ABSTRAK

KAJIAN KONSENTRASI DAN SEBARAN N-ANORGANIK (AMONIA, NITRIT, DAN NITRAT) TERLARUT DI PERAIRAN KALIANDA DAN ANYER-PANIMBANG

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Nitrogen anorganik terdiri dari beberapa bentuk, seperti amonia, nitrit, dan nitrat. Amonia, nitrit, dan nitrat memiliki toksisitas yang berbeda di perairan sehingga ketiga senyawa tersebut perlu dipantau dengan mempelajari persebaran konsentrasinya. Persebaran konsentrasi amonia, nitrit, dan nitrat di perairan teluk dan perairan selat memiliki nilai yang berbeda. Penelitian bertujuan untuk menganalisis sebaran horizontal dan tingkat kesesuaian amonia, nitrit, dan nitrat dengan baku mutu, serta menganalisis hubungan antara konsentrasi amonia, nitrit, dan nitrat dengan parameter fisika dan kimia non nitrogen pada lokasi yang berdekatan dengan *hatchery* atau tambak, permukiman warga, dan muara sungai di perairan Kalianda dan perairan Anyer-Panimbang. Penelitian dilaksanakan di perairan Kalianda dan perairan Anyer-Panimbang pada bulan September dan Oktober 2022. Konsentrasi amonia, nitrit, dan nitrat dianalisis sebarannya dengan metode *principal component analysis* (PCA). Hasil penelitian menunjukkan bahwa (1) sebaran horizontal konsentrasi amonia didominasi oleh lokasi muara sungai di perairan Kalianda, sebaran horizontal konsentrasi nitrit didominasi oleh lokasi dekat *hatchery* atau tambak di perairan Kalianda dan perairan Anyer-Panimbang, dan sebaran horizontal konsentrasi nitrat didominasi oleh lokasi dekat permukiman warga di perairan Anyer-Panimbang; (2) hampir seluruh konsentrasi amonia dan nitrit di perairan Kalianda dan perairan Anyer-Panimbang di bawah baku mutu, kecuali konsentrasi nitrit di Pantai Sambolo pada perairan Anyer-Panimbang yang melebihi baku mutu, serta seluruh konsentrasi nitrat di perairan Kalianda dan perairan Anyer-Panimbang di atas baku mutu; dan (3) hubungan antara konsentrasi amonia, nitrit, dan nitrat berkorelasi positif dengan parameter suhu, namun berkorelasi negatif dengan parameter DO dan salinitas.

Kata kunci: amonia, nitrit, nitrat, sebaran horizontal

ABSTRACT

THE STUDY OF CONCENTRATION AND DISTRIBUTION OF DISSOLVED N-INORGANIC (AMMONIA, NITRITE, AND NITRATE) AT KALIANDA AND ANYER-PANIMBANG WATERS

By

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Inorganic nitrogen exists in several forms, such as ammonia, nitrite, and nitrate. Ammonia, nitrite, and nitrate have different toxicity in waters so these three compounds need to be monitored by knowing their concentration distributions. The concentration distributions of ammonia, nitrite, and nitrate in the bay and strait waters have different values. The study aimed to analyze the horizontal distribution and suitability of ammonia, nitrite, and nitrate with quality standard, and analyzed the correlation between the concentrations of ammonia, nitrite, and nitrate with non nitrogen physical and chemical parameters at locations adjacent to hatcheries or ponds, residential areas, and estuaries in Kalianda waters and Anyer-Panimbang waters. The study was carried out in Kalianda waters and Anyer-Panimbang waters in September and October 2022. The concentrations of ammonia, nitrite, and nitrate were analyzed for their distributions using the principal component analysis (PCA) method. The results showed that (1) the horizontal distribution of ammonia concentration was dominated by the location of estuary in Kalianda waters, the horizontal distribution of nitrite concentration was dominated by location near hatchery or pond in Kalianda waters and Anyer-Panimbang water, and the horizontal distribution of nitrate concentration was dominated by location near residential area in Anyer-Panimbang waters; (2) almost all concentrations of ammonia and nitrite in Kalianda waters and Anyer-Panimbang waters were below the quality standards, except for nitrite concentration at Sambolo Beach in Anyer-Panimbang waters which exceed the quality standard, and all nitrate concentrations in Kalianda waters and Anyer-Panimbang waters above the quality standard; and (3) the correlation between the concentrations of ammonia, nitrite, and nitrate is positively correlated with temperature parameter, but negatively correlated with DO and salinity parameters.

Keywords: ammonia, nitrite, nitrate, horizontal distributions