

KAJIAN DAYA TAMPUNG BEBAN PENCEMAR DI HULU DAERAH ALIRAN SUNGAI BELIK, DAERAH ISTIMEWA YOGYAKARTA

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INTISARI

DAS Belik merupakan sungai mengalir tiga kabupaten/kota yaitu Kabupaten Sleman, Kota Yogyakarta, dan Kabupaten Bantul DIY. Lokasi Sungai Belik yang berada di tengah perkotaan ini menyebabkan penggunaan lahan di DAS Belik berkembang cukup pesat. Penggunaan lahan di DAS Belik didominasi oleh permukiman, perhotelan, perkantoran, usaha kos-kosan dan laundry. Perkembangan yang disebabkan oleh aktivitas manusia ini dapat menimbulkan pencemaran air sungai jika tanpa ada pemeliharaan dan pemantauan. Menurut BLH, Sungai Belik telah tercemar berat namun Sungai Belik belum menjadi sungai prioritas untuk dikaji mengenai daya tampung beban pencemarnya. Penelitian ini bertujuan untuk mengetahui nilai beban pencemar (BP) dan nilai daya tampung beban pencemar (DT) untuk parameter *Biological Oxygen Demand* (BOD) sehingga dapat diketahui nilai beban pencemar yang harus dikurangi agar sesuai dengan nilai daya tampung beban pencemar per penggal sungai.

Metode yang digunakan adalah metode kuantitatif deskriptif dengan analisis keruangan. Pengambilan sampel air dan pengukuran morfologi sungai dilakukan secara purposive, kualitas air diambil secara grab sampling atau sesaat pada enam titik sampel air sungai dan tiga sampel sumber pencemar titik. Pengolahan data menggunakan pemodelan *Water Quality Analysis Simulation Program* (WASP) dengan input data morfologi sungai, kualitas air sungai dan debit air sungai. Pemodelan WASP digunakan untuk mendapatkan nilai beban pencemar dan nilai daya tampung beban pencemar setiap penggal sungai. Terdapat lima penggal sungai yang ditentukan berdasarkan morfologi sungai, variasi beban pencemar, serta arah aliran saluran terbuka.

Hasil penelitian menunjukkan bahwa Sungai Belik sudah tidak dapat menampung beban pencemar. Penggal satu (Dusun Karangwuni-Karangmalang) harus mengurangi 22,41 kg/hari, penggal dua (Dusun Karangmalang bagian utara) dapat tidak perlu mengurangi beban pencemar jika penggal satu dapat mengurangi beban sebanyak 22,41 kg/hari. Penggal tiga (Karangmalang bagian selatan) harus mengurangi sebanyak 5,73 kg/hari, penggal empat (Dusun Samirono) mengurangi sebanyak 35,81 kg/hari dan penggal lima (Kelurahan Klitren) sebanyak 61,16 kg/hari. Pengurangan nilai beban pencemar dapat dilakukan dengan mengurangi dan membatasi beban pencemaran baik sumber pencemar titik (SPT) atau sumber pencemar non titik (SPNT) yang masuk kedalam sungai.

Kata Kunci: Beban Pencemar, Daya Tampung Beban Pencemar, Sungai Belik, WASP

TOTAL MAXIMUM DAILY LOAD IN UPPER BELIK WATERSHED,
YOGYAKARTA SPECIAL REGION

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ABSTRACT

Belik watershed is a river flowing through three districts/cities, namely Sleman Regency, Yogyakarta City, and Bantul Regency. The location of Sungai Belik in the middle of the city has resulted in rapid land use in the Belik watershed. Land use in the Belik watershed is dominated by settlements, hotels, offices, and boarding houses and laundry. This development caused by human activities can cause river water pollution if there is no maintenance and monitoring. According to Yogyakarta Special Region Environmental Agency, the Belik River has been heavily polluted but the Belik River has not become a priority river to study regarding its waste load capacity. This study aims to determine the waste load value and the waste load capacity for BOD parameters so that the waste load values should be reduced to match the waste load capacity by river stream.

The method used is descriptive quantitative method with spatial analysis. Taking water samples and measuring the morphology of the river were done purposively, water quality was taken by grab sampling or instantaneously on six river water sample points and three samples of point waste sources. Data processing uses Water Quality Analysis Simulation Program WASP modeling with input data on river morphology, river water quality and river water discharge. WASP modeling is used to obtain waste load values and waste load capacity values for each stream. There are five river sections that are determined based on river morphology, variations in waste load, and direction of open channel flow.

The results of the study showed that the Belik River in the study area could not accommodate waste loads. Segment one (Karangwuni-Karangmalang village) has to reduce 22.41 kg/day, segment two (northern part of Karangmalang village) can accommodate the wastes load if segment one can reduce the load by 22.41 kg/day. Segment three (southern part of Karangmalang village) must reduce by 5.73 kg/day, segment four (Samirono village) by reducing 35.81 kg/day and segment five (Klitren village) by 61.16 kg / day. Reduction of waste load values can be done by regulating or limiting the pollution load originating from point sources (PS) or non-point sources (NPS) that enter the river.

Keywords: Waste Load, Total Maximum Daily Load, Belik Watershed, WASP