

SEWAGE POLLUTION IN THE COASTAL WATER OFF
PULAU PERHENTIAN,
TERENGGANU

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Sewage Pollution in the Coastal Water off Pulau Perhentian, Terengganu

By

Khor Wee Liang

**This project report is submitted in partial fulfillment of
The requirements for the Degree of
Bachelor of Applied Science
(Marine Science)**

Faculty of Science and Technology

**COLLEGE UNIVERSITY OF SCIENCE AND TECHNOLOGY
MALAYSIA**

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Abstract

The increasing numbers of tourist visiting Perhentian Island in the recent years would probably bring some adverse effect on water quality of this island. Such as sewage and other contaminants that could cause effect on aquatic organism and human. Two sampling trips were conducted in April (16-17 April 2002) and in September (22-23 September 2002), 12 stations were established to determine the water quality of Pulau Perhentian. Parameter included total coliform, fecal coliform, *Escherichia coli*, BOD (biological oxygen demand), total suspended solids and total alkalinity.

In April and September, the mean fecal coliform counts were 5.6 MPN/100mL and 43 MPN/100mL respectively. No *E.coli* was detected in April but in September, the mean value was 8.8 MPN/100mL. The water quality standard of microbiology for sewage pollution in recommended is 100 MPN/100mL (DOE, 2001) the results of this study indicated that the sewage pollution in Pulau Perhentian is low and safe for recreation uses. Total suspended solid level detected in Pulau Perhentian in April and September were 1.77 ± 0.26 mg/L and 2.59 ± 0.23 mg/L respectively. As for BOD count, there was no significant difference in two sampling periods. The mean level of BOD in April was 0.65 ± 0.33 mg/L and in September was 0.56 ± 0.15 mg/L. For alkalinity measurements, in April, the mean alkalinity was 101.53 ± 2.30 mg/L and in September, the value was 104.31 ± 2.30 mg/L.

No variations of hydrological parameters (temperature, pH, specific conductivity, salinity, saturated dissolved oxygen and dissolved oxygen) were found in the study

area. As summary, Pulau Perhentian is slightly polluted with sewage but it is still safe for recreational activities.

Abstrak

Penambahan pelawat ke Pulau Perhentian sejak beberapa tahun kebelakangan ini, mungkin akan mempengaruhi kualiti air di persekitaran pesisiran Pulau Perhentian. Pencemar seperti sisa kumbahan dan sisa-sisa yang lain akan mengakibatkan persekitaran yang tidak sesuai kepada organisma akuatik dan juga kepada manusia. Dua penyempelan dilakukan pada April 2002 (16.4.2002-17.4.2002) dan bulan September 2002 (22.9.2002 – 23.9.2002). 12 stesen telah ditetapkan untuk menentukan kualiti air Pulau Perhentian. Parameter-parameter yang ditetapkan dan dilakukan ialah bilangan jumlah coliform, bilangan jumlah fecal coliform, *Escherichia coli*, permintaan oksigen biologi (BOD₃), jumlah bahan terampai dan alkaliniti.

Pada bulan April dan September, jumlah bilangan min coliform ialah 120.417 MPN/100mL dan 96 MPN/100mL, dan untuk kajian Fecal coliform, jumlah min ialah 5.750 MPN/100mL dan 43 MPN/100mL. Kegagalan untuk mengesan *E.coli* pada bulan April tetapi pada bulan september min jumlah ialah 8.833 MPN/100mL.

Untuk parameter jumlah bahan terampai adalah lebih tinggi berbanding dengan bulan April dimana bulan April ialah 1.767 ± 0.2629 mg/L dan pada bulan september ialah 2.587 ± 0.2333 mg/L. Untuk permintaan oksigen biologi, tidak ada perbezaan yang signifikan diantara dua masa penyempelan dimana min pada bulan April ialah 0.647 ± 0.3280 mg/L dan min pada bulan September ialah 0.557 ± 0.1481 mg/L. Untuk kajian alkaliniti, bulan September menunjukkan peningkatan dalam alkaliniti berbanding dengan bulan April iaitu min bulan September ialah 104.31 ± 2.2983

mg/L dan min bulan April ialah 101.53 ± 2.2983 mg/L.

Parameter hidrological seperti suhu, pH, konduktiviti spesifik, saliniti, penepuan oksigen terlarut dan oksigen terlarut adalah malar dalam kajian ini. Secara umumnya, Pulau Perhentian adalah sedikit tercemar tetapi adalah masih selamat dan sesuai untuk tujuan rekreasi.

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