

ABSTRACT

Sofia Puspitarini. 24020123420018. *Paleoecological Approach Based on Diatoms for the Reconstruction of Environmental Changes in Lake Hanjalutung, Central Kalimantan.* Supervised by Tri Retnaningsih Soeprbowati and Lilih Khotimperwati.

Lake Hanjalutung is an oxbow lake located in Palangka Raya, Central Kalimantan, and plays an important role in supporting biodiversity and the social life of local communities. However, various threats around the lake have led to sedimentation, ecosystem disturbance, and water pollution. Diatoms, which are sensitive to environmental changes and well preserved in sediments, can be used as biological indicators in paleoecological studies. This research aims to assess environmental changes and evaluate the water quality of Lake Hanjalutung based on diatom reconstruction and diversity, in support of Sustainable Development Goal (SDG) 6. Sampling locations were determined using a purposive sampling method. Diatom sediment samples were collected using a Russian corer, sectioned at 1 cm intervals, digested with HCl and H₂O₂, mounted using Naphrax as a mounting medium, and identified under a microscope at 1000× magnification. Analyses of the Shannon–Wiener diversity index (H'), evenness index (E), dominance index (D), and Bray–Curtis similarity were conducted using PAST 4.10. Diatom stratigraphic analysis was performed using C2 1.7.7, while water quality assessment based on diatom indices was carried out using OMNIDIA 6.1. The results show that 11 genera were identified at Site 1 and 15 genera at Site 2. Diversity index values ranged from 0.65 to 2.81 at Site 1 and from 0.58 to 2.63 at Site 2, indicating variations in diatom community structure. Dominance index values reached 1 at a depth of 60 cm at Site 1 and 120 cm at Site 2, indicating species dominance associated with changes in environmental conditions. Bray–Curtis cluster analysis divided the sediment at Site 1 into four zones and at Site 2 into three zones. The Generic Diatom Index (GDI) indicates oligotrophic conditions at Site 1 and mesotrophic to oligotrophic conditions at Site 2, which paleoecologically reflect the overall stability of the Lake Hanjalutung ecosystem.

Keywords: Diatoms, Lake Hanjalutung, Oxbow Lake, Reconstruction, Paleoecology