

## ABSTRACT

Telaga Balekambang is one of the lakes in the Dieng Plateau affected by the phenomenon of narrowing water bodies. Conservation efforts in the form of land management design need to be carried out to maintain the existence of the ecosystem in it. This research examines the environmental changes that occur in Telaga Balekambang using diatom bioindications in sediment stratigraphy. Diatoms are microalgae (Bacillariophyta) used in environmental change reconstruction research because they have inorganic silica frustules that can form fossils so they can be preserved in sediment layers. Sediment samples of 250 cm thickness were collected using a Dissection corer. Each 10 cm sample was digested with 10% H<sub>2</sub>O<sub>2</sub> and HCl, prepared with Naphrax adhesive, and examined under a binocular microscope at 1000x magnification. Eighty-six species of diatoms from 31 genera were found in Balekambang Lake. Diatom diversity and evenness index values were relatively moderate to high, indicating good ecosystem stability, but there was a dominance of *Staurosira pinnata* at the depth of 230 cm, indicating the status of eutrophic waters with an alkaline atmosphere. Satellite image observations of Telaga Balekambang showed a trend of shrinking waters from ±5,321 m<sup>2</sup> in 2019 to ±2,100 m<sup>2</sup> in 2022. The clustering results show 4 zones: Zone 1 (250-230 cm) with eutrophic indication by *S. pinnata*; Zone 2 (220-170 cm) with mesotrophic and eutrophic indication by *Nitzschia palea*, *Navicula cryptocephala*, and *Cyclotella menighiniana*; Zone 3 (160-120 cm); with eutrophic indication by *Staurosira construens*; Zone 4 (110-0 cm) with hypereutrophic water indication by the increase of *Nitzschia palea*, *Navicula cryptocephala*, *Staurosira construens*, *Staurosira pinnata*, and *Cyclotella menighiniana*.

Keywords: *Balekambang Lake, Diatoms, Environmental Reconstruction.*