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ASSESSMENT OF SEA-CUCUMBER RESOURCES OF INDIA

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ABSTRACT

Holothurian resources are of great importance, because of their export potential. Due to their restricted distribution, it is feared that these resources are over-exploited and hence size restriction has been imposed on processed material exported. This has affected the *beche-de-mer* industry in India very much. The need for collecting basic data on catch, effort and biological details of these resources, in order to assess their resources potential, availability and level of exploitation for obtaining MSY, is emphasised.

INTRODUCTION

Resources assessment is a pre-requisite for planning and development of any endeavour for the judicious exploitation of the resource. In case of non-living resources, which are non-renewable, their precise assessment at one point of time is enough for planning their exploitation. In contrast, for living resources, they being renewable, constant monitoring of the resources is a must. Fishery resource being dynamic, all the more needs constant and vigilant monitoring.

CHARACTERISTICS OF THE FISHERY RESOURCES

Among the living resources, fishery resources particularly capture fishery resources are distinct demanding special attention. They are extremely dynamic in their mobility over space and time. There are a number of species constituting the fishery resources and their availability in numbers vary over space and time. In each species, size compositions vary widely over the seasons. In tropics high fecundity, continuous spawning, fast growth and short life span make their biological investigations more complex. In addition fishery resources are affected by independent factors such as currents, temperature and salinity, the impact of which on the stocks is not easily discernible. Fishery dependent factors such as method of fishing and intensity of fishing also affect the fish stocks. These factors contribute to the variability in the availability of fishery resources and hence the variability becomes multi-dimensional the magnitude of which is not encountered with any other resource. To comprehend all these factors fishery resources are beyond our visual horizon and what is below a sheet of water is anybody's guess. Consequently assessment of capture fishery resources remains complex.

MODE OF ASSESSMENT

To assess a resource, either a census of it is taken or sampling is restored. For the reasons mentioned above census of fishery resource is out of question. Only sampling has to be done to assess it. As precision of an estimate depends on the sample size which is linked to the variability, assessment of fishery resource, having multi-dimensional variability, demands careful planning in development of a suitable sampling design and comprehensive schedules for collection of data. This being a specialised field needs biological and statistical know how. Well trained field staff are exclusively required for collection of data.

ROLE OF CENTRAL MARINE FISHERIES RESEARCH INSTITUTE

As the nodal organisation of India in marine fisheries research, the Central Marine Fisheries Research Institute has stock aassessment of commercially important species

as one of its main objectives. For this purpose estimates of exploited fish stocks are basically required. Basing on its vast experience in the field over four decades the Institute has developed a universally acclaimed and well suited stratified mutlistage random sampling design for assessing exploited marine fishery resources of India. The Institute has also developed suitable schedules for collection of sea-cucumber catch statistics along with the effort expended.

Regarding the resources of holothurians, however, no estimates are available on the exploited as well as potential stocks since data on their landings are not collected at present in a systematic manner by any agency in India.

Status of Holothurian Fishery in India

As these resources have export potential an urgent need has arisen for identifying the areas of their availability for estimating their resources potential, for studying their biological characteristics such as growth, mortality and fecundity and for evolving judicious exploitation schedule so as to reap sustainable yields. Expertise available with CMFRI may profitably be used in these areas.

It is well known that these resources are available in the Gulf of Mannar and Palk Bay on the mainland. Holothurians are also available in Andaman and Nicobar Islands and the Lakshadweep. Regarding the rest of the regions no information is available on the occurrence of these resources. Hence a pilot survey has to be undertaken immediately to assess the availability of commercial species all along the Indian Coast. Wherever exploitation takes place and attempts may be made to collect data on catch, effort and biology of the exploited resources on a systematic and regular basis.

To assess the level of exploitation for reaping sustainable yields, data on growth, mortality, fecundity, etc. are required. For this purpose location based biological studies are required using the available facilities and data collected systematically on continuous basis for estimating vital parameters required for stock assessment studies. Since length of holothurians cannot be reliably measured, the weight is used as a unit to estimate age and growth. Instead, any hard part of the holothurians which is expected to give information on growth and that could be easily measured may be considered in growth studies. For this purpose a special project may be thought of for meeting the man power requirements.

To sum up, catch and effort data and biological information on the presently exploited stock, resource potential of known regions and information of new regions with their resource potential are to be obtained for the rational exploitation and judicious management of the holothurian resources of India.