

WATER QUALITY STATUS OF SELECTED UNDISTURBED HEADWATERS IN SARAWAK

Nur Bazilah, I.¹, Geoffery, J.G.², Mohd. Zalek, S.¹, Robin, S.¹ and Mohizah, M.¹

¹Forest Department Sarawak, Sarawak (MALAYSIA)

²Universiti Putra Malaysia Bintulu Sarawak Campus, Sarawak (MALAYSIA)

Email: nurbi@sarawak.gov.my

Abstract

Humans and other living things depend on water for life and health. The world's most sustainable and high-quality freshwater sources come from forested catchments, and forests have long been recognized as essential sources of clean drinking water. In addition, forested catchments provide a high proportion of the water for domestic, agricultural, and environmental needs in both upstream and downstream areas. However, the hydrological studies, particularly on aspects of water quality, are still in their infancy stage in the upper reaches of Sarawak's tropical forested catchments. Therefore, a water quality assessment of upper forested catchments is needed as it provides the knowledge and information in managing the forest for water conservation. Hence, this study compares and quantifies *in-situ* physico-chemical quality of surface water in three forested catchments in Sarawak; Long Banga, Bukit Kana and Kelingkang Range. Selected *in-situ* physico-chemical parameters such as pH, temperature, conductivity, dissolved oxygen, total dissolved solids, and ammoniacal nitrogen were taken based on a total of 81 samples based on 9 sampling stations for each catchment during three different scientific expeditions. The mean values of these parameters were compared and classified according to the National Water Quality Standards for Malaysia (NWQS). The data indicate that the measured parameters were still within permissible limits and characterized by good water quality with an average between class I and IIA, which is interpreted as unpolluted and preserved in its natural condition. Therefore, the upper forest area needs to be protected as it performs the function of a water catchment area that provides clean and undisturbed water that can be used by humans without costly treatment. In addition, good stream water quality is vital to a healthy river ecosystem as it offers the best conditions for aquatic life to thrive in the water and ensures the long-term sustainability of clean water resources. This preliminary result can update the baseline data of selected water quality parameters and could serve as a tool for assisting relevant government bodies in regulating the water resources policies in the future.

Keywords: Water quality, physico-chemical parameters, forested catchments