

Survey study on the biota formed in effluent receiving areas (Aichi Prefecture, Yokohama City, Hyogo Prefecture)

Whole term

2001.7-2004.3

(Purpose)

The quantitative rate of treated wastewater in the discharged area is increasing with the extended sewerage. Furthermore, the case where treated wastewater is used as reclaimed water for landscape is increasing, but the actual condition of the eco-system in the water environment made by treated wastewater is not fully understood. Thus, in this research, an effect and influence of treated wastewater on the ecosystem are realized, and the function of the sewerage for creating various eco-systems using treated wastewater is examined. Moreover, relationship between the actual condition of the biota produced from treated wastewater and environmental factors is considered.

(Conclusion)

This report describes the relationship between the biota and environmental factor in a discharged area from the results of an investigation in Aichi, Hyogo Prefecture, and Yokohama city.

(1) The outline of the Aichi investigation

In the Yahagi river purification center, reproducibility confirmation survey, biota survey, environmental condition survey, organism addition survey, and water temperature survey were conducted for the purpose of finding the effects of UV disinfection, HRT and river bed materials on organisms.

(2) The outline of the Yokohama investigation

In the Irie river, several years after improving a waterway, the monitoring survey were conducted on biota to change. Furthermore, an inhabitation research (water quality, attached material, and bottom material) and biota survey (attached algae and benthic animals) were carried out for the purpose of finding the influence of treated wastewater.

(3) The outline of the Hyogo investigation

In the discharged area of the Bukogawa upper stream purification center, water quality (water temperature, pH, the degree of fluoroscopy, etc.), attached material (attached algae and the amount of organic matters), and biota (attached-algae, benthic animals, fishes, and aquatic plants) survey were conducted for the purpose of evaluating the influence of actual treated wastewater.

(4) Survey results

- Aichi survey: At the survey place, the waterside is in the good condition due to a rare aquatic insect and precious freshwater red algae were found . In the reproducibility confirmation survey, UV promoted the growth of duckweed in an experiment pond , but the reasons were not identified. Moreover, also in organism addition survey, the result expected the control effect of attached algae was not gained; many subjects have been left behind.
- Yokohama survey: At the survey place, from the treated wastewater quality, it was good to have identified habitation of the fish (endangered species: IB) which inhabits in headstream. Although it was expected that a deposition of organism and attached algae increased as time passes, the diversity index was fluctuating and it was shown that a specific species was dominant.
- Hyogo survey: At the survey place, AI value was over 100, thus it was shown the result of being polluted organically in comparison with ordinary river. Although DO and pH of treated water were low comparing with river water, MLSS was low, water temperature was stable, and nutrient salt was rich.

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Key words

Treated water reclamation, Water environment, Biota