

---

PART C

STUDIES ON THE USAGE OF MARINE RESOURCES BY TRADITIONAL  
COMMUNITIES

---

THE USAGE OF MARINE RESOURCES BY THE PEOPLE OF THE HOPEVALE  
ABORIGINAL COMMUNITY ON THE EAST COAST OF CAPE YORK PENINSULA:  
PRELIMINARY RESULTS.

Andrew Smith

---

INTRODUCTION

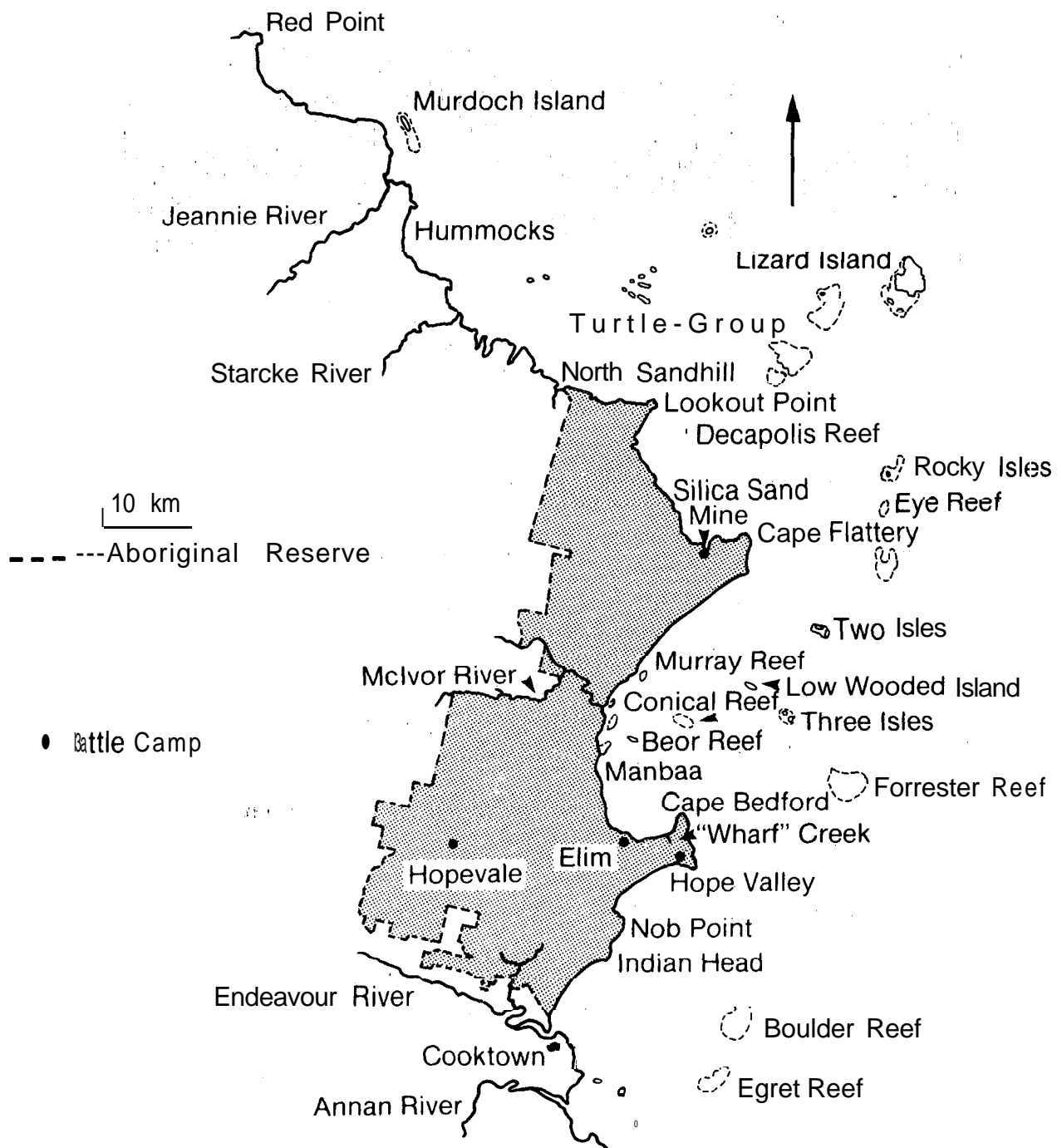
Marine resource management and conservation agencies in the tropics have, until recently, ignored the relevance of traditional knowledge. The inclusion of ethnobiological studies is now becoming accepted as important in developing management programs for regions where artisanal/subsistence fishermen comprise one of the major users (Hankes, 1984). As resource management involves regulating the behaviour of those groups whose activities affect the resource, local needs, aspirations and cultural values must be **recognised** and incorporated. If management schemes are to be successfully employed in indigenous communities, legislation should be patterned after local traditions to gain greater public support and thus easier enforcement (Johannes, 1984; Robinson, 1985). An essential step in this process is the recognition and documentation of indigenous knowledge.

