

## A critique of indian ocean fishery estimates

In last few years the growth trend of fish catch of the India Ocean is almost stagnant around 3.5 million tons even by adopting new modern fishing technology, adoption of Exclusive Economic Zone, priority of Government to fisheries development etc. The present exploited catch is less than one third of the potential estimates worked out by several workers. This created several questions in one's mind. Present paper analyse the reliability potential and exploitable resource estimates of the Indian Ocean.

The potential of the ocean to provide food for mankind has been a topic of considerable debate. About 85 per cent of the available land is already under utilization and there are remote possibilities for any further increase in availability. Thus, man has to look more and more to the aquatic environment to provide nourishment to the ever proliferating human population. Man's concept of the ocean is illusive that there is a tendency to consider marine resources as being unlimited and inexhaustible. However, such type of thinking is found to be far from realistic. There are already signs of depletion in living resources in some parts of the world. In this context, it is timely and appropriate to have a fresh look on the available potential marine fishery resources.

Although the sea gives only 1 to 2 per cent of the calorific requirement of the mankind, it represents 20 per cent of the world supply of animal protein (Holt, 1973). If its indirect contribution as a constituent of animal feeds is also considered then it provides about 25 per cent of animal protein. The fish protein is a vital part of the diet of many people in developing countries. Unfortunately, the whole amount of fish proteins is not used by man. According to Food & Agriculture Organisation (FAO) about 10% of marine catches were directly used as food for man in 1984. The rest 30% of the catch, were used for feeding the poultry and piggery either directly or indirectly or as fish meal. A conservative estimate indicates that man gets about 5 million tons of protein from the sea. It means that 4-

5% of the total protein resources comes from the sea.

It has been estimated that about 36 grams of protein per person per day is adequate for essential maintenance. Thus, the entire fish catch (marine as well as fresh) if directed to that end, can supply 30% of the protein needs of the world population of 5000 million people. If only numerical population growth without improved standard of living is taken into account then the production of animal protein will have to be doubled in the next 15 years.

Even now about 25 million people do not receive sufficient animal proteins and remain practically undernourished. This is especially true of the developing countries of Asia, Africa and Latin America.

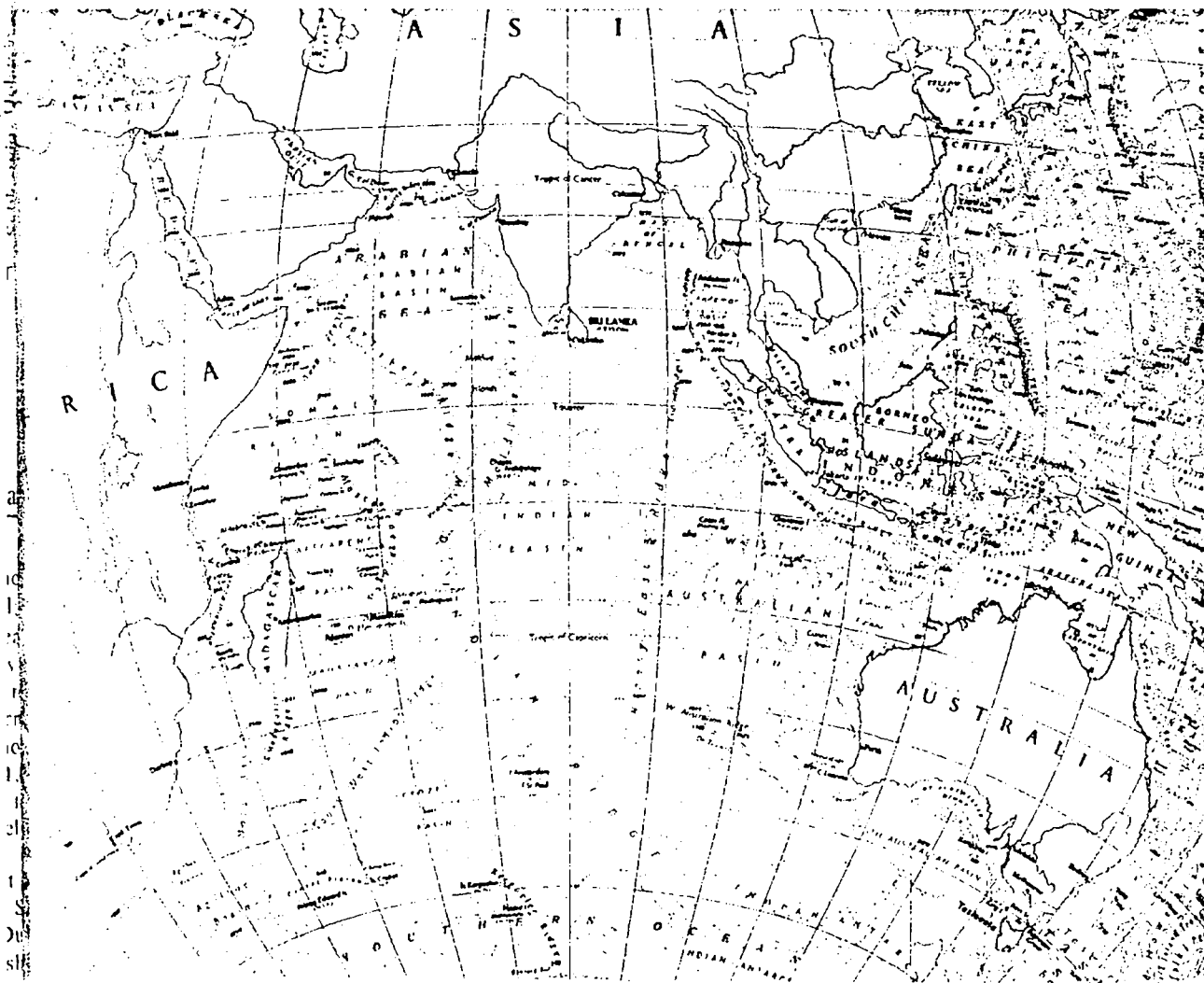
Under the present context, we take the example of Indian Ocean - smallest of the three major world ocean which is bordered by 35 countries and 6 island groups harbouring about 1450 million people i.e. a third of the earth's population. These people have an annual deficit (difference between requirement and supply) of over 4.5 million tons, divisible into 3 millions tons of animal protein and 1.5 million tons of plant protein. Nearly a third of the animal protein comes from fish. By the end of the century, the population of the countries and islands bordering the Indian Ocean is estimated to be 2100 million and the demand for marine fish to be 10 million tons.

