Intisari

VARIABILITAS KLOROFIL-A DI HILIR SUNGAI OPAK
KABUPATEN BANTUL PERIODE MARET-AGUSTUS 2022

Hilir Sungai Opak yang terletak di Kabupaten Bantul, Provinsi Daerah Istimewa Yogyakarta merupakan wilayah akhir sungai yang terdampak oleh kegiatan dari hulu dan sepanjang wilayah sungai. Fenomena alam dan aktivitas antropogenik di sekitar Sungai Opak dapat memberikan peranan terhadap kondisi status kesuburan perairan. Klorofil-a merupakan parameter kualitas air yang dapat digunakan untuk mengetahui status kesuburan ekosistem akuatik karena peranannya dalam meningkatkan laju reaksi fotosintesis. Penelitian ini bertujuan untuk mengetahui variabilitas konsentrasi klorofil-a di hilir Sungai Opak periode Maret-Agustus 2022. Sampel air diambil setiap satu bulan sekali di tiga stasiun yang selanjutnya dianalisis menggunakan metode spektrofotometri. Parameter fisika dan kimia lingkungan yang diteliti adalah suhu, TDS, pH, salinitas, dan DO yang diukur menggunakan *water quality checker*. Data curah hujan (GPM_3IMERGDF v06) diunduh melalui laman Giovanni. Semua data penelitian dianalisis menggunakan korelasi *Spearman*. Hasil penelitian menunjukkan konsentrasi klorofil-a tertinggi terjadi pada April 2022 (4,2 mg/m^3) dan terendah pada bulan Juni (2,5 mg/m^3). Hal ini menunjukkan bahwa hilir Sungai Opak termasuk dalam kategori perairan mesotrofik karena memiliki kisaran konsentrasi klorofil-a 2,6 − 6,4 mg/m^3. Variabilitas konsentrasi klorofil-a di lokasi penelitian diduga memiliki hubungan kuat dengan konsentrasi DO yang menunjukkan tren temporal yang sama dan nilai korelasi sebesar 0,8.

Kata kunci: klorofil-a, DO, spektrofotometri, Sungai Opak

Abstract

CHLOROPHYLL-A VARIABILITY OF THE DOWNSTREAM OF THE OPAK RIVER, BANTUL REGENCY DURING MARCH-AUGUST 2022

The downstream of the Opak River located in the Bantul Regency, Special Region Province of Yogyakarta, is the water area at the end of the river which is affected by activities from upstream and along the river basin. Natural phenomena and anthropogenic activities around the Opak River can play a role in the fertility status of the waters. Chlorophyll-a is a water quality parameter that can be used to determine the fertility status of aquatic ecosystems because of its role in increasing the rate of photosynthetic reactions. This study aims to investigate the variation of chlorophyll-a concentration in the lower parts of the Opak River during March to August in 2022. Once a month, water samples were taken at three distinct locations and analyzed using the spectrophotometric method. The water temperature, total dissolved solids (TDS), pH, salinity, and dissolved oxygen (DO) were measured using a water quality checker. Giovanni's page provided rainfall data (GPM 3IMERGDF v06). The research data were analyzed using Spearman's correlation. The results show April 2022 had the highest chlorophyll-a concentration (4,2 mg/m^3), while June had the lowest concentration (2,5 mg/m^3). Due to its chlorophyll-a concentration range of 2.6 to 6.4 mg/m^3, the Opak River's tributary is classed as a mesotrophic water. The variability of chlorophyll-a concentrations at the study sites is thought to have a strong relationship with DO concentrations which exhibited the same temporal trend with a correlation value of 0.8.

Keywords: chlorophyll-a, DO, spectrophotometry, Opak River