

EXECUTIVE SUMMARY

Aborigines and Torres Strait Islanders hunted dugong and turtles, fished and collected shellfish in the waters of northern Australia for thousands of years during which they accumulated an extensive knowledge of the natural history and behaviour of their prey, and ways to avoid over-exploitation of vulnerable species.

Much of that knowledge has been irretrievably lost since the advent of Europeans, and with the passing of each year more will be lost with the deaths of tribal elders. It is therefore important that surviving traditional knowledge of the marine environment be conserved, not only for the cultural identity of today's Aborigines and Islanders, but also for its possible relevance to the management of the north's marine resources.

A workshop was held in July 1985 to assess the status of traditional knowledge of the marine environment in Northern Australia. It was an unusual gathering, representing a variety of cultures, ways of life and professional interests. The workshop included traditional Aboriginal and Islander dugong and turtle hunters, representatives from Aboriginal communities in Queensland, the Northern Territory and Western Australia, commercial fishermen and their State and Commonwealth management organisations, anthropologists, biological scientists, and resource managers.

The objectives of the workshop were:

- (1) to consider the nature and perceptions of traditional knowledge of the marine environment in relation to marine use and management;
- (2) to review studies relating to Aboriginal and Islander fishing in Northern Australia, including those addressing traditional, biological and anthropological aspects of knowledge relevant to marine use and management; and
- (3) to identify gaps in information and recommend possible areas of investigation relating to traditional fisheries (with special reference to information which may be lost by the deaths of elders).

The project was jointly funded by the Great Barrier Reef Marine Park Authority and the Commonwealth Department of Primary Industry, while travel and accommodation costs for Aborigines and Torres Strait Islanders were met by the Commonwealth Department of Education. The workshop was particularly fortunate in having as chairman Dr Eric Willmot, then Deputy Secretary of the Department of Aboriginal Affairs and a former Director of the Australian Institute of Aboriginal Studies, whose unique skills and experience held together this diverse group for two days.

The formal presentations fell into four subject areas.

Background academic papers on archaeology, anthropology and ethnobiology.

The scene was set by Professor John Campbell's review of recent archaeological research. The oldest evidence of freshwater fishing in Australia is about 35,000 years old, but evidence of marine fishing is lacking because the most recent Pleistocene Ice Age coastline remains hidden beneath the ocean. In North Queensland the oldest freshwater remains are about 18,000 years old, while the oldest marine remains, in Princess Charlotte Bay, are about 5,000 years old. Extensive stone fishtraps are found around Hinchinbrook Island.

The written records of Aboriginal maritime activities are similarly scant. A detailed literature review by Dr Kingsley Palmer identified four sources of information: the early European explorers and settlers; the writers who described Aboriginal society; the maritime anthropologists; and recent land-rights studies of Aboriginal sea tenure.

A history of Aborigines in Western Australia given by Dr Nicholas Green told of exploitation of coastal people by early pearlers, enforced resettlement into communities, and recent attempts to gain land and sea rights. Fishing remains important for the approximately 8,000 Aborigines living in coastal communities. Some are entering commercial fishing and the **Bardi** have established a **trochus** fishery. Traditional tenure to the sea was claimed in the unsuccessful Western Australia Land Bill.

The importance of studies of traditional fisheries for economic, political and management reasons, and the necessity to integrate biological and social studies was emphasised by Dr Robert Johannes. Traditional fishermen can be a rich source of information on the target species and their environment, for example, on the behaviour of dugongs and turtles, the spawning of barramundi, and migration of spiny lobsters. It was noted with concern that traditional knowledge is often no longer being transmitted effectively within cultures and is being lost when the holders die, making its recording a priority. Interest in biological/fisheries/social studies of traditional marine management has greatly increased in Asia and the Pacific in recent years.

