

## ABSTRACT

Riga Aurel Rizkiani. 24020120140175. **Community Structure and Vertical Saprobic Index of Phytoplankton in Balekambang Lake, Dieng, Central Java.** Under the guidance Tri Retnaningsih Soeprbowati and Rully Rahadian.

The phenomenon of water quality degradation in Telaga Balekambang, Dieng, Central Java, occurs annually, as evidenced by the shrinking lake area and eutrophication. Plankton are aquatic organisms that serve as indicators of water quality. This study aims to evaluate water quality based on phytoplankton community structure and the saprobic index. Sampling locations were determined using a purposive random sampling method at five stations with different characteristics: BK 1 (area near wild plants), BK 2 (area near water hyacinths), BK 3 (eastern water body), BK 4 (central lake area), and BK 5 (western water body near an agricultural inlet). Water samples were collected using a plankton net and Van Dorn water sampler in a vertical manner to assess each depth layer. Observations and analyses were conducted at the Acintya Prasada Advanced Integrated Laboratory, Diponegoro University. A total of 57 phytoplankton species were identified in Telaga Balekambang, with an abundance ranging from 208 to 1,056 ind/L. The diversity index ( $H'$ ) indicated a moderate species diversity, the evenness index  $\text{e}$  suggested an evenly distributed species composition, and the dominance index  $\text{D}$  showed no dominant species. Based on the saprobic index, water quality varied across stations. Light pollution was observed at BK 1 (surface) and BK 2 (1 cm–4 m), while moderate to severe pollution occurred at BK 3 and BK 4 (1–3 m). Severe pollution was found at BK 4 and BK 5 at depths of 4–6 meters.

**Keywords:** Telaga Balekambang, Phytoplankton, Water Quality, Saprobic Index.