

PENGARUH LIMBAH BUDIDAYA KOLAM PERMANEN IKAN LELE TERHADAP KUALITAS PERAIRAN SUNGAI DI KABUPATEN KEDIRI

INTISARI

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Keberadaan kegiatan budidaya ikan lele di Kabupaten Kediri tanpa pengelolaan khusus dikhawatirkan dapat mempengaruhi kualitas ekosistem perairan disekitarnya. Penelitian ini bertujuan untuk mengkaji kualitas air limbah hasil proses budidaya ikan lele; kualitas air sungai dan struktur komunitas fitoplankton di sekitar lokasi budidaya ikan; serta menganalisis dampak buangan limbah terhadap kualitas air sungai dan struktur komunitas fitoplankton. Pemantauan kualitas air limbah dilakukan dengan pengukuran parameter suhu, TSS (*Total Suspended Solid*), pH, nitrat dan fosfat, sedangkan untuk kualitas air sungai terdapat tambahan parameter kekeruhan, daya hantar listrik, DO (*Dissolved Oxygen*), dan BOD (*Biochemical Oxygen Demand*). Perhitungan struktur komunitas fitoplankton yang dilakukan meliputi Indeks Nilai Penting (INP), indeks diversitas *Shannon-Wiener* (H'), indeks keseragaman (E), indeks dominansi (Id), *Trophic Diatom Index* (TDI), dan *Percentage of Pollution Tolerant Value* (%PTV). Berdasarkan hasil pengukuran kualitas air limbah menunjukkan kandungan fosfat melebihi baku mutu sesuai regulasi yang berlaku, yaitu berkisar 8,73-10,16 mg/L. Pengukuran kualitas air sungai sebelum keberadaan limbah budidaya ikan menunjukkan parameter BOD dan nitrat melebihi baku mutu air untuk kelas III berdasarkan regulasi yang berlaku, keanekaragaman fitoplankton tinggi, perhitungan TDI dan %PTV menunjukkan perairan termasuk *Meso-eutrophic* dengan adanya sedikit pencemaran bahan organik. Setelah adanya limbah budidaya ikan lele, parameter BOD dan fosfat melebihi baku mutu air untuk kelas III berdasarkan regulasi yang berlaku, dengan keanekaragaman fitoplankton cukup tinggi, namun perhitungan TDI dan %PTV menunjukkan telah terjadi eutrofikasi disertai pencemaran bahan organik yang signifikan.

Kata kunci : budidaya ikan lele, eutrofikasi, fitoplankton, kualitas air

THE EFFECT OF WASTE FROM PERMANENT CATFISH POND CULTIVATION ON THE WATER QUALITY OF RIVER IN KEDIRI REGENCY

ABSTRACT

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The presence of catfish farming activities in Kediri Regency without specific management raises concerns regarding its potential impact on the quality of the surrounding aquatic ecosystem. This study aims to assess the quality of wastewater resulting from catfish farming processes; river water quality and phytoplankton community structure in the vicinity of the cultivation site; also analyze the impact of waste discharge on both river water quality and phytoplankton community structure. Wastewater quality monitoring was conducted by measuring temperature, TSS (Total Suspended Solids), pH, nitrate, and phosphate parameters, while river water quality monitoring included additional parameters such as turbidity, conductivity, DO (Dissolved Oxygen), and BOD (Biochemical Oxygen Demand). The calculation of phytoplankton community structure included the Importance Value Index (INP), Shannon-Wiener diversity index (H'), evenness index (E), dominance index (Id), Trophic Diatom Index (TDI), and Percentage of Pollution Tolerant Value (%PTV). The results of wastewater quality measurements indicated that phosphate content exceeded the quality standards according to applicable regulations, ranging from 8.73 to 10.16 mg/L. Measurements of river water quality prior to the input of fish farming waste showed that BOD and nitrate parameters exceeded Class III water quality standards based on applicable regulations; phytoplankton diversity was high, and TDI and %PTV calculations indicated the waters were Meso-eutrophic with slight organic matter pollution. Following the discharge of catfish farming waste, BOD and phosphate parameters exceeded Class III water quality standards based on applicable regulations. While phytoplankton diversity remained moderately high, TDI and %PTV calculations indicated that eutrophication had occurred, accompanied by significant organic pollution.

Keywords : aquaculture effluents, eutrophication, phytoplankton, water quality