

ABSTRACT

Radita Alya Wijaya. 24020121120025. **Vertical Distribution of Epipelagic Diatoms as Bioindicators of Water Quality in the Wisata Mangrove Kedatim Area, Sumenep Regency, Madura.** Laboratory of Ecology and Biosystematics, Department of Biology, Faculty of Science and Mathematics, Diponegoro University. Supervised by Tri Retnaningsih Soeprbowati and Jumari.

Wisata Mangrove Kedatim area is a mangrove ecosystem tourist area that is very popular with tourists, which can lead to a large amount of waste and land conversion for the construction of tourist facilities in the area. Anthropogenic activities have the potential to affect water conditions in the area. Epipelagic diatoms can be used as bioindicators to assess changes in water quality. A study of the community structure and vertical distribution of diatoms in the Wisata Mangrove Kedatim area, Madura, was conducted to analyze changes in the aquatic environment. The diatom research method was carried out in several stages, including sediment collection using a corer, cutting the sediment into 1 cm sections, digestion to clean the sediment, sample preparation using naphrax, and diatom species identification. Data analysis included abundance, diversity index, evenness, dominance using PAST software, and vertical distribution using C2 software. A total of 64 species belonging to 39 diatom genera were found. In the Wisata Mangrove Kedatim area, species diversity was high, diatom distribution was even, and there was no dominance in the waters. The ecosystem in the Wisata Mangrove Kedatim area is stable. Analysis of vertical distribution and clusters using Bray-Curtis revealed two zones with two subzones in each zone. Zone 1a (170–230 cm) shows mesotrophic conditions, while zone 1b (120–160 cm), zone 2a (70–110 cm), and zone 2b (surface–60 cm) describe meso-eutrophic conditions. This pattern shows a trend of trophic change from mesotrophic conditions in the past to meso-eutrophic conditions in shallower layers to the present due to anthropogenic activities, particularly aquaculture and tourism.

Keywords: *epipelagic diatom, bioindicator, Wisata Mangrove Kedatim, vertical distribution*