

## ABSTARCT

Fajrin Ghina Athaya. 24020120140131. **Structure of the Plankton Community as a Bioindicator of Water Quality in Lake Maninjau, West Sumatra.** Under the supervision of Riche Hariyati and Tri Retnaningsih Soeprbowati.

Lake Maninjau in West Sumatra was one of the national priority lakes that experienced a decline in water quality due to fish farming activities using floating net cages, mass fish deaths, and anthropogenic activities. Monitoring of water quality was necessary, one method being the use of plankton. Plankton were sensitive organisms to environmental changes, thus serving as bioindicators. This study aimed to assess the plankton community structure and determine water quality in Lake Maninjau using the saprobic index. Sampling was conducted using the purposive sampling method at 11 research stations, and 6 liters of water samples were taken at each station using a 25-mesh plankton net. Sample observations were made using an Olympus microscope with the Lackey Drop Microtransect Counting method, while identification referenced plankton books and the Algaebase website. In Lake Maninjau, 45 plankton species were found, consisting of 82% phytoplankton and 18% zooplankton, with abundances ranging from 2,370 to 9,780 ind/L. The diversity index ( $H'$ ) indicated a moderate stability level of the community, the evenness index ( $e$ ) suggested a low to moderately even species distribution, and the dominance index ( $D$ ) showed no dominant species in the waters. Water quality parameters such as temperature, pH, and DO in Lake Maninjau were in normal condition. TN and TP indicated eutrophic conditions, marked by the presence of *Synedra* sp., *Oscillatoria nigro-viridis*, and *Chlamydomonas* sp., as evidenced by the saprobic index falling within the  $\beta$ -Mesosaprobic to  $\beta/\alpha$ -Mesosaprobic range, indicating mild to moderate water pollution.

**Keywords:** Maninjau Lake, Plankton, Community Structure, Saprobic Index, Water Quality.