

ABSTRAK

Laguna Segara Anakan Timur merupakan kawasan estuari yang mengalami tekanan dari aktivitas antropogenik. Kualitas air di kawasan ini dipengaruhi oleh parameter fisika kimia yang dapat memengaruhi ketersediaan nutrisi utama, yaitu nitrat (NO_3^-) dan fosfat (PO_4^{3-}), yang berperan penting dalam produktivitas primer perairan. Penelitian ini bertujuan untuk menganalisis karakteristik parameter fisika dan kimia air serta hubungannya dengan konsentrasi nitrat (NO_3^-) dan fosfat (PO_4^{3-}). Pengambilan data pada tujuh stasiun pengamatan menggunakan metode *purposive sampling*. Parameter yang diukur meliputi suhu, TDS, pH, salinitas, nitrat, dan fosfat, dengan analisis data secara deskriptif kuantitatif dan uji korelasi Pearson. Hasil pengukuran menunjukkan kisaran suhu 30–42°C, TDS 7925–9999 mg/L, pH 6,96–7,44, salinitas 6–11 ppt, nitrat 0,0039–0,0049 mg/L, dan fosfat 0,126–0,345 mg/L. Uji korelasi *Pearson* menunjukkan bahwa suhu berkorelasi negatif terhadap nitrat (–0,480; selang kepercayaan 72,5%) dan fosfat (–0,643; 88,1%) yang mengindikasikan bahwa kenaikan suhu mempercepat proses denitrifikasi sehingga nitrat berkurang, serta meningkatkan presipitasi fosfat yang menurunkan konsentrasi fosfat terlarut. pH berkorelasi positif terhadap nitrat (0,350; 55,8%) dan negatif terhadap fosfat (–0,512; 76%). TDS dan salinitas memiliki korelasi sangat lemah terhadap kedua nutrisi (selang kepercayaan < 20%). Diharapkan dapat memberikan dasar pengelolaan Kawasan adanya untuk menetapkan kebijakan pengendalian aktivitas antropogenik dan pemantauan secara periodik pada kualitas air Segara Anakan Timur.

Kata kunci: kualitas air, parameter fisika kimia, nitrat, fosfat, Segara Anakan Timur

ABSTRACT

Laguna Segara Anakan Timur is an estuarine area that is under pressure from anthropogenic activities. Water quality in this area is influenced by physical and chemical parameters that can affect the availability of key nutrients, namely nitrate (NO_3^-) and phosphate (PO_4^{3-}), which play an important role in the primary productivity of the water. This study aims to analyze the characteristics of physical and chemical water parameters and their relationship with nitrate (NO_3^-) and phosphate (PO_4^{3-}) concentrations. Data collection at seven monitoring stations was conducted using purposive sampling. The measured parameters included temperature, TDS, pH, salinity, nitrate, and phosphate, with data analysis conducted using descriptive quantitative methods and Pearson correlation tests. Measurement results showed temperature ranges of 30–42°C, TDS 7,925–9,999 mg/L, pH 6.96–7.44, salinity 6–11 ppt, nitrate 0.0039–0.0049 mg/L, and phosphate 0.126–0.345 mg/L. The Pearson correlation test showed that temperature has a negative correlation with nitrate (–0.480; confidence interval 72.5%) and phosphate (–0.643; 88.1%), indicating that an increase in temperature accelerates the denitrification process, thereby reducing nitrate levels, and increases phosphate precipitation, which lowers dissolved phosphate concentrations. pH is positively correlated with nitrate (0.350; 55.8%) and negatively correlated with phosphate (–0.512; 76%). TDS and salinity have very weak correlations with both nutrients (confidence interval < 20%). It is hoped that this study can provide a basis for managing the area to establish policies for controlling anthropogenic activities and conducting periodic monitoring of water quality in the East Segara Anakan.

Keywords: *water quality, physical chemical parameters, nitrate, phosphate, Segara Anakan Timur*