ANALISIS JUMLAH BAKTERI *COLIFORM* DI SUNGAI BOYONG, SLEMAN

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INTISARI

Semakin banyak pencemaran Sungai Code akibat perubahan penggunaan lahan, maka perlunya pengelolaan DAS bagian hulu. Sungai Boyong merupakan Hulu DAS Code yang memiliki tiga penggunaan lahan mendominasi, yaitu kebun campuran, sawah irigasi, dan permukiman. Aktivitas penggunaan lahan di Sungai Boyong dapat menimbulkan adanya pencemaran feses dari hewan atau manusia di badan sungai. Hal ini dapat menyebabkan adanya bakteri *coliform* pada sungai. Tujuan dari penelitian ini adalah mengkaji pengaruh penggunaan lahan terhadap jumlah Bakteri *Coliform* di Sungai Boyong, mengkaji sebaran spasial dan temporal jumlah Bakteri *Coliform* di Sungai Boyong, dan mengetahui faktor abiotik yang mempengaruhi jumlah Bakteri *Coliform* di Sungai Boyong.

Pengambilan sampel dilakukan saat musim kemarau dan musim hujan menggunakan metode *purposive sampling* atas dasar dugaan cemaran penggunaan lahan. Parameter utama yang diambil, yaitu total *coliform* (TC) dan *fecal coliform* (FC). Jumlah TC dan jumlah FC dihitung menggunakan metode *Most Probable Number*. Parameter fisika dan kimia yang juga diuji, antara lain suhu, salinitas, pH, nitrat, dan fosfat. Lokasi keenam titik pengambilan sampel air di Sungai Boyong, berturut-turut terletak di Dusun Kemput, Candibinangun (T1 dan T2); Dusun Pakisaji, Candibinangun (T3); Dusun Prumpung, Sardonoharjo (T4); Dusun Dayakan, Sardonoharjo (T5); dan Dusun Jongkang, Sariharjo (T5). Hasil uji keenam titik sampel selanjutnya dianalisis secara deskriptif kuantitatif, deskriptif komparatif, dan ploting grafik.

Hasil uji sampel menunjukkan setiap penggunaan lahan menyumbang pencemaran ke sungai. Permukiman memiliki perubahan TC dan FC paling tinggi. Sebaran TC dan FC cenderung semakin ke bagian hilir semakin tinggi. Hal ini diakibatkan karena aktivitas manusia yang semakin intensif. Jumlah TC dan jumlah FC keenam titik sampel berturut-turut, berkisar antara <1,8-350.000 MPN/100mL dan <1,8-79.000 MPN/100mL. Jumlah FC dan jumlah TC pada sebagian besar titik sampel telah melebihi baku mutu peruntukan Sungai Boyong. Faktor abiotik (suhu, salinitas, pH, nitrat, fosfat, dan debit) pada setiap titik sampel bervariasi. Tidak semua faktor abiotik dapat dilihat secara nyata pengaruhnya terhadap jumlah TC dan jumlah FC.

Kata kunci: Bakteri *Coliform*, Penggunaan Lahan, Pencemaran Air Sungai

AMOUNT OF COLIFORM BACTERIA ANALYSIS IN BOYONG RIVER, SLEMAN

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ABSTRACT

More pollution in Code River effected from land use changing, therefore the need for management the upstream part of watershed. Boyong River is an upstream part of watershed Code which has three dominant land uses, mixed use gardens, irrigated fields, and settlements. Land use activities in the Boyong River cause faecal pollution from animals or humans waste in river bodies. This can cause the presence of coliform bacteria in river. This study aims to examine influence of land use on the amount of coliform bacteria in Boyong River, spasial and temporal distribution of the amount of coliform bacteria in Boyong River, and analyze the abiotic factors that affect the amount of coliform bacteria in Boyong River.

Sampling was carried out during the dry season and rainy season, using a purposive sampling method based on land use contamination. The main parameters are total coliform (TC) and fecal coliform (FC). Calculation of TC amount and FC amount using Most Probable Number method. Physical and chemical parameters were also tested are temperature, salinity, pH, nitrate, and phosphate. The location of the six water sample points in the Boyong River, respectively located in the Kemput Village, Candibinangun (T1 dan T2); Pakisaji Village, Candibinangun (T3); Prumpung Village, Sardonoharjo (T4); Dayakan Village, Sardonoharjo (T5); dan Jongkang Village, Sariharjo (T6). The results of the six sample points then were analyzed using quantitative descriptive, comparative descriptive, and graph ploting.

Sample test results indicate that each land use contributes to river pollution. Settlements have the highest number of TC and FC changing. Amount of TC and FC tends to be increasingly towards downstream and followed by increasingly intensive human activities. Amount of TC and FC six sample points in a row, ranging between <1,8-350.000 MPN/100mL and <1,8-79.000 MPN/100mL. Almost all sample points exceed the Boyong River allotment quality standard. Abiotic factors (temperature, salinity, pH, nitrate, phosphate, and discharge) at each sample point varies. Not all abiotic factors can be seen clearly the effect on the amount of TC and the amount of FC.

Keywords: Coliform Bacteria, Land Use, River Water Pollution