STUDY ON THE IMPACT OF MINING AND AGRICULTURAL ACTIVITIES ON TASIK CHINI WATER QUALITY

CHE FATIN FATIHA BINTI CHE MAN

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ABSTRAK

Satu kajian dijalankan di kawasan terpilih iaitu Tasik Chini untuk menentukan kualiti air yang disebabkan oleh aktiviti di sekitar kawasan kajian. Sampel air telah diambil dari Laut Melai, Laut Gumum dan Laut Kenawar yang terletak di kawasan perlombongan, pertanian, dan tetap. Sampel air telah diambil dari bulan September hingga November 2017. Sampel air diambil sebanyak dua kali sepanjang kaijan ini. Terdapat dua jenis ujian dalam kajian ini iaitu ujian in - situ dan ex - situ. Ujian in-situ seperti pH, suhu, kekeruhan, kekonduksian elektrik (EC) dan oksigen terlarut (DO) manakala ex-situ seperti permintaan oksigen biokimia (BOD), permintaan oksigen kimia (COD), nitrogen ammonia(NH_3-N), jumlah pepejal terampai (TSS) dan logam berat plumbum, kromium, kadmium, nikel dan tembaga. Semua parameter dianalisis dan diukur mengikut Indeks Kualiti Air (WQI) dan Piawaian Kualiti Air Negara (NWQS) untuk Malaysia. Berdasarkan Piawaian Kualiti Air Negara (NWQS), nilai purata bagi suhu dikategorikan dalam julat normal manakala pH, kekeruhan, NH_3-N, TSS, BOD, COD dan EC dikategorikan di bawah Kelas I untuk semua stesen. DO dikategorikan sebagai Kelas IIB untuk stesen Kenawar dan Kelas III untuk stesen Gumum dan Melai. Sementara itu, untuk semua jenis logam berat diklasifikasikan dalam Kelas II kecuali nikel. Berdasarkan Indeks Kualiti Air (WQI), nilai pengiraan WQI ialah 86.66 mg/L, 87.93 mg/L, and 84.56 mg/L di stesen Gumum, Kenawar dan Melai masing – masing dikategorikan di bawah Kelas II. Tasik Chini sesuai untuk aktiviti rekreasi dan hubungan badan dibenarkan, namun rawatan asas diperlukan untuk bekalan air. Aktiviti perlombongan dan pertanian telah menjejaskan kualiti air tetapi tidak membawa bahaya kepada ekosistem Tasik Chini kerana hasilnya menunjukkan kualiti air hanya sedikit tercemar.

ABSTRACT

A study was conducted at selected area of the Tasik Chini to determine the water quality due to the activities around the study area. The water samples were collected from Laut Melai, Laut Gumum and Laut Kenawar which are located in mining, agricultural and constant area. The water samples were taken from September until November 2017. The samples were taken two times during this study. There are two types of testing in this study which are in – situ and ex-situ testing. In – situ test parameters were such as pH, temperature, turbidity, electrical conductivity and dissolved oxygen while the ex-situ such as biochemical oxygen demand (BOD), chemical oxygen demand (COD), ammoniacal nitrogen (NH_3-N), phosphorus, total suspended solid (TSS) and heavy metals lead, chromium, cadmium, nickel and copper. All the parameters were analysed and measured according to Water Quality Index (WQI) and National Water Quality Standard (NWQS) for Malaysia. Based on the National Water Quality Standards (NWQS), the mean value of temperature is categorized within normal range while pH, turbidity, NH_3-N, TSS, BOD, COD and EC are categorized under Class I at all stations. Parameter DO is categorized in Class IIB at Kenawar station and Class III at Gumum and Melai stations. Meanwhile for all types of heavy metal are classified under Class II except Nickel. Based on Water Quality Standards (WQI), the calculation WQI value are 86.66 mg/L, 87.93 mg/L, and 84.56 mg/L at Gumum, Kenawar and Melai stations respectively which are categorized under Class II. Tasik Chini is suitable for recreational activity and body contact is allowed, however basic treatment required for water supply. The mining and agricultural activities was affected the quality of water but do not bring harmful to the ecosystem of Tasik Chini because the result indicate the water quality only slightly polluted.