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GEOGRAPHIC DISTRIBUTION OF GROUNDFISH RESOURCES IN THE WATERS OFF NORTHERN AND NORTHWESTERN AUSTRALIA

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ABSTRACT

Based on the catch statistics of the log books recovered from the Taiwanese pair trawlers that operated in the waters off Australia from 1974 to 1978, the authors made an investigation on the geographical distribution of the groundfish resources in the area and to recommend a proper demarcation of the area into statistical regions for stock assessment and management purpose.

The results of geographical distribution study show that: (1) Most species in the groundfish community, such as: golden thread, cuttle fish, red snapper, lizard fish, porgies, pompanos, amber fish, trevally, shark, and grunt were widely distributed all over the area. (2) Catch rates of squid, hair tail, and shark in the Arafura Sea; those of butter fish and large-eye bream in the Gulf of Carpentaria; and those of trevally in the Timor Sea were higher as compared to the rest of the regions. (3) CPUEs of squid in the Arafura Sea were much higher in spring (August to November); those of lizard fish and shark in the Timor Sea were higher in summer season (October to March); and those of hair tail in the Gulf of Carpentaria were higher in winter season (April to September). (4) Distribution of high catch rates of red snapper and porgies in the Gulf of Carpentaria extended more southwardly during summer season as compared to those of winter season.

The results of comparison in heterogeneity among various groundfish communities indicates that it seems appropriate to demarcate the entire continental shelves off north and northwestern Australia into seven major statistical regions, viz., the Gulf of Carpentaria (R0) region, the Arafura Sea (R1A and R1B) regions, the Timor Sea regions (R2A and R2B) regions, and the northwestern shelf (R3A and R3B) regions, for stock assessment and management purpose.

INTRODUCTION

The continental shelves off the north and northwestern Australia have been one of the most important trawling grounds for the Taiwanese pair trawlers since 1971. After the proclamation of the Australian Fishing Zone (AFZ) in 1979, however, the historic right to fish by the Taiwanese trawlers can only be assured through the Sino-Australia bilateral fisheries agreement signed annually. Since then much research effort has been devoting to this area (Lai and Liu 1979; Liu 1980) in order for better understanding the biological and dynamic nature of the resources. The results of these studies should be helpful in determining the yearly status of the resources.

Groundfish community in the tropical area is characterized by the multitude of species present and none of which is really dominant (Liu *et al.* 1978; Yeh 1981). On the other hand, the fishing method of trawling is non-selective in nature. These two factors heavily retard the assesment and management of the resources on a single species basis. Therefore, in order to establish more reasonable basis for assessing and managing such multispecies groundfish resources, some non-traditional management philosophy and techniques should be developed.

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