ABSTRACT

Fakhrizain Nahla Nurfitrian. 24020120190040. **Plankton as Bioindicator of Water Quality in Lake Batur, Bali**. This research was supervised by Tri Retnaningsih Soeprobowati and Ni Kadek Dita Cahyani

Lake is one of the freshwater ecosystems on the earth's surface, and they are important for human life. The object of this research is Lake Batur, the largest lake in Bali and it is essential to use as a water supplier for the Bali area. However, its utilization was not accompanied by management efforts, which caused water quality degradation. To solve this problem, the local government released a regulation and ran several programs to overcome these problems, one of them by restoring the lake condition through monitoring the lake water quality and identifying aquatic biota. Plankton was chosen as bioindicator because it can quickly respond to changes in the environment and serve as an essential biomarker for measuring water quality and indicators of water pollution. This research aims to examine the plankton community structure, water quality condition, and nutrient contents in Lake Batur. The plankton collection was carried out in nine locations with three times repetition, then put it into a 150 ml bottles. Based on the research results, 62 phytoplankton and 17 zooplankton species were identified. The most common division was Chlorophyta and the most common species was *Chroococcus* sp., which indicate pollution by nutrients. The plankton community structure results from the diversity index (H'), evenness index (E), and dominance index (D) showed that Lake Batur was under ecological pressure. As for water quality, the saprobic index results showed that Lake Batur had a β-Mesosaprobic to α/β-Mesosaprobic pollution status, caused organic and inorganic compounds pollutants. Lastly, for nutrient content in the waters, the results of the Specific Pollution Sensitivity Index (IPS) showed that it was in mesotrophic and eutrophic status, which means there is a lot of nutrient content in the waters.

Keywords: Lake Batur, water quality degradation, plankton community structure, water quality, and nutrient content