aspirations and needs, including socio-economic needs as well as environmental issues. The issues are wide ranging but the message is simple – there is a need to increase local control. This approach is not out of step, indeed it is entirely in keeping with Australian political and constitutional values. Norfolk
Island is no threat to Australian unity, nor is the increasing Pitjantjatjara management of their territories detracting from national well-being.

ATSIC considers that the development of a Marine Strategy for Torres Strait is an appropriate context in which to raise the issue of self-government for the Torres Strait. Self-government would undoubtedly lead to a greater degree of control by the indigenous residents of the Torres Strait over such areas as fishing rights and pollution control. The issue of self-government for Torres Strait was raised by the Chairperson of ATSIC, Ms Lois O’Donoghue CBE, AM, in a speech to the United Nations General Assembly on 10 December 1992 to mark the launch of the International Year of the World’s Indigenous People. In that speech, Ms O’Donoghue stated ‘... the years leading to the centenary of Federation provide an opportunity for Torres Strait Islanders to gain some form of self-governing status over the Islands and waters they hold so dear’. ATSIC considers that this initiative should be pursued with the Commonwealth and Queensland Governments, and that MaSTS will provide an opportunity to initiate a discussion of the issues involved (ATSIC, Submission 1).

Torres Strait is a discrete geographical region, containing a variety of local island identities and cultures. It would make sense to devise a political and administrative system suited specifically to those needs. Torres Strait could serve Australia with little difficulty as a model for new policy thinking and the removal of indigenous hardships and grievances.

Australia could save itself much trouble by learning from the experience of other countries with indigenous policy, notably the Anglo-American democracies, and from the leading Nordic countries in this field, Denmark and Norway. Land claims negotiations in Northern Canada have centred on provisions for land, freshwater and marine management and new statutory decision-making bodies. ‘Home rule’ for Greenland’s indigenous people includes similar environment and planning issues. Those countries learned by trial and error, but now share ideas, both between their indigenous peoples and their governments. Difficult issues of resource use, traditional ownership, development rights, and revenue shares have been central to all those situations. They are by no means impossible to solve.

2.3 Regional development

A comprehensive review of the economic structure of the Torres Strait is presented by Lea et al (1990). A general outline is provided below.

Torres Strait fisheries are estimated to be worth some $20–$30 million per year, the prawn and cray (tropical rock lobster) fisheries being the most valuable. Despite the
significance of fisheries in the Torres Strait, few local people are employed by the big fishing companies operating in the region (Lea et al 1990). The majority of Islanders who are involved are part time and for them commercial fishing is seldom their only, or even primary, source of income (Arthur 1991). Furthermore, as mainland fishers hire many of their employees and obtain most of their provisions from outside the region they probably contribute less to the local economy, despite an annual turnover of $14 million, than did the Horn Island Gold Mine when it was operating.

Community Development Employment Projects (CDEP) wages make up 42% of the total amount of outer Islanders' income – the merits and drawbacks of this dependency are discussed elsewhere (Arthur 1991). ‘Easy’ money is considered by many to lead to disincentive but the issue is more complex. Islander involvement in fisheries depends on their access to freezers and other facilities as well as to expertise. Johannes and MacFarlane (1991) believe that the major impediment has been the failure of education in the Torres Strait to prepare Islanders to fully exploit the opportunities provided by local marine resources. Both Arthur (1990) and Lea et al (1990) propose some form of development agency or Islander Corporation to facilitate increased Islander involvement. The recruitment of an independent Fisheries Development Officer to assist in the development of the local fishery was recommended at the June ICC Workshop 1993. Other proposals involve the establishment of a structure, similar to that provided by the Maori Fisheries Act in New Zealand, as a means to require government to transfer all or part of the fisheries quota to the Islanders who would then lease it out to Islanders and non-Islanders (Arthur 1991). Arthur's (1990) assessment of potential options for economic development indicate, however, that the long-term prospects for increasing involvement in fisheries are not encouraging: 'in the longer term sustainable development in the Strait may be predicated on broadening the economic base by diversifying into other industries, rather than by simply expanding the local fisheries to unsustainable levels' (Arthur 1990, 417).

Aquaculture is increasingly recognised as a potential option which would provide for sustainable development of the Torres Strait. The Torres Strait is generally a shallow, productive environment, [and] the waters are nutrient rich. Most islands afford bays and reefs which are sheltered from strong wave action, and strong currents ensure substantial water exchange. Such conditions are considered potentially ideal for cage-ventures such as oyster, pearl and clam farming. Many islands would also be suitable for pond-culture ventures, such as prawn farming, but these would be much more capital and technology intensive (Evans-Illidge, Submission 11).
The potential for local market gardening is partly limited by quarantine restrictions on inter-island movement of certain fruit and vegetables in the TSPZ. All fruit and vegetables sold by the Island Board of Industry and Service (IBIS) – a non-profit regional organisation with retail stores on 15 of the 21 islands – are imported from mainland Australia. Opportunities need to be explored so that locally grown foodstuffs can supplement if not replace imported goods.

With regard to extractive industries, if the moratorium on mining in the Protected Zone is lifted in 1995, royalties from any mineral development should be subject to negotiation. There is at present no provision for a royalty or tax to be paid to the region or to local people (Arthur 1990).

Tourism development is generally dependent on the ease and cost of access, scenic beauty, activity opportunities, and cultural attractions. The cost of air transport to and between the islands of the Torres Strait is a major limiting factor, especially when compared with the Great Barrier Reef islands which have similar natural attractions. Activities such as snorkelling, fishing, bird watching and diving have much appeal but are not unique to the region and the winter tourist season coincides with a time of rough and dangerous seas in the Strait. An additional constraint is that many Islanders would prefer tourism developments to take place at some distance from their community village or on uninhabited islands (Arthur 1991). Such developments are likely to exacerbate existing problems with infrastructure and services, particularly in relation to potable water supplies, electrical power and modern plumbing (Mulrennan 1992).

Despite these limitations and constraints, the Islanders believe that it is only a matter of time before outside investors move in (Torres News, 5–11 July 1991). The Aboriginal Development Commission identified three strategies for tourism development: exclusive high cost/high standard tourist complexes; medium standard activity-oriented developments; and wildlife-based developments (O'Rourke 1988). Several projects are presently under consideration. Their potential impacts will need careful assessment.

The range of economic options for Torres Strait may be very limited ... It is easy to see that fisheries development of many kinds is the major regional hope. The need for an effective administrative presence in the region to cope with growing border problems, and the requirements for public services for local people indicate growth in the public sector. We want to see Islanders benefiting from that growth and being trained for those positions. There is also a need for a wide range of niche markets and small enterprises. Our people had to use a range of skills and engage in different activities in the past and we can do it again (Lui 1993b).
2.4 Implications of the Mabo decision

The High Court's decision in the Mabo case (June 1992) has overturned the legal doctrine of terra nullius, rewriting the Australian common law to recognise indigenous title to land. The case dealt with the Murray Islands – three islands totalling less than 10 square kilometres in the eastern part of the Torres Strait. The decision brought to a close a ten year legal battle with the declaration that:

the Meriam people are entitled as against the whole world to possession, occupation, use and enjoyment of the lands of the Murray Islands.

The Mabo decision did not, however, recognise customary marine tenure over the neighbouring sea, reefs and lagoons; recognition of native title stops at the high water mark. A claim to clan ownership of fringing reefs and adjacent sea territories was included in the original case, but was dismissed after a preliminary finding by the court that the claimants had lost their rights to that system of ownership through their failure to exercise their power to exclude other Murray Islanders from using those areas. Haigh (1993) suggests that the findings of the court on this issue were coloured by the judicial inquiry process, together with the incompleteness and inconsistency of the available anthropological record.

Recent studies have found the claims by present day Mer Islanders to be well documented either orally or in writing and open to recognition and enforcement by the traditional laws of the community (Sharp 1993). Figure 5 provides an indication of the overall Mer Island claim; traditional boundaries are shown to extend southward as far as Raine Island, westward to Seven Sandbags, Seven Reef, through to Little Mary Reef (Kebi Meri), to Big Mary Reef (Au Meri) and almost to East Cay (Kerget); eastward to Missionary Reef (Don Cay), to Portlock Reefs and as far out as Eastern Fields. These boundaries correspond with the findings of Haigh (1993), but differ greatly from those described by Johannes and MacFarlane (1991) who exclude Raine Island and Eastern Field Reef.

Much more careful documentation of indigenous peoples' special commitment and investment in marine territory, reflected in CMT patterns, will be necessary to transform current lack of knowledge about these customs, and to ensure they receive the attention they merit, from the standpoint of indigenous rights as well as coastal zone management (Cordell 1993b, 171).

The principles proclaimed by the High Court decision in Mabo's case are generally considered to have application as a basis for a claim over the customary sea territories of the Torres Strait (Sutherland 1992b; Haigh 1993).
A variety of juridical structures operate at both the domestic and international level which pose potential constraints and complications for such a claim; an excellent review of these limitations is provided in Haigh (1993). The Meriam people of Mer Island waited ten years for a decision to be handed down on Mabo's case; recognition of CMT-based sea rights will inevitably take some time to resolve in the complex transnational setting of Torres Strait where, as Cordell (1993b) explains, neither Islander nor Papuan CMT systems or traditional rights were considered in drafting the Torres Strait Treaty.

