ABSTRACT

IRHAM. Sustainable Development Pattern of Scad Resources (*Decapterus* spp) in North Maluku Waters. Under the direction of SUGENG HARI WISUDO, JOHN HALUAN and BUDY WIRYAWAN.

The potential of scad resources in North Maluku waters is expected to be abundant with the utilization level considered as developing, however, specifically there is different fishing stress on scad resources. The objectives of the research are: 1) to determine the main priority for scad fishing technology based on biological, technical, social, economic, and environmentally friendly aspects; 2) to determine the optimization of scad fishery management; 3) to determine biological characteristics of scad (*Decapterus macarellus*) based on fish population parameter approach; 4) to determine minimum net mesh size of the selected fishing gear; 5) to determine the pattern of fishing season and the impact on catch of scad; and 6) to arrange the sustainable development pattern of scad resources in North Maluku waters. The research used survey and observation method. The method applied in the analysis was scoring and value function, Gordon-Schaefer model on sustainable production function and bio-economy, Linear Goal Programming model, fish population parameter analysis, simple linear regression analysis, moving average method, and descriptive model. Result showed that scad fishing technology that is appropriate to be developed is *mini purse seine*. Estimation of scad catch result optimum value is 19,754, 248 ton per year with optimum catch effort is 28.135 *mini purse seine* standard trip, and thus the maximum profit obtained is Rp. 90,717,199,850,00. The allocation of recommended *mini purse seine* fishing unit is 202 units that employ around 2626 fishermen. The analysis of several scad (*Decapterus macarellus*) population parameters resulted faster growth of female scad compare to the male and both reached maximum length in the age of 4 years. Scad growth characteristic is “Alometric minor”, which means that the growth of its body length is faster than its weight. Scad caught was dominated by immature gonad. The highest amount of mature gonad scad was found in March and the size at first gonad maturity is reached at 25,8 cm total length. The spawning period is during April/May. Fecundity obtained is around 28875-84000 with the total length vary from 268-310 mm. The amount of egg is highly influenced by the fish’s total length. The pattern of fishing season is following the scad’s abundance pattern. The peaks of scad fishing season occurs in March-October with the highest point reached in August. While fishing ground December – February indicated by lowest catch. Catch area and scad fishing season in various waters in North Maluku covers: (1) the center part of North Maluku, with fishing season from February -May and July - September; (2) southern part of North Maluku with fishing season from April - October; and (3) northern part of North Maluku with fishing season from April - September. A sustainable development pattern of scad resources in North Maluku waters has been arranged, which covers 5 components: Selected scad fishing technology, optimization of scad fishery management, scad biology, minimum mesh size of chosen fishing gear, and the pattern of fishing season.

Key word: development pattern, scad, fishing technology, North Maluku waters.