ABSTRACT

Aliya Ikrimah Azzahra. 24020124410012. **Vertical Distribution of Epipelic Diatom Communities as an Indicator of Water Quality Conditions in Rangas Lake and Rungan River, Central Kalimantan**. Acintya Prasada Laboratory, Department of Biology, Faculty of Science and Mathematics, Diponegoro University, under the supervision of Tri Retnaningsih Soeprobowati and Lilih Khotimperwati.

Rangas Lake is an *oxbow lake* in the Rungan River system, Central Kalimantan, with unique characteristics influenced by hydrological connectivity and local environmental conditions. Rangas Lake faces indications of anthropogenic pressure due to gold mining activities. This study aims to analyze community structure, vertical distribution, environmental correlation, and interpret past water quality based on epipelic diatom communities in sediments, considering that similar studies have never been conducted in oxbow lakes. Location determination used a *justified random sampling* method at three stations in Rangas Lake and one station in the Rungan River as a comparison. Sediment samples were taken using a Russian corer. Data analysis included diatom identification, calculation of ecological indices (*Shannon-Wienner*, *Evenness*, and Simpson dominance), cluster analysis and Canonical Correspondence Analysis (CCA) using Past 4.13, and vertical distribution of diatoms using C2 software. The study found 53 species from 30 genera of epipelic diatoms. The *Shannon-Wiener index* values of Lake Rangas and the Rungan River ranged from moderate to high (0.40–2.33), with a low to high *Evenness index* (0.16–1). No extreme dominance was found, so the community structure was relatively stable. Although the water conditions of Lake Rangas are relatively acidic, several taxa such as *Aulacoseira* spp., *Eunotia* spp., *Pinnularia divergens*, and *Gomphonema* spp. were able to survive and were found abundantly.

Keywords: epipelic diatom, oxbow lake, Rangas Lake, community structure, paleolimnology