Figure 5. The traditional maritime boundaries of the Murray Islands
Adapted from an original map drawn by Andrew Passi, Mer Island
In the interim the Mer Islanders have declared an 'economic zone' within the perimeters of their customary sea territory (Media Release, December 1993):

This declaration is made on the basis of creating employment in a most financially disadvantaged community and it is seen as the first step in building an economic base and conserving and managing the existing marine resources of the region ... The movement is not a bid for sovereignty (Day, Chairman of Mer Island Community Council, Media Release, December 1993).

Under the terms of the economic zone, the area is to be reserved for use by residents of the Mer Island community but other Torres Strait communities are permitted to fish those waters and sell their catch to the Mer Island community freezer plant. Non-Islander commercial fishing vessels are allowed in the area with the condition that their products are sold to the community freezer at the same rate paid to local Islander fishermen. All non-Islander commercial fishermen are required to fish under the dictates of the community council and provide details of their catch (Day, Media Release, December 1993). At the time of writing the Queensland Commercial Fishermen's Organisation had agreed to a voluntary moratorium in the area. A committee is due to report and make recommendations to the PZJA by 28 February 1994 on an arrangement mutually acceptable to both the Meriam people and the fishing industry, with the aim of maximising the benefits of the fisheries resource surrounding those islands to the traditional people on a sustainable basis.

Successful recognition of traditional marine tenure for individual families or communities will inevitably lead to significant changes in existing fisheries arrangements as well as other aspects of conservation and resource use. Fears have been expressed that such changes would be likely to lead to highly complex management regimes which would be difficult to legislate, administer and enforce, in addition to stifling long range fishing operations:

*I do not deny the wider benefits of granting individual sea rights, I simply note as a matter of fact its possible side-effect from the perspective of a coordinated fisheries management strategy* (Bishop, Submission 19).

Cordell (1993b) reminds us that the kind of communal property ownership represented by CMT systems has much in common with the basic principles of restricted access and quotas embodied in modern fisheries and marine protected areas. Furthermore, CMT traditions, as 'dynamic, living customs ... linked to basic livelihood and resource management tasks' (1993b, 163), are sufficiently flexible to adapt to new circumstances and accommodate new conditions.

The empowerment of Torres Strait Islanders, combined with legal recognition of their land and sea territories, presents an opportunity to rewrite white-indigenous relations in this
part of Australia, on the basis of the accommodations and respect which did not exist in the 19th century, and on the basis of the new environment and sustainable development awareness of the late 20th century.

2.5 International support

Several major international instruments exist, particularly in relation to marine pollution and the conservation of living marine resources, which could be used to ensure that the obligations undertaken by Australia and PNG in the Torres Strait Treaty are upheld. Some examples of international nature conservation treaties were provided in the preliminary discussion paper (Mulrennan et al 1993). A more comprehensive list has been compiled, with assistance from ANCA (Submission 4).

- Convention on Biological Diversity (Rio de Janeiro) 1992
- Convention on Conservation of Nature in the South Pacific (Apia) 1986
- Convention on Conservation of Migratory Species of Wild Animals (Bonn) 1972
- Convention on International Trade in Endangered Species (CITES) 1973
- Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific (Wellington) 1989
- Convention for the Prevention of Pollution from Ships (MARPOL) 1973/78
- Convention for the Protection of World Cultural and Natural Heritage 1972
- Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (SPREP) 1987
- Convention for the Regulation of Whaling 1946 Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar) 1971
- Japan-Australia Migratory Birds Agreement (JAMBA) 1974
- China-Australia Migratory Birds Agreement (CAMBA) 1986

In addition to the above, Australia has endorsed Agenda 21, Chapter 17 Protection of the Oceans of the United Nations Commission on Environment and Development Earth Summit Meeting held in Rio de Janeiro in June 1992.

MaSTS is of potentially significant value, not just to [Torres Strait Islanders], but to Australia as well in meeting many of our international commitments, including Agenda 21 from UNCED 1992. Also in demonstrating our shared interests with other countries, particularly those small island nations who have similar problems, or similar interests in the sustainable development, health and well-being of island states, the approach being used here will be watched with interest elsewhere (Gillies 1993).
A Memorandum of Understanding (MOU) was signed by ANCA and SREP in 1990 establishing a framework within which cooperative programs and exchanges relating to training and other initiatives in nature conservation in the region can be undertaken. The first project to be undertaken involves the development of a regional marine turtle conservation and management program for the six species of turtle occurring in the South Pacific region (Mednis, ICC Workshop, June 1993).

In 1993 the Australian and New Zealand Environment and Conservation Council (ANZECC) Standing Committee on Conservation recommended the establishment of working groups to develop cross-jurisdictional management plans for marine turtles, dugong, sea snakes and sea birds. These plans have the potential to coordinate multi-agency development and implementation of management plans (Mednis, ICC Workshop, June 1993).

Discussions are currently underway on bilateral, and possibly multilateral agreements on migratory birds with PNG, Indonesia and other countries along the SE Asian flyway (ANCA, Submission 4). The Torres Strait Islands are an important part of the migration path of many bird species. The Torres Strait is also home to a newly reported bat species – the Torresian Flying Fox. One colony of less than 1000 individuals has been discovered on Moa Island and has been recommended for IUCN listing as ‘vulnerable’.

Many provisions contained within UNCLOS, the United Nations Convention on the Law of the Sea, are relevant to the Torres Strait. For example, Part IX contains a Deep Seabed Mining Regime, while Article 194 places an obligation upon states to act individually or jointly in order to prevent, reduce, or control pollution of the marine environment from any source. It has also been suggested that certain boundary problems associated with the Treaty could be resolved through UNCLOS (see Babbage 1990, 44). Although many nations have signed and ratified UNCLOS, their number has not yet been sufficient to bring it into force. (Australia has yet to ratify UNCLOS.)

Most of these conventions require domestic legislation, at either Commonwealth or State level, to provide the mechanism for implementation of any binding requirements or other obligations. The lack of such legislation, or of resources to provide surveillance or enforcement, is a major concern.
ENVIRONMENT AND RESOURCE MANAGEMENT ISSUES

Torres Strait Islanders are concerned with a range of issues relating to the protection and conservation of their environment and the utilisation of its resources. These are outlined in the present section.

3.1 Background to the natural environment

Massive environmental changes have occurred since the last phase of general climatic warming which began about 15 000 years ago. For Torres Strait these changes were particularly dramatic. For most of its history the region has been a land bridge connecting New Guinea and Australia. It is only since sometime between 8500 and 6500 years ago, when the postglacial rise of sea level flooded the Sahul shelf, that the Torres Strait became a marine environment, dotted with numerous small and isolated islands.

The Torres Strait has been described as:

the most ecologically complex area of one of the world’s most extensive continental shelves ... Containing volcanic, continental, coral and alluvial islands, and fringing, platform and barrier reefs, the Strait offers a multitude of habitats and niches for the Indo-Pacific marine fauna, which itself has the greatest diversity of the ocean world (Nietzschmann 1986, 134).

Four separate island groups are recognised:

An Eastern Group of high islands representing the eroded remnants of volcanic cones. These include Darnley (Erub), Stephens (Ugar) and the three islands of the Murray Group (Mer, Waier and Dauar);

A Central Group of low sandy islands (cays) predominantly composed of reef-derived carbonate sand and surrounded by coral reefs, including the islands of Yorke (Masig), Coconut (Puruma) and Sue (Warraber);

A Western Group of high acid volcanic and granitic rocks, including Yam, Mabuiag, Moa, Badu, Thursday (Wayben), Hammond (Keriri), Horn (Naruway) and Prince of Wales Islands (Muralag);

A Northwestern Group of low islands where mangrove muds and alluvial sediments overlie reef-limestone and clay surfaces as at Saibai and Boigu Islands, including Dauan.
A range of marine habitats are represented in the Torres Strait including: fringing reefs around continental and volcanic islands as well as mainland Australia; coral-fringed mud banks; coral-fringed algal dominated reefs; platform coral reefs; coral cays and their associated reefs; deltaic and dissected reefs; mangrove strips around continental islands and mangrove dominated islands; subtidal seagrass beds; estuaries; inter-reef areas with communities of sponges, soft corals, sea whips, small hard corals and gorgonians; algal beds; sand banks; shoals; submarine pinnacles; continental slopes and pelagic waters (Lawrence et al 1993).

Although the floristic and faunal record is not well documented (with the exception of commercially important species), the region is recognised as a major migratory corridor where issues such as quarantine control, shared stock management, and bio-regional pollution control are important considerations in the development of an integrated approach to marine and coastal management in the region (ANCA, Submission 4).

Tidal regimes of the semi-diurnal Coral Sea to the east and the diurnal regime of the Arafura to the west control the movement of tides within the Torres Strait; tides are predominantly diurnal, with a maximum spring range of 3.5–4.0 m. Tidal current velocities often exceed 3 m/sec within the shallow submarine topography around reefs and islands. The pattern is complex and seasonally variable and provides the dominant control over gross reef morphology as well as nearshore and onshore sedimentation patterns.

The region lies within a sub-humid savanna environment, with a dry season of 5.0–7.5 months duration and 95% of annual rainfall falling between December and April (Harris 1980). Seasonality is controlled by the north-south movements of the Intertropical Convergence Zone (ITCZ), and the vertical and longitudinal Walker and Hadley circulations. Southeasterly trade winds dominate during the dry season, from May to October, and northeasterly monsoon winds during the November to April wet season. Intermittent squally periods are associated with the northwesterlies when winds may exceed 50 km/hr for periods of up to 30 minutes. The highest magnitude storm wave events occur during the northwesterly wet season, and are most destructive or erosive when they occur during high tides. During the seasonal changeover phase, periods of negligible wind, known as the doldrums, occur.

