Bay of Bengal Programme

Fisheries Resources

KATTUMARAM FISHERIES AND FISHERFOLK

- A Study in Kothapatnam-Pallipalem, Andhra Pradesh, India

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KATTUMARAM FISHERIES AND FISHERFOLK
– A study in Kothapatnam-Pallipalem, Andhra Pradesh, India

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This working paper describes the attempt made to conduct an integrated study of the biological, economic and sociological aspects of the fisheries and fisherfolk that use one of the most traditional and popular fishing craft of the east coast of India – *kattumaram.* The benefits of the results from such an approach are also presented in this report.

The paper discusses the significance of using one or more types of fishing gear with such a traditional craft, correlation between income from fishing and income from other sources and consequent diversity in income categories, relative performance by other types of craft, interactive fishing problems, exploitation of resources, underutilized resources, motorization of traditional craft, marketing practices and improvements and opportunities for additional/alternative income generation. Periodic exchanges of information between the study-group and fisherfolk, in the course of this study, opened the doors to communication with fisherfolk on issues concerning resources and management and culminated in the preparation of a series of extension material in this field.

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The BOBP is a multi-agency regional fisheries programme which covers seven countries around the Bay of Bengal – Bangladesh, India, Indonesia, Malaysia, Maldives, Sri Lanka and Thailand. The programme plays a catalytic and consultative role : it develops, demonstrates and promotes new techniques, technologies or ideas to help improve conditions of small-scale fisherfolk communities in member countries. The BOBP is sponsored by the governments of Denmark, Sweden and the United Kingdom, by member-governments in the Bay of Bengal region, and also by UNFPA (United Nations Population Fund), AGFUND (Arab Gulf Fund for United Nations Development Organizations) and UNDP (United Nations Development Programme). The main executing agency is the FAO (Food and Agriculture Organization of the United Nations).

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The kattumaram...

of Kothapatnam-Pallipalem

A large kattumaram *on the beach at Kothapatnam-Pallipalem*

1. *INTRODUCTION*

The *kattumaram, a* raft made of logs tied together, is one of the traditional fishing craft of India and Sri Lanka. But because of its structure and its limitations in size, carrying capacity, endurance and suitability for versatile fishing, fishing activity with this craft remains at a low level of efficiency compared even with other types of traditional craft.

With the introduction of modern fishing craft and methods, the performance of the ***kattumaram*** has been falling behind not only because more efficient systems are tapping the resources traditionally exploited by ***kattumaram,*** but also due to increasing fishing pressure, competition and interactive fishing in all types of coastal fisheries. Consequently, the income of a significantly large component of the fishing population engaged in ***kattumaram*** fisheries is reported to be very low.