Three Aboriginal communities (Yarrabah, Wujal Wujal and Hopevale) occur adjacent to the Cairns Section of the Great Barrier Reef Marine Park; and one, Lockhart River, is next to the Far Northern Section of the park. All these communities utilise the marine resources in their areas.

Despite having been resettled in missions and communities, the coastal Aborigines of Cape York Peninsula still retain and use their considerable knowledge of marine resources, even if on a part-time basis (Chase, 1978). This knowledge is relevant to the management of the Marine Park.

In particular, dugongs (Dugong dugon) and green turtles (Chelonia mydas) form an important part of the diet and culture of coastal Aborigines in many parts of northern Australia. Dugongs are listed as vulnerable to extinction in the IUCN Red Data Book (1982). Aerial surveys conducted from 1976 to 1984 established that the Starcke River area is probably one of the most important regions in the world yet identified for dugongs (Heinsohn and Marsh, 1981; Marsh, 1985). For this reason, the area between Lookout Point and Jeannie River has been designated as a Scientific Research Zone by the Great Barrier Reef Marine Park Authority (GBRMPA). Recreational activities, fishing (other than permitted traditional fishing and hunting) and collecting are excluded from this area.

Figure 1. Map of the **Hopevale** region.



The resources of this Scientific Research Zone, especially dugongs and turtles, have historically been exploited by residents of the Hopevale community. An effective fishing and management plan which considers and incorporates Aboriginal fishing and marine hunting in this area will need to be developed over several years. Accordingly GBRMPA financed this study to document marine resource usage.

This paper will discuss the objectives of the study and the methodology used, and outline the preliminary results of the first of two stages and their implications.

#### OBJECTIVES

The objectives of the first stage of the study were:

- to document the marine hunting and fishing practices of the Hopevale Aboriginal community;
- to acquire indigenous knowledge of the biology and behaviour of tropical marine food resources of the Great Barrier Reef Marine Park;
- to use the above information to:
  - evaluate the factors that act to limit or encourage marine resource usage by the Hopevale community;
  - to assess the possible need for, and methods of, management of marine hunting and fishing practices, and the implications for the species involved;
  - to assess the need for further investigation of possible impact on the Hopevale community due to marine resource management;
- to provide the GBRMPA with recommendations that could be used in the development of a management program for usage of the marine resources of the Marine Park adjacent to Aboriginal communities.

#### METHODOLOGY

The fieldwork occurred between January 1984 and March 1985. My research time at Hopevale was divided fairly evenly between the community itself and the beach camps. Time at the beach camps was determined by the movements of Hopevale residents. Most weekends and all public and school holidays were spent at the beach camps or other fishing locations. I spent considerable time with the few permanent residents at the Elim and Manbaa beach camps (Figure 1).

The initial period of the fieldwork was used to establish a rapport with members of the community. I obtained information through both formal and informal interviews, and participant observation. The general informant pool consisted of approximately forty-eight men and five women; the key informant pool comprised ten men. There is therefore a bias towards male orientated information and activities.

