

Intisari

Kandungan As, Zn, dan Cr serta Kualitas Air Sungai Mruwe Kecamatan Banguntapan Kabupaten Bantul

Penurunan kualitas air dapat terjadi karena pembuangan limbah yang tidak terkendali dari aktivitas di sekitar sungai. Salah satu limbah yang dapat menurunkan kualitas air adalah logam berat. Penelitian ini bertujuan untuk mengetahui kualitas air dan kandungan logam berat As, Zn, dan Cr di Sungai Mruwe, Kecamatan Banguntapan, Kabupaten Bantul. Penelitian dilaksanakan selama Bulan Oktober 2019 hingga Januari 2020 dengan pengambilan sampel di tiga titik stasiun yang berbeda. Pengujian yang dilakukan pada kualitas air meliputi pH, suhu air, kecepatan arus, *total suspended solid* (TSS), *dissolved oxygen* (DO), *biological oxygen demand* (BOD) dan pengujian logam dengan menggunakan metode analisis aktivasi neutron (AAN). Hasil penelitian yang didapatkan suhu air di Sungai Mruwe berkisar antara 30,5-31°C. Kecepatan arus di Sungai Mruwe berkisar antara 0,06-1,13 m/dt. Pengujian total suspended solid (TSS) mendapatkan nilai sebesar 464-585 mg/L. pH di Sungai mruwe berkisar antara 6,75-6,95. *Dissolved oxygen* (DO) di Sungai Mruwe berkisar antara 3,9-6,45 mg/L. Pengujian *biological oxygen demand* (BOD) mendapatkan nilai sebesar 3,6-3,9 mg/L. Pengujian logam berat menggunakan AAN diperoleh nilai rata-rata konsentrasi logam berat arsen (As) sebesar 0,636 mg/L, nilai rata-rata konsentrasi logam berat seng (Zn) sebesar 0,068 mg/L dan nilai rata-rata konsentrasi logam berat kromium (Cr) sebesar 0,092 mg/L. Nilai konsentrasi logam berat Zn dan Cr pada penelitian ini telah melebihi ambang batas baku mutu Peraturan Gubernur Daerah Istimewa Yogyakarta No. 20 Tahun 2008, sedangkan konsentrasi logam berat As masih dalam baku mutu yang ditetapkan. Sungai Mruwe terindikasi telah tercemar berdasarkan parameter BOD, TSS dan logam berat Cr dan Zn.

Kata kunci : arsen, kromium, logam berat, seng, Sungai Mruwe

Abstract

Content of As, Zn, and Cr and Water Quality in Mruwe River Banguntapan Sub-District Bantul Regency

Water quality degradation can occur due to uncontrolled waste disposal from activities around the river. One of the wastes that can reduce water quality is heavy metal. This study aims to determine the water quality and content of heavy metals As, Zn, and Cr in the Mruwe River, Banguntapan Sub-District, Bantul Regency. The study was conducted from October 2019 to January 2020 with sampling at three different station points. Tests conducted on water quality include pH, water temperature, current speed, total suspended solids (TSS), dissolved oxygen (DO), biological oxygen demand (BOD), and metal testing using the neutron activation analysis (AAN) method. The study found that the water temperature in the Mruwe River ranged from 30.5-31°C. The current velocity in the Mruwe River ranges from 0.06-1.13 m/sec. The total suspended solids (TSS) test has a value of 464-585 mg/L. pH in the Mruwe River ranges from 6.75-6.95. Dissolved oxygen (DO) in the Mruwe River ranged from 3.9-6.45 mg/L. Testing of biological oxygen demand (BOD) scores of 3.6-3.9 mg/L. Testing of heavy metals using AAN obtained an average concentration value of arsenic (As) is 0.636 mg/L, an average concentration value of zinc (Zn) is 0.068 mg/L and an average concentration value of chromium (Cr) is 0.092 mg/L. The concentration value of heavy metals Zn and Cr in this study has exceeded the quality standard limits of the Governor of Yogyakarta Special Regulations No. 20 of 2008, whereas the concentration of heavy metals As is still within the specified quality standards. Mruwe River is indicated to be polluted based on BOD, TSS, Zn and Cr heavy metals.

Key word : arsenic, chromium, heavy metal, Mruwe River, zinc