# ABSTRACT

Leonita Yuliana Sriyanto, 24020119140054. **Comparison of Macrobenthos Community Structure Based on Substrate Organic Composition and Substrate Grain Composition in Awur Bay and Karimunjawa, Jepara Regency, Central Java.** Under the supervision of Prof. Drs. Sapto P. Putro, M.Si, Ph.D and Dr. Jafron Wasiq Hidayat, M.Sc.

Macrobenthos are very responsive to changes in the water quality of their habitat that will affect their composition and abundance. The purpose of this study was to determine the correlation of macrobenthos community structure with organic content and composition of substrate grains and also abiotic factors in the waters of Awur Bay and Karimunjawa. The research was conducted in two stations of Awur Bay, namely MSTP's Pier and Panjang Island, and two stations of Karimunjawa, namely Monoculture and Polyculture Cultivation Zone. The results of macrobenthos sample identification obtained 2625 individuals from the classes of Gastropoda, Bivalvia, Polychaeta, Crustacea, Scaphopoda, Amphineura, Echinoidea, and Tubothalamea. Data processing was carried out using k-dominance curves, NMDS, Paired T Test, PCA, and BIO-ENV. The results of index calculations and k-dominance curves show that the Monoculture Zone station has the highest diversity and abundance. The results of the NMDS plot showed clustering of organism variation between locations. The results of the Paired T Test showed no significant mean difference ($t=1.614$, $P>0.05$; $df=2$) at the MSTP's Pier station and the Monoculture Zone station and there was a significant mean difference ($t=-4.412$, $P<0.05$, $df=2$) at the Long Island station and the Polyculture Zone station. The results of the PCA analysis showed that the MSTP's Pier station was influenced by clay sediment substrate, gravel, and salinity. While the Polyculture Zone station was influenced by coarse sand sediment substrate, and N-total. The results of the BIO-ENV analysis show that DO is the most influential abiotic factor because oxygen content is needed by macrobenthos as a regulator of metabolism.

*Keywords: Macrobenthos, substrate grain type, substrate organic matter, Awur Bay, Karimunjawa*