Presentations by Aborigines and Islanders on the type of traditional knowledge held within their communities,

Established near Cape Direction on Cape York in 1924, the Lockhart River community still fishes on a semi-subsistence basis. Community representative Mr Isaac Hobson said that **Cooktown** salmon are caught by line, barramundi, stingrays, and a variety of reef fish are speared, crayfish are captured by diving, turtles and dugong are harpooned from dinghies, and various crabs, and **shellfish** are collected at low **tide**. The community's move to the new site away from the coast has made fishing and dugong hunting more difficult.

The **Hopevale Community** was established near Cape **Bedford** in 1886, but was relocated during World War II. The **representative**, Mr Lester Rosendale, said that mullet, shellfish and turtle supplement the normal diet, while **dugong** are an important festive food. The old dugong hunters manage the hunt, and instruct, younger members. The Great Barrier Reef Marine Park Authority has closely managed the taking of dugong, imposing a quota of **twenty** per year in 1985, but this was subsequently lifted as the **quota** was not met.

The Wujal Wujal community fishes mainly in **Cedar Bay**. Mr Jimmy Johnson described how lines, cast nets and traps are frequently used, and women undertake much of the fishing activity. **Although** turtles are hunted, dugongs are not often taken as they are uncommon in the area.

The Yarrabah community near Cairns was founded in 1862. Mr **Bryce** Barlow told of the fishing seasons; shellfish and clams are taken in **May** and June, turtle eggs are collected and turtle are hunted in November and December, and dugong are hunted between December and March.

On Palm Island near Townsville fish and shellfish still form an important part of the diet although the fishing effort has declined, according to Mr Eric Bunn. The elders used to fish at a semisubsistence level but it is more a recreational activity today. Efforts to establish commercial fisheries have not been successful. **There** was a general concern on stocks; the fish catch appears to have declined because of competition from the commercial fisheries and turtles and giant **clams** have been depleted **by outsiders**.

The Torres Strait communities have a more intact culture and rely more heavily on sea food. Mr Ephraim **Bani** described dugong hunting on Badu and Thursday **Islands**. The **'professional'** (traditional) hunters - of which only a handful survive - possess an **extensive** knowledge of the behaviour of their **prey**, can differentiate the sexes, pregnant females, and those with calf. They are discriminating in their hunting, as opposed to the young 'amateurs' who use outboards.

On **Murray Island**, Mr **Eddie** Mabo said that turtles, clams, spiny lobsters, rock cod, grouper, mackerel, trevally, sardines and other fish are important food. However the fishing **effort** has declined since the cash store opened and obesity and diabetes are prevalent.

At Borroloola in the Gulf of Carpentaria, only four **or five** traditional dugong hunters survive, said Mr Graeme Friday. Dugongs are important in mythology, and the main dreaming sites are situated here. Green turtles are also commonly hunted, and eggs of all species are taken.

The **Bardi** community in Western Australia still rely on fish, shellfish, and turtles, while dugongs are occasionally taken. Traditionally many marine species were taken and people controlled fishing and hunting in their own territory. Much of the traditional knowledge is being lost, and the community is willing to assist scientists in its documentation.

Studies on the usage of marine resources by traditional communities.

A biological study of the usage and the status of traditional knowledge of marine resources at Hope Vale **was** undertaken by Mr Andrew Smith for GBRMPA. About 160 Guugu Yimidhirr names for marine species were **recorded** and the identity and seasonality of the major types recorded. About one hundred turtles and sixteen dugongs were taken in 1985.

A comprehensive account of the traditional knowledge and use of marine species, and sea tenure of the Yolngu in Arnhem Land was given by Mr Stephen Davis. Traditional economics, rights and boundaries, annual patterns of movements, the calendar, commercial and subsistence exploitation and conflicts, and land and sea rights were described.

The rich and complex traditional knowledge of dugongs and turtles held by the Yanyuwa around Borroloola was outlined by Mr John Bradley. The detailed nomenclature relating to species, age, sex, external and internal anatomy, the migration and general behaviour, the techniques of hunting, rituals in butchering, the spiritual significance, and problems caused by incursions by outsiders were described in detail.

