

ABSTRAK

HUBUNGAN KONSENTRASI NITRAT, ORTHOFOSFAT, DAN SILIKA TERHADAP KELIMPAHAN DIATOM DI TAMBAK UDANG VANAME (*Litopenaeus vannamei*) WAY URANG, KALIANDA, LAMPUNG SELATAN

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Perairan laut Desa Way Urang, Kalianda, Lampung Selatan sebagian besar dimanfaatkan masyarakat untuk aktivitas pertambakan budi daya udang vaname. Adanya aktivitas tersebut memengaruhi kualitas fisika-kimia air dan komunitas fitoplankton di perairan. Fitoplankton adalah produser primer yang memanfaatkan energi matahari dan unsur hara menjadi bahan organik untuk makanan organisme perairan. Fitoplankton laut didominasi oleh Bacillariophyceae (diatom) dengan ciri khas adanya frustula pada dinding selnya berupa silika. Penelitian bertujuan untuk menganalisis keanekaragaman dan kelimpahan diatom, serta hubungan konsentrasi nitrat, orthofosfat, dan silika terhadap kelimpahan diatom. Penelitian dilaksanakan pada bulan Januari tahun 2023, bertempat di perairan tambak udang Vaname Desa Way Urang. Metode yang digunakan adalah metode kuantitatif dengan jenis penelitian deskriptif. Parameter fisika-kimia yang diukur yaitu suhu, kecerahan, kedalaman, kecepatan arus, oksigen terlarut, salinitas, nitrat, orthofosfat, dan silika. Hasil perhitungan konsentrasi nitrat berkisar 0,355-6,700 mg/l, orthofosfat 0,457-1,245 mg/l, dan silika 0,002-0,013 mg/l. Indeks keanekaragaman berkisar 0,686-2,375 termasuk dalam kriteria keanekaragaman sedang. Kelimpahan diatom berkisar 530-10.083 sel/L termasuk kriteria mesotrofik (kesuburan perairan sedang). Analisis hasil uji regresi, nilai korelasi nitrat dan orthofosfat terhadap kelimpahan diatom menunjukkan hubungan yang positif dan berhubungan negatif terhadap silika.

Kata kunci: *Diatom, Fitoplankton, Nitrat, Orthofosfat, Silika.*

ABSTRACT

THE RELATIONSHIP NITRATE, ORTHOPHOSPHATE, AND SILICA CONCENTRATIONS ON DIATOM ABUNDANCE IN VANAME SHRIMP (*Litopenaeus vannamei*) PONDS WAY URANG, KALIANDA, SOUTH LAMPUNG

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The sea waters of Way Urang Village, Kalianda, South Lampung are mostly used by the community for vaname shrimp farming activities. These activities affect the physico chemical quality of the water and the phytoplankton community in the waters. Phytoplankton are primary producers that utilize solar energy and nutrients into organic matter as food for aquatic organisms. Marine phytoplankton are dominated by Bacillariophyceae (diatoms) with the characteristic of having frustules on their cell walls in the form of silica. The purpose of this research was to analyze diversity and abundance of diatoms, as well as the relationship between nitrate, orthophosphate, and silica concentrations and abundance of diatom. The research was held on January 2023, in the waters of the Vaname shrimp ponds Way Urang Village. The method used is a quantitative with a descriptive research type. The physicochemical parameters measured were temperature, brightness, depth, current speed, dissolved oxygen, salinity, nitrate, orthophosphate, and silica. The calculation results of nitrate concentration ranged from 0.355-6.700 mg/l, orthophosphate 0.457-1, 245 mg/l, and silica 0.002-0.013 mg/l. The diversity index ranged from 0.686-2.375, including the moderate diversity criteria. The abundance of diatoms ranged from 530-10,083 cells/ L, including the mesotrophic criteria (moderate water fertility). Analysis of regression test results, the correlation value of nitrate and orthophosphate to abundance of diatoms showed a positive relationship and a negative relationship to silica.

Keywords: *Diatom, Phytoplankton, Nitrate, Orthophosphate, Silica.*