Tropical cyclones are infrequent in the Torres Strait, only six cyclones having passed through the region during the last fifty years (Laurensz 1981). Nevertheless, cyclones and associated low atmospheric pressure storm surges in the ocean areas to the west and east can cause intense rainfall and extremely stormy wave conditions in the shallow waters of the Strait.
Wet season rainfall averages 1600 mm at Thursday Island, but the monthly total for the wettest month, January (mean 430 mm), ranges between 167–863 mm (Barham 1981). Relatively drier areas occur on the leeward side of the larger high islands, but prolonged droughts are rare. They generally coincide with the El Nino-Southern Oscillation (ENSO) phenomenon – an event which occurs approximately every 5 to 7 years. Storage of fresh water supplies (as groundwater lenses or in constructed tanks) to last through the long dry season is, however, a major problem on many islands.

Temperatures in the region are not extreme and show relatively little day to day and seasonal variation owing to the moderating effect of the ocean. Mean temperatures are from about 26°C to 31°C, and it is rare to experience temperatures above 35°C.

3.2 Coastal development activities

In 1988, the Report of the Interdepartmental Committee (IDC) on the Torres Strait Islands acknowledged that: 'generally, the standard of infrastructure in the Torres Strait is well below that normally accepted in mainland communities' (O'Rourke 1988, 6.2).

As an immediate solution to some of the identified problems, the Minister for Aboriginal Affairs released the 'Priority Community Development Strategy for Torres Strait' (PCDS) with $23m to be spent over a three year period. Key elements of community infrastructure, notably landing craft unloading facilities, wharfs and sewerage systems, were immediately built and/or upgraded after a minimum of investigative research into their potential environmental impacts. On the tiny islands of the Torres Strait such operations, their siting and ancillary requirements (eg excavation, earth moving, blasting, dredging, land reclamation, and disposal of wastes) have produced a variety of environmental problems, some of immediate effect and some with longer term impacts on subsistence livelihoods (see Mulrennan 1992).

Beaches, and the beach-ridge or dune systems landward of them, respond to seasonal wave movements by adjusting the direction of sediment movement. In unmodified beach compartments sediment is moved seasonally along the beach in two reverse directions, directly reflecting the wet and dry seasonal wind and wave directions. Sediments on the beaches and on the beach-ridges and foredunes move to the south and east during the monsoon season, with reverse drift occurring during the southeasterly season. In coastal compartments which have been modified by clearing mangroves and other sediment-trapping vegetation, and by
constructing buildings or dumping solid refuse on the mobile back-beach sediments, or by building stable ramps, seawalls, groynes or breakwaters within the tidal zone, this natural pattern of sand movement is interrupted. The most common result of this is that sediment movement occurs in one direction, with no reverse drift to replenish that sediment and an overall reduction in available sediment occurs within the beach compartment.

Kidd (1985, 106) described the usual response to this very common situation:

Unfortunately a common response to such events is the construction of barriers immediately in front of the foredune. Typically these are solid, near vertical seawalls. Not only do these structures prevent the storm waves utilizing the emergency sandstore, their composition and inclination commonly results in almost all the incident wave energy being reflected back from them. This contrasts dramatically with a natural beach surface, which commonly absorbs much of the incident energy. In addition the crests of the reflected waves often coincide with those of the incoming waves, turbulence is greatly increased and the resultant erosion is much more severe as waves expend their energy by cutting down further into the beach. In extreme cases all the beach sand may be removed exposing bare rock surfaces to the waves. Seawalls may even be undermined by wave attack at their base and water from waves overtopping them may also percolate downwards removing the sand behind them. The walls collapse and the waves proceed to attack the now unprotected foredune.

Examples of the ‘extreme case’ can be seen within Torres Strait on the islands of Boigu and Saibai.

The environmental costs of recent infrastructure developments are particularly evident on the central low-lying islands. For example, on Warraber Island – an elliptical coral cay, only 2–3 m above mean sea level and less than 750 m wide – the airstrip bisects the island along a northwest/southeast trajectory, providing a wind and wave corridor under storm surge conditions associated with the northwest monsoon. The provision of an airstrip on Yam Island has been responsible for a substantial breach in the coastal mangrove belt – one of the most biologically productive of all ecosystems and an important buffer against flooding and saltwater intrusion. While at Kubin, on Moa Island, and on other islands, extensive improvements to community wharf facilities and barge ramps have resulted in increased sedimentation and degradation of adjacent shallow reef habitats.

Insufficient advance thought appears to have been given to these adverse environmental impacts, with the result that they now threaten to increase the effects of coastal change and sea level rise (see Section 3.4). The Islanders are all too aware of these problems, acknowledging that: ‘Insensitive
construction, even of essential infrastructure, can lead to unwanted but avoidable ill effects' (Lui 1992b).

The Horn Island gold mine provides another example of the inadequacy of existing mechanisms regarding the environmental impacts of coastal developments. As mentioned above (Section 2.1.3), the Commonwealth was not consulted over the decision to grant the mining lease nor did it review the final conditions for environmental protection. Furthermore despite repeated requests from the ICC in 1987, the Environmental Impact Assessment Report was not available for public comment. The company concerned, Torres Strait Gold Pty Ltd, ceased mining on Horn Island in late 1989 due to bankruptcy, leaving a considerable area of disturbed ground including large pits and waste dumps. Rehabilitation of the mine site is currently in its early stages – but the possible long term effects on the natural ecosystem from contamination by seepage and leachate from mine waste and from removal of sand from Horn Island beaches for use in construction works is a costly legacy to a development that also failed on economic grounds. The value of the mine to the local economy has been estimated to have been only about $2–3m per year (Babbage 1990).

Development need not and should not occur to the detriment of the natural environment – which is why the ICC has firmly endorsed the principles of ecologically sustainable development as part of the Marine Strategy for Torres Strait. Basic ecological guidelines, to be incorporated within the Regional Development Planning process through the Strategy, will assist in minimising the environmental costs of future development. To be effective, however, significant amendments to the Environmental Protection (Impact Proposal) EP(IP) Act 1974 are urgently required. The relationship between the provisions of the Endangered Species Protection (ESP) Act 1992 and the EP(IP) Act, as they may apply to activities undertaken by Commonwealth agencies in the Torres Strait area, will need to be considered in the further development of the Marine Strategy. For example, if actions are undertaken which could threaten, with extinction, a species or community listed under the ESP Act in an area in which the Act applies, or significantly impedes its recovery, the Action Minister would be required to trigger the EP(IP) Act (ANCA, Submission 4).

3.3 Marine pollution

Marine pollution is a major concern at a regional level in Torres Strait. The Torres Strait Baseline Study has dealt specifically with potential heavy metal pollution from the Fly River in PNG (see Section 1.9.2), but there are many other sources of marine pollutants.

The concerns of the Islanders were recently voiced by former ICC Chairman, George Mye: 'From our islands we see lots of
stuff floating by from the Fly River; it's what we don't see that worries us!” (quoted in Lui 1992b, 3). Ephraim Bani, ICC spokesperson for Cultural Affairs, has expressed similar fears:

Maybe if something terrible happens, I may not be affected but it's my children's children that will come after, that will suffer the most. What comes from that mine and from oil spillage is a big threat for life in Torres Strait. And the tides we have – I very well know the movement of the tide. It's a circular tide. It's clockwise up here. It does not really escape. It just go around the Torres Strait like putting the sugar in a cup and stirring it up. So if something spills or leaks it stays here for a long, long time (quoted in Staples 1992, 27).

The present ICC Chairman, Getano Lui, in his submission to the UNCED Earth Summit in June 1992, mentioned several other developments in Indonesia and PNG which are of concern to the Islanders:

Oil exploration in the Gulf of Papua and oil loading facilities at Kutubu on the Gulf of Papua, vessel traffic in the Strait, a pulp mill at Merauke in Indonesia, lead-zinc loading in the Gulf of Carpentaria, and oil development in the Timor Gap all cause worry in our Islands (Lui 1992a, 3).

The Islanders have been particularly aggrieved that the system of compulsory pilotage which operates within the Great Barrier Reef has not been extended to the Torres Strait. The current voluntary scheme for pilotage through the Strait is considered unsatisfactory with more than 15% of target vessels failing to take on pilots.

The sea lanes in the Torres Strait are deemed to be international waters by the International Maritime Organisation, to which Australia is a party. The people concerned with that say that the Torres Strait people have no control over who goes through those waters. The reasoning or rationale for declaring these waters as international waters is partly for defence purposes. That is all very well but in the mean time it is viewed locally as people walking through your backyard. The seas are just the same to us as the land. It is very difficult to operate under those circumstances (Lawrence & McGrath 1994, 56).

The Workshop (June 1993) provided an opportunity for further discussion on this matter; DFAT explained that while they consider the Torres Strait to be part of the same ecosystem as the Great Barrier Reef, international law distinguishes very clearly between territorial seas such as the Great Barrier Reef and the Torres Strait, which is a passageway for international navigation (French 1993). Australia, as a result, does not have the power to deny right of passage through the Strait to vessels going to or from the Kutubu oil terminal, although PNG has agreed to insist, as a condition of vessels entering the terminal, that all vessels carry a pilot on board.
PNG has not as yet developed effective oil spill prevention and clean up capacity, although funding arrangements for the extension of the OSSM oil spill prediction model have been finalised between AMSA and the PNG government, with the assistance of the Australian International Development Assistance Bureau (AIDAB). For Australia’s part, oil spill contingency plans have been established at national, state and regional levels. GBRMPA has developed REEFPLAN to protect the extremely vulnerable Great Barrier Reef and steps have recently been taken, in accordance with the National Plan to Combat Pollution of the Sea by Oil, to develop a separate but similar plan for the Torres Strait. The first level of this Torres Strait Contingency Plan will address waters within Australia’s jurisdiction. Negotiations with PNG, through DFAT and AMSA, will determine the northerly extent of the plan but it is expected that it will follow the boundaries of the TSPZ, taking into account the adjacent area which is covered by REEFPLAN (Biddle, ICC Workshop, June 1993).