The formal interviews were based on the development research sequence outlined by Spradley (1979, 1980), whereby a series of descriptive, structural and contrast (verification) questions are asked over an extended period of **time**. Informant reliability was tested by asking two series of questions on fishing or on the biology of fish or other animals:

questions to which the answers **were already** known, and  
'plausible questions to which the informant could not possibly know the answers: (Johannes, 1981).

The types of ethnobiological information which **were collected** on **dugongs**, turtles, fish and invertebrate **marine** resources included:

the indigenous **taxonomies** for such species and the total number of terminal categories known and **recognised**, the names and numbers of categories in successively **more** inclusive groups. These were compared with scientific designations for the same localities;

the structure of classifications and types of cognitive devices employed;

the uses of such species, for example, food, non-food economic uses, medicinal (dugong oil), social and religious;

knowledge of the biology and ecology of different species, for **example**, life histories and behaviour;

knowledge and techniques of marine resource appropriation;

knowledge and techniques of management and manipulation of the physical marine environment.

Data were obtained on the dugongs and turtles, fish, and marine invertebrates caught or collected. These data included; species, size, sex and reproductive status, location and time of catching, quantity of catch, method of catch, and identity and motive of hunter.

The ethnobiological information and interview transcripts have been incorporated into a database management system for easier handling, assessing and comparison.

All dugong specimens collected were forwarded to Dr H. Marsh (JCUNQ) for processing and analysis. The stomach contents were, analysed by Ms J. Lanyon using the technique outlined in Channells and Morrissey (1981). The remaining specimens were analysed by Dr Marsh using the techniques outlined in Marsh et al. (1984b) and Marsh et al. (1984c).

All turtle specimens were forwarded to Dr C. J. Limpus (Q.NPWS) for processing and **analysis**.

## RESULTS AND DISCUSSION

### Guugu Yimidhirr People and the **Hopevale** Community

Prior to European invasion, the Guugu Yimidhirr speaking people inhabited a territory extending from the **Annan** River north to the mouth of the Jeannie River, and west to the **Normanby** River area, called Battle Camp (Figure 1) (Haviland, 1979a). They also laid claim to many reefs and islands (including Lizard Island) off the coast (Haviland, 1979a; Terwiel-Powell, 1976). This territory consisted of thirty-two named locales (Haviland, 1979:33).

The first recorded contact with the Guugu Yimidhirr people was in June 1770, during Captain Cook's forced stay at the Endeavour River (Beaglehole, 1955). Both Cook and Banks recorded information on Aboriginal usage of marine resources (Beaglehole, 1955, 1962).

The discovery of gold at the Palmer River in 1872 resulted in Cooktown being established as the port to serve the goldfields in 1873. This resulted in an influx of miners and settlers into the Guugu Yimidhirr region. An area of 50,000 acres of agriculturally worthless land between the Endeavour and **McIvor** Rivers was gazetted in 1881 as an Aboriginal reserve (Haviland, 1980; Terwiel-Powell, 1976).

The Cape Bedford Mission was established in 1886 by a Lutheran missionary (Haviland, 1980). The whole community was evacuated, with disastrous results to their health, to Woorabinda (Central Queensland) in 1942 for 'security' reasons (28 people died within a month and a further 35 died during their stay) (Terwiel-Powell, 1976). The people were returned to the new mission site at **Hopevale** in 1949. In recent years a number of beach camps have been established from **Manbaa** to Nob Point. These are used extensively during weekends and school holidays.

### Fishing, Marine Hunting and Collecting Techniques

Captain Cook's and Joseph Banks' journals (Beaglehole, 1955, 1962) show that some of the 'pre-contact' marine resource appropriation techniques used were the collecting of shellfish, the spearing (using a spear-thrower) of fish and crabs, line fishing using shell hooks, and harpooning of turtles (and probably dugongs). Banks specifically noted how dependent the people of the area were on marine foodstuffs.

