ABSTRACT

DONWILL PANGGABEAN. Swimming Layers Analysis and Density Distribution of Small Pelagic Fish in Makassar Strait by Acoustic Approach. Supervised by INDRA JAYA and BONAR P. PASARIBU.

The purposes of this research are to analyze swimming layer and to estimate distribution and density of small pelagic fish in Makassar Strait by acoustic system approach, and how far the effect of both temperature and salinity on distribution and density of small pelagic fish. Cruise track was designed by parallel grid, acoustic data were collected by echosounder, temperature and salinity data were collected by CTD instrument, data analysis displayed on 3 layers, namely: homogen layer (1 to 50 m), thermocline layer (50 to 300 m), and deep layer (300 m to bottom), all of data measured on October 14 to 25, 2003. In homogen layer, acoustic density values range 221,10 to 36199,92 m$^2$/nmi$^2$, in thermocline layer, acoustic density values range 5,09 to 2982,66 m$^2$/nmi$^2$ and in deep layer, acoustic density values range 281,69 to 577,49 m$^2$/nmi$^2$. In homogen layer, the temperature values range 25,33 to 29,59 °C and salinity values range 30,41 to 34,36 psu. In thermocline layer, a drastic decrease temperature is happened with range 9,98 to 28,47 °C and salinity values range 33,74 to 34,79 psu. In deep layer, temperature tend to decrease with narrow range 3,61 to 11,28 °C and salinity tend to increase by decrease depth with values range 34,45 to 34,59 psu. The result showed that both temperature and salinity affect the distribution and density of small pelagic fish per layer.

Keywords: acoustic, homogen layer, thermocline layer, deep layer, density, distribution.