The terms of reference for the plan had been written at the time of the ICC Workshop in June 1993 by a Steering Group comprised of representatives from QDoT, QDEH, AMSA and GBRMPA. The purpose of the Plan is ‘to detail the scope, contingency arrangements and operational procedures required to respond to an oil spill occurring within the designated geographical area’ (Dept of Premier, Submission 7). A representative from the ICC has been nominated to facilitate consultation and have input to the development of the plan which is expected to be operational by early 1994.

In addition to these developments, a Marine Pollution Act has recently been proposed to replace the existing Pollution of Waters by Oil Act 1973 and afford more complete protection to the Queensland marine environment, in particular from pollution originating from all classes of ships and small craft. The Marine Pollution Act will incorporate the International Convention for the Prevention of Pollution from Ships 1973/78 (MARPOL), which has been ratified by the Australian Government.

DFAT is also seeking to increase the level of knowledge of the hydrography and shape of the seabed, in addition to improving navigational aid in the region. A more detailed system of reporting is needed, particularly with regard to details of the maintenance history of each vessel and the cargoes they are carrying. Such changes require multilateral support and are most likely to be achieved through the IMO. Another approach, recommended by DFAT, which might assist the Torres Strait region, is the declaration of an exclusive economic zone as part of a package of measures under international law. This would apply to an area up to 200 nautical miles and provide Australia with certain rights.
to fishing and mineral resources as well as provisions for environmental protection.

Three final points can be made regarding the issue of marine pollution. Firstly, though concerns about the potential risks of a major oil spill from international shipping make headlines, it is estimated that chronic, operational, small spills from shipping and handling of oil account for more than 70% of oil in the marine environment, while dramatic, large accidental spills contribute less than 10% (Carpenter & Maragos 1989). Thus, safety measures related to local fuel consumption and energy developments must be developed alongside regional oil spill contingency plans.

Secondly, increasing risks of pollution are also associated with increased sedimentation in the region due to land use changes, mining and construction, and the disposal of domestic and non-domestic wastes (including sewage and solid waste disposal). Such issues will be integrated within the Marine Strategy for Torres Strait.

Finally, the perception that the marine environment is being badly polluted will have as profound social and cultural effects as its physical manifestations are ever likely to. As a result it is imperative that Islanders are kept informed in a meaningful way of the results of all investigations into marine pollution. The Marine Strategy will assist in the dissemination of such information.

I try not to get people too worried or too concerned about [possible contaminants in] seafood because there is then the problem of people turning from the natural diet that they have had all their lives from the sea to processed food in the stores and that is not going to help them, especially because of their diabetes problems. My information to them has to be very accurate. I cannot go making crazy statements or comments (McGrath, ICC & GBRMPA, commenting on his role in the TSBS community collection program, ICC Workshop, June 1993).

3.4 Environmental change and projected sea level rise

by Marjorie Sullivan, Consultant

The issues of global warming and associated sea level rise are of direct concern to Torres Strait Islanders. The best world-wide scientific predictions of global climate change, and the likely impacts of such changes, were collated by the Intergovernmental Panel on Climate Change (IPCC), and have since been published and distributed widely (Houghton et al 1990). For tropical maritime environments, such as Torres Strait, an average temperature rise of 1.5 to 2°C is likely by the year 2100, with sea level predicted to rise by
65±30 cm during that time. Weather patterns are likely to become more unstable, and extreme weather events more common in association with those changes.

No specific studies have been carried out on the Torres Strait Islands to determine the likely impacts of projected global climate change and sea level rise. However, a sufficient number of detailed studies have been carried out for the northern Australian mainland coast, the PNG coastline and for similar islands in the south west Pacific to identify in general terms the likely impacts on each group of Torres Strait Islands.

Both the Eastern and Western Groups (see Section 3.1) will be affected by sea level rise in ways similar to those described for Misima and Lihir Islands in PNG (Bualia & Sullivan 1990) or Viti Levu and Beqa Island in Fiji (Nunn 1990). The areas most vulnerable to sea level rise are backbeach dunes, older beach-ridges now forming coastal plains and small estuaries at the mouths of creeks or rivers. These are common locations for village housing, for roads or tracks, bridges, boat ramps and other infrastructure, which is generally constructed on flat coastal land. The proportional loss of land from such islands is likely to be small, but its value may be relatively high. Conservative planning would suggest that future construction should be located well back (more than 50 m) from the shoreline, and that active planting and maintenance of vegetation which stabilises the coastal sediments should be encouraged.

The Northwestern Group of low-lying, muddy, deltaic islands includes the islands of Boigu and Saibai. Between them is the small island of Dauan – a granitic high island – which will be affected like those of the Western Group (above). Boigu and Saibai, like Daru Island in PNG, are deltaic floodplain landforms, and will respond in ways described by Bualia (1990) for the Kikori area, Hughes and Bualia (1990) for the Sepik plains, and Bualia and Sullivan (1990) for deltaic floodplains and lagoon and sandspit coastal areas more generally.

Apart from extended seasonal flooding and eventual loss of the lowest lying land, such areas may undergo major changes in the vegetation they support. In addition, a relatively early impact will be the salinisation of fresh groundwater supplies and the subsequent abandonment of wells and bores as the quality of drinking water and water for gardens deteriorates. For coastal land and islands where subsistence gardening is still practised this may result in a direct economic loss. In other areas there will be a need to change to more expensive water supplies such as roof runoff tanks, and consequently sheet-metal roofing for houses.
The Central Group is likely to be affected in the ways described for atoll and other coral-based islands such as the Marshall Islands, Tuvalu, Kiribati, the Maldives, the Trobriand group in PNG and several hundred small tropical islands around the world (Sullivan & Pernetta 1990; Sullivan & Gibson 1991).

The impacts of even a small rise in sea level on these low-lying islands will be severe. The major impacts include contamination of the fresh groundwater lens which floats above the seawater on such islands, and loss of coastal land under the influence of higher waves. Lack of freshwater will make many low-lying islands uninhabitable before there is a severe loss of land. Provision of alternative sources of drinking and gardening water, and careful maintenance or establishment of coastal fringe vegetation will delay the impacts of such sea level rise.

In common with other tropical areas, on all of the Torres Strait Islands there are strong implications for human health resulting from climate change (McGregor 1990; Nurse 1990). These include problems of heat stress and thermal comfort, especially for people working outdoors, increases in parasitic diseases including malaria, filariasis (elephantiasis), various forms of encephalitis, and many gastric disorders. In areas where the delivery of health services is already poor, increased health risks due to climate changes become potentially more serious.

Through the Marine Strategy for Torres Strait, more detailed work will be carried out to identify vulnerable or threatened sectors of the coastal zone of the main inhabited Islands. Specific mapping to indicate areas most likely to suffer the impacts of increased wave heights or saline groundwater intrusion will enable better management planning for coastal infrastructure or other proposed developments, and will enable the identification of more stable alternative areas for infrastructure.

In addition to global warming and sea level rise, global problems related to the continued effects of rising human populations, ozone depletion and atmospheric change should also be built into any strategic planning process. Predictions for the future are always uncertain and difficult to apply in the short-term, nevertheless lack of scientific certitude should not be used as a reason for postponing measures to deal with environmental degradation.

3.5 **Management of marine animals**

The ICC proposed, in the earlier version of this document (Mulrennan *et al* 1993), that an action plan be developed for the protection of species as part of the overall management
strategy. This idea has since received much support and was central to the workshop discussions. Information relevant to the development of an action plan for the management of dugong was provided by Professor Helene Marsh (JCU), while QDEH (Col Limpus, David Perkins) assisted with details relating to the management of sea turtles.

3.5.1 Dugong

The dugong or sea cow (*Dugong dugong*), listed by IUCN (1986) as 'vulnerable to extinction' (Marsh & Lawler 1992; Michaelis 1993)
† has traditionally 'ranked highest among traditional Torres Strait foods' (Johannes & MacFarlane 1991). In recent years, some local people (Johannes & MacFarlane 1991) and scientists (Hudson 1986; Marsh 1986) have expressed concerns about dugong numbers. Estimates of annual take vary; however, local knowledge, combined with scientific understanding of the biological characteristics of the dugong is providing valuable direction for management (Marsh 1986).

The life of a dugong is like a cycle. KAZIL AY gives birth to a calf. She is called NANAYG who now mothers the calf teaching it how to swim and dive. At this time the calf drinks milk from its milk ducts. During this time the pair are called APUKAAZI. When the calf becomes mature and eats grass (seaweeds) the mother teaches him how to reproduce through the mating process.

At this time they swim together side by side. The moment the female dugong becomes pregnant, their swimming habit breaks. This time they now swim or feed one after the other. The husband, who now becomes BARAKUTHAW GARKA, follows the mother KAZIL AY which again begins the cycle (Bani 1991, 13).

