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8. Molecular markers for understanding shrimp biology and populations

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Abstract. The study of population genetics, or genetics as a whole, has always been limited in terms of experimental design and strategy. A lot of early problems have been attributed to lack of available data for analysis. The discovery of next generation methodologies has revolutionized molecular data collection and thus, opening endless opportunities to study genetics in ways, like molecular markers, not thought of during the classical era. The early development of markers allowed studying a considerable sampling size that was thought to be very difficult to do before. The initial number of less than 10 loci that can be studied efficiently in allozymes, has rapidly increased into thousands in 10 years when Expressed Sequence tags, microarray and next generation sequencing technologies were developed. Much in the same way, genetic investigations in shrimp aquaculture has changed from molecular identification and evaluation of genetic structures to genomic analysis and genetic improvement. It is expected that molecular markers will continue to develop and support traditional data sources in the study of shrimp and other organisms.

General information on molecular markers and its use. With the recent progress in biotechnology, extensive molecular studies are gaining pace. Previously difficult questions in taxonomy, evolution, and phylogenetics

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