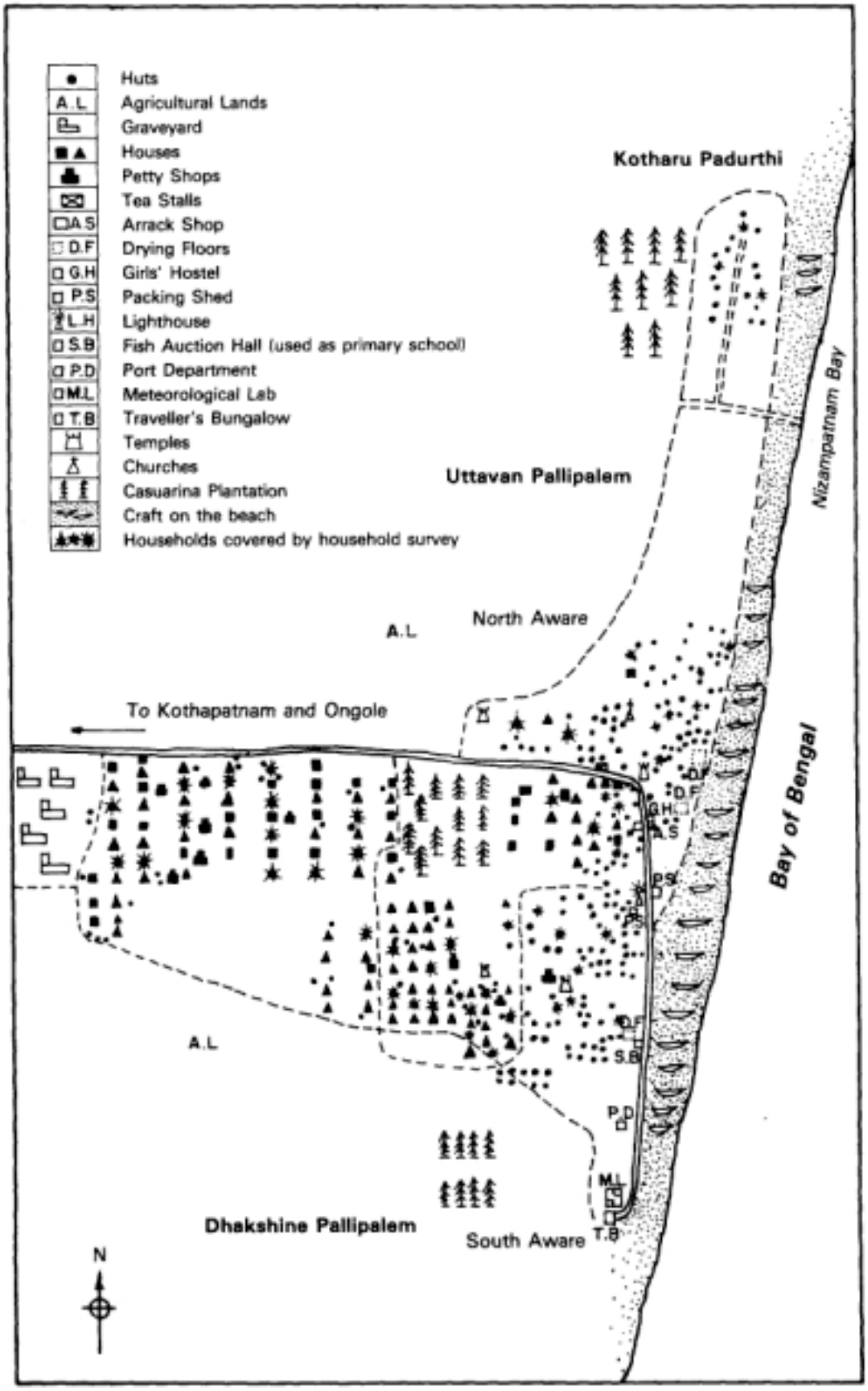
With the craft's design considered perfect, in its own way, for beaching on a surf-beaten coast and as no further improvements are possible without diverting from the ***kattumaram*** concept, the need has been realised for other means to improve the earning capacity of ***kattumaram*** fisherfolk. Consequently, it was felt that an assessment should be made through an integrated survey programme of the fishing methods used in a typical village, the resources exploited, the resources available, the fish handling, processing and marketing methods and the socio-economic conditions in the village. Such a survey, it was felt, could help to identify the potential avenues of improving the livelihood of the *kattumaram* fisherfolk. Data and information on these aspects were collected regularly from August 1988 to February 1990 by two specially trained field officers who were based in the village for the duration of the survey.

The archetypal village chosen for the survey was Kothapatnam-Pallipalem in the Prakasam District of Andhra Pradesh, South India. Kothapatnam is the main village and Pallipalem is its neighbouring coastal hamlet where the fisherfolk live and work. In the study, of this village, an attempt was made to integrate the bio-economic and socio-economic aspects of ***kattumaram*** fisheries and fisherfolk in order to understand better the inter-related issues and problems, by understanding better the inter-related issues and problems, assess the income from fishing and other activities, to establish a better stratified income structure of the ***kattumaram*** fisherfolk in relation to fisherfolk using other types of fishing craft and, thus, identify the component of the fishing community below the poverty line and the specific factors contributing to their situation.

The study has, consequently, contributed to an understanding of the relationship between income from fishing and income from other activities/sources by identifying

- areas in fishing and the handling/processing and marketing of fish that need improvement in order to increase income from fishing, and

Fig. 1 Map of Kothapatnam —Pallipalem



– opportunities for additional income generating activities particularly for the relatively poor fisherfolk.

