

1-2. Genetic Research Initiatives for Sustainable Aquaculture Production in the Philippines

Maria Rowena R. ROMANA-EGUIA^{1,2}, Ma. Carmen Ablan LAGMAN², Zubaida U. BASIAO³
and Minoru IKEDA⁴

¹Aquaculture Department, Southeast Asian Fisheries Development Center, Binangonan, 1940 Rizal, Philippines

²Biology Department, College of Science, De La Salle University, Taft Ave., Manila, Philippines

³Institute of Biology, University of the Philippines, Diliman, Quezon City, Philippines

⁴Laboratory of Integrative Aquatic Biology, Onagawa Field Center, Graduate School of Agricultural Science, Tohoku University, Onagawa, Oshika, Miyagi, Japan

The Philippines is one of several countries in Southeast Asia that has, for several decades, made steady contributions to world aquaculture production both from inland and marine waters. In recent years, fish production has been on the decline mainly because of the lack of quality seedstock, limited stocks of captive breeders or spawners of major aquaculture commodities, adverse effects of climate change and other environmental factors on fish breeding and rearing, fish diseases caused by pathogenic organisms and prohibitive cost of aquaculture inputs such as feeds, etc. Genetic researches have been conducted mostly through local grants with the aim of addressing the aforementioned constraints. Such initiatives focused on developing and applying methods in (a) selective breeding; (b) marker-assisted genetic strain assessment for broodstock development and for monitoring inbreeding in farmed stocks and (c) genomics to understand and enhance on-farm stock performance through the identification of genes that are responsible for nutrition, stress and immune responses, among others. This paper highlights examples of local genetics applications in tilapia, mangrove crab, shrimp, milkfish and abalone aquaculture. The significance of implementing genetic interventions to boost and sustain aquaculture production in the Philippines is likewise discussed.



Maria Rowena R. ROMANA-EGUIA

(E-mail: mreguia@seafdec.org.ph, maria.rowena.eguia@dlsu.edu.ph)

Scientist and Associate Professor. Population genetics as applied to the breeding and farming of tropical aquaculture species such as tilapia, freshwater prawn, milkfish, abalone and mangrove crab has been among her major research interests apart from addressing concerns related to aquatic biodiversity. Her current research involves DNA marker-based identification of Philippine eel species for purposes of conservation, management and sustainable utilization.