Dr Robert Prince **focussed** on the management issues raised by traditional marine hunting and fishing in Western Australia, the legislation relating to these activities, and the problems of Aborigines and Islanders fishing and hunting away from the traditional areas.

Studies by Dr Helene Marsh on the status and biology of the dugong indicate that they may live about seventy years, first calf at about **10-15** years, and bear every 3-7 years. They are prone to overfishing; no more than 2.5 per cent of females can be removed from a population each year. Dugongs are extinct or endangered over most of their former range and in Australia they are subject to many sources of man-induced mortality (traditional hunting, accidental netting etc). Torres Strait stocks cannot sustain the recent level of hunting, while the eastern stocks are more secure.

A paper tabled by Claudia Baldwin examined the cultural significance of the dugong in Australia, the need for management, information requirement, and the approach and problems of GBRMPA in their conservation.

The biology of turtles in the Torres Strait region was described by Dr Colin **Limpus**. Six species (of which the green is the most common) and two major nesting aggregations are present. Their biology is poorly understood but they are known to be very **long-lived** and nest erratically, at intervals of several years, making them prone to overfishing. About 10,000 are caught in Torres Strait each year. Tagged turtles from eastern Australia have been recovered from Indonesia, **Irian Jaya**, Papua New Guinea and the Pacific Islands, indicating the necessity for international conservation measures.

In discussion papers tabled at the workshop (1) Dr Carla Catterall examined the biological characteristics '(size at maturity, intertidal burying, **subtidal** populations, **benthic** mobility, pelagic larvae) of various species of intertidal shellfish and the patterns of exploitation which might make them prone to overfishing; and (2) Dr Ian Poiner described a study to **assess** the effects of prawn trawling on the subsistence fishery in Torres Strait.

Gordon Anderson **discussed ways in which** the different life cycle characteristics of three species **subject to subsistence** hunting (the saltwater crocodile, the green turtle and the **dugong**) **may** affect traditional hunters' perceptions of the distribution and abundance of these species. Management implications were **described**.

Workshop commissions.

In the final session the workshop broke into five **groups** to consider key issue's raised in the presentations **and draft** appropriate resolutions. These are summarised below.

Marine demography

- It is necessary to collect catch data on traditional and other fisheries, the nature of the fishing effort, and stocks of the major species.
- Turtles, 'dugongs and barramundi require individual species management plans.
- Information on the usage of marine resources should be gathered from the Aboriginal and Islander communities in a short-term, coordinated program using an appropriate range of sampling strategies.
- The program should be coordinated by appropriate State., Commonwealth and Territorial agencies.

Management principles

Traditional **knowledge is** a useful **shortcut** to **information** valuable for marine resource management.
As their importance has been demonstrated elsewhere in the tropics, more studies should be undertaken on the subject in Australia.
Traditional marine resource management may provide a useful framework on which to build contemporary management programs.

International action

- Australian stocks, of turtles and dugongs cannot be managed in isolation from neighbouring countries' stocks.
- **Australian** turtle and dugong stocks are of world significance.
- International cooperation should occur in management of common stocks, trade in products from **these**, and exchange of information on their management.

Education

A coordinating mechanism should be established to:

- address gaps in knowledge on traditional marine knowledge;
- improve dissemination of this information among Aboriginal and Islander communities, government agencies and the public; and
- prioritise the recording of endangered traditional knowledge.

Communication and planning

An appropriate forum should have terms of reference to include planning of recommendations resulting from this workshop, and communication among interest groups.

An expert committee, membership to be decided, should be appointed to plan and communicate future action in relation to a national research program in traditional fisheries. It should report to the sponsoring agencies, and through them to other interested parties.

The mechanisms previously drafted for this purpose in the Commonwealth Government should be adopted, ie. the appointment of a coordinator, liaison officers from the state with the function of involving traditional communities, and a senior scientist (possibly from within CSIRO) to oversee the quality of the research program.