

**ABSTRACT**  
**ASSESSMENT OF THE FISH POPULATION**  
**IN PAMPANGA RIVER, CENTRAL LUZON, PHILIPPINES**  
**USING THE INDEX OF BIOTIC INTEGRITY**

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A crucial step towards the sustainable management of our water systems has been taken. Coupled with physico-chemical analysis, the Index of Biotic Integrity or IBI has been suggested to assess the status of the aquatic environment. This multimetric approach was applied in this study to assess the status of the Pampanga River, Central Luzon, Philippines. Fish samples were collected quarterly from four sampling sites from January to November, 2004. Metrics of the IBI used were modified to correspond to the ecomorphology and fish assemblage of the Pampanga River. The IBI scores were then related to the corresponding environmental parameters and physical habitat inventory taken from each site. The total catch amounted to 2,657 fish individuals belonging to 25 species and 14 families. Individual collections ranged from 35-290 individuals, averaging 12 species. Seasonal variability was not significant but spatial variability was significant. Fish population was dominated by exotic and tolerant species particularly in the downstream sites. The presence and/or absence of native families and tolerant species had high seasonal and spatial correlation with the IBI scores. Environmental parameters particularly depth and phosphate levels, caused an increase and decrease in the IBI scores. Spatial variation in depth and phosphate levels was high. Upstream site A had a mean IBI score of 50 while midstream site B had a mean score of 75. Sites C and D both scored 69. The relative IBI scores obtained from this study indicate that the status of the Pampanga River is from fair to excellent, as may be further evidenced by the presence of native and intolerant species *Butis butis*, *Butis gymnopus*, *Glossogobius celebius*, *Valamugil engeli*, and *Scatophagus argus*. This research shows that the IBI is sufficiently flexible for its application to the tropical streams and rivers of the Philippines. It is concordant to the assessment of the environmental parameters conducted during the sampling period. IBI presents a promising approach for the pursuit of a highly reliable evaluation and monitoring of Philippine aquatic systems. It serves as a springboard for future studies applying IBI on the country's water resources in varying conditions. A more thorough and comprehensive analysis of this index and its applicability on Philippine streams and rivers in various ecoregions is recommended.