

ABSTRAK

Arlan ferdiyanto. “Identifikasi Kandungan Logam Berat pada Variasi Ukuran Sedimen Sungai Buladu Menggunakan *X-Ray Flourescence* (XRF)”. Penelitian ini bertujuan untuk mengidentifikasi dan melihat pengaruh variasi ukuran bulir menggunakan XRF. Pengambilan cuplikan sedimen pada 5 titik di sungai Buladu Gorontalo Utara. Hasil penelitian menunjukkan pada 5 titik pengambilan cuplikan teridentifikasi mengandung 6 unsur logam berat dengan konsentrasi tiap unsur pada titik 1-5 berturut-turut sebagai berikut, pada ukuran 250 μm konsentrasi unsur Pb 18.500, 1.000, 300, 100 dan 800 mg/kg; Fe 366.100, 493.300, 536.100, 439.400, dan 495.300 mg/kg; Mn 2400, 9300, 8700, 8000, dan 7200 mg/kg; Zn 18400, 1500, 0, 500, dan 0 mg/kg; As 104.100, 10.500, 500, 0, dan 800 mg/kg, Cu 6500, 0, 0, 0, dan 0 mg/kg. Pada ukuran 355 μm konsentrasi unsur Pb 19.400, 2200, 700, 1.300, dan 800 mg/kg; Fe sebesar 385.700, 549.100, 569.400, 529.000, dan 498.800 mg/kg; Mn 1.500, 6.200, 6.700, 6.600 dan 5.700 mg/kg; Zn 18.700, 2000, 0, 0, dan 700 mg/kg; As 96.700, 3.500, 0, 0, dan 0 mg/kg; Cu 6600, 0, 200, 0, dan 200 mg/kg. Pada ukuran 500 μm konsentrasi unsur Pb 20700, 3800, 0, 0, dan 900 mg/kg; Fe 408.700, 59.4100, 576.400, 557.000, dan 527.500 mg/kg, Mn 1100, 0, 0, 6400, dan 6100 mg/kg, Zn sebesar 18800, 2600, 1000, 500, dan 800 mg/kg, As 96400, 2100, 0, 0, dan 0 mg/kg, Cu 6800, 1300, 300, 0, dan 500 mg/kg. Konsentrasi tersebut melampaui standar *sediment quality guideline values for metal and associated level of concern to be used in doing assesment of sediment quality*. Variasi ukuran bulir sedimen dari 250-500 μm memperlihatkan konsentrasi unsur Fe, Zn, dan Cu berbanding lurus dengan ukuran bulir, kecuali untuk Cu pada cuplikan 4. Unsur As dan Mn konsentrasinya berbanding terbalik dengan ukuran bulir. Sedangkan unsur Pb cuplikan 1, 2 dan 5 konsentrasi terbesar pada ukuran bulir 500 μm , pada cuplikan 3 dan 4 konsentrasi terbesar pada ukuran bulir 355 μm .

Kata Kunci : Logam Berat, Sedimen, Ukuran Bulir, XRF.

ABSTRACT

Arlan ferdiyanto."Identification of Heavy Metal Content on the Size Variation of Sediment of Buladu River Using X-Ray Fluorescence (XRF)". It aimed at investigating the content of heavy metal on sediment of Buladu River and the influence of grains size variation toward XRF analysis. The sediment was processed in Physics Laboratory of State University of Gorontalo. The research result showed that it was identified that there were 6 metal elements in five points of sediment collection with the concentrations that can be observed as follows : (1) size 250 μm of Pb was 18.500, 1.000, 300, 100 and 800 mg/kg; Fe was 366.100, 493.300, 536.100, 439.400 and 495.300 mg/kg; Mn was 2400, 9300, 8700, 8000, and 7200 mg/kg; Zn was 18400, 1500, 0, 500, and 0 mg/kg; As was 104.100, 10.500, 500, 0, and 800 mg/kg, Cu was 6500, 0, 0, 0, and 0 mg/kg. (2) size 355 μm of Pb 19.400, 2200, 700, 1.300, and 800 mg/kg; Fe was 385.700, 549.100, 569.400, 529.000, and 498.800 mg/kg; Mn was 1.500, 6.200, 6.700, 6.600 and 5.700 mg/kg; Zn was 18.700, 2000, 0, 0, and 700 mg/kg; As was 96.700, 3.500, 0, 0, and 0 mg/kg; Cu was 6600, 0, 200, 0, and 200 mg/kg. (3) size 500 μm of Pb was 20700, 3800, 0, 0, and 900 mg/kg; Fe was 408.700, 59.4100, 576.400, 557.000, and 527.500 mg/kg, Mn 1100, 0, 0, 6400, and 6100 mg/kg, Zn was 18800, 2600, 1000, 500, and 800 mg/kg, As 96400, 2100, 0, 0, and 0 mg/kg, Cu was 6800, 1300, 300, 0, and 500 mg/kg. The concentration was exceeding quality standard of *sediment quality guideline values for metal and associated level of concern to be used in doing assessment of sediment quality* . Grains size variation of sediment from 250-500 μm showed the concentration of Fe, Zn, and Cu was directly proportional to the grain size, except the Cu at shot 4. The concentration of As and Mn was inversely proportional to the size of grain. The concentration of Pb at shot 1, 2, and 5 largest in concentration on grain size of 500 μm , however, at shot 3 and 4 largest in concentration on grain size of 355 μm .

Keyword: Heavy Metal, Sediment, Grain Size, XRF.