ABSTRAK

Kawasan Edukasi Mangrove Demang Gedi di Purworejo merupakan ekosistem yang subur dan berpotensi menghasilkan nutrien melimpah bagi biota perairan. Topografi dan aktivitas manusia seperti tambak, pertanian, serta pemukiman menjadi sumber utama masuknya nitrat (NO_3^-) dan fosfat (PO_4^{3-}). Nutrien ini dimanfaatkan oleh fitoplankton sebagai produsen primer, sehingga meningkatkan produktivitas perairan dan mempengaruhi kelimpahan biota seperti moluska. Penelitian ini bertujuan mengetahui konsentrasi nitrat dan fosfat, kelimpahan moluska, serta hubungan keduanya. Metode yang digunakan adalah survei lapangan dengan pendekatan kuantitatif dan analisis statistik ekologi. Analisis sampel fosfat mengacu pada SNI 6989.31:2021 dan nitrat menggunakan metode IK-DR900.1/LABLI-KBM. Hasil penelitian menunjukkan konsentrasi nitrat 0,71–2,56 mg/L dan fosfat 0,16–0,77 mg/L, dengan kelimpahan moluska 32–112 ind/m². Korelasi antara moluska dan nitrat sebesar r = -0,229 dan dengan fosfat r = -0,139, menunjukkan hubungan negatif lemah, serta adanya faktor lain yang turut mempengaruhi kelimpahan moluska seperti salinitas, DO, dan suhu.

Kata kunci: *Demang Gedi Purworejo, Fosfat, Mangrove, Moluska, Nitrat.*

ABSTRACT

Mangrove Education Area of Demang Gedi in Purworejo is recognized as a fertile ecosystem with the potential to generate abundant nutrients for aquatic biota. The topography and human activities such as aquaculture, agriculture, and settlement are identified as the main sources of nitrate (NO_3^-) and phosphate (PO_4^{3-}) inputs. These nutrients are utilized by phytoplankton as primary producers, thereby increasing water productivity and influencing the abundance of biota such as mollusks. This study was conducted to determine the concentrations of nitrate and phosphate, the abundance of mollusks, and their relationship. A field survey method with a quantitative approach and ecological statistical analysis was applied. Phosphate analysis was carried out based on SNI 6989.31:2021, while nitrate was analyzed using the IK-DR900.1/LABLI-KBM method. The results showed that nitrate concentrations ranged from 0.71 to 2.56 mg/L and phosphate from 0.16 to 0.77 mg/L, with mollusk abundance ranging from 32 to 112 ind/m². The correlation between mollusks and nitrate was obtained at r = -0.229 and with phosphate at r = -0.139, indicating a weak negative relationship. Other factors such as salinity, DO, and temperature were also considered to influence mollusk abundance.

Keywords: *Demang Gedi Purworejo, Phosphate, Mangrove, Mollusks, Nitrate.*