All of these practices were still in use at the time of the establishment of the Cape Bedford mission. However, they had been modified with the adoption of modern materials such as metal harpoon heads and spear tips (Roth, 1901). All four of the methods described by Cook and Banks are currently in use. The technology and techniques of capture in some cases have changed remarkably little. For example, the womera (spear-thrower) described by Banks (Beaglehole, 1962) closely resembles those currently used for fishing. Cook noted a harpoon head in one of the turtles caught by his men, however he could not believe that the apparently frail canoes were being used to capture turtles (Beaglehole, 1955). The later discovery by his crew of numerous turtle carapaces on the islands near Lizard Island proved his beliefs incorrect (Beaglehole, 1955, 1962). Harpooning techniques are essentially the same; however harpooning now

occurs from aluminium or fibreglass dinghies (3.6 to 4.9m) with outboard motors (10 to 70hp, but mostly 25 to 40hp).

Adaptation to, and employment of, introduced materials has broadened the mix of technologies used to exploit marine resources from four to seven,, **apparently** without supplanting any. This is surprising considering the loss of marine knowledge that resulted from the combined **effects of** the earlier Queensland, Government policy of displacement, the mission policy of separating children from their parents, plus the devastating effects of the removal of **the whole community to Woorabinda** during World War II (Haviland, 1980; Terwiel-Powell, 1976).

The collecting of sea urchins (Stomopneustes variolaris) and various **mollusc** species for **food** still occurs.

Spears, used in conjunction with a womera, remain a popular method of capturing fish, **stingrays**, crabs and crayfish. They are used either from the bow of small boats in rivers and creeks; for example, when hunting blue-tailed mullet (Valamugil seheli), or from the beaches, the fishermen often wading chest-deep into water (after stingrays).

At least two of the **post-contact** fishing technologies have been in use for a long time. The purchase of a fishing net was first authorised for mission use by the Queensland government in 1898. Men were introduced to diving in the late 1800s when they laboured on the boats fishing for **trochus** and beche-de-mer. Diving is now limited to the younger males using spearguns for crayfish, reef fish and, more rarely, for collecting a species of sea urchin.

#### Marine Resources Used

At present 161 Guugu Yimidhirr language names and 166 recognised categories of marine animals have been recorded for the **Hopevale** community. Seventy-seven are currently **used** for food, and a further forty-one for bait. Only ten were recorded as having any other significance. These include dugongs, two species of turtle (green and hawksbill), crocodiles, one species of shark, and five species of **molluscs**. The species/categories recognised by **Hopevale** people, their uses/means of capture, relative abundance and general habitat where they were caught are summarised in Smith (1985).

The **previous** disruptions to community life caused by the mission and the war-time evacuation have had an effect on the amount of marine knowledge currently retained by the community. For example, although approximately seven language categories for dugongs are known by **Hopevale** hunters, very few people can remember all seven. These categories of dugong refer to sex, size (age), degree of fatness and the quality of the meat. Only one name is in common use at present. In contrast, John Bradley has recorded fourteen categories into which **the** Yanyuwa people of Borroloola still classify dugong (Bradley, this **volume**).

With the exception of the crocodile,, all of the large vertebrates (mammals and reptiles) previously taken are still currently being caught. In contrast, the number of types of fin-fish caught appears to have increased **remarkably**. This result is presumably

partly due to the greater use of fishing nets and a wider range of line fishing equipment. The lack of detailed historical information would have also biased this result.

The number of species/categories of **molluscs** and **echinoderms** utilised has decreased, whereas the number of crustaceans collected has diversified, for instance, prawns are now caught with bait nets.

The fruits of one species of marine plant, the **seagrass** Enhalus acoroides, are eaten opportunistically.

### Dugongs

For the last two years, dugong hunting by members of the **Hopevale** community has been controlled by the Great Barrier Reef Marine Park Authority and Queensland National Parks and Wildlife Service via a system of twenty individual permits. Each permit allows the holder or his nominee to catch one dugong during a four week period in December to January each year.

