

## Investigation research on biota in receiving waters of the Yahagi-river purification center

Whole term

2001.7 ~ 2005.3

### ( Purpose )

By pouring treated wastewater in cooling pond and polishing pond, the Yahagi-river purification center aims at reduction of influence of receiving waters.

For such a purpose, in order to inquire about the method of wastewater treatment which lessens influence on an ecosystem, the survey of the existing institution is performed from 2000. In addition, the experimental facility was built in 2001. Investigation of biota formed with treated water and the cooling effect of treated water were studied using it.

Furthermore in 2002, biota investigation through year was conducted and verified about the method of experiment. Moreover in 2003, biological injection experiments and reproducibility check experiment were performed in order to investigate the influence about UV disinfection, retention period, and bed condition against treated water.

Based on past result and issue, the following investigations were conducted in 2004.

- 1 ) Investigation of environmental conditions
- 2 ) Investigation of biota
- 3 ) Influence which added the animate beings to the ecosystem
- 4 ) Effect of shading and radiation

### ( Result )

The result of this research is shown below:

- 1 ) Characteristic of water quality

According to investigation this year, animate beings production is considered to have changed to the system not only including inflow water but sediment. Moreover, transparency by cylinder test fell on after autumn. It is considered by sediment circulation generated for temperature fall of water surface. It is thought that there were many sediments in two years.

- 2 ) Adjustment of ecosystem

If its attention is paid to the nutrient salt used as the foundation of living thing production, a lot of nitrogen and phosphorus are included in final effluent. Moreover, the environment of an experiment institution is very stable. Consequently, the algae which is a producer was large-growth. And quantity of production exceeded greatly amount of predation by consumer of zooplankton and benthos.

- 3 ) Effect of shading and radiation

If radiator is used, treated water can be cooled efficiently. From this result, even if it does not extend cooling pond, it is thought possible to lower the temperature of treated water by using this equipment.

### ( Summary )

The following points became clear by this research:

- 1 ) Substance circulation including the living thing in an institution
- 2 ) Validity of radiation equipment

On the other hand, the following points are left behind as a future issue:

- 1 ) Relation between retention period and generating of phytoplankton
- 2 ) Depression effect of generating of algae by animate beings injection
- 3 ) Validity of shading sheets

A series of investigations are ended by the end of this year. We expect to become fundamental data in case this research examines the relevance of biota and an environmental factor.

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key words

UV disinfection ,retention period ,biota ,shading ,radiation ,water temperature ,cooling effect