

smaller research vessel is therefore necessary to carry out investigations on pelagic and coastal fisheries resources.

With these in mind it is hoped that SEAFDEC can contribute positively to the development of fisheries in the region.

#### Appendix I

##### Papers presented at the Technical Seminar on South China Sea Fisheries Resources

1. Results of the experimental trawl fishing in the South China Sea by R/V CHANGI in the years 1970 to 1972.
2. Trawl fishing grounds in North Andaman Sea.
3. Demersal fish resources in untrawlable waters, viewed through vertical-line fishing.
4. Biological study of red snapper, *Lutjanus sanguineus*.
5. Studies on the feeding habits of red snapper, *Lutjanus sanguineus* and *L. sebae*.
6. A study of the catch data of the JURONG in the South China Sea in 1971 and 1972.

7. A rational survey method for evaluation of trawl fishing ground.
8. Fish school structure of red snapper and bigeye snapper in the South China Sea.
9. Behaviour of the warm-water mass along the east coast of the Malay Peninsula.
10. Fishing condition and its oceanographic interpretation in bottom longline fishing grounds.
11. Preliminary observation on the distribution and catch of the shovel-nosed lobster, *Thenus orientalis* Lund in South China Sea.
12. Some consideration on the relationship between environmental factors and the distribution of fisheries resources in the South China Sea and the Andaman Sea.
13. Brief note on the relationship of scattering layer and some hydro-biological factors.
14. Records of echo-sounder tracing as guide to locate and evaluate good fishing grounds.
15. Preliminary report on the distribution of chaetognaths in the southern part of the South China Sea.

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### Harvesting of Marine Resources in the Philippines

by

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#### Abstract

The production from commercial and municipal fishing are presented for a period of 10 years showing a continuous increase. The commercial fishing production is broken down into production by major fishing grounds for a closer evaluation.

The trend by type of fisheries for the same period is also presented. Purse seine and trawl fisheries show advancement with increase in production and number of fishing vessels in operation.

#### 1. PRODUCTION FROM COMMERCIAL AND MUNICIPAL FISHING

Commercial fishing refers to fishing operations conducted on board fishing vessels more than 3 tons gross licensed by the Bureau of Fisheries. For municipal fishing, these are fishing operations mostly done in municipal waters with or without the use of a vessel 3 tons gross or below.

Fig.1 shows the trend of fish production from commercial and municipal fishing for a period of 10 years (1962-1971)\*. The trend is a continuous increase of production for both municipal and commercial fishing.

\* All figures were taken from the Fisheries Statistics, Bureau of Fisheries, 1962 to 1971.

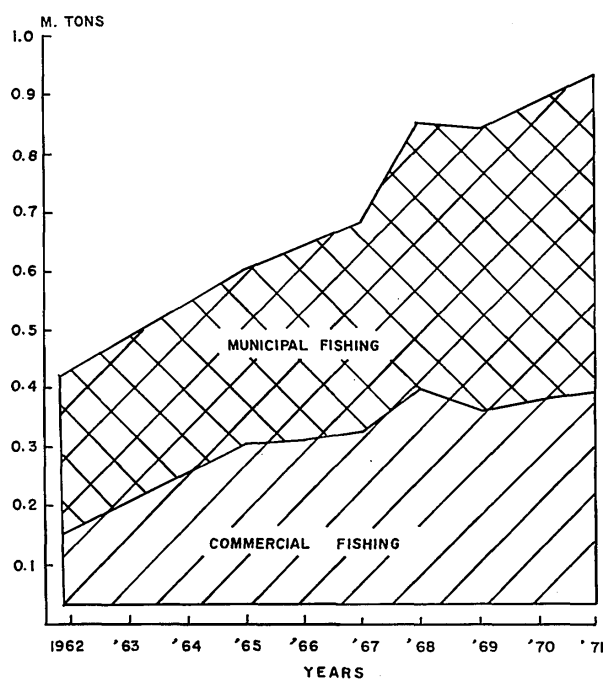


Fig. 1

For 1962, with a combined production of 0.42 M tons, municipal fishing showed a production 0.1 M tons more than that of commercial fishing. The following years showed the increase of commercial fishing production and then in 1965, both had the same production of 0.3 M tons each. The production continued its increase and for 1971, the total production was 0.93 M tons with 0.54 M tons for municipal fishing and 0.38 M tons for commercial fishing.

