ABSTRACT

THE CONTRIBUTION OF FORAMINIFERA (*FAMILY CALCARINIDAE*) TO CARBONATE BEACHES AND THEIR DISTRIBUTION ON THE CORAL REEF FLATS FRINGING THE COAST OF MATABUNGKAY, BATANGAS

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The Philippines has many carbonate beaches which are typically associated with coral reefs. These beach systems not only provide critical habitats to endangered animals but also play a major role in tourism, recreation, and human settlements. Many of these beaches have abundant foraminifera sand but are also facing the problem of erosion or the landward retreat of the shoreline due to land loss. Erosion results mainly from a deficit in sediment supply, and therefore, sources of sediments and the modes of transport must be investigated to determine their vulnerability to impacts of sea level rise and increase in storminess. Surface sediments were collected from the carbonate beach southwest of Talim Point in Matabungkay, Batangas. These were analyzed for benthic foraminiferal thanatocoenoses. The reef flat was surveyed and sampled for substrate and vegetation (seagrass and macroalgae) to identify the preferred habitats of the dominant foraminifera. Bathymetric survey was conducted in Matabungkay to determine the reef profile. Shorelines were traced from maps, satellite images and actual field survey to document the changes in shoreline position. Foraminiferal tests comprised 43% of Matabungkay. Of these foraminifers, the stellate *Calcarina and Neorotalia* (Family Calcarinidae) were the most abundant making up more than 50% of the foraminiferal component. These were found living in close association with the densely branched macroalgae which form bushy clumps and turfs near the reef edge. Reef morphology and zonation associated to this foraminifera-dominated beach was a rimmed reef with a sharply defined high-energy margin where the macroalgae on hard substrate (dead corals) are found. The coral-reef associated coast in Matabungkay has been fairly stable for the past 30 years, which could imply that there has been sufficient production of sediments which are continually being supplied to the beach. This is further supported by the fresh appearance and preserved ornamentation of many Calcarinid tests which also indicate recent emplacement. Improperly placed and inappropriately designed anthropogenic coastal modifications may, however, be detrimental to the integrity of the beaches by disrupting the depositional process and instead exacerbate erosion.

Keywords: beach erosion, larger benthic foraminifera, carbonate beach, beach stability, coastal integrity, sand grains, *Calcarina*