Similar to humans, the dugong has an average life span of about seventy years and the female does not reach reproductive maturity for at least 10 years, but sometimes not until 15 or 17 years of age. The gestation period is about one year, with a calving interval of approximately three years (in the Daru sample, females calved about once every seven years). These characteristics are reflected in a particularly slow rate of population increase. Marsh (1986) calculated that, even with the most optimistic combination of life history parameters (calving interval of 3 years and a pre-reproductive period of 10 years), an unharvested dugong population was unlikely to increase at more than 5% per year.

† The Australian dugong population is not listed as an endangered or vulnerable species under the *Endangered Species Act 1992* (ANCA Submission 4).
Population and density estimates for the whole region have been calculated from two surveys conducted in 1987 and 1991. The population estimate for November–December 1991 was 24,000 animals (Marsh & Lawler 1992), compared with a population of 13,000 for the same region in November 1987 (Marsh & Saalfeld 1988; 1991). Given the life history of the dugong, this difference between the two surveys cannot be due to natural increase and is possibly related to a migration of dugongs into the area from Indonesia (Marsh & Lawler 1992).

The movement and distribution of dugong in the Strait has been monitored using radio transmitters attached to a sample of animals (Marsh 1993). Dugong were generally found to stay in localised areas (aerial surveys indicate highest densities in the western area of the region around Badu, Mabuiag and Moa); with the exception of one young male who travelled over 200 km in two days. The survey also indicated that there may only be one stock of dugong in the Torres Strait; hence the importance of multilateral cooperation between Australia, PNG and Indonesia in the management of dugong in the region. The EMC provides the obvious forum for facilitating communication between the three parties.

The PZJA is responsible for the protection and conservation of dugong stocks in the TSPZ; commercial fishing is prohibited throughout both the Australian and PNG sections of the Zone, but traditional fishing for consumption (but not for sale) is permitted. The recorded harvest of dugongs by outer island communities was 242 animals in 1990 and 358 in 1991, with an estimated 70 to 80 animals per year taken in the Torres Shire and northern peninsular region (Nona 1992). An estimate of 500–600 dugong was recorded for the TSPZ by the community school program (see below). A survey of the marine catch in the TSPZ, conducted by CSIRO, suggests that over 1000 dugongs were harvested between 1991 and 1992 (Harris 1993). An unknown number of dugongs are taken by the PNG residents of the Torres Strait, although there are reports of about 300 dugongs being sold each year illegally in the Daru markets (Marsh 1993).

In the absence of an accurate estimate of the absolute abundance of dugongs in the area and accurate data on dugong catch levels throughout the region (including PNG), scientists are finding it impossible to evaluate whether the current harvest is sustainable (Marsh & Lawler 1992). Marsh (1993) has, however, expressed concern about a local dugong catch of 1000, particularly given the lack of catch information from the PNG side of the Torres Strait.
In the village I come from we catch 2 to 3 dugongs a day at the moment, there is a lot of seaweed growing in the village and that must have attracted the dugongs from other places and this time we are catching them with nets (Pakini, ICC Workshop, June 1993).

Legislative responsibility for the management of dugong (and turtle) outside the TSPZ has recently been transferred from Commonwealth fisheries legislation to the National Parks and Wildlife Conservation Act 1975. This change is thought to reflect a shift in perception from a commercial fisheries orientation to that of a wildlife conservation and management agency considered to have close working ties to indigenous communities (ANCA, Submission 4). Under the Act, recovery plans and marine surveys are required for all listed marine species (including dugong). Similar changes have occurred at the State level with the establishment of the Nature Conservation Act 1992; Conservation Plans have been proposed as part of the Nature Conservation Act for species in waters under State jurisdiction. The NCA has met with considerable opposition from Aboriginal and Torres Strait Islander representatives throughout Queensland who express concerns about the possible negative impacts of the Act on native title rights and about the inadequate process established by the Queensland Department of Environment and Heritage for dealing with these issues.

Increased Islander involvement in all aspects of dugong management, including both monitoring and regulating the harvest, is essential; the inappropriate siting of a dugong sanctuary in an area of relatively low significance to the dugong population is a testimony to the current low level of input from local Islanders. Scientists acknowledge that the time frame of many of monitoring surveys is unsuitable for the detection of short-term trends in over-harvesting, especially when significant movement of animals into and out of the area occurs (Marsh 1993).

*In terms of your local knowledge you know far more than western scientists and I think it is really important that that knowledge be incorporated into management. I also think that it is important that Islanders are trained in western science. It is much easier to train Islanders in western science than to get western scientists to understand how important dugongs are to you, because I do not think that anyone who has not grown up here can appreciate that* (Marsh 1993).

The survey recently conducted by CSIRO in the region represents a significant initiative in providing training and encouraging Islanders to become involved in fisheries biology, while also developing a cost-effective and reliable method of monitoring the traditional fisheries of the TSPZ (Harris 1993; Dews 1993). AFMA have also been conducting a monitoring and education program with primary school children on the island communities. Children and teachers
are encouraged to place stickers of either dugongs or turtles on calenders, along with basic biological information, whenever they are sighted or caught. This data is collated and interpreted by AFMA staff periodically. The program combines personal meetings and educational videos (using local dialects), and has also been provided to PNG fisheries officers for their presentations in the western provinces (Elmer & Coles 1991).

Local knowledge and information about the movements and habits of dugong should be documented, for example:

The feeding ground of the dugong is called NARA. When dugong eats it cuts the grass in two ways. For KULIS the dugong eats facing east. Since the seagrass are always tilted in the westward direction, the dugong has full advantage to snap eat the grass and leaves a clue which is a horizontal cut.

At GULTHATH the dugong graze differently. It does not fall in with the tide instead it eats the grass by positioning itself across the tide. The dugong does this because this is the only time the seagrass lifts itself (Bani 1991, 16).

Most importantly, Torres Strait Islanders should be given a greater role in decisions affecting the management of dugong.

3.5.2 Turtle

Many of the issues already dealt with in relation to dugong conservation are similar to turtle conservation; turtles can live for a long time and the time from the immature stage to the breeding female stage involves decades. There are also significant differences between dugong and turtle in that dugong populations tend to be more localised, whereas turtle populations range very widely over a large geographic area. Turtle conservation, therefore, requires considerable international cooperation.

Three species of turtle are of particular importance in the Torres Strait: the endemic (Australian) Flatback turtle (*Natator depressus*); the Hawkeshill (*Eretmochelys imbricata*) which ranges from Indonesia to the Solomon Islands; and the Green turtle (*Chelonia mydas*), which is the main species hunted in Torres Strait. Flatback turtles have two of their most important nesting sites in Torres Strait – Deliverance Island and Crab Island – and their population appears to be in a reasonably healthy condition. The Hawkeshill has some nesting in Torres Strait, Sassie Island being the most important, but the shell trade from the Solomon Islands to the Japanese market has posed a major threat to this species; however, international initiatives over the last few years appear to be having some success on this matter.

Green turtles are the main species taken in Torres Strait, both in terms of eggs and adult animals. The population
ranges over a wide area, with the main nesting site at Raine Island. Other nesting sites are associated with the large sea-grass beds in Torres Strait which provide important feeding grounds. Population estimates from an aerial survey conducted in 1991 indicate approximately 65,000 green turtles for the whole region. An earlier survey in 1987 estimated that there were 44,000 turtles in the same region (Marsh & Lawler 1992). This difference between surveys is attributed largely to inaccuracies in survey technique, although there was some evidence for a movement of sea turtles into the area. Nesting habits also vary enormously from year to year, and appear to be related to the ENSO (Miller & Limpus 1991).

Research by QDEH into the nesting and feeding habits of green turtles on Raine Island indicates that the turtles operate over a wide region. Genetic studies are being conducted by CSIRO and the University of Queensland to establish whether breeding populations operate independently or as one large pool, and a population model is being developed to relate different management options and estimates of safe levels of take to the various stages of the life cycle of the turtle.

Concerns about the level of turtle harvest from the wider region are increasing. Greenpeace estimate that Indonesians take about 50,000 Green turtles per annum. The indigenous harvest in Torres Strait, including Torres Strait Islanders and the Kiwai people of PNG, has been estimated to be in the order of 5200–6300 turtles per year (Kwan 1991); results from the CSIRO catch monitoring survey of the TSPZ estimate that 2600 turtles were harvested between 1991 and 1992 (Harris 1993). This level of take is not considered sustainable (Perkins 1993) and concerns have also been expressed over excessive levels of egg harvesting.

As with dugong, conservation and protection turtle stocks in the TSPZ is the responsibility of the PZJA; only traditional hunting is permitted in the Zone. The recent passage and gazettal of the Endangered Species Protection Act 1992 is potentially important for turtle management in Commonwealth waters adjacent to the TSPZ. The precise relationship between the Act and measures that are implemented under the Torres Strait Fisheries Act 1984 will need to be examined. According to ANCA (Submission 4), the development of Species Recovery Plans is mandated for listed species under the legislation, with higher priority given to those considered vulnerable. Loggerhead turtles are listed as an endangered species, while green, hawksbill, olive ridley and leatherback turtles are listed as vulnerable (neither flatback turtles nor dugong are listed under the Act). Provisions are, however, included under section 70 of the Act for the traditional take of these species, with certain
controls. The identification and listing of threatening processes is also provided for, with a requirement for threat abatement plans once such processes are identified.

As indicated in the Discussion Paper [Mulrennan et al 1993], the existing range of State and Commonwealth agencies with direct involvement is complex, but there is a clear willingness on the part of ANCA and QDEH to pursue the cooperative development of measures for marine wildlife in northern waters endorsed by the recent ANZECC meeting. It is our view, however, that an essential part of any cooperative initiatives by government agencies for management of dugong and turtles in the Torres Strait region and elsewhere across northern Australia, will be consultation with the local communities and the development of management measures in part by those communities. Similar considerations will apply to terrestrial wildlife and plants used in traditional subsistence, particularly species that may be vulnerable to local over harvesting on breeding or nesting grounds (ANCA, Submission 4).

