

# **A typology of Philippine fringing reefs based on coral community structure: spatial patterns and forcing factors**

Giannina Nicole R. Feliciano  
MS Environmental Science  
Institute of Environmental Science and Meteorology  
University of the Philippines – Diliman  
Quezon City, Philippines

## **ABSTRACT**

Philippine coral reefs are among the most diverse and rich in the world. However, recent assessments have revealed these reefs to be in a state of decline. While studies on Philippine reefs have focused on hard coral cover and diversity, coral community structure and dynamics remain essential yet under-examined aspects in Philippine reef ecology. The proposed study seeks to develop a typology of coral community types in Philippine fringing reefs using various techniques of exploratory data analyses. Data from the recent national assessment of Philippine reefs and associated reef monitoring projects shall be used to develop the typology. The proposed study also seeks to refine the typology by identifying community types that are successional stages of others through the incorporation of data from monitored reefs. This shall be done through successional vector analysis of long-term reef monitoring data. Variations in coral community composition between protected and non-protected reefs shall also be elucidated using multivariate statistics to determine the representativeness of community types in nationally protected reefs and identify protected reefs in possible stages of succession. Lastly, the proposed study aims to examine the correlation between selected forcing factors and the emergence of different coral community types using gradient analyses. Findings from the study shall provide insights into the major structuring forces that shape coral community structure in the center of global reef diversity. In addition, findings from the study shall serve as bases for an examination of the status and adequacy of existing protected reefs in the Philippines in terms of representativeness of coral community types.

Keywords: coral community structure, coral reef typology, spatial patterns, marine protected areas, Philippine reefs