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THE STATUS OF THE BECHE-DE-MER RESOURCE AND EXPLOITATION IN PAPUA NEW GUINEA

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Introduction

Papua New Guinea has 10,000 km and 23.5% of the 17,000,000 ha shelf area in the 200 m depth level is reef and shallow lagoon areas at 30m and less. Coral reefs occur around high volcanic islands, eg. parts of New Britain, low coralline islands, atolls and along the mainland coast. There are fringing and barrier reefs, eg. Papuan Barrier reef which stretches almost half the southern coastline.

Seagrass meadows are commonly associated with the reef systems and extensive seagrass meadows occur in many areas around the country, eg. Western Province , Papua Lagoon and Manus Provinces and so on.

Holothurians or sea cucumbers are an important component of the corals and seagrass communities. There are more than twenty species occuring in PNG. However more research is required to understand their taxonomy, distribution and abundance. Due to the complexity of the reef and seagrass systems, the remoteness of some of the places, lack of funds and manpower, we have very little data on the basic ecology of the holothurians, let alone beche-de-mer, in PNG. Information on the basic ecology of economic holothurians is necessary to enable the relevant Government authorities to draw up suitabe legislations or acts for their successful utilisation.

Historical Background

To date, beche-de-mer resourse in PNG is largely untouched. Several attempts were made early this century especially by Chinese Asians in the New Guinea Islands region and up to 50 t of dried product was exported annually.

Wright (1986) reported on exports from 1980 - 1985 to be 2.4t, 11.1t, 23.0t, 7.1t, 5.0t, and 15.2t respectively. Wright (1986) further reported that for the first 5 months of 1986, 17t had already been harvested. The total harvest for that year was 30t and there was only a slight increase in 1987 which was attributed to poor quality products and closure of two opertators in the Manus Province (Gabrial, pers. coom.).

Presently villagers in Central, Milne Bay and Manus Provinces have been involved in beche-de-mer harvesting for several years now. The main species harvested are the sand fish, Holothuria scabra, the white and black teat fish, H. fuscogilva and H. nobilis, and the black fish, Actinopyga miliaris, and the prickley red fish, Thelenota ananas. The methods of processing followed are as dicribed in the 1979 SPC NO. 18 "Handbook for fishermen". According to a Milne Bay fishermen, 30t of wet, live

animals are harvested each month in the Trobriand Is. area. Villagers harvest and sell at very low prices to a buyer/processor who then exports for high prices mainly to Singaporian and Malasian markets.

Traditionally, beche-de-mer is eaten raw or grilled in parts of PNG. Whether or not this was learnt from the Japanese during WWII is unknown. Other uses in other parts of the country are for medicinal, tool and probably other uses.

With regard to present management regulations, there is presently none relating to size limits, catch quotas , etc. , though there is existing a Fisheries Act stating that the harvestfor these resources be reserved for nationals.

Basic Biology

1. Several studies at various localities around the country **showed that most holothurians have very distinct distribution** patterns. In any given area there may be one ortwo species occurring in large numbers, and the majority of species are present in much smaller numbers.

Several surveys at Motupore Island in Bootless Bay, Central Province, by marine biology students from the University of Papua New Guinea showed that the most common species occuring on the seaward side of the island in sandy seagrass areas was H. atra (10/10m). On the leeward side, on the sand bar and seagrass bed, H. scabra was the most common. The second most common species in this habitat was Bohadschia marmorata vitiensis

This study showed that the highest sea cucumber species diversities on the reef crest and slope of the seaward side were made up of: T.ananas, B. argus, H. edulis, and Stichopus variegatus, while the highest population densities of H. atrar. H. scabra and B. marmorata occur in sandy seagrass areas behind the reef on the protected side of the island. A number of criptic species were difficult to detect (Rau pers. comm.).

2. Similar observation on distribution of the above species of holothurian were made by Tenakanai and Lokani (in prep) in the Tigak islands reef areas. Densities of H. scabra in similar habitats on one island, for example, was 100 individuals per 10m sqare.

H. nobilis was abundant on the top of reef flats and top of reef slope of less than 4m depth, (2 per 10m square and H. fuscogilva were very abunndant on clean, white sandy bottoms at 6 - 40m depth, (5 -10 per 10 m square). There is presently no commercial harvesting if beche-de-mer in this area.

3. Shelley (1981) also made similar observations on the distribution of H. nobili and H. fuscogilva.

Management

Sea cucumbers are slow moving, large, commercially valuable animals living in shallow coastal waters of many countries around the world. These characteristics make them highly susceptible to overfishing in densely populated coastal areas. The lack of biological information on their ecology is another disadvantage which also could threaten the survival of these animals.

To prevent overfishing of the commercially important species, sound management techniques and procedures must be developed and used. The present system of uncontrolled harvest is totally unacceptable and poses detrimental threat to the future of the fishery.

The following are some of the things to consider for successful management of the future sea cucumber industry, based on a sustainable yield basis:

- Harvesting methods
  Traditional i.e., no use of modern equipment such as scuba for collection

- Certain quotas for the various species

- Fisheries acts already restricts the harvesting to only adult size of each species. This is to ensure that juveniles are left to grow to maturity and to reproduce. The impact of low scale operations on the sandstar populations will be minimised.

- Harvesting should be restricted to size of beche-de-mer

- If breeding seasons are known, harvesting should be banned or stopped for these periods.

- Fisheries officers should be employed, who would monitor the fishery on a regular basis to check that all concerned are keeping to the correct quotas.

- Restrict number of licenses.

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