Effective monitoring and management of wildlife populations and environmental quality is also dependent on bilateral and multilateral communication and cooperation. Several initiatives have recently been taken to improve marine turtle conservation in the region. For example, ANCA and QDEH have developed a proposal for regional cooperation on marine turtle conservation in the Indo Pacific region; SPREP has commenced a Regional Marine Turtle Conservation and Management Program; and an action plan for the conservation and management of Green Turtles has been formulated in Indonesia. Environmental co-operation between Australia, PNG and Indonesia is encouraged and facilitated through EMC meetings.

Management of turtle must ... include the total population of the wider region. We cannot separate out what happens in Torres Strait, from what happens in Indonesia, PNG or the Northern Territory, they are all integrally linked (Perkins 1993).

Finally, as with the management of dugong, major improvements are required in the degree to which local and scientific knowledge are mutually accessible, and scientific and local managers achieve real collaboration and cooperation in decision-making. These objectives are crucially important elements of the Marine Strategy.
MARINE STRATEGY FOR TORRES STRAIT

The purpose of the Marine Strategy for Torres Strait is to establish a comprehensive management framework which will permit optimum exploitation of the region's limited resource base, consistent with the needs of indigenous Torres Strait Islanders, sustainable development and minimal disturbance.

The Marine Strategy for Torres Strait is guided by the following principles, both in its development and implementation phases:

1) Torres Strait has a limited resource base. The marine environment must be managed to protect and ensure the productivity of its resources for present and future generations.

2) Torres Strait Islanders have fundamental rights with respect to the islands, waters, and resources of the region. These must be recognised in legal, policy, and institutional arrangements, and in the full participation of Islanders in resource and environmental management of Torres Strait.

3) The traditional ecological knowledge of Torres Strait Islanders, their culture and their needs, together with the interests of other local residents, must be reflected in management processes. This will require local hiring preferences and the development of appropriate research, education, and training programs.

4) A comprehensive approach to resource and environmental management in Torres Strait is needed. To be effective this will require rationalisation and coordination of the often complex and overlapping jurisdiction and administration.

5) A healthy and productive marine environment is the key to Torres Strait Islander well-being and future prospects, and must be managed as such.
IMPLEMENTATION
STRATEGIES

The Marine Strategy for Torres Strait will be implemented through a series of action plans which are being developed from the strategies outlined below. These strategies are guided by the principles of the Marine Strategy and establish a broad framework for its implementation.

4.1 Research and monitoring

Successful resource management policies and strategies include adequate knowledge of those resources. Research and monitoring, therefore, provides an essential component of the development and implementation of the Marine Strategy; but it must occur within management frameworks that recognise the value and authority of indigenous knowledge and resource managers, alongside the contribution of scientific researchers.

Research in the Torres Strait has generally concentrated on studies of specific species, isolated components, or limited areas within the Strait. Despite the value of much of this work, knowledge gained from a broader research program is required for application in formal planning and decision-making. Coordination and integration of research efforts would ensure that interdisciplinary and interagency studies maximise the utility of the results and minimise costs.

Action Plans:

- maintain and foster ongoing consultation with relevant local and external experts regarding the successful development and implementation of environmental and resource management plans
- coordinate research efforts in the region, and encourage the integration of traditional and scientific knowledge in the ongoing research process
- encourage research that serves the legal and political definition of customary marine tenure
- assist in the development of a comprehensive data base for natural resources; including information on the distribution and abundance of key species in a series of habitats (access to the CSIRO GIS and information exchange will be a key element in establishing this data base).
4.2 Shared management

Shared roles in management are both environmentally beneficial, and an inescapable feature of emerging legal and political arrangements between indigenous populations and central governments.

A number of liaison/consultative mechanisms are presently in place, which include Torres Strait Islander representation, however, Islanders have minimal decision making powers. The Marine Strategy seeks to maximise Islander involvement in existing structures, while recognising that structural changes will also be required to achieve real empowerment.

Shared management will be guided by the principles of the Marine Strategy (Section 1.5). The subjects of cooperation will include sustainable use of harvestable stocks, protection of endangered stocks, restoration of depleted stocks, protection and improvement of habitat, reduction of waste, and identification and evaluation of opportunities for economic development based upon renewable resources.

Action Plans:

- reconcile technological and traditional Islander management concepts and customs in a culturally acceptable Marine Strategy – of particular relevance to this integration process is the kind of material collated by Nietschmann (1985), Cordell (1991a) and Johannes and MacFarlane (1991) on customary marine tenure (CMT) in Torres Strait, and its impact on marine conservation

- seek opportunities to increase the role of Torres Strait Islanders in management decisions affecting the Torres Strait region (review existing management and consultative arrangements under the Torres Strait Treaty); encourage coordination with government departments in the establishment of shared management processes, involving all resource users in decisions about renewable and non-renewable marine resource management

- facilitate the implementation of indigenous Islander rights in relation to Torres Strait Treaty review, fisheries agreements, ‘native title’, and possible management tools such as ‘sea closures’, ‘buffer zones’ and ‘economic zones’, in light of the Mabo decision

- develop a close working alliance between the ICC and TSC, in addition to involving Cape York communities, and non-Torres Strait Islander residents

- consult and cooperate with PNG regarding the development of the Western and Gulf Coastal Zone Management Plan to ensure that the development and implementation of both management strategies are compatible
• build upon other environmental initiatives, facilitating consultation between the various projects and developing compatible strategies.

4.3 Integrated resource planning and management

Administration and management of natural resources is presently conducted on a single sector basis. This approach fails to acknowledge that activities in one sector (e.g. tourism and infrastructure development) have an impact on resources in other sectors (e.g. fisheries). The development of the Marine Strategy will improve integration and coordination between resource sectors and seek to reconcile differences in objectives and to optimise use of resources, with due consideration given to all resource values: economic, social, cultural and environmental. In this respect it is essential that the objectives of the Regional Development Plan complement those of the Marine Strategy.

A framework is required to integrate management of the Torres Strait's marine environment and resources. Such a framework should provide for shared participation by users, resolution of resource conflicts and harmonising activities flowing from different departmental and user group objectives. To this end the proposed management model, comprising a Regional Environment and Resource Management Plan and Community Environment and Resource Management Plans for each island community, will be developed to: anticipate, resolve and minimise competing demands or land use conflicts; to optimise resource allocation; and to ensure integrated management of resources. The process will involve extensive public participation in order to ensure consideration of local community needs.

Action Plans:
• establish locally-based institutional arrangements to develop and coordinate marine resource management and monitoring within the Torres Strait

† The term ‘regional’ as used here includes all marine waters and islands within the jurisdiction of the Marine Strategy for Torres Strait (as defined in Section 1.7 and indicated on Figure 2); that is, the entire region.

* The term ‘community’ as used here refers to the individual island and its adjacent reefs and seas. The Regional Plan will provide broad and general guidelines ensuring consistency across the Strait while the individual Community Plans will cater for more specific needs at the local island level.
• seek opportunities to resolve multiple resource conflicts in the Torres Strait marine area by participating in resource planning and management with local, state and federal agencies and resource users

• develop a Regional Environment and Resource Management Plan to ensure integrated management of the resources of the Torres Strait region

• develop a series of Community Environment and Resource Management Plans through the individual community councils which will ensure comprehensive management of community issues and their integration within the regional plan

• ensure effective integration of marine management within regional development planning in the Torres Strait.

4.3.1 Sustainable development of renewable resources

Conservation and management of marine resources is essential to the Islanders. Underpinning the conservation management aspects of the Marine Strategy is the assumption that marine resource management must contribute to the long-term physical and social sustainable development of the Torres Strait Islanders. The Strategy must be directed towards ecologically sustainable resource use, not simply species preservation or other forms of conservation. Only Torres Strait Islanders necessarily have an interest in long-term sustainable resource use. Any long-term strategy for managing these resources must be designed and implemented by the Islanders, and they must have the legal authority to be able to do so.

At present the commercial motivation to exploit is greater than the power of local control over marine resources: ‘We cannot tolerate the behaviour practised by non-Islander commercial fishermen who are currently destroying other products that are not within their licence arrangements’ (Day, Media Release, December 1993). The Islanders see effective management of marine resources as dependent on selective exploitation of local resources by a small community of people, combined with local control over home reefs and over sea space in the immediate vicinity of the inhabited islands.

Management of renewable resources in the marine environment should be designed to maintain, restore and enhance the renewable resource base. Management should also attempt to enhance and diversify the use of renewable resources, and to optimise the benefits from renewable resource use. The development of management plans should be based on adequate data, where possible, and should be consistent with those existing species and habitat management plans considered to be effective.
Action Plans:

- provide a forum through which the policies of the Torres Strait Islanders will be effectively represented in the management and utilisation of renewable resources
- establish priorities for the development of detailed management plans (eg species specific management plans for marine mammals and fish)
- ensure that socio-economic development strategies for the Torres Strait are consistent with the Marine Strategy
- support the development of health studies in the region, particularly those concerned with the implications of the TSBS.

4.3.2 Non-renewable resource development

Non-renewable resource developments, including marine transport, must be planned with full consideration of possible effects on other resources and resource users. In situations where non-renewable resource developments are already underway, the effects of these developments will be monitored. Those developments that are compatible with marine conservation should be encouraged. Industry should be required to include measures to protect the Torres Strait marine environment and resources when planning its activities.

