

Study on the condition of untreated wastewater in combined sewer

Whole term

2001.6~2002.3

(Purpose)

The declining of water environment quality have become obvious, as drifting matters which may be come from combined sewer was found in Odaiba Seaside Park in Tokyo in September, 2000. Some parts of untreated wastewater such as mixing of rain and wastewater are discharge into rivers in areas which has combined sewer. The runoff with pollution loads such as effluent contained organic pollutants, nitrogen and phosphate, etc. might cause declining of public environment quality such as public water and beaches etc. However, the effects to discharge areas have not completely understood, as the situation has not investigated earlier. The investigation was carried out urgently by unified methods with Land, Sewerage and Wastewater Management Department City and Regional Development of Bureau of Infrastructure and Transportation Ministry, Japan Coast Guard and 13 public authorities in order to analyze water quality of untreated wastewater from storm outfall and pump facilities during storm event and the effect to river and sea by untreated wastewater.

(Method)

The investigation in each city was carried out by unified method in surrounding waters area in 13 local public authorities.

Attention-grabbing waters (the source of tap water and high water-attracting small river in the case of river, areas used for beaches, fishery and the easy access to water, etc.) were selected in the view point of water use. Afterward, samples were taken at the upstream which was not affected by untreated wastewater, downstream which was expected to be affected by untreated wastewater and outfalls for untreated wastewater.

Two investigations, during dry weather and storm event, were carried out in order to compare water quality that untreated wastewater was discharge.

(Results)

(1) The characteristic of water quality of untreated wastewater

It was found that the water quality of overflow decreased by continual rain and concentration decreasing after first flush of overflow. Moreover, it was found that the water quality of first flush had variation according to sampling points and the rain condition. It was found that overflow contained trash such as toilet paper, etc. and had the smell of sewage at some points.

(2) The condition of discharge areas (river)

The concentrations of BOD, COD, coliform group count and fecal coliform group count increase in response to untreated overflow in downstream in many cases, although the degrees are different according to the distances from outfalls and the conditions of river. The concentration of SS had a trend to increase during storm event in spite of existence or non-existence of overflow.

In addition, it was observed a significant increase of concentrations of BOD and COD at the point where didn't have outfall in upstream.

(3) The condition of discharge areas (sea)

It was found that each index had the concentration change during rain, although the degrees are different according to sampling points.

In the case that had the change of water quality after overflow, the change had the tendency to continue for longer time. In some case, coliform group count and fecal coliform group count didn't recover to the level in dry weather after 24 hours from the end of rain.

Collaborators: 13 Local authorities

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Key words

Combined sewer system, Untreated sewage, Monitoring