



The Dynamic of Phytoplankton Community Structure in Face of Warming Climate in A Tropical Man-Made Lake

✉ Sunardi^{1,2}, Rina Febriani², Budi Irawan¹, Mutia Septi Saputri¹

DOI: 10.15294/biosaintifika.v9i1.7725

¹Department of Biology, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia

²Master Program Environmental Studies/Institute of Ecology, Universitas Padjadjaran, Indonesia

History Article

Received 4 November 2016
Approved 16 February 2017
Published 1 April 2017

Keywords

phytoplankton; community structure; tropical lake; climate warming

Abstract

In freshwater ecosystems, water temperature plays as an environmental factor that regulates its structure and function. A research on the impacts of changes in temperature to the dynamics of the Phytoplankton community structure has been done. Data from nineteen-year period (1995 to 2013) were collected from Cirata Reservoir as an example of artificial tropical lake in Indonesia. The research aimed to determine the changes of water temperature as the impact of climate warming on the dynamics of phytoplankton community structure. Different measures such as species richness, diversity index, and abundance were measured in order to understand the changes of phytoplankton community structure. Trend analysis, linear regression, and correlation were applied to achieve our objective. The study revealed that changes in water temperature have affected the species richness, but not the diversity index and abundance of the phytoplankton. Bacillariophyceae and Cyanophyceae were found as two predominant phytoplankton classes in the lake with percentage of 48,45 and 41,43 respectively, assuming their capacity to adapt the new environment. This study suggests that climate warming implies changes of the freshwater ecosystems.

How to Cite

Sunardi, Febriani, R. Irawan, B. & Saputri, M. S. (2017). The Dynamic of Phytoplankton Community Structure in Face of Warming Climate in A Tropical Man-Made Lake. *Biosaintifika: Journal of Biology & Biology Education*, 9(1), 140-147.

© 2017 Universitas Negeri Semarang

✉ Correspondence Author:
Jl Raya Bandung-Sumedang Km 21, West Java Indonesia
E-mail: sunardi@unpad.ac.id

p-ISSN 2085-191X
e-ISSN 2338-7610