

白洋淀菹草对富营养化水体总磷的净化

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- 摘要
- 参考文献
- 相关文章

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摘要

利用白洋淀区域鲃淀、王家寨和小淀3个淀区的水体、底泥和菹草组成室内静态的模拟生长体系, 研究白洋淀菹草在不同水体及底泥环境下的生长状况, 以及不同菹草生长体系对水体总磷的净化效果. 结果表明: 鲃淀菹草生长体系对水体总磷的净化效果最佳, 最大去除率为87.9%, 单位生物量对水体总磷的最大去除率为2.2%; 王家寨和小淀菹草生长体系对水体总磷的最大去除率分别为47.4%和76.9%, 单位生物量对水体总磷的最大去除率分别为0.9%和1.4%. 3个菹草生长体系的底泥对水体总磷吸附的最大百分比分别为9.1%、7.4%和7.7%. 菹草生长体系的TP-*t*和*v-t*拟合方程表明, 水体中总磷浓度及其去除速率随时间的延长以负指数形式衰减.

关键词: 菹草 白洋淀 富营养化水体 总磷 净化

Abstract:

Taking the water, sediment, and *Potamogeton crispus* collected from Shihoudian, Wangjiazhai, and Xiaodian in Baiyangdian Lake area into laboratory, three simulated static systems were built to study the growth of *P. crispus* and its effect on the removal of total phosphorus from eutrophic water and sediment. Among the three systems, Shihoudian system had the best purification effect, with the removal efficiency of total phosphorus from water body being 87.9%, followed by Wangjiazhai system 47.4%, and Xiaodian system 76.9%. The largest total phosphorus removal efficiency per gram biomass in Shihoudian, Wangjiazhai, and Xiaodian systems was 2.2%, 0.9%, and 1.4%, and the largest total phosphorus adsorption rate of sediments was 9.1%, 7.4%, and 7.7%, respectively. The TP-*t* and *v-t* fitted equations of the three systems indicated that the total phosphorus concentration in water and the removal rate of the total phosphorus were negatively exponentially decreased with time.

Key words: *Potamogeton crispus* Baiyangdian Lake eutrophic water total phosphorus purification

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