Diversity is a striking feature of the Indian Ocean countries in regard to

area, population size, density and the endowment of natural resources. With a few exceptions, low per capita national income, heavy dependence on agricultural and allied activities, low consumption standards, low level of health and education and low over all levels of living standards are the characteristics of the countries of the India Ocean (FAO, 1971). Against these characteristics, the significance of marine fisheries in this region would appear to weigh more in favour of bringing levels of 'standard living' on par with that of developed countries. In recent years, shrimp fisheries have been developed on an industrial scale in nearly all countries of this region, with the prime objective of earning badly needed foreign exchange. There is also growing realisation of the importance of small scale artisanal fisheries in terms of good production for local consumption and employment gains. Most of the countries do not possess the necessary infrastructure facilities for the optimum utilisation of the fishery resources in their Exclusive Economic Zone (EEZ). Nevertheless, fisheries development prospects offer ample opportunities for national development efforts and also for cooperation at both regional and international levels for solving the problem of food scarcity and also to contribute to some degree of the economic development.

The juxtaposition of these facts added to growing population and protein deficit, undoubtedly accounts for much interest in fishery development in the Indian Ocean. Yet it is obvious that increased protein production will not help these individuals now on a subminimal protein diet unless they also have the buying power necessary to acquire the additional protein or unless otherwise made available to them. And in fact the interest of many governments in fisheries is not so much in meeting the protein deficiency as it is in develop-

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resources like tuna and shrimp can be used to acquire needed in exchange. Still others see development as a way of meeting certain social problems, such as providing employment. All of these are interwoven, of course, but it appears that fishery development is part of general economic development leading to the increase of standard of living and to the diffusion of well-being of the human race. Realities that emerge from this analysis indicate that there is an urgency to develop marine fisheries in the Indian Ocean to the optimum

level on a priority basis to help and solve the problem of undernourishment. As a prerequisite, it is most important to have a clear picture of the process of biological production in the ocean and to attempt a quantitative evaluation of potential and exploitable resources. This requires a scientific assessment of marine fishery production system.

Over the last two decades many workers have worked out the upper limit of the Indian Ocean fisheries from studies of the food chains and exploratory fishery survey of the sea. As might be expected, the range of the estimates is rather wide. The recent

estimates showed a strong convergence towards a range of 10.2 to 17 million tons per annum. The estimates of the upper limit are 3 to 5 times of the present exploited catch.

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