



MAKROINVERTEBRATA SEBAGAI INDIKATOR BIOLOGI KUALITAS AIR SUNGAI GAJAHWONG YOGYAKARTA

INTISARI

Penelitian ini bertujuan untuk mengkaji distribusi dan kelimpahan makroinvertebrata yang keberadaannya dapat diprediksikan mencerminkan kualitas air sungai Gajahwong Yogyakarta akibat pembuangan limbah industri, rumah tangga, pertanian dan pariwisata. Penelitian dilaksanakan di sungai Gajahwong bagian tengah, terdiri lima stasiun pengamatan dengan waktu pengambilan sampel bulan Juni, Juli, dan Agustus 1999. Koleksi data menggunakan *surber sampler* sebagai kuadrat plot, dengan penentuan titik sampling berdasarkan *niche pool* dan *riffle*. Sampel makroinvertebrata diidentifikasi secara kualitatif dan kuantitatif kemudian dianalisis dengan pendekatan kelimpahan, keragaman, dominansi, skor biotik, indeks kualitas air dan dihubungkan dengan parameter fisik-kimia tertunjuk.

Penelitian ini menemukan 41 makroinvertebrata dan 3 jenis polychaeta yang tersebar tidak merata. Dari hasil analisis parameter fisik-kimia (pH, Suhu, TSS, Kekeruhan, DHL, DO, BOD, COD, Zat organik) kualitas air sungai Gajahwong terutama yang berada di muara pembuangan limbah sudah melebihi ambang batas peruntukannya. Analisis makroinvertebrata menunjukkan keragaman dan skor biotik tinggi untuk perairan yang tercemar ringan, sedangkan perairan yang tercemar memiliki indeks dominansi tinggi dengan keragaman dan skor biotik rendah.

Rangkuman analisis makroinvertebrata dan parameter fisik-kimia diperoleh hasil kualitas air sungai Gajahwong dari stasiun pertama Gandok tercemar ringan (Odonata, Coleoptera, Tricoptera, Lepidoptera, Gastrotricha, Gastropoda, Crustacea); Sidobali tercemar (Gastropoda, Syrpidae, Crustacea, Hemiptera, Diptera, Oligochaeta,); Rejowinangun tercemar agak berat (Syrpidae, Crustacea, Hemiptera, Diptera, Oligochaeta,); Jagalan tercemar berat (Syrpidae, Hemiptera, Diptera, Oligochaeta) dan Wirokerten tercemar (Diptera, Oligochaeta, Crustacea, Megaloptera, Coleoptera, Gastropoda, Dividae, Mollusca, Ampullaridae). Kualitas air sungai Gajahwong menentukan distribusi dan kelimpahan makroinvertebrata yang didukung habitatnya, sehingga dapat digunakan untuk menduga tingkat pencemaran sungai yang lebih menyeluruh.

Kata kunci: makroinvertebrata, habitat, indikator biologi, kualitas air



MACROINVERTEBRATES AS BIOLOGICAL INDICATORS OF WATER QUALITY OF GAJAHWONG RIVER, YOGYAKARTA

ABSTRACT

This research aims to study the distribution and proliferation of macroinvertebrates which can be predicted to reflect the quality of water in Gajahwong river as a result of waste disposal from industry, homes, agriculture and tourism. The research was conducted in the middle section of the river, consisting of five observation stations with sampling done in June, July, and August 1999. Data collection was made by using surber sampler as plot quadrat with of sampling points according to niche pool and riffle. The macroinvertebrate sample was qualitatively and quantitatively identified, and then analyzed in terms of proliferation, diversity, dominance, biotic score, water quality index and related to physical and chemical parameters.

This research discovers 41 macroinvertebrates and 3 types of polychaeta unevenly spread. From the analysis of the physical and chemical parameters (pH, temperature, TSS, turbidity, DHL, BOD, COD, organic substances), it is found that the quality of water in the Gajahwong river, particularly at the mouth of waste disposal has exceeded the threshold level. Analysis of macroinvertebrates indicates high diversity and biotic score for the moderately polluted sections of the river, whereas the polluted section has a high dominance index with low diversity and biotic scores.

From the analysis of macroinvertebrates and the physical and chemical parameters, it is found the water at the first station, Gandok is moderately polluted (Odonata, Coleoptera, Tricoptera, Lepidoptera, Gastrotricha, Gastropoda, Crustacea); Sidobali is polluted (Gastropoda, Syrpidae, Crustacea, Hemiptera, Diptera, Oligochaeta.); Rejowinangun is rather heavily polluted (Syrpidae, Crustacea, Hemiptera, Diptera, Oligochaeta.); Jagalan is heavily polluted (Syrpidae, Hemiptera, Diptera, Oligochaeta) and Wirokerten is polluted (Diptera, Oligochaeta, Crustacea, Megaloptera, Coleoptera, Gastropoda, Dividae, Mollusca, Ampullaridae). The quality of water in the Gajahwong river determines the distribution and proliferation of macroinvertebrates carried habitats and can therefore be used to make a more comprehensive estimation of pollution level.

Key Words: macroinvertebrates - habitat - biological indicators - water quality