The Torres Strait Baseline Study (TSBS) has provided an assessment of existing environmental effects of PNG mining operations on the Torres Strait marine environment and guidelines for on-going monitoring of the marine environment. A series of baseline studies, similar in approach, should examine a wider range of possible impacts. For example, baseline data on hydrocarbon levels in the environment would be useful in monitoring environmental recovery after an oil spill, as well as the extent of smaller operational spills.

Action Plans:

- seek to reduce existing and potential threats of marine pollution or contamination at the regional scale (eg PNG mining operations and international shipping)
- facilitate the development and implementation of Islander policies relating to the management of mineral and petroleum resources in the Torres Strait
- encourage the development of adequate marine transportation regulations
- assist in the development and implementation of the Torres Strait Oil Spill Contingency Plan.
4.4 Marine environmental protection

The quality of the Torres Strait marine environment must be maintained, protected and enhanced to ensure the well-being of its marine life and human population; this is best accomplished within an integrated environment and resource management system, and the creation of a network of marine protected areas has been proposed as a component of this. Marine protected areas are defined by the International Union for the Conservation of Nature and Natural Resources (IUCN) as: ‘Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment’ (cited in Kelleher & Kenchington 1991, 7). While their basic function is the conservation of marine ecosystems and the preservation of marine biodiversity, they may satisfy a range of other goals. A marine protected area can take a variety of forms; for example, it can be a marine reserve which is set aside for a very specific purpose, or a marine park with a multiple use role. The designated area can be small and localised, or it could incorporate the entire Torres Strait region. The only requirements are that it have a clearly defined purpose, and that there be legislative ability and public commitment to enforce and manage it (Muldoon, ICC Workshop, June 1993).

The application of a multiple use model, as embodied in the management of the Great Barrier Reef Marine Park, has been suggested as a particularly useful approach because it provides an overall management framework: ‘It is a conservation framework and a planning framework rolled into one’ (Perkins 1993). Islander experience with this model has not, however, been a positive one as a result of inadequate consultation and conflicts over marine resource exploitation. Nevertheless, the concept of a Torres Strait Marine Park, managed by indigenous Torres Strait Islanders, may have some potential including: protection of key habitats and culturally significant areas from disturbance through the declaration of special zones; creation of sanctuary areas and research reference areas; imposition of a mandatory requirement on any development to acquire approvals and formal impact assessment; regulation of the take of particular species; and implementation of controls on discharges and pollution. Marine parks have also been known to afford control over local air space (Perkins 1993).

The potential of marine protected areas as a management tool and component of the Marine Strategy will be considered; in particular, the extent to which such a system — founded on western scientific principles of conservation
and resource management – can accommodate the needs and aspirations of the indigenous Islanders will require much discussion and consideration.

**Action Plans:**

- evaluate different models and approaches relating to the selection and management of marine protected areas; develop marine environmental quality criteria (including water quality) for the Torres Strait region
- promote national and international initiatives to reduce long-range transport of contaminants
- encourage and assist in the development of a comprehensive program for waste management and pollution control, including pollution from land-based sources
- provide practical solutions to current problems associated with locally generated pollution, including problems of inorganic or toxic household and industrial waste
- provide information relating to the natural environments of Torres Strait and advise on rational regional responses to global environmental change (liaison/information transfer with small island nations in the Pacific).

### 4.4.1 Environmental impact assessment

Terms and conditions, including the possibility of new legislation, must be established to minimise the adverse effects of resource development on the Torres Strait marine environment, and to ensure direct and balanced Islander involvement in environmental review procedures.

*Islanders should be able to consult with each developer about each project, from the earliest stages and throughout design and implementation, including both the concept (e.g., whether to have a landing stage or which shipping route) and details (which technology, what site, what additional environmental protective measures) (CRES, Submission 3).*

Environmental planning and management guidelines, including provision of environmental impact appraisals to minimise the environmental costs of development have been developed as part of the Marine Strategy to aid in determining the significance and acceptability of particular environmental impacts.

**Action Plans:**

- refine proposed community environmental impact guidelines and ensure that all development projects carry out environmental appraisals (Appendix A);
• review existing environmental impact assessment procedures and propose the following improvements:
  – integration of social impact assessment with environmental impact assessment, and impact assessment with planning (CRES, Submission 3);
  – investigation and recognition of cumulative impacts (CRES, Submission 3);
  – improve project monitoring and research into mitigative strategies;
  – ensure a strong form of public participation: (i) in the design of and specifications for impact studies; and (ii) in the planning of the development, especially in terms of identifying and averting likely impacts (see Appendix A);
  – require membership of the ICC, as the regional Islander government authority, on environmental review boards and panels.

4.5 Public knowledge

Awareness of the benefits of marine conservation enables policy makers, governments, developers and the general public to achieve conservation objectives. Information should be widely disseminated in the Torres Strait region through informal education programs directed at adults and formal education programs for school children. Mass media (radio, newspapers, television) should also be fully utilised to reach as many people as possible.

A resource atlas is proposed for the Torres Strait region; the development of such a tool will be dependent on access to the Torres Strait GIS, currently being established by CSIRO and housed at AFMA, Thursday Island. Information on the regional environment will include details of sediments, fish population densities, etc. Cooperation between various agencies, involving the transfer of information to this data base will make it all the more useful. The GIS provides an opportunity for local knowledge and scientific data to be pooled and then accessed in a ready and meaningful way by all user groups. It is important that this tool be made ‘user friendly’ and that locals are trained to use the facility, to ensure that the transfer of information is a two way process.

Torres Strait Islanders, like many of the world’s other indigenous peoples, have had their own well-established views and systems of resource management. Local knowledge of changing territory boundaries in response to changes in tides and winds, access rights, and knowledge of habitats and marine animal behaviour must be preserved and utilised in the conservation and management of the environment. The Marine Strategy for Torres Strait will
ensure that traditional knowledge of marine tenure and practices is incorporated into school curricula, as recommended by Johannes and MacFarlane (1991). In primary school courses dealing with the natural environment there should be a concerted attempt to include curriculum materials which deal with Torres Strait traditions, including those associated with the exploitation of marine resources. In this way social, cultural and economic information can be integrated, and the rich culture of the Islands maintained.

Effective management is dependent on the involvement of resource users at the community level. Additional benefits are gained if management personnel come from local communities. Thus the provision of relevant education and training programs (for example, a ranger program) is needed.

Many of the concepts and management strategies which will be developed are derived from the fields of fisheries biology, oceanography, geomorphology, ecology and anthropology and are complex and theoretical. Relevant scientific concepts should be formulated in practical terms that are appropriate to local managers and local resource users.

**Action Plans:**

- promote communication of the Strategy's activities to Torres Strait Islanders, to governments, public bodies, industry, academic and research communities, and to the interested public
- develop and encourage education and training programs to enable Torres Strait residents to play a greater role in marine management and marine-related employment
- participate in the Marine and Coastal Community Network established through the Ocean Rescue 2000 Program as a means of exchanging information on marine and coastal research projects and issues.

### 4.6 International cooperation

International cooperation is important for the conservation of living resources and the protection of the environment (Section 2.5). Bilateral and multilateral management of shared stocks of fish and mammals is essential to ensuring the sustainable utilisation of the Strait's marine renewable resources. Similarly, cooperative research initiatives can make a significant contribution to Torres Strait marine conservation.

An important aspect of international cooperation is the progress in indigenous development, land/sea claims settlements, self-management and self-government, and
marine and related environmental strategies. For example, indigenous marine arrangements and projects in Canada, Alaska and northern Norway yield many relevant lessons (see Mulrennan & Jull 1992). In each of those regions governments and indigenous peoples have developed new relationships thanks to indigenous initiatives on coastal and marine issues.

**Action Plans:**

- seek coherence between the objectives of environmental and resource management in Torres Strait and Australia's commitments to international and bilateral agreements
- encourage cooperative management of shared stocks of fish and mammals between PNG, Indonesia and Australia
- encourage comparative studies and exchanges with other 'first world' countries regarding issues of common interest.

## 4.7 Evaluation and review

The Marine Strategy for Torres Strait and subsidiary activities undertaken will be evaluated periodically and revised whenever necessary to ensure that responsible groups are undertaking appropriate actions and that a record is kept of the effect of those actions on stocks of resources, on the environment and on people.

The Marine Strategy and its associated action plans will evolve over time. Thus, the Strategy will be modified when new knowledge becomes available through monitoring or evaluation processes, or as a result of other developments.

To these ends, the ICC and the Advisory Committee to the Marine Strategy will continue to meet regularly and undertake an annual review and report of activities and progress.
REFERENCES AND FURTHER READING

The following bibliography contains a complete listing of all references cited throughout the document. Additional references are also included which the Marine Strategy for Torres Strait team have found useful in putting the document together. The references have been grouped under various sub-headings as a general guide to the reader but these categories are by no means exclusive.

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APPENDIX A

Environmental Impact Assessment: Guidelines for Torres Strait Islander Communities

by M Sullivan and M Mulrennan

Environmental impact assessment (EIA) involves anticipating the likely effect of a particular development activity on the environment. Assessment of the potential negative impacts of a development will allow steps to be taken to plan for and minimise these negative impacts, both in the immediate project area and in the wider area, particularly downstream. Failure to anticipate the negative impacts of developments in the past can be attributed to the absence of environmental impact assessment procedures and inadequate community participation in decision-making about project proposals.