Even with the increase of fish production over the period, this has not met the fish consumption requirement of the country. For 1970 there was still a production deficiency of 26%. This shows that the rate of increase in production is not coping up with the rate of increase in fish consumption.

## 2. PRODUCTION BY MAJOR FISHING GROUNDS

Production of municipal fishing by fishing grounds could not be presented here because estimates of production were derived from previous years trend. Only with commercial fishing could a detailed examination of production by fishing grounds be made based on figures gathered by the Economics and Statistics Section of the Bureau of Fisheries. The trend of production by major fishing grounds is shown in Fig. 2.

### 2.1 Sulu Sea (Palawan waters)

The production increased tremendously by 725% from 1972 with 32,298 tons to 1971 with 235,810 tons. This increase is mainly attributed to the increasing number of purse seine fishing vessels operating in the area (See Fig.5).

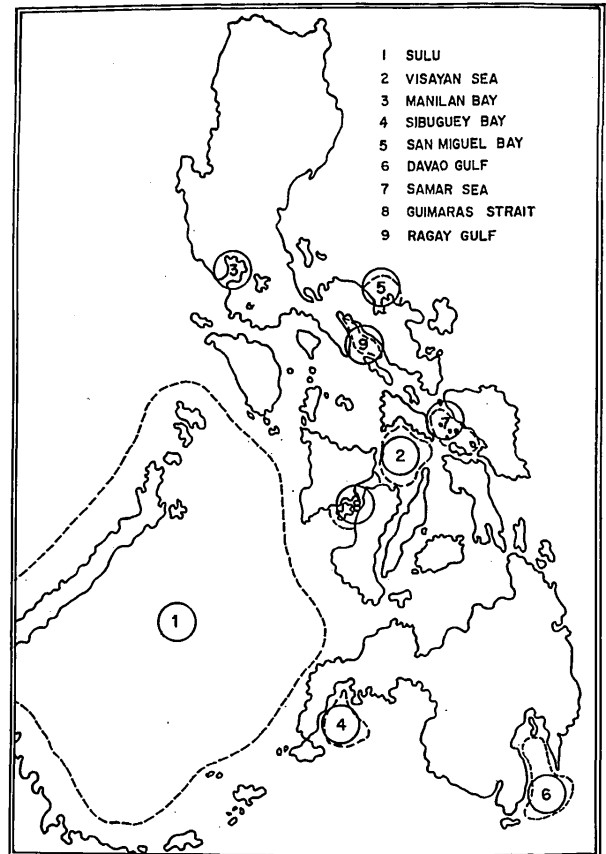


Fig. 3

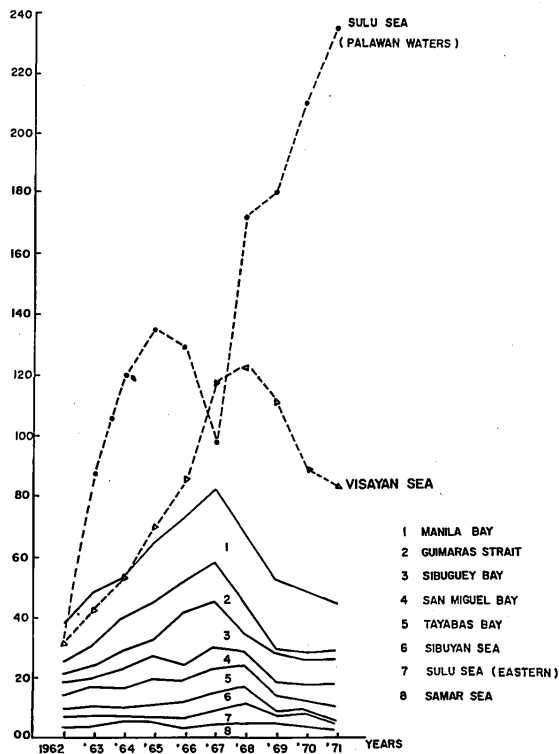


Fig. 2

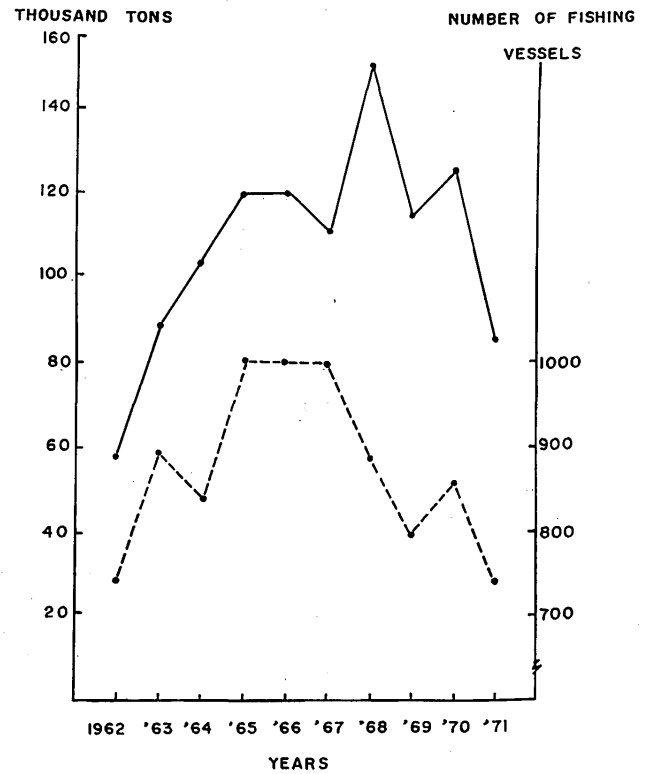


Fig. 4

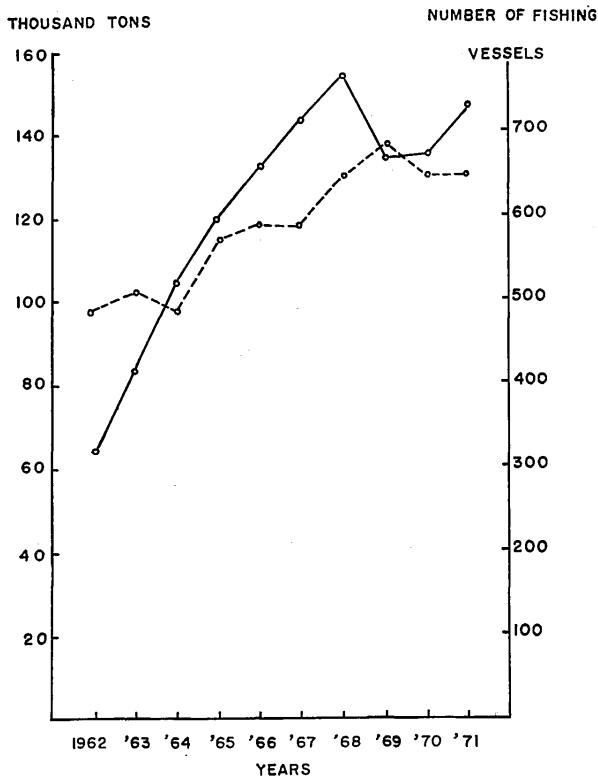


Fig. 5

### 2.2 Visayan Sea

A gradual increase in production is observed from 1962 with 32,530 tons to 1968 with 124,164 tons, or an increase of 480%. The major fishing gear being operated in the Visayan Sea is otter trawl. The production of the trawl fisheries (see Fig. 4) shows the same pattern of general increase. However, the production of Visayan Sea made a decrease during the succeeding years. Then in 1971, the production went down to the level of 1966 production. The same trend is also observed for trawl fisheries resulting to the reduction of trawl fishing vessels in operation. This creates a problem for fisheries management.

