ABSTRACT

Muhammad Choirul. 24020120120013. **Analysis of Mangrove Area and Vertical Distribution of Diatoms as Bioindicators of Changes in the Aquatic Environment in the Mangrove Tourism Track of Bedono Hamlet, Demak**. Laboratory of Ecology and Biosystematics, Department of Biology, Faculty of Science and Mathematics, Diponegoro University. Supervised by Tri Retnaningsih Soeprobowati and Jumari.

Bedono Hamlet mangrove tourism track is one of the community-assisted mangrove ecosystems that is utilized as a tourist spot as well as an abrasion embankment. Currently, the amount of mangrove area in this tourist track continues to decline. The decrease in mangrove area affects the structure of the community of living things, including diatoms. This study aims to analyze changes in the extent of the mangrove ecosystem in the Bedono Hamlet mangrove tourism track and its relationship with the vertical distribution of diatoms as bioindicators of changes in the aquatic environment. This research was conducted by making a map of changes in mangrove area on the Bedono Hamlet Mangrove Tourism Track and measuring mangrove land area using satellite image processing in Google Earth. Observation of vertical distribution begins with sediment collection, slicing, digestion, preparation, observation, and data analysis such as diversity index analysis, dominance, evenness, and stratigraphic analysis of diatoms. The results of research on changes in mangrove area in the Bedono Hamlet Mangrove Tourism Track showed that in 2003 the mangrove area was 2.24 ha, in 2013 it was 25.64 ha, in 2017 it was 31.55 ha, and in 2023 it was 24.49 ha. The results of diatom research showed that in the mangrove ecosystem of Bedono Hamlet found as many as 140 species of diatoms from 61 different genus. The diversity index (H') ranged from 0.76 - 3.62 which indicates that the diversity at the location is low to moderate with an indication from time to time has increased. The dominance index (D) ranged from 0.04 - 0.58 indicating a low to moderate level of dominance with indications over time getting smaller. The evenness index (E) ranged from 0.29 - 0.93 indicating the evenness of species found was low to high depending on the distribution of individuals at each depth. Stratigraphic analysis shows that the location of the Bedono Hamlet Mangrove Tourism Track is divided into 2 zones, namely zone 1 (195 cm - 115 cm) which illustrates that the location is still dominated by seawater diatom species as evidenced by the presence of Tryblionella granulata species. Then zone 2 (105 cm - 5 cm) shows an increase in the number of freshwater, brackish, and seawater diatom species which indicates that from time to time the influence of sea water on land is getting bigger.

Keywords: *diatoms, vertical distribution, mangrove ecosystem of Bedono Village, bioindicator*