

## ABSTRACT

Fauziyyah, Itsna. 2012. **The Diversity of Macro-invertebrate as Bio-indicator of Irrigation Quality in Wonorejo Reservoir in the District of Pagerwojo Tulungagung Regency**. Thesis. Biology Department, Faculty of Science and Technology, Maulana Malik Ibrahim Islamic State University of Malang. Advisor I: Dr. Hj. Ulfah Utami, M, Si. Advisor II: Umaiatus Syarifah, M. A.

**Key words:** Diversity, Macro-invertebrate, Wonorejo Reservoir in the District of Pagerwojo Tulungagung Regency

Wonorejo reservoir is one of the reservoirs which can be found at the upper course of Brantas River in Kali Gondang. Various kinds of people activities around can be found here, such as: utilizing the location as a tourism profit oriented, utilizing water for people's daily need, farming activity, and even cultivating fish polluting the water. Therefore, it is essential to conduct a research about the diversity of macro-invertebrate as bio-indicator of the irrigation quality in Wonorejo reservoir. This research is aimed to know the diversity of macro-invertebrate contained as bio-indicator of irrigation quality and find out the irrigation quality based on the physical and chemical factors.

This research uses descriptive-quantitative method conducted in June upto August 2012 at Wonorejo Reservoir at the District of Pagerwojo Tulungagung Regency. The data samples are taken in five different observation stations in irrigational areas by using water dragnet and *Ekman dredge*. The data samples are identified in the Ecology and Optical Laboratory at biology department, Faculty of Science and Technology Maulana Malik Ibrahim Islamic State University of Malang.

The result of this research shows that macro-invertebrate in the irrigational areas of Wonorejo reservoir consists of 12 families: Gerridae 1, Gerridae 2, Gerridae 3, Mesoveliidae, Libellulidae, Coenagrionidae, Aeshnidae, Chironomidae, Viviparidae, Thiaridae, Palaemonidae and Potamonautidae. Based on the classification of water pollution level by using diversity index and the dominance of macro-invertebrate in Wonorejo Reservoir, the pollution can be considered as a not pollution with the diversity index value as follow: station I (2,13), station II (1,81), station III (1,99), station IV (2,20), and station V (2,12). The water irrigation standard quality of Wonorejo reservoir, according to PP. No. 82 tahun 2001, can be included with those in class 2 which are utilized as water resort, fresh water fish cultivation, animal husbandry, and for farming irrigation. The observation result of pH, DO, COD, NO<sub>3</sub>, and TDS, it shows that the five stations fulfill the water quality standard of class II, while the measurement of PO<sub>4</sub> and BOD shows that the five stations do not reach the qualification of class II water quality standard. However, it meets the requirement of water standard quality of class III and it shows that TSS in station I, IV, V reach the criteria of water standard quality of class II while in station II and III meet the requirement of water standard quality of class III.