### 2.3 Manila Bay

There is not much fluctuation in the volume of production for the period with an average of 18,993 tons. The principal fishing gear operated in Manila Bay are Bag net, Purse seine and Otter trawl.

### 2.4 Giumaras Strait, Sibuguey Bay, San Miguel Bay, Tayabas Bay, Sibuyan Sea, Sulu Sea (Eastern) and Samar Sea

The following fishing grounds do not present any noticeable increase in production but rather a decrease in some areas. The total production of these fishing grounds including Manila Bay is less than the sole production of the Visayab Sea.

Fig. 3 shows the location of the major fishing grounds in the Philippines and numbered according to their respective production based on the 1970 statistics.

## 3. TREND BY TYPE OF FISHERIES

### 3.1 Trawl fisheries

From 1962 to 1968, the production has increased by 240% with the increase in number of fishing vessels operated (see Fig. 4). There is a decrease for 1969–1970 period but picking up again in the following year. In 1971, a total of 652 units operated and harvested 146,359 tons.

### 3.2 Purse seine fishery

This is one fishery that has shown a tremendous increase in production from 953 tons in 1962 to 117,694 tons in 1971 (see Fig. 5). The marked progress in this fishery was brought about by the increasing number of purse seine fishing vessels most of which were acquired by the private sector from Japan as used fishing vessels at give away prices. These vessels were then brought to the Philippines including synthetic fishing nets and fish finders and remodeled for purse seine operation by installing power blocks. In 1971, a total of 265 units operated.

### 3.3 Bag net fishery

The production of this fishery has had an increase from 1962 to 1968 but from then on followed a downward trend (see Fig. 6). The same pattern is followed by the number of units operated.

The same group of species are being caught by bag net and purse seine fisheries. With the latter producing a greater volume of catch than the former, the present trend is for bag net operations to shift to purse seine fishing. A total of 85,861 tons was harvested by 743 units in 1971.

### 3.4 Round haul seine fishery

The trend of production for this fishery has not been good (see Fig. 7). From 1962 to 1971 the production fell with the number of units in operation following the same pattern. The replacement of round haul seine net by a

