

DISTRIBUSI VERTIKAL DAN KEMELIMPAHAN FITOPLANKTON DI TELAGA NGEBEL, PONOROGO, JAWA TIMUR

**Qisti Fauziyah
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Intisari

Fitoplankton merupakan produsen primer di perairan yang sangat sensitif terhadap perubahan lingkungan sehingga dapat menunjukkan kualitas perairan. Alih fungsi *watershed* telaga Ngebel Ponorogo menjadi perumahan, gedung pemerintahan dan objek wisata berpengaruh terhadap input nutrisi yang masuk ke badan air. Penelitian ini bertujuan untuk mempelajari distribusi vertikal dan kelimpahan fitoplankton, serta pengaruh parameter fisiko-kimia. Pencuplikan sampel dilakukan pada bulan Februari dan Mei 2017 di lokasi 1, 2, dan 3 menggunakan *water sampler* modifikasi *Van Dorn* sebanyak 10 liter kemudian disaring dengan *plankton-net* ukuran 120 mesh. Sampel dicuplik pada jeluk 0 m, 1 m, 5 m, 7 m, 10 m, 15 m, dan 40 m. Sampel air diambil di jeluk yang sama untuk mengukur parameter fisiko-kimia berupa kadar DO, CO₂, alkalinitas, jeluk Secchi, suhu udara dan air, pH, kadar nitrat, fosfat, dan sulfat. Sampel fitoplankton dan parameter fisiko-kimia tiap jeluk dicuplik dengan 3 kali ulangan. Pada penelitian ini ditemukan 58 spesies yang termasuk dalam 35 famili fitoplankton. Grup fungsional yang paling melimpah adalah algae unisel yang didominasi algae hijau-biru (112471 ind/100 l, 90240 ind/100 l, dan 91148 ind/100 l) pada bulan Februari, dan diatom pennate (1209001 ind/100 l, 272965 ind/100 l, dan 424514 ind/100 l) pada bulan Mei. *Synechococcus* sp. merupakan spesies yang paling melimpah pada bulan Februari, sedangkan bulan Mei didominasi *Nitzschia acicularis*. Distribusi vertikal fitoplankton menunjukkan kelimpahan tertinggi ada pada jeluk 0 m dan 1 m. Nutrien dan intensitas cahaya merupakan faktor utama yang mempengaruhi komunitas fitoplankton di Telaga Ngebel, Ponorogo.

Kata kunci: danau tropis, diatom pennate, algae hijau-biru, intensitas cahaya, nutrien

VERTICAL DISTRIBUTION AND ABUNDANCE OF PHYTOPLANKTON IN TELAGA NGEBEL, PONOROGO, JAWA TIMUR

Qisti Fauziyah
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Abstract

Phytoplankton is an important primary producer in aquatic ecosystems. It is highly sensitive to slight fluctuations of water quality. Land use change for communal housing, government building, and tourism activity has affected to the watershed utility. The entrance of domestic waste and runoff into aquatic system potentially influence to phytoplankton community structure. Using ecological approach, this study was examined the phytoplankton community structure by evaluated their abundance and vertical distribution, including existing water conditions such as: dissolved oxygen, CO₂, alkalinity, Secchi depth, water and air temperature, pH, nitrate, phosphate, and sulphate. Phytoplankton was collected at three different location on February and May 2017 at 0 m, 1 m, 5 m, 7 m, 10 m, 15 m, and 40 m depth below the surface of the water. At each sites, phytoplankton was sampled using Van Dorn modification 10 l with three replication and filtered with Wisconsin plankton-net 120 mesh. Fifty eight species belonging to 35 families of phytoplankton were determined during the study. The most abundance functional group was unicellular algae dominating by the blue-green algae (112471 ind/100 l, 90240 ind/ 100 l, and 91148 ind/ 100 l) in February, and the pennate diatom (1209001 ind/ 100 l, 272965 ind/ 100 l, and 424514 ind/ 100 l) in May. The most abundance species was *Synechococcus* sp. in February, and *Nitzschia acicularis* in May. Phytoplankton vertical distribution data showed that phytoplankton was presence abundantly in 0 m and 1 m depth. Nutrient and sunlight intensity were major factors that affected the phytoplankton community structure in Telaga Ngebel, Ponorogo.

Keywords: tropical lake, pennate diatom, blue-green algae, light intensity, nutrient