

## DEEP SEA FISH RESOURCES DIVERSITY AND POTENTIAL IN THE WATERS OF WESTERN SUMATERA OF THE EASTERN INDIAN OCEAN

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### ABSTRACT

The availability of data and information on the diversity and potential of fish resources provide important aspects for exploitation and management. Most of the deep sea regions provide the most widely habitat, but until recently information on its biodiversity and potential is very little. Data analyzed were parts of the results of exploratory trawling using the R/V Baruna Jaya IV carried out in June to July 2005. The most importance species in term of numbers were the lantern fish, *Diaphus* sp.1, the rat tails macrourid, *Caelorinchus divergens*, the neoscopelids, *Neoscopelus macrolepidotus*, the spinyfins, *Diretmoides pauciradiatus*, the alepocephalid, *Bajacalifornia erimorensis*, and the trachichthyds *Hoplostetys crassispinus*. Analysis of fish resources indicated that the lowest density of about 0.08 tonnes km<sup>-2</sup> was observed in the depth zone of 751 to 1,000 m in the waters of the north western part of Simeuleu and the highest density of 17.7 tonnes km<sup>-2</sup> was occurred in the depth zone 500 to 750 m in the waters of the western part off Banda Aceh. In relation with the environmental aspects such as the huge pressure and scarcity of food supply, it is likely that the deep sea fishes might have a very high sustainment for survive. The most interesting aspect is that the chemical substances of their flesh, such as proteins, lipids and others will need further pharmacological analysis and research. It is advised that exploitation of deep sea fish resources nowadays should be directed to get the benefit from the resources diversity and bioactive substances rather than catching fish for consumption.

**KEYWORDS:** deep sea fish, diversity index, catch rate, catch composition, stock density, Western Sumatera, Eastern Indian Ocean

### INTRODUCTION

The demersal resources are a group of fishes that most of their life cycle living at or around the bottom waters. Characteristics of demersal fish behaviour compared with those pelagics fish are forming a relatively smaller school, lower movement, and relatively shorter migration ranges. Catch compositions of the most economically important demersal fish in the continental shelf area and relatively shallow waters are usually consisted of red snappers, silver bellies, white pomfrets, groupers, croackers, and catfish (Saeger *et al.*, 1976). The fishing gears used for the demersal fish exploitation are trawl, bottom long line, bottom gill net, traps and hook and line. The shallow waters demersal fish has been widely known and easily found in most landing places and fish market, however, most of the deepsea demersal fish are rarely encountered while some fishes provide as identified new species that have not even been found in the literatures. As demersal fish had a relatively short distance migration range, their fishing grounds in the Indian Ocean untill recently are still limited to the narrow continental shelf areas. Based on the available marine charts, the fishing areas are considered not more than 100 m isodepth. In relation with the relatively limited capability in both fishing gears and fishing fleets of most Indonesian fishers, it is believed that the

deepsea demersal fish resources at the depth range more that 100 m are considered untapped. The fish resources include deep sea shark and rays, groupers, snappers (*Etelis* sp.) and some conger eels (Wibowo, 2005). Some deep sea fish that have been found during the exploratory bottom long lining in the Sunda Strait were *Gephyroberix* sp., and *Peristedion* sp. (Hufiadi *et al.*, 2003). The first fish species can be considered as food fish, while the later has been known as a very poisonous fish.

In relation with the fish resources potential, information on this aspect regarding the deep-sea fish resources in Indonesian waters is still very scare compared to the similar aspect on the shallow demersal fishes that have been widely reported (Losse & Dwiponggo, 1977; Dwiponggo & Badrudin, 1978; 1979; 1980; Badrudin & Sumiono, 2002; Badrudin *et al.*, 2002; 2004; 2004a; 2005).

Most of the deep sea region provides the most widely habitat with little information on its biodiversity. Ninety percent of the ocean volume consisted of deep water which are dark, cold. Mean while information on the aspects of life is still very rare (Nybakken, 1986). The main environmental factors affecting deep-sea region are light, hydrostatics pressure, salinity, temperature, oxygen, and food supply. These factors will undoubtedly

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