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

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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. Bacilariophyceae 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.

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