ABSTRACT

JOHANIS HIARIEY. Exploitation Status of the Small-Pelagic Fish Resources in Maluku Waters and Its Fishing Capacity. Directed by: MULYONO S. BASKORO, JOHN HALUAN, and VICTOR P.H. NIJIJULUW

The potential for the Maluku’s pelagic fishery resources is moderately exploited; hence, small-pelagic fishery development is considerably strategic. The development of the small-pelagic fishery is complex due to involvement of stakeholders in the resources utilization, and the unique characteristics of marine fish resources. Since 1999, fishing capacity issue has become growing concerns in world fisheries. Excessive fishing capacity can contribute substantially to overfishing, degradation of marine fishery resources, and significant economic waste. In line with fishing capacity, this research was conducted to analyze exploitation status of the small-pelagic fish resources in Maluku waters based on fishing capacity. Research location was the WPP-714 Banda Sea, particularly focused on area of the Central Maluku Regency and Ambon City. Collected data were analyzed by using bioeconomic approach of Gordon-Schaefer model, data envelopment analysis (DEA), technique of linear goal programming (LGP), stochastic production frontier analysis (SPF), and strategic environment analysis. Results showed that at maximum sustainable yield (MSY); production was 57,589.57 tones per year, fishing effort 7,945,48 trips, biomass 480,715.12 tones, and economic rent Rp 200,499,420,000. Six out of the 22 decision-making units (DMU) were fully efficient. The lowest capacity utilization in small-pelagic fishery was found in DMU-1988, which was 76%. There was indication of overcapacity on the small-pelagic fishery in the period of 1989 to 1999. The small-pelagic fishery in the east season was more efficient than that of in the west season. At temporal exploitation for the east season, allocation of purse seine was 161 units and of gillnet was 6,507 units, whereas for the west season allocation of purse seine was 13 units and gillnet 2,663 units. The affected determinants of the stochastic frontier production function were length and width of fishing gears, number of persons per vessel, investment value of fishing unit, and time spent in fishing per trip. Age of skipper, total household size of the skipper, and the skipper’s years of fishing experience significantly influenced technical inefficiency of fishing. Optimal allocation of purse seine was 251 fishing units, gillnet 10,011 units, lift net 190 units, and beach seine 32 units. Compared to the original allocation of the fishing unit, lift net and beach seine decreased very sharply by 781 units and 393 units, respectively. Strategic plan was designed under a vision of “pelagic fishery development based on fishing capacity and efficiency for people welfare”. This vision is aimed at balancing level of fishing fleets with the sustainability of the marine fish resources in Maluku. To achieve this goal, some environmental factors associated with fishing capacity management were identified and used for developing strategic plan.

Keywords: small-pelagic fishery, fishing capacity, efficiency, capacity management, Maluku