Abstrak

Penelitian ini bertujuan untuk mengetahui konsentrasi amonium, nitrat, fosfat, dan plankton pada periode 38-66 hari pemeliharaan udang vaname (*Litopenaeus vannamei*) pada tambak intensif di Pesisir Depok, Kabupaten Bantul. Penelitian dilaksanakan pada bulan Oktober sampai November 2018. Penelitian dilakukan dengan metode pengamatan secara langsung terhadap 3 petak tambak. Petak tambak yang digunakan penelitian menggunakan plastik *High Density Poly Ethylene* (HDPE) dengan volume 50 x 50 x 3 m^3 dan kedalaman air 1,5 m. Benih udang yang ditebar *post larva* (PL) 10-12, dengan kepadatan 120 ekor/petak. Lama pemeliharaan udang 78-82 hari, dengan nisbah konversi pakan 1,1. Pengamatan air tambak dilakukan setiap 7 hari selama 30 hari, pada periode pemeliharaan udang 38-66 hari. Sampel air diambil pada 3 titik yaitu dekat saluran pemasukan (*inlet*) air, area tengah dekat jembatan *anco*, dan dekat saluran keluar (*outlet*) air; masing-masing pada 2 kedalaman yaitu permukaan dan dasar tambak. Data hasil pengamatan dianalisis secara deskriptif dan regresi linear berganda. Hasil penelitian menunjukkan nilai kisaran (rata-rata) amonium 0,482 - 1,610 (0,821) mg/L; nitrat 0,08 - 1,298 (0,651) mg/L; dan fosfat 0,321 - 2,342 (1,085) mg/L. Plankton air tambak selama pengamatan bersifat fluktuatif dengan nilai kisaran (rata-rata) densitas fitoplankton 20.000 - 320.000 (121.667) sel/ml dan densitas zooplankton 0 - 22.500 (9.167) sel/ml; sedangkan diversitas fitoplankton 1,04 - 3,87 (2,78) dan diversitas zooplankton 0 - 2,95 (0,95). Hubungan konsentrasi amonium (X_1), nitrat (X_2), dan fosfat (X_3) dengan densitas (Y_1) dan diversitas (Y_2) fitoplankton menunjukkan persamaan berikut $Y_1 = 235060,9 - 24806,3\ X_1 - 64698,2\ X_2 - 49314,1\ X_3$ ($R^2 = 0,073$) dan $Y_2 = 3,9 - 0,426\ X_1 - 0,410\ X_2 - 0,552\ X_3$ ($R^2 = 0,332$).

Kata kunci : amonium, fosfat, nitrat, plankton, udang vaname

Abstract

This research aims to determine the concentration of ammonium, nitrate, phosphate, and plankton in the period of 38-66 days of Pacific White Shrimp (*Litopenaeus vannamei*) culture in intensive ponds at Depok Coastal, Bantul Regency. The research was conducted from October to November 2018. The research was conducted with a method of direct observation of 3 ponds. The ponds used High Density Poly Ethylene (HDPE) plastic with a volume of 50 x 50 x 3 m^3 and a water depth of 1,5 m. Shrimp seeds were stocked post larvae (PL) 10-12, with a density of 120 seeds/pond. The day of shrimp culture 78-82 days, with a feed conversion ratio of 1,1. Observation of ponds water were carried out every 7 days for 30 days, in the 38-66 days of shrimp culture. Water samples are taken at 3 points namely near the water inlet, the middle area near the Anco bridge, and near the water outlet; each at 2 depths, namely the surface and bottom of the pond. Data from the observations were analyzed descriptively and multiple linear regression. The results showed a range (average) value of ammonium 0,482 - 1,610 (0,821) mg/L; nitrate 0,08 - 1,298 (0,651) mg/L; and phosphate 0,321 - 2,342 (1,085) mg/L. The plankton of pond water during observation was fluctuating with a range (average) of phytoplankton density of 20.000 - 320.000 (121.667) cells/ml and zooplankton density of 0 - 22.500 (9.167) cells/ml; while phytoplankton diversity from 1,04 to 3,87 (2,78) and zooplankton diversity from 0 to 2,95 (0,95). The relationship of the concentration of ammonium (X_1), nitrate (X_2), and phosphate (X_3) with density (Y_1) and diversity (Y_2) of phytoplankton shows the following equation $Y_1 = 235060,9 - 24806,3\ X_1 - 64698,2\ X_2 - 49314,1\ X_3$ ($R^2 = 0,073$) and $Y_2 = 3,9 - 0,426\ X_1 - 0,410\ X_2 - 0,552\ X_3$ ($R^2 = 0,332$).

Keywords: ammonium, nitrate, pacific white shrimp, phosphate, plankton