

ABSTRACT

Marine mammals such as Fraser's dolphin (*Lagenodelphis hosei* Fraser, 1956) play an important role in the marine ecosystem. They, however, face increasing threats and impacts from human activities. These include direct and indirect fishing, pollution, habitat loss, and climate change. Population genetics analysis can provide effective and accurate information important to the conservation and management of marine mammals. Additionally, samples for population genetics are available in museums and biobanks that includes marine mammals for long-term storage. Population genetic studies on marine mammals in the Philippines is very limited. In the case of Fraser's dolphin, in a study that examined the genetic diversity and population structure of the global population with samples obtained in the 1990s was included from the Philippines. The Philippine Marine Mammal Stranding Network (PMMSN) has been collecting tissue samples from the carcasses of select stranded marine mammals nationwide, including those of Fraser's dolphins, and has archived them in the UP Institute of Environmental Science and Meteorology Institute. Stored specimens from stranding events can provide an opportunity for genetic analysis, provided that good quality DNA could be obtained. This study aims to develop a protocol for extracting DNA from samples stored in formalin and characterize the genetic diversity of Fraser's dolphin population in the Philippines. Eighteen (18) tissue samples were used from the PMMSN biobank. DNA was extracted and amplified using the custom-designed mitochondrial DNA (mtDNA) control region primers and seven microsatellite loci. Furthermore, sequences from other populations globally were obtained from GenBank for comparison with the Philippine population. Among the DNA extraction methods tested, CTAB V7 was the most suitable based on yield, purity, and amplification rate. Low genetic diversity of Fraser's dolphins in the Philippines was observed based on mtDNA and microsatellite analysis. This is in contrast to what has been described in the global context. Although the current sample size is small (n=18), this is still a cause for concern. The results are consistent with the hypothesis that recent anthropogenic activities may have greatly reduced the population. Hence, there is a need for the Philippines to perform management interventions to reduce anthropogenic activities, such as bycatch mitigation, creating alternatives livelihood for fishers, and spatial management for conservation.