

# Spatial and temporal distribution of anchovy density in Inner Ambon Bay on dry season (December-February)

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**Abstract.** Inner Ambon Bay is a small pelagic fish fishing ground, especially anchovy. Anchovy plays important role in the skipjack fishery as live bait in Ambon city. Nevertheless, research for its resource management is rarely done. The aims of the research are to obtain information of density, vertical distribution and horizontal distribution of anchovy on Dry Season. Densities data of anchovy were collected using hydro-acoustic device at six parallel transect lines and one cross- parallel transect line. Geo-statistical analysis technique was used to describe horizontal distribution of anchovy meanwhile, to observe vertical distribution pattern, vertical anchovy data was plotted on the graph. Result shows that lower average density of anchovy was found in January while higher density was in February. On vertical distribution, anchovy was distributed from near surface to 35m depth layer, but higher densities were found at 25m depth layer in December and February respectively and in January at 30m of depth layer. On horizontal distribution, lower density of anchovy occupies a large space, in contrast, higher density was in small fish schools occupy a small space and are scattered in given parts of Inner Ambon Bay but at differ locations between months.

## 1. Introduction

Ambon bay is divided in two parts of area; Outer Ambon Bay (OAB) and Inner Ambon Bay (IAB). Inner Ambon Bay is approximately 11.04 km<sup>2</sup>, semi closed and a narrow basin. According to the result of depth detection with echosounder in 2010, known that inner Ambon bay has 45m maximum depth. This waters is a small pelagic fishing ground especially for anchovy (*Stolephorus* spp.) in Ambon island. Anchovy resources in Inner Ambon Bay waters comprises *Stolephorus heterolobus*, *S. indicus*, dan *S. buccannieri* [1]. These anchovy resources are best live bait used for skipjack pole and line fishery in Ambon island. Bait fish fishery in inner Ambon bay has been done years ago by fishermen who lived nearby the gulf coast to sustain the continuance of the skipjack pole and line fishery operational in Ambon city. Live bait fish fishery using beach seine with light is effective enough to catch fishes which are attracted to the light (positive phototaxis) to catch several species (not selective) of anchovy. Fluctuation in fish catch in live bait fish fishery in inner Ambon bay is consequence of 1) power change that supports biomass forming, 2) exploitation rate, and 3) fish in and out of the waters in outer Ambon bay. Since 2002 until 2007, either the production or fish catch per fishing gear unit/year experience decline and started to rise slightly in 2008 and 2009 [2]. Nevertheless, the importance of anchovy in inner Ambon bay is to support industry of skipjack pole and line fishery in Ambon city, meanwhile the research for management of the fish resources is rarely done. Information regarding density and its spatial and temporal distribution is not yet known in certainty.

Hydro-acoustic technique can be used in research of the pelagic fish density including anchovy. Application of this technique for pelagic fish have been done by [3, 4, 5, 6, 7, 8, 9, 10, 11]. Therefore, application of scientific hydro-acoustic technique in research of anchovy resource is important to solve the live bait problem in inner Ambon bay.

