Pengaruh penggunaan tanah terhadap kualitas air di daerah aliran Ci Lutung: studi kasus: Sub-DA Ci Deres, Sub-DA Ci Jurey, dan Sub-DA Ci Saar = Impact of land use on water quality in Ci Lutung watershed: case study: Ci Deres Sub-Watershed, Ci Jurey Ci Deres Sub-Watershed, and Ci Saar Ci Deres Sub-Watershed

Alvira Oktariani, author

Abstrak

Air mempunyai peranan yang sangat strategis dalam kehidupan manusia dan makhluk hidup lainnya. Kualitas air sungai dapat mengalami penurunan sebagai akibat dari meningkatnya aktivitas manusia yang menimbulkan beragamnya jenis penggunaan tanah. Kualitas air merupakan suatu gambaran mengenai karakteristik fisika, kimia, dan biologi suatu perairan. Penelitian sebelumnya sudah banyak yang membuktikan bahwa penggunaan tanah yang berada di dalam suatu DAS akan memberikan pengaruh besar terhadap kualitas air sungainya terutama senyawa organik dan anorganik. Dalam penelitian ini, data kualitas air diperoleh dari 3 sungai berbeda yaitu Ci Deres, Ci Jurey, dan Ci Saar. Parameter kualitas air yang diukur terdiri dari 9 parameter fisika-kimia, diantaranya TSS, TDS, DHL, Kekeruhan, Temperatur, Nitrat, Fosfat, pH, dan DO.
Keberadaan hewan akuatik seperti makroinvertebrata dan plankton juga digunakan untuk melihat kondisi sungai secara keseluruhan. Sedangkan untuk melihat adanya perbedaan rata-rata kualitas air yang signifikan antar sungai menggunakan One Way ANOVA pada level signifikansi 0,05. Berdasarkan perhitungan statistik, TDS, DO, DHL, pH, Temperatur, Fosfat dan Nitrat mengalami penuruan seiring dengan naiknya debit. Namun sebaliknya, TSS dan kekeruhan bertambah seiring dengan naiknya debit. Hasil perhitungan ANOVA menunjukkan bahwa terdapat perbedaan rata-rata kualitas air dari 3 sungai menggunakan level signifikansi 0,05. Secara keseluruhan, kualitas air Ci Deres, Ci Jurey, dan Ci Saar termasuk kategori tercemar ringan menurut perhitungan WQI, Indeks BMWP-ASPT, dan Indeks Saprobik.
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Water is a very valuable resources that provide people and other living things. The water quality of river may degrade due to the variation of land use as human activities increase. Water quality is a term used to describe the chemical, physical, and biological characteristics of water. Previous studies have shown that the land use within the watershed had a great impact on the water quality of river due to high amount of organic and inorganic pollutants. In this study, water quality data were collected from 3 different rivers, Cideres, Cijurey, and Cisaar. The water quality data of 3 sites for nine physical chemical indicators, Total Suspended Solid TSS, Total Dissolved Solid TDS, Conductivity, Turbidity, Temperature, Nitrate, Phosphate, pH, and Dissolved Oxygen DO were analyzed.
The presence and absence aquatic animals such as macroinvertebrates and plankton were used to provide an overview of different stream conditions and level of pollutants. Meanwhile to evaluate significant differences among the sites for all water quality variables, data was analyzed using one way ANOVA at 0.05 level of significance. According to statistical analysis, TDS, DO, conductivity, pH, temperature, phosphate, and nitrate decreased with an increase in river discharge negative correlation. Otherwise, TSS and turbidity increased with a decrease in river discharge positive correlation . The statistical analysis ANOVA for all the

parameters revealed a positive correlation and the F test values were significant at 0,05. Overall, Cideres, Cijurey, and Cisaar river were categorized as slightly polluted stream referring to Water Quality Index, BMWP ASPT, and Saprobic Index calculations.