

International Conference on

## NATURAL HAZARDS AND DISASTER MANAGEMENT

June 01-03, 2017 Osaka, Japan

**Fluctuating asymmetry in morphometric and meristic traits of white goby (*Glossogobius giuris* Hamilton, 1822) as indicator of stress in the east bay of Laguna lake, Philippines**Lorenz J Fajardo<sup>1</sup> and Ma Vivian C Camacho<sup>2</sup><sup>1</sup>Central Luzon State University, Philippines<sup>2</sup>University of the Philippines Los Baños, Philippines

Laguna lake, the largest freshwater lake in the Philippines, has been threatened by fertilizer and pesticides runoff from agricultural land uses in the eastern bay. *Glossogobius giuris* is one of the native and commercially important fishes in the lake and is reported to be of declining population. The sensitivity of fish to the health of surrounding aquatic environments offers the possibility to obtain an ecological overview of the current status of aquatic ecosystems. Fluctuating asymmetry (FA), the small, random differences between the left and right sides of bilaterally symmetrical organism, is a simple, less invasive and cost-effective tool in monitoring environmental stress. This study determined FA in 17 morphometric and meristic traits of *G. giuris* populations from two agricultural sites (wild) and rearing tank (reference). It was found that more traits of wild populations exhibited FA. Detected FA on caudal peduncle depth and opercular length in the reference population could be attributed to the lack of ecological requirements in the captive condition. The FA level of caudal peduncle depth was significantly higher in the wild while of pectoral fin ray was not significantly different ( $P > 0.05$ ) among populations. Composite fluctuating asymmetry (CFA) analysis revealed highly significant difference ( $P < 0.01$ ) among populations although mean values showed higher CFA level in wild. Higher FA levels could indicate the more disturbed developmental homeostasis or decreased developmental stability in the face of stressors and to perceive changes in the surrounding environment. Findings may indicate the contributory effects of environmental conditions associated with anthropogenic pressure particularly on pesticide application on the developmental stability of gobies in the lake. Future researches should consider investigating the effect of different stressors on *G. giuris* populations from the other bays and tributaries of Laguna lake to have an overall assessment on the status of this fishery resource.

**Biography**

Lorenz J Fajardo is an Assistant Professor at the College of Fisheries, Central Luzon State University (CLSU), Philippines and a registered Fisheries Technologist. She took BS in Fisheries in CLSU through the Bureau of Fisheries and Aquatic Resources scholarship and graduated in 2002 as *cum laude*. She pursued MS in Aquaculture at Ghent University, Belgium under the Flemish Interuniversity Council Development Cooperation (VLIR-UOS) and received the degree with distinction in 2009. Her opportunity to pursue Doctor of Philosophy in Environmental Science at the School of Environmental Science and Management, University of the Philippines Los Baños was made possible through the Accelerated Science and Technology Human Resource Development Program of the Department of Science and Technology, Science Education Institute. She just finished her PhD last January 2017. Her research interests include aquatic ecology and biodiversity, limnology, biomarkers and bioindicators in aquatic ecosystems, microalgal culture and biotechnology, and environmental security and management.

renz4881@gmail.com

**Notes:**