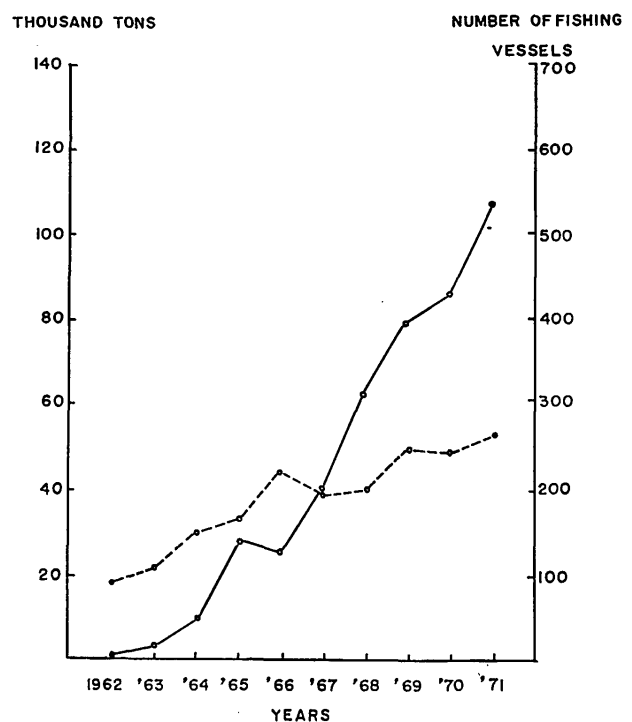


Fig. 6

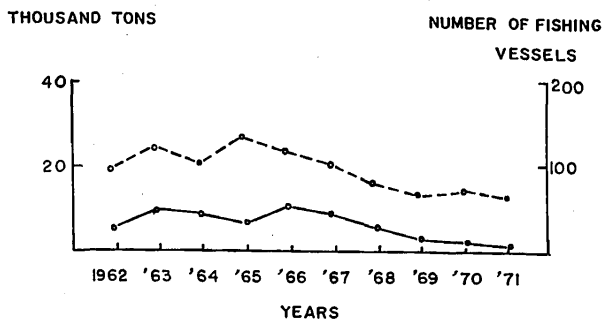
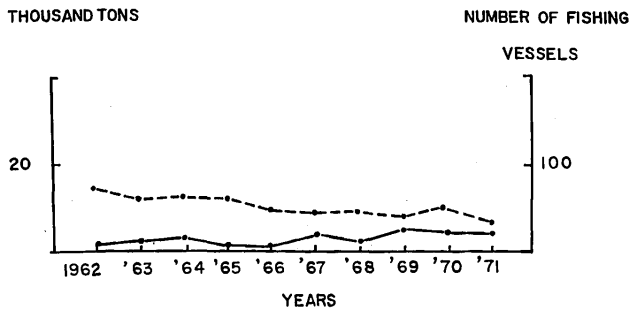
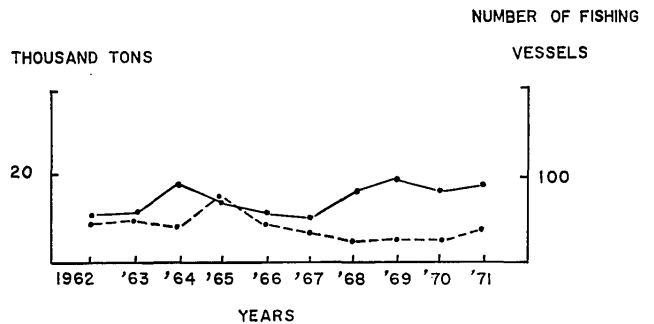


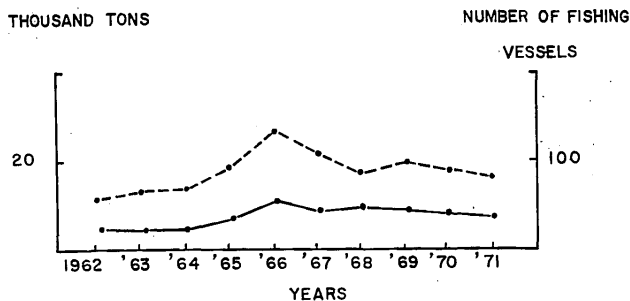
Fig. 7



(A) BEACH SEINE

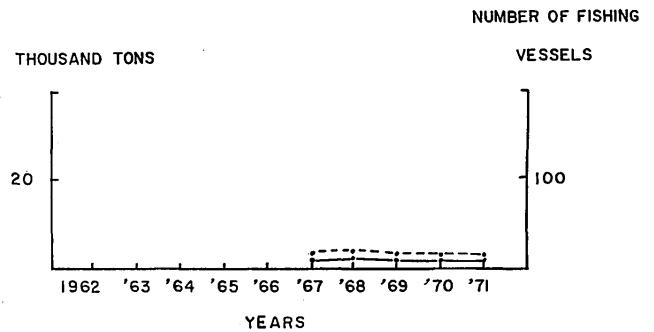


(C) MURO - AMI



(B) HOOK AND LINE

Fig. 8



(D) TUNA LONGLINE

Fig. 8

small purse seine net is being considered to save the operators of the former gear. For 1971, 61 units operated harvesting 2,446 tons.

### 3.5 Beach seine fishery, Hook and line fishery, Muro-Ami fishery and Tuna long line fishery

These fisheries have generally shown a constant production from 1962 to 1971 (see Fig. 8). These fisheries may be termed as "stagnant fisheries". The records from 1967 to 1971 do not show any growth in the production of tuna with only 200 tons in 1971 and 5 units operating. Most Philippine tuna is being harvested by hook and line fishery which is operated in coastal waters.

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## Problems Other than Fisheries Resources in the South China Sea Area

by

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### INTRODUCTION

Problems other than fisheries resources in the South China Sea Area can be broadly classified into two:

- (1) those relating to the nature of the fishing industry; and
- (2) those relating to fisheries institution to support