ESTIMATION OF T90
AND BACTERIAL DIE-OFF RATE VALUES
IN THE ANTALYA BAY OF TURKEY

KEY WORDS

Marine outfall; T90 values; bacterial die-off rate; faecal coliforms bacteria; sea environment; tracer method, plastic bag method.

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ABSTRACT

Antalya is a holiday city at south of Turkey, at the side of Mediterranean Sea, and has a great tourism potential. The Environmental Project, including waste water collection and marine outfall systems are going to be developed for this city. By researchers, as presented hereby in this article, oceanographic measurements and microorganism concentration decrease investigation have been carried out in the seasons of Winter and Summer in 1993 at Antalya Bay.

To get T90 values two different test methods were used. These are tracer and plastic bag method. For tracer method, 2 m³ of waste water was mixed with 3 kg of Rhodamine-B and dumped from the boat into the sea at the planed outfall discharged area. Several samples collected in the center of the plume. Then coliform bacteria were tested by using membrane filter technique. Test results of coliform concentration were plotted versus time on a semi-logarithmic paper. T90 values were taken from slope of the line on the graphs and die-off rate constant were calculated.

The mean values of T90 obtained by using tracer technique at the Antalya Bay for winter and summer are found to be 25 and 20 minutes respectively. On the other hand plastic bag method results in the range of 22 to 74 minutes, and increasing of dilution ratio has caused too much higher T90 values.

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