During the **1983/84** dugong hunting season thirteen dugongs were recorded caught by ten hunting groups. Nine were caught in the area near Murdoch Island, three near the "Hummocks" and one south of the Starcke River (Figure 1). At least one dugong was caught on eight of the expeditions, although not all boat crews were successful. Two trips were unsuccessful. On one the hunter lost a dugong after harpooning it and could not continue because of a ~~shortage of fuel~~. The other failed due to engine trouble.

In the **1984/85** hunting season, sixteen dugongs were taken in the Starcke River area, and two between Lookout Point and Cape Flattery. A total of twenty dugong hunting trips were made, three being unsuccessful.

Analysis of the data and specimens obtained from these animals, indicate that dugongs of all ages, including reproductively active females, were hunted. A newly-pregnant female was caught in the **1983/84** season. In the **1984/85** season the catch included at least two lactating females, one of which had recently given birth, and three females in oestrus. The reproductive data, with respect to the age of sexual maturity and calving season, were consistent with information from other parts of north Queensland (Marsh et al, 1984d).

The hunters gave no appearance of hunting selectively for either sex. The sex ratio for the **1983/84** season was 10 males to 3 females. These were caught over slightly more diverse areas than those in the following season. However, in the **1984/85** season, 15 of the 19 dugongs caught were female. Assuming a **1:1** sex ratio, as indicated by most large samples of dugongs (Marsh et al, 1984b, 1984c; Hudson, in press), the probability of this happening was 0.007. If the animals caught in the Starcke River ~~area are considered separately, the sex ratio is even more striking:~~ 14 of the 16 animals caught being female (p=0.002). This suggests that female dugongs may on occasions concentrate in the rich feeding grounds near the Starcke River, an area favoured by the hunters.

There are suggestions of a similar pattern in a very similar area near the mouth of the **MacArthur** River in the Northern Territory.

The dugongs stranded by the storm surge accompanying Cyclone Kathy when it passed through this area in March 1984 were predominantly females and young calves (Marsh et al, 1984a).

During an aerial survey in November 1984, Marsh (1985) found sixty per cent of the observed dugongs (Cape Bedford to Cape Melville) were more than twenty kilometres from the coast, the largest group being eight animals. However, a Coastal Surveillance flight about ten days later reported a large aggregation of dugongs sheltering behind Murdoch Island during rough weather. If dugongs (especially females) do concentrate in certain areas, this has **important consequences** for management. Any aggregations of dugongs in areas used for hunting can facilitate their capture, providing an **opportunity** for excessive exploitation. These management problems are discussed further in Smith (1985).

### Turtles

During the twelve months of fieldwork at least ninety-six green turtles (Chelonia mydas) were taken (35 female; 7 male; 54. of undetermined sex) and at least one hawksbill turtle (Eretmochelys imbricata). It was possible that another ten to **fifteen** turtles may have been taken which went unrecorded.

Turtles were taken mainly (depending on the time of year and weather conditions) at the Starcke River region, Forrester Reef!, Boulder Reef, Conical Rock, and the **McIvor** River mouth.

Reproductive data were collected from twenty-four of the green turtles caught (20 females; 4 male). The age classes for the male turtles were one juvenile, two sub-adults and one adult; and for the female turtles, two juveniles, seven sub-adults and eleven adults. All the adult females taken prior to September 1984 were preparing to breed in the 1984/85 season. None of those sampled after September were preparing to breed that season.

This indicates that the Starcke region is a feeding area, from which breeding females migrate out prior to mid-September. Courtship and mating were observed to commence in August. Those preparing to breed that coming season would have begun migrating around that time, the females mating with a succession of males, (which tend to remain in a fixed area) on the way (**Limpus pers. comm.**). Two turtle tag returns from the **Hopevale** region suggests that at least some of the population nest at North West Island (Capricorn Bunker Group).

