ABSTRACT

ANALYSIS OF THE TROPIC STATE IN WATER OF PASARAN ISLAND BASED ON THE CONCENTRATION OF CHLOROPHYLL-a, NITRATE AND ORTHOPHOSPHATE

By

M. Rifki Nur Huda

Pasaran Island is the closest island which is ± 5 km from Bandar Lampung. The high activity in that island can be a source of nutrients in the water such as nitrate and phosphate. The concentration of nitrate and phosphate will affect the concentration of chlorophyll-a and the tropic state in waters. When the tropic state in waters belongs to the eutrophic category, it can be potentially occurrence of *blooming algae* that can be harmful for marine life and also for human. The main objective of this research was to determine the tropic state of Pasaran Island water by chlorophyll-a, nitrate, and orthophosphate. The research was conducted from May to July 2017. Sampling was done by using purposive sampling method and do once in a month. The water samples were analyzed at the Center Development of Marine Aquaculture (BBPBL) Lampung. Data analyze were using Principal Component Analysis (PCA) by software *Past13* and *Surfer14*. These results indicate that waters around the Pasaran Island are classified as eutrophic category. In this study, the amount of nitrates and phosphates into the water was positively correlated with the concentration of chlorophyll-a and tropic state in waters of Pasaran Island.

Keywords: *The tropic state in waters, chlorophyll-a, PCA, eutrophic, blooming algae*

ABSTRAK

ANALISIS KESUBURAN PERAIRAN PULAU PASARAN BERDASARKAN KONSENTRASI KLOROFIL-a, NITRAT DAN ORTOFOSFAT

Oleh

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Pulau Pasaran merupakan pulau terdekat yang berjarak ± 5 km dari pusat kota Bandar Lampung. Tingginya aktivitas masyarakat di Pulau Pasaran dapat menjadi sumber nutrien ke perairan antara lain nitrat dan fosfat. Konsentrasi nitrat dan fosfat akan berpengaruh terhadap konsentrasi klorofil-a dan tingkat kesuburan perairan. Ketika tingkat kesuburan perairan termasuk kategori eutrofik maka dapat berpotensi terjainya ledakan populasi alga (*blooming* alga) yang dapat berbahaya bagi biota laut bahkan manusia. Penelitian analisis kesuburan perairan Pulau Pasaran bertujuan untuk mengkaji kesuburan perairan Pulau Pasaran berdasarkan klorofil-a, nitrat dan ortofosfat. Penelitian ini dilakukan di Pulau Pasaran pada bulan Mei-Juli 2017. Pengambilan sampel dilakukan dengan menggunakan metode *purposive sampling* dan dilakukan pada setiap bulan. Sampel air dianalisis di Balai Besar Pengembangan Budidaya Laut (BBPBL) Lampung. Data yang diperoleh dianalisis menggunakan metode *Principal Component Analysis* (PCA) dan distribusi sebaran horizontal klorofil-a, nitrat, ortofosfat. Hasil penelitian ini menunjukkan bahwa perairan di sekitar Pulau Pasaran tergolong dalam kategori eutrofik. Dalam hal ini, besarnya nitrat dan fosfat yang masuk ke perairan berkorelasi positif dengan konsentrasi klorofil-a dan kesuburan perairan Pulau Pasaran.

Kata kunci: *Kesuburan perairan, klorofil-a, metode PCA, eutrofik, blooming alga*