

沉水植物与生态浮床组合对水产养殖污染控制的研究

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Effect of Combination of Submerged Macrophyte With Ecological Floating Bed on Aquacultural Pollution Controlling

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摘要

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摘要 通过2009年9月—2010年2月测定陆基围隔中水生植物种植密度、浮床水面覆盖率、水质状况、浮游藻类群落特征及水生生物生长状况,研究了沉水植物与植物浮床相结合的新型养殖水体净化模式对养虾塘污染原位净化及水质调控效果。结果表明,养虾塘第V组围隔(单个围隔面积为3 m×3 m)内栽种苦草(*Vallisneria natans*) 4.0 kg和轮叶黑藻(*Hydrilla verticillata*) 3.0kg,与种植312株常绿鸢尾(*Iris hexagonus*)的植物浮床组合,对养殖污染的控制效果较好,TN、TP、COD_{Mn}分别从3.41、0.32、14.34 mg·L⁻¹降至0.79、0.02和11.96 mg·L⁻¹;第V组围隔内浮游藻类Margalef指数为4.00, Shannon-Wiener多样性指数为3.32, Pielou均匀度指数为0.76,显示养殖水体环境较稳定,水质相对较好。

关键词: 沉水植物 植物浮床 陆基围隔 养殖污染 水质净化

Abstract: Through monitoring the density of aquatic plants, surface coverage rate of the floating bed, water quality, characteristics of phytoplankton communities and growth of hydrobionts in a shrimp-rearing pond during September 2009 to February 2010, effects of combinations of submerged macrophytes with ecological floating beds on in-situ purification and regulation of water quality were studied. It was found that the combination of planting 4.0 kg *Vallisneria natans* and 