Observations and interview data suggest that selection does occur with turtle-hunting, based primarily on the tail length and fatness of the turtle (determined by external examination of the quality and quantity of the flesh at the base of the neck). By selecting for short-tailed turtles, the hunters tend to take predominantly females, but there is also a chance of immature **adult** male turtles being taken. The sex of male turtles cannot be determined on the basis of tail length until they become sexually mature. The sex ratio of green turtles caught indicated that either very few adult males were in the area, or the hunters were selective. The sex ratio of the green turtles stranded at



MacAuthur River (N.T.) by Cyclone Kathy in 1984, was exceptionally biased towards females (Marsh, et al, 1984a). The Starcke River region is a very similar habitat and therefore the population sex ratio may also be naturally biased towards females.

#### Fish (Teleosts and Elasmobrachs)

All edible fish were kept, even quite small ones (these were often used in "soups"), by the men and women fishing. The most commonly sought fish was barramundi (Lates calcarifer). Most barramundi were caught in nets. The rest were speared or caught on lines.

From September to early December, the blue-tailed mullet (Valamugil seheli) were sought during their breeding migration. They were nearly always speared either up the Endeavour or McIvor Rivers, or when they ran in schools along the beaches either side of Cape Bedford. Numbers caught per boat (2 to 4 people) per trip (about 3 to 4 hours) varied considerably. With good conditions and accurate spearing, thirty or more could be taken in a couple of hours. Usually, however, the number was less than ten per trip. The majority of those taken in the second week of December had spent gonads. This tends to indicate that spawning may have occurred around the full moon in early December, although no Hopevale fishermen had seen or heard of spawning aggregations at any time.

After the first thunderstorm of the wet season, various species of stingrays were considered to be in season. The actual time varies for different species, but is indicated by the fullness and pinkish-white colour of the liver. The favoured species were: long-tailed ray (Himantura uarnak); mangrove ray (H. granulata); cowtail ray (Dasyatis sephen); and the thorny ray (Urogymnus asperrimus). Other species were also taken occasionally. During the 1984/85 Christmas holiday period, at least eighteen stingrays were taken, probably more.

#### Invertebrates

The most commonly used crustaceans were the mud crab (Scylla serrata) and the sand crab (Portunus pelagicus). These were taken at low tide on the intertidal flats or on rising tides amongst the mangroves. All sizes of both sexes were taken by spearing (especially by young boys practising spearing).

Hermit crab species occupying Telescopium telescopium and Terebralia spp shells were collected, often by the sack-full, from the mangroves at low tide for use as bait.

#### Locations

Although hunting trips to catch dugongs usually involved a 50-nautical mile voyage up to the Starcke River area, most of the other fishing activities occurred closer to the beach camps.

Netting for fish occurred mainly in the areas adjacent to the beach camps from Elim to the McIvor River, and occasionally in the creeks in the Starcke River area.

Line fishing occurred along the whole coast, especially the inshore reefs, and the creeks and rivers.

Spearing occurred in the Endeavour, McIvor and Starcke Rivers, and all the tidal creeks. The mouth of the McIvor River was a popular place for stingrays. With the right weather conditions, spearing of fish (such as mullet and trevally) occurred off the beaches.

The areas of heaviest use were the McIvor River (fish), the Starcke River region (turtles, dugongs), the 'Wharf' creek at Cape Bedford (fish), the Endeavour River (blue-tailed mullet), and the beaches from Elim to the McIvor River (nets). However, the hunting and fishing activities of Hopevale people can occur along approximately 200 kilometres of coastline from the Annan River north to Red Point (Figure 1).

The preferred weather and tidal conditions for fishing depended largely on the type of fishing and which species were being sought.

In general, the spring tide periods (especially the full moon) were preferred for netting, line fishing, and turtle and dugong hunting. Within these periods however, the timing of the high and low tides was important for different activities.

The spring tides were preferred for beach netting and dugong hunting over the broad intertidal flats, due to the relatively brief period the water covered the area. The fishermen and hunters believe a greater number of fish and dugong rush into these areas because of the short time available to feed relative to neap tide periods.

The south-easterly winds which predominate from about April to October severely restricted fishing and hunting activities as they cause rough seas.