Island Councils in Torres Strait exercise considerable control over the day-to-day details of community life, while more important decisions concerning the allocation of resources are generally limited to a choice among alternatives already pre-determined by governments (see Ross 1991). Notwithstanding this, the Island Councils are in a good position to utilise impact assessment as a public policy tool within their communities.

It is, therefore, recommended that the Island Council be responsible for ensuring that environmental impact assessments are conducted in advance of all development activities carried out within their jurisdiction. This will involve:

- evaluating the existing biophysical setting and human environment (baseline data);
- assessing the likely impacts of the proposal on the environment;
- recommending procedures to avoid or minimise likely negative impacts; and
- establishing on-going procedures for monitoring impacts.

Consultation should be carried out with each developer about each project, from the earliest stages and throughout design and implementation. All project proponents should comply with the standards expected from planners and developers elsewhere. Following the lodgement of a development proposal or plan, an environmental assessment should be undertaken in accordance with specifications.
outlined by the Island Council (suggested guidelines for the appraisal are outlined below). Particular care should be exercised in those areas of the Torres Strait which are especially vulnerable to damage; such areas are commonly described as ‘environmentally’ or ‘ecologically sensitive’ and include:

- mangroves, other coastal forests or woodlands, sandy beaches, small low islands, coral reefs, wetlands and swamps, and shallow nearshore marine areas of coral, sand or seagrasses;
- areas contributing to groundwater lens recharge – mainly sandy surfaces on low islands;
- archaeological sites† (whether registered or not), and other sites of cultural significance known to local people;
- other areas which are declared as protection areas, or appear to be particularly attractive or fragile.

The completed report should be submitted to the appropriate Island or Community Council.

The development of the Marine Strategy for Torres Strait will encourage and facilitate Islander participation in environmental impact assessment. The Coordinator of the Marine Strategy will assist the Council in its assessment of the appraisal undertaken and be responsible for informing relevant government authorities of the outcome of the appraisal (if they were not the body undertaking the work). The Coordinator will also ensure that any necessary follow-up work is undertaken, after the initial appraisal.

An appraisal checklist-form should also be completed for each development activity as a summary of the range of issues which should be taken into account at the activity planning stage.

The project proponent or field manager should then sign the appraisal checklist-form, and return it immediately to the Island Council. These forms could be a basis for carrying out ‘spot checks’ or for monitoring of the strategy’s own environmental impacts.

† Archaeological sites are often difficult for the non-specialist to identify; some are prominent and obvious (eg large mounds of shell and flakes of stone); while others are more subtle (eg scatters of flaked stone artifacts, foreign rock fragments or bone). The existence of such sites may not be well documented or known locally; however, certain patterns do exist in terms of likely site occurrences: for example, behind beaches and headlands; on open areas near creeks; or at the sites of present or deserted villages.
Environmental impact appraisal guidelines: issues to consider

1. **Socioeconomic impacts**
   1.1 Are traditional subsistence practices carried out in the immediate area or adjacent to the project area?
   1.2 Will the project restrict access to important natural resources?
   1.3 Will the project affect land use or require changes in tenure?
   1.4 Will the project require resettlement?
   1.5 To what extent are future resource use opportunities limited or enhanced by the project development?
   1.6 Will there be costs for repairing environmental damage or providing environmental protection?

2. **Biophysical/landscape impacts**
   2.1 Is the area ecologically sensitive or fragile?
   2.2 Is the area naturally vegetated?
   2.3 Will the vegetation cover be changed by the immediate or ‘downstream’ effects of the project?
   2.4 Will the landscape be altered in any way (e.g., by rock or soil removal, spoil dumping, timber removal)?
   2.5 Will the project impact on important species, habitats or ecosystems in the immediate area or downstream of the project?
   2.6 Will the project affect beaches, coral reefs, seagrass beds, mangroves, wetlands or swamps (immediately, or through its ‘downstream’ effects)?
   2.7 Will beach, slope or soil stability be affected by the project (or heavy machinery to be used in its activities)?
   2.8 What is the extent of the land area to be affected?
   2.9 Will there be additional demands on local water supplies or other local resources?
   2.10 Is the area culturally or archaeologically sensitive (behind beach or headland, on a low ridge, near a creek or waterhole, along known walking route, rock shelters or caves present, area named in stories, burial area)?

3. **Waste management and pollution impacts**
   3.1 Will the project generate waste products (including increased human wastes)?
   3.2 Will waste products be disposed of locally?
   3.3 Will the project or its waste disposal affect the quality of local streams or of the groundwater?
   3.4 Will toxic chemicals (including pesticides, industrial chemicals) be used or disposed of in the project area?
   3.5 Will hazardous substances (including large quantities of fuels) be used in the project area?
   3.6 Will heavy machinery create dust or noise problems, or reduce safety?
   3.7 Is the environment naturally unstable (prone to coastal erosion, severe storms, floods or droughts)?

*If the answer to any of these questions is yes, or is unknown, further assessment of the likely impacts of the proposed project is warranted.*
Environmental appraisal checklist

This checklist should be completed in the field, at the proposed project site of any disturbance. In filling in the checklist you should state why any impact listed is not relevant. The answer may be simple, e.g. no ground disturbance will occur. If, however, the answer is unknown, survey or further assessment will be necessary before the project is approved.

Please try to return this form, with additional relevant information, to the Marine Strategy Coordinator, at least two weeks before the planned activity commences.

PROJECT PROPOSED:  
ISLAND:  

1. Project area description
   Landform/coastal/marine system
   Slope
   Soil type
   Vegetation cover
   What will be the impact of the project on:
   • Landscape
   • Local ecosystems
   • Natural resources (food and other)
   • Archaeological or other cultural sites
   • Local water sources, groundwater

2. Socioeconomic environment
   Land owner/landowning community
   Present land use
   Present access/transport in the area
   What will be the impact of the project be on:
   • Local income generation
   • Land tenure and land use
   • Access by outsiders to the area, and by local communities in and out of the area
   • Population, and population change
   • Existing services (schools, medical aid posts, transport, water supplies, waste disposal facilities)

IMPACT ASSESSMENT
On this basis do you recommend that the project proceed:
• Without further environmental assessment?
• After further reconnaissance assessment of -------------- (specify)?
• Or should not proceed until a full environmental assessment has been undertaken.

Authorisation
Name:  
Position:  
Signature:  Date:  

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APPENDIX B

ICC WORKSHOP PROGRAM

Towards a Marine Strategy for Torres Strait

16/17 June 1993 – TAFE College, Thursday Island

DAY 1 – Wednesday 16 June 1993

09.00–10.00 Session One: Introduction
Chair: Getano Lui, Jnr (ICC)
- Opening address, implementing MaSTS – Getano Lui, Jnr (ICC)
- MaSTS, where do we go from here? – Monica Mulrennan (NARU)
- A historical perspective: Islanders and the sea – Jeremy Beckett (U of Sydney)
- The wider context: indigenous resource management – Peter Jull (NARU)

10.00–10.30 Morning tea break

10.30–13.00 Session Two: Framework
Chair: David Lawrence (GBRMPA)
- National and international significance of MaSTS – John Gillies (DEST)
- Environmental management plan for the Gulf of Papua and Torres Strait – John Cordell (U of Queensland)
- Customary marine tenure at Mer Island after Mabo – Nonie Sharp (La Trobe U)
- MaSTS and the Torres Strait Treaty – Greg French (DFAT)

13.00–14.00 Lunch break

14.00–15.00 Session Three: Marine parks
Chair: David Perkins (QDEH)

Workshop Panel:
- David Perkins (QDEH)
- Jim Muldoon (GBRMPA)
- Astrida Mednis (ANCA)
- Environmental impact assessment procedures in the Torres Strait – Marjorie Sullivan & Monica Mulrennan (NARU)

15.00–15.30 Session Four: Marine pollution
Chair: David Perkins (QDEH)

Workshop Panel:
- Brian Biddle (QDoT)
- Bill Gladstone (GBRMPA)
- Dymphna Leonard (TPHU)
- Victor McGrath (ICC/GBRMPA)

15.30–17.30 Workshop discussion & resolutions
DAY 2 – Thursday 17 June 1993

09.00–10.00 Session Five: Introduction to fisheries
Chair: Aubrey Harris (CSIRO)
  • Context of conflict within Torres Strait fisheries – David Lawrence (GBRMPA)
  • The role of the PZJA in Torres Strait – Mick Bishop (AFMA)
  • Fisheries research in Torres Strait – Ian Poiner (CSIRO)

10.00–10.30 Morning tea break

10.30–13.00 Session Six: Fisheries research and monitoring
Chair: Mick Bishop (AFMA)
  • Monitoring of marine catch from the Protected Zone – Aubrey Harris (CSIRO)
  • Recording catches in the Protected Zone – Geoff Deus (CSIRO)
  • Management of dugong in the Torres Strait – Helene Marsh (James Cook U)
  • Turtle conservation in Torres Strait – David Perkins for Col Limpus (QDEH)

13.00–14.00 Lunch break

14.00–15.00 Session Seven: Fisheries management
Chair: Helene Marsh (JCU)
  Workshop Panel:
  • Patrick Mills (TSFA)
  • Greg Anderson (QDPI)
  • Mick Bishop (AFMA)
  • Phil Pond (QFMA)

15.00–16.00 Workshop discussion

16.00–17.30 Session Eight: Resolutions
Chair: Dermot Smyth
  • Future directions of MaSTS, short term and long term
  • Workshop recommendations
### Workshop participants

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<th>Name</th>
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