ABSTRACT

Hydrometeorological disasters in the form of flash floods that affected vannamei shrimp (*Litopenaeus vannamei*) farming areas in Kuta Glumpang, Samudera District, North Aceh Regency, caused the inflow of freshwater and sediment materials into the ponds, potentially affecting water quality. This study aimed to measure and analyze the physical, chemical, and biological parameters of pond water after the hydrometeorological disaster and to determine its suitability status based on water quality standards for vannamei shrimp farming. The study used a field survey method with a quantitative descriptive approach at seven stations, consisting of six shrimp ponds and one water source. The parameters analyzed included temperature, salinity, pH, turbidity, dissolved oxygen (DO), biochemical oxygen demand (BOD), ammonia, total suspended solids (TSS), and phosphate. Water samples were collected in the morning from 08:00 to 10:00 WIB, and analyses were conducted both in situ and at the BSPJI Banda Aceh Laboratory. The results showed that each pond had at least one parameter that did not meet the applicable water quality standards. Pond 1 did not meet the standards for pH, turbidity, and phosphate; Pond 2 for pH, turbidity, and phosphate; Pond 3 for phosphate; Pond 4 for temperature, turbidity, BOD, and phosphate; Pond 5 for turbidity and phosphate; while Pond 6 for temperature, pH, turbidity, TSS, and phosphate. The DO, ammonia, and salinity parameters generally met the applicable standards at all stations, whereas phosphate was the only parameter that did not meet the standard at all seven stations. Therefore, all ponds had at least one parameter that did not meet the water quality standards, with phosphate loading being the most dominant issue, indicating the need for regular water quality monitoring and management, particularly to reduce phosphate loading, before the ponds are reused for vannamei shrimp farming.

Keywords: vannamei shrimp ponds, hydrometeorological disaster, Kuta Glumpang, water quality standards, water quality.