Fishing activities were influenced to a great extent by outside factors such as school/work holiday periods, the GBRMPA restrictions on dugong hunting, and road and sea conditions. A variable number of retired or unemployed people spent considerable time engaged in fishing activities.

#### Seasonality

This is an important determinant of which marine resources were used. The seasonal availability of some of the more commonly used marine resources are shown in Figure 2. There was a strong preference for 'fat' animals. Stingray species, for example, were only speared during the wet season when their livers were 'full'.

Figure 2. Seasonal availability and exploitation of some of the marine resources by the **Hopevale** community.  
(Note: (XXXXX) heavy, (xxxx) medium, and (....) light levels of exploitation - relative only.)

RESOURCE	J	F	M	A	M	J	J	A	S	O	N	D
DUGONG*	xxx											X
GREEN TURTLE	XX											
BLUE-TAIL MULLET								..XXXXXXXXXXXXX..				
STINGRAYS	XXXXXXXXXX	....								..XXXXXXXXXX		
GUULUU (SEA URCHIN)						....	XXXXXXXXXXXXXXXXXX	....				
FISH (GENERAL)	XX											
FRESHWATER FISH	XXXXXXXXXXXXX	.....									XXXX	
	J	F	M	A	M	J	J	A	S	O	N	D

\* now regulated by GBRMPA permits.

The sea urchin (Stomopenustes variolaris) was only taken from July to about September when their gonads were developed.

The blue-tailed mullet were only taken during their breeding migrations, September to early December. Their roe and fatty flesh were very popular.

Sand and mud crabs were taken all year round, but were considered fattest in the winter months, especially around full moon.

Occasionally, floral indicators were used to indicate the more common seasons. For example, Grevillea pteridiifolia flowering indicates the season for the sea urchin; Oscillatoria blooms are indicators of oysters being 'fatter'; the flowering of an Acacia sp. indicates the blue-tailed mullet season.

## CONCLUSION

Although this study is still incomplete, the preliminary results obtained show that there is considerable knowledge and information to be acquired from working with fishermen and hunters from Aboriginal communities.

These interim results have been used to provide GBRMPA with recommendations that could be used in the development of a management programme for usage of the marine resources by Aboriginal communities adjacent to the Marine Park on the east coast of Cape York Peninsula (Smith, 1985).

## ACKNOWLEDGEMENTS

This project was funded by the Great Barrier Reef Marine Park Authority.

I would like to thank all the people of the Hopevale Aboriginal community who assisted in my work, especially Bernie and Doreen Hart who opened their house to me.'

Thanks are also due to the following people; my supervisor Dr J.T. Baker; my associate supervisors Dr H. Marsh and Dr J. Taylor; Drs J. and L. Haviland (ANU) for their assistance with the language material and historical information; Dr C.J. Limpus (Q.NPWS) for analysing the turtle specimens; Dr H. Marsh and Ms J. Lanyon for analysing dugong and seagrass specimens; Dr R.E. Johannes (CSIRO) for assistance in setting up the project and commenting on this paper.

## REFERENCES

- Beaglehole, J.C. (Ed.). 1955. The journals of Capt. James Cook. in. The Voyage of the Endeavour 1786-1771. Vol. I. Cambridge University Press: Cambridge.
- Beaglehole, J.C. (Ed.) 1962. The Endeavour Journal of Joseph Banks 1768-1771. Vol. II. Angus and Robertson: London.
- Channells, P.J. and Morrissey, J. 1981. Technique for the analysis of seagrass genera present in the dugong stomachs, including a key to north Queensland seagrasses based on cell details. in H. Marsh (Ed.) The Dugong; Proceedings of a Seminar/Workshop held at JCUNQ, Townsville, 176-179.
- Chase, A.K. 1978. Between land and sea: Aboriginal coastal groups in Cape York Peninsula, Workshop on the Northern Sector of the Great Barrier Reef, Great Barrier Reef Marine Park Authority, Townsville, 159-178.
- Hankes, J. (Ed.) 1984. Traditional Life-styles, Conservation and 'Rural Development. Commission on Ecology papers No. 7. International Union for the Conservation of Nature and Natural Resources.
- Haviland, J. 1979a. Guugu Yimidhirr. in R.M.W. Dixon and B.J. Blake (Eds.) Handbook of Australian Languages, A.N.U. Press: Canberra.
- Haviland, J. 1979b. How to talk to your brother-in-law in Guugu Yimidhirr. in T. Shopen (Ed.) Languages and their Speakers. Winthrop: Cambridge.
- Haviland, J. and Haviland, L. 1980. 'How much food will there be in Heaven?': Lutherans and Aborigines around Cooktown before 1900. Aboriginal History, 4(2):119-149.
- Heinsohn, G.E. and Marsh, H. 1981. Ecology and conservation of the dugong, Dugong dugon. Final report to the Australian National Parks and Wildlife Service.