2. SURVEY *METHODOLOGY*

To achieve an integration of the bio-economic and socio-economic parameters, the same stratification for the random sampling procedures was applied in the survey of the fisheries and the fisherfolk households. Though *kattumaram* fishing and fisherfolk were the objectives of this study, the report also discusses other types of craft in the village, their fisheries and income and households involved. Thk has enabled a better understanding of the resources exploited by this community, the interactions, influences and inter-relationships among the various fisheries in the area and the consequent differences in income from all these fisheries and in social factors in the village.

2.1 *Resources*

The information on fish resources was obtained by analyzing results and data records published by the Fisheries Survey of India (FSI) and the Central Marine Fisheries Research Institute (CMFRI) of India, mainly between 1980 and 1988. These were primarily bottom trawl surveys, but there were some pelagic surveys too.

2.2 *Fishing activities and income*

Based on a frame survey of the craft, gear, fishing operations, and landings in the village, a stratified random sampling survey, covering every type of craft and gear combination in operation, was conducted from August 1988 to December 1989, to estimate

– monthly catch rates,
– species composition,
  production,
– operational costs,
– price of fish,
  revenue,
– share system,
– income to owner and crew members, etc.

Thus, better estimation of monthly costs and earnings and production was possible. This was useful in determining clear differences in the income from many kinds of gear used by not only *kattumaram,* but also other types of craft.

2.3 *Socio-economic survey of the households and income from other sources*

A village profile and a frame survey were conducted to identify the general characteristics of the village and the types of households in it. Based on visual separation by roadways, wasteland, differences in size/type of houses (material of construction), size of land around houses, the village was geographically divided into five strata (Figure 1).

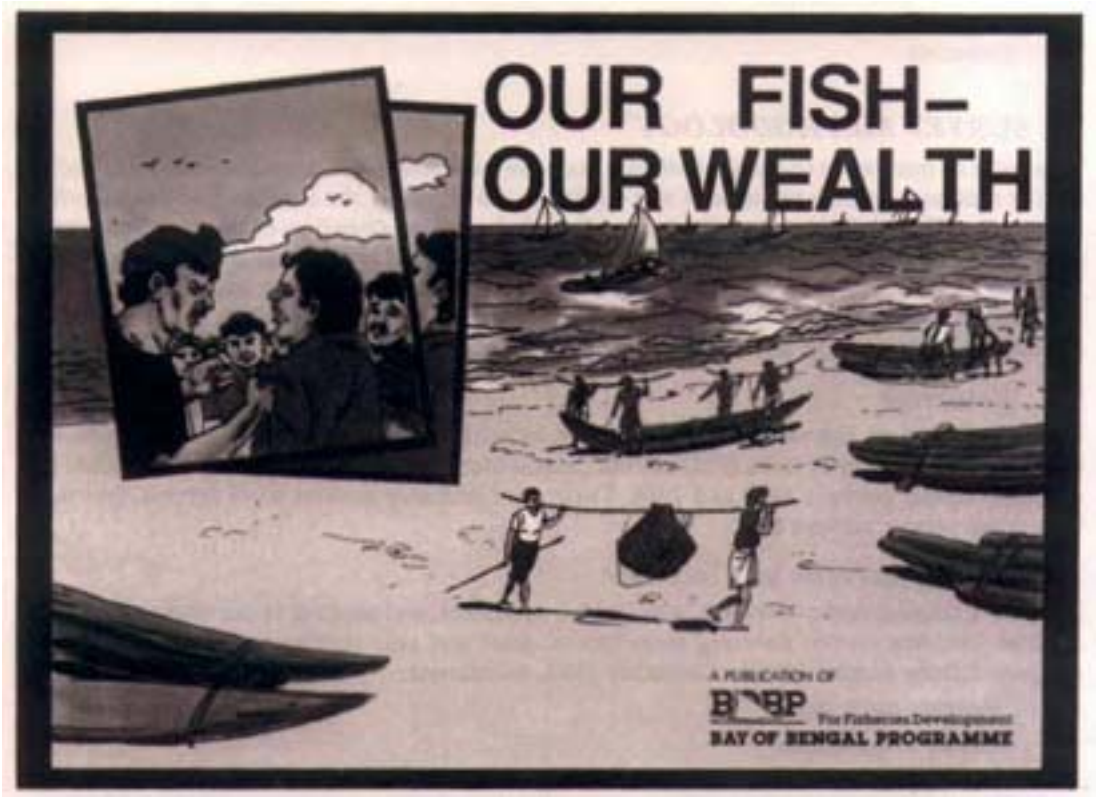
A basic socio-economic survey was conducted by sampling 20 per cent of the households in each stratum. Based on the results of the survey the households in the village were stratified according to

– ownership of specific types of craft and gear,
– fishing labour,
– fishing with specific types of craft and gear combinations, and
– non-fishing households.

