

INTISARI

KEMELIMPAHAN KOMUNITAS FITOPLANKTON DI KOLAM BUDIDAYA TAMBAK UDANG DAN LAGUNA TRISIK, KULON PROGO, DAERAH ISTIMEWA YOGYAKARTA

Dian Bkti Pratiwi

18/426452/BI/10044

Pembimbing: Dr.rer.nat. Andhika Puspito Nugroho, S.Si., M.Si.

Pada awal tahun 2000-an Indonesia mulai membudidayakan udang dalam tambak intensif. Namun dikhawatirkan dampak dari air limbah tambak udang yang mengandung bahan-bahan organik menyebabkan penurunan kualitas air lingkungan sekitarnya. Laguna Trisik digunakan sebagai tempat pembuangan limbah tambak udang tanpa adanya filtrasi Instalasi Pengolahan Air Limbah. Perubahan kualitas air akibat input nutrisi berlebihan di perairan sangat direspon oleh komunitas fitoplankton. Fitoplankton berperan sebagai produsen di dalam rantai makanan. Oleh karena itu, dilakukan penelitian yang bertujuan mempelajari komposisi dan kemelimpahan komunitas fitoplankton, indeks similaritas, indeks ekologi, tingkat kesuburan perairan, dan hubungan fitoplankton dengan kualitas air. Penelitian dilakukan di 5 titik, yaitu TU 0, TU 50, LTbs, LTBB, dan LTks. Hasil penelitian menunjukkan terdapat 48 cacah spesies dengan cacah individu sebanyak 53.590 ind/L, cacah individu tertinggi pada spesies *Chlorella variegatus* di TU 50. Indeks similaritas LTbs, LTbb, LTks tinggi, sedangkan TU 0 dan TU 50 rendah. Indeks keanekaragaman dan keseragaman rendah, sedangkan indeks dominansi tinggi. Berdasarkan kemelimpahan fitoplankton kesuburan perairan tergolong oligotrofik (TU 0), eutrofik (TU 50), dan mesotrofik (LTbs, LTbb, LTks). Kadar nitrat tergolong oligotrofik dan kadar fosfat tergolong eutrofik di seluruh titik. Kemelimpahan fitoplankton berhubungan positif dengan parameter fosfat, nitrat, nitrit, amonia, sulfat, pH air, salinitas, jeluk secchi, jeluk, turbiditas, dan intensitas cahaya.

Kata kunci: limbah organik, fitoplankton, kualitas perairan

ABSTRACT

ABUNDANCE OF PHYTOPLANKTON COMMUNITY IN SHRIMP POND CULTURE AND TRISIK LAGOON, KULON PROGO, SPECIAL REGION OF YOGYAKARTA

Dian Bkti Pratiwi

18/426452/BI/10044

Supervisor: Dr.rer.nat. Andhika Puspito Nugroho, S.Si., M.Si.

In the early 2000s Indonesia started cultivating shrimp in intensive ponds. However, it is feared that the impact of shrimp pond wastewater containing organic materials will cause a decrease in the quality of the surrounding water. The Trisik Lagoon is used as a shrimp pond waste disposal site without any filtration from the Wastewater Treatment Plant. Changes in water quality due to excessive input of nutrients in the waters are strongly responded by the phytoplankton community. Phytoplankton act as producers in the food chain. The research aimed to studying the composition and abundance of the phytoplankton community, similarity index, ecological index, water fertility level, and the relationship between phytoplankton and water quality. The research was conducted at 5 site, namely TU 0, TU 50, LTbs, LTBB, and LTks. The results showed that there were 48 species counts with an individual count of 53,590 ind/L, the highest individual count being the species *Chlorella variegatus* at TU 50. The similarity index of LTbs, LTbb, LTks was high, while TU 0 and TU 50 were low. The index of diversity and uniformity is low, while the dominance index is high. Based on the abundance of phytoplankton, water fertility is classified as oligotrophic (TU 0), eutrophic (TU 50), and mesotrophic (LTbs, LTbb, LTks). Nitrate levels are classified as oligotrophic and phosphate levels are classified as eutrophic at all points. The abundance of phytoplankton is positively related to parameters of phosphate, nitrate, nitrite, ammonia, sulfate, water pH, salinity, secchi depth, depth, turbidity, and light intensity.

Keywords: organic waste, phytoplankton, water quality