



The Condition of Acidity, Phosphate, and Nitrate in Indonesian Seas

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Received 19 August 2021; Accepted 14 September 2022; Available online 22 November 2022

ABSTRACT

This research aimed to observe the trend of acidity, nitrate, and phosphate in the Indonesia seas associated with oceanography. Analysis was done by looking at the horizontal condition from main data (acidity, nitrate, and phosphate) and ancillary data (temperature) seasonally in three-layer of depths (0 m, 50 m, and 100 m) for years 2015 using data model of INDESO. The result showed that pattern of acidity, nitrate, and phosphate vary every season. In the upper layer (up to 100 meters), acidity condition ranges from 7.5 to 8, nitrate around 0.01 – 15 mmol N m⁻³, and phosphate around 0.001 – 1.6 mmol P m⁻³. The value of acidity is getting lower with depth whereas the nitrate and phosphate values increased with depth. The change in acidity, nitrates and phosphate every season indicates that the monsoon also influences the spread of pH, nitrate and phosphate.

Keywords: ocean currents, Indonesia throughflow, sea surface temperature, climate change

ABSTRAK

Penelitian ini bertujuan untuk melihat tren keasaman, nitrat dan fosfat di perairan Indonesia selama tahun 2015 dan dikaitkan dengan fenomena oseanografi. Penelitian dilakukan dengan melihat kondisi horizontal dari data utama (keasaman, nitrat, dan fosfat) dan data tambahan (suhu) secara musiman pada tiga lapisan kedalaman (0 m, 50 m, dan 100 m) tahun 2015 menggunakan model data INDESO. Metode deskriptif dengan pendekatan analisis temporal dan spasial digunakan untuk metode analisis. Hasil penelitian menunjukkan pola keasaman, nitrat, dan fosfat yang bervariasi setiap musim. Perairan Indonesia lepas lapisan permukaan sampai kedalaman 100 m pada tahun 2015 memiliki kondisi keasaman sekitar 7,5 – 8, kondisi nitrat sekitar 0,01 – 15 mmol N m⁻³, dan kondisi fosfat sekitar 0,001 – 1,6 mmol P m⁻³. Nilai keasaman semakin rendah dengan kedalaman sedangkan nilai nitrat dan fosfat meningkat dengan kedalaman. Perubahan keasaman, nitrat dan fosfat setiap musim menunjukkan bahwa angin muson juga mempengaruhi penyebaran pH, nitrat dan fosfat.

Kata kunci: arus laut, arus lintas Indonesia, termperatur muka laut, perubahan iklim

1. Introduction

A typical of the waters will be more diverse along with the extent of the waters. As Indonesia seas located between two biggest oceans (Pacific Ocean and the Indian Ocean), resulting in characteristic differences between the waters of the region with the other. The water mass characteristics differences cause changes to the condition of the waters finally affects the level of the water's productivity (Noir P. Purba et al.,

2021). In addition, wind monsoon pattern systems have the influence of circulation patterns of different water masses and vary between seasons in Indonesian waters (Utamy et al., 2015). In the northwest monsoon, the surface water generally flows toward to the east of Indonesian seas and on the southeast season mass supplies of water from upwelling in the Arafura Sea and the Banda Sea then flows toward the west part of the Indonesian waters (Kämpf & Chapman, 2016; Noir P. Purba & Khan, 2019;

References