- Hudson, B.E.T. (in press). The hunting of dugong (Mammalia: Sirenia) At Daru, Papua New Guinea during 1978-1982: community management and education initiatives. Presented to the Torres Strait Fisheries Seminar, 11-14 Feb. 1985, Port Moresby, P.N.G.
- International Union for Conservation of Nature (I.U.C.N.) 1982. Red Data Book.
- Johannes, R.E. 1981. Working with fishermen to improve coastal tropical fisheries and resource management. Bulletin of Marine Science, 31(3):673-680.
- Johannes, R.E. 1984. Marine conservation in relation to traditional life-styles of tropical artisanal fishermen. in J. Hanks (Ed.) Traditional Life-styles, Conservation and Rural Development, IUCN Ecology Paper No. 7.
- Marsh, H. 1985. Results of the aerial survey for dugongs conducted in the Cape Bedford to Cape Melville area in November 1984. Report to the Great Barrier Reef Marine Park Authority: Townsville.
- Marsh, H. Freeland, W.J., Limpus, C.J., and Reed, P.C., 1984a. The stranding of dugongs and sea turtles resulting from Cyclone Kathy, March 1984: A report on the rescue effort and the biological data obtained. James Cook University of North Queensland: Townsville.
- Marsh, H.; Heinsohn, G.E. and Channells, P.W. 1984b. Changes in the ovaries and uterus of the dugong, Dugong dugon (Sirenia: Dugongidae), with age and reproductive activity. Australian Journal of Zoology, 32:743-766.
- Marsh, H.; Heinsohn, G.E. and Glover, T.D. 1984c. Changes in the male reproductive organs of the dugong, Dugong dugon (Sirenia: Dugongidae), with age and reproductive activity. Australian Journal of Zoology, 32:721-742.
- Marsh, H.; Heinsohn, G.E. and Marsh, L.M. 1984b. Breeding cycle, life history and population dynamics of the dugong, Dugong dugon (Sirenia: Dugongidae). Australian Journal of Zoology, 32:767-788.
- Robinson, W.L. 1985. Traditional fishing - the United States experience. US Department of Commerce, NOAA.
- Roth, W.E. 1901. Food: its search, capture and preparation. North Queensland Ethnography: Bulletin No.3.
- Smith, A.J. 1985. Usage of marine resources by Aboriginal communities on the east coast of Cape York Peninsula. Report to the Great Barrier Reef Marine Park Authority: Townsville.

Spradley, J.P. 1979. The Ethnographic Interview. Holt, Rinehart and Winston: New York.

Spradley, J.P. 1980. Participant Observation. Holt, Rinehart and Winston: New York.

Terwiel-Powell; F.J. 1976. Developments in the kinship system of the Hopevale Aborigines: an analysis, of changes in the kinship nomenclature and social structure of the Kuku-Yimityirr Aborigines. PhD Thesis, University of Queensland: Brisbane.

#### WORKSHOP DISCUSSION

The discussion covered the following points:

In the **Hopevale** community stingrays with a 'fat' liver are claimed to be more palatable, but it is not known, whether they are more nutritious in this condition.

The women in Hopevale' and other communities have the main responsibility for collecting.

Dugong and turtle hunting is predominantly a male activity for the **Hopevale** community.