These again were stratified into fishing and non-fishing households engaged in,

– fish processing,
– fish marketing,
– fishing transport,
– agriculture on own land/leased land,
– agriculture-labourer, and
– other kinds of activities.

A household could have two or more of these income generating activities.



The Kothaparnam-Pailipalem experience led to BOBP developing a comic book (its front cover, above) in Tamil and Telugu to communicate with the fisherfolk.

A page from the comic book: The hero, Raghu, a fisherman's son who went to the fisheries institute, explains resource management to the fisherfolk of his village. (Pictures used here are from the English prototype.)

To study seasonal changes in non-fishing activities, which may be influenced by fishing seasons, bad weather conditions for fishing etc, 10 per cent of the households were selected out of the 20 per cent sampled earlier, for systematic survey of seasonal changes in income from non-fishery related activities in the village. Though this information was collected through interviews, the survey being carried out during seasonal changes, provided an opportunity for getting the information when the changes were actually happening.

2.4 *Fish marketing survey*

Fish landings were sampled on the beach each day, to collect information on catch rates, species composition, price at first sale etc. One of the two field officers would often follow a subsample of these landings, from the beach to the household, to determine the fate of the catch. He also checked on the handling, processing, transportation and the second sale value of the fresh and processed fish marketed in the village, the nearest town (Ongole) and, occasionally, even followed the fish to destinations further on.

2.5 Exchange of information

The results from the monthly analysis of data collected were periodically presented to the fisherfolk (men, women and even children) through group discussions, meetings and a 'field day'. Discussions that followed resulted in an exchange of information, views and better understanding and cooperation. This increased the participation of the community in various aspects of the investigation and helped the learning process. This interaction culminated in some fishing trials for under-utilized resources being conducted through the joint efforts of the fisherfolk and the project staff.

This attempt at communicating resources and management information to the fisherfolk gave birth to the idea of developing a comic book (see facing page) to explain these concepts. The comic book approach is now being tested and has been well received by instructors in non-formal education.

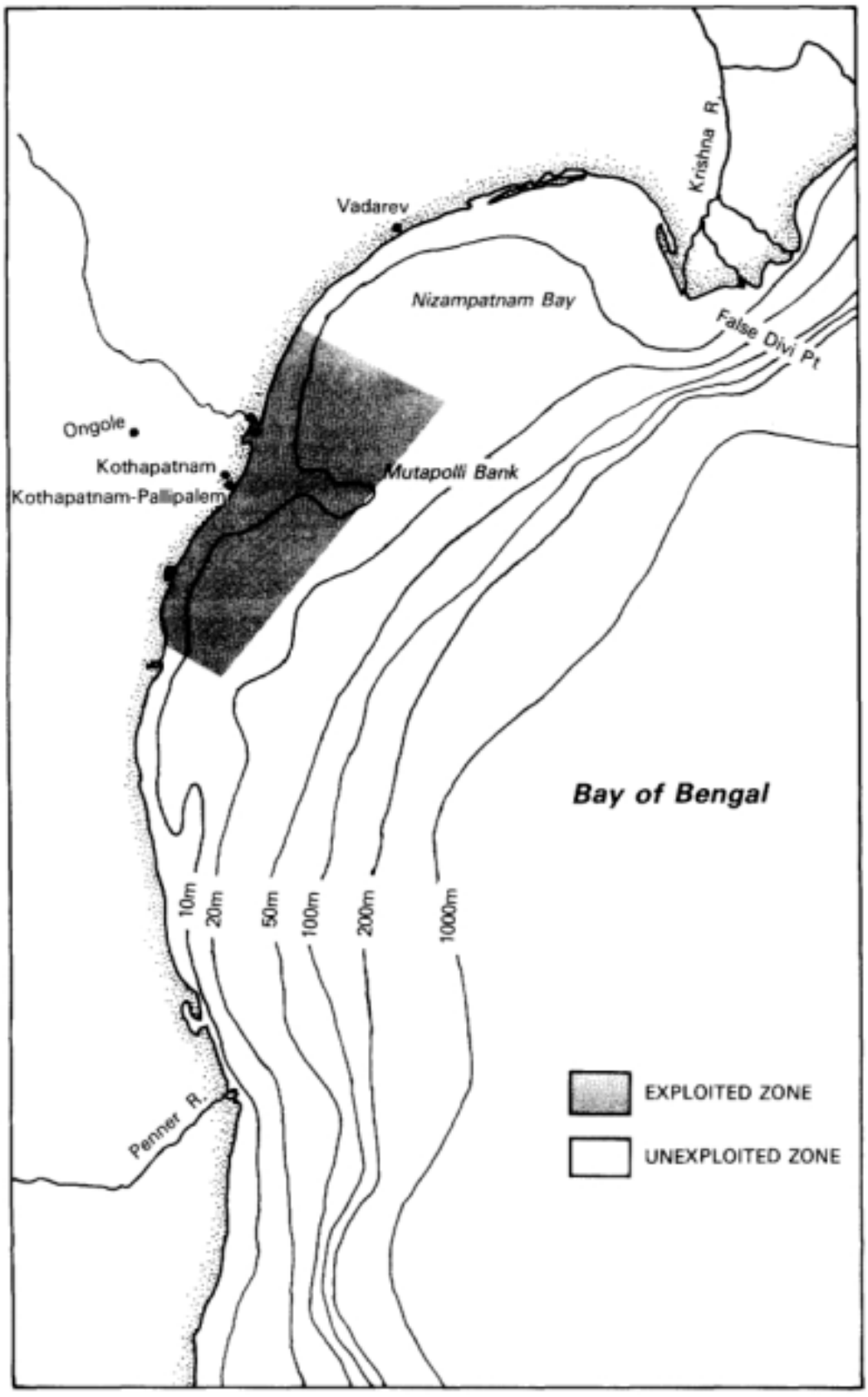
3. *VILLA GE PROFILE AND CLASSIFICATION OF HOUSEHOLDS*

Kothapatnam-Pallipalem is a coastal village in Prakasam District, Andhra Pradesh. Primarily a *kattumaram* fishing village, it is about 20 km from Ongole, the nearest town with which it is connected by bus. There is a bank, post and telegraph office, hospital and panchayat office in Kothapatnam, which is 2 km from the fishing village, on the road to Ongole. The composition of the households in the fishing village, according to their employment or income sources, as described in the survey methodology, is presented in Table 1.

Table 1
Composition **of households according to** income-generating activities in Kothapatnam

Acttvdr	*Categories*	*Households (No.)*	*Households (% of total)*
	Total number of households	*740*	*/00*
Fishing	Engaged in fishing	584	79
	Owning craft and gear	202	27
	Owning only gear	48	6
	Engaged in contractual labour (taking adsance from owner)	204	27
	Engaged in casual labour	130	17
	Without any craft or gear	490	66
	Not involved in any fishing activities	156	21
Fish marketing	Engaged in fish marketing	300	40
	Number of households with craft-gear and engaged in fish marketing	150	20
	Fishing labourers engaged in fish marketing	60	8
	Non.fishing but engaged in fish marketing	90	12
Agriculture	Engaged in agriculture	700	95
	Engaged in agriculture and fisheries	560	75
	Engaged in agriculture, own craft and gear	244	33
	Engaged in agriculture and fishing labour	316	43
	Own or own and rent agricultural land	300	40
	Only renting agricultural land	330	44
	Only engaged in agricultural labour	70	9
Others	Engaged in other kinds of income activities	236	32
	Engaged only in other income activities	26	3

Fig. 2 Chart of depth contours in the coastal waters of Kothapatnam —Pallipalem



It is evident from the table that many of the fishing households are engaged in at least one other income generating activity as well. Though fisheries is considered to be the primary activity in this village, the greater percentage of the households is involved in agricultural activities (40 per cent). Only 3.5 per cent are dependent on any other sources of income.

The fishing village is divided into Dhakshine, or South, Pallipalem and Uttaran or North, Pallipalem, which are separated by the main road from Kothapatnam. This road ends at the beach.

There are 740 households (Figure 1) in Pallipalem and the population is estimated at 4000. There are 1650 dependent children under 16 years of age and 270 are dependent old people. However, some of these children are engaged in fishing, agriculture, livestock caring etc. The average age of the men in the village is 29.

The fisherfolk in north Pallipalem are reported to be of Agrikulakshatriya, or Palli, caste, while those in the South Pallipalem are a mixture of Palli and Voda Balegas. The large majority are Hindus, but there are some Muslims and Christians, as well.

A primary school is to be constructed, but till then, classes are being conducted in the fish auction hall built by the Fisheries Corporation of Andhra Pradesh. The school has classes up to Grade V and four teachers tutor about 250 children in these classes. A hostel for 50 girls has been established in the village.

The future school building will also be a cyclone shelter, as this village is prone to frequent damage by cyclones.

About 350 *(51* per cent) households in the village have members with schooling/education. The number of years of schooling varied from 1 to 13, but the number of households falling into each of these categories by extent of formal education were even and around 30-50 in most cases. Average years of attendance at school for crew was two, that for non-fishing households was 3.7 and for craft owners *5.4.* School-educated youth generally did not find any employment other than fishing, but the village has two University graduates, one of whom is a typist in the fisheries office and the other a security officer in Ongole.

There are two fishermen's cooperative societies, one in North Pallipalem and the other in South Pallipalem, with a total membership of 668. Many, mainly crew, are not members of the societies because they lack understanding and faith in the benefits of such societies.

There are good bus connections from Kothapatnam to other villages along the coast and to Ongole. But there is a bus service only twice a day from Pallipalem to Kothapatnam.

Fuel, ice and repair mechanics are available only at Ongole. Fishing gear materials can be obtained from Kawali (150 km to the south) or Madras (360 km south). Whenever such purchases have to be made, several fishing days are lost.

The nearest fishing villages are about 30 km north and south of Kothapatnam—Pallipalem.

4. COASTAL SEA CONDITIONS

The Pallipalem coast is an open, surf-beaten shore with moderate surf. The beach is sandy and narrow. The Krishna river is the closest major river and is about 85 km north of Pallipalem village. The coastal belt is prone to cyclones, particularly during the Northeast Monsoon. There is a creek about 10 km north of the village, which is used as a shelter for some of the craft during stormy weather. This stretch of coast is the southern end of the coastline of Nizampatnam Bay which has the Krishna river delta at the northern end.

The bottom configuration here indicates a small gradient, resulting in a distant edge of the continental shelf (Figure 2). A projection of 0-6 m deep bank exists directly opposite the village and results in the 6 m depth extending upto little over 15 km from shoreline, reaching close to the 20 m depth contour — the Mutapolli bank.

The bottom sediment is sandy, muddy sand and then muddy, upto about 25 m depth. It is then rocky upto about 50 m.

Fig 3a. Average catch rates while bottom trawling at different depths

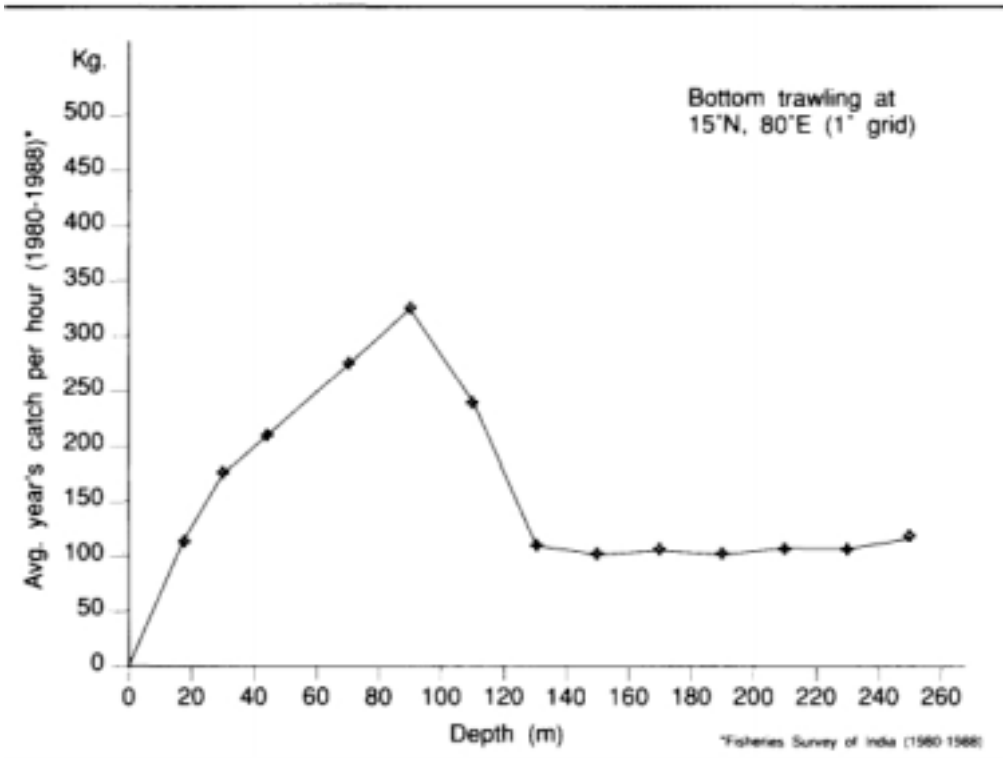
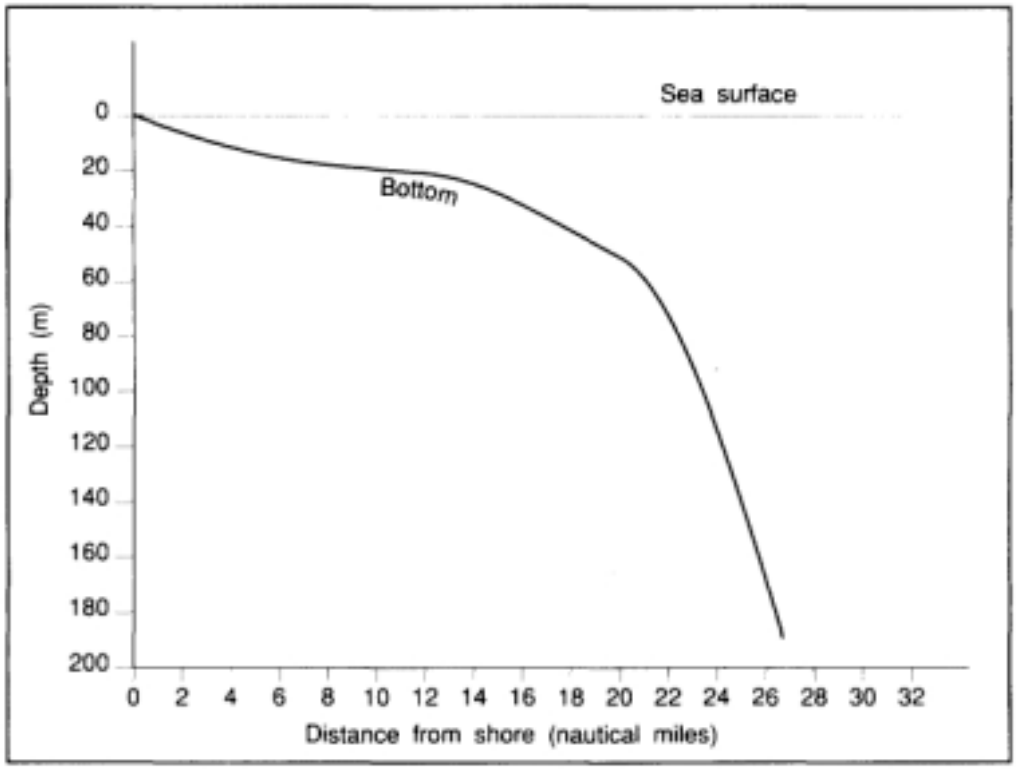



Fig 3b. Bottom configuration opposite Kothapatnam-Pallipalem