WATER PURIFICATION PROPERTIES OF THE CONSTRUCTED WETLAND

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Various research institutes have been performing experiments and research on purification technology that takes advantage of the water purifications functions of wetland to conserve water environments, but it cannot be said that sufficient knowledge about its water purification properties when treating actual polluted water has been obtained, and in particular, there has been little research based on a long-term experiment that accounts for the optimum polluted water load conditions or optimum control methods. The author has, therefore, constructed wetland test facility planted with reed along the shoreline of Lake Kasumigaura and used it to perform a five-year experiment using actual polluted river water in order to study the water purification function of constructed wetland. This study obtained the following results.

(1) The nitrogen removal rate that can be counted on throughout the year was about
30% at a water depth of 10cm and retention time of 6 hours or more.
(2) It was hypothesized that most of nitrogen removal is caused by denitrification, but
this cannot be counted on in the winter.
(3) A phosphorus removal rate of about 25% can be counted on at a water depth of
10cm and at a retention time of 2hours or more, but if the retention time is prolonged, the removal rate falls.
(4) Ti was hypothesized that most of the phosphorus removal is caused by settlement
of particulate phosphorus, but in the long-term, this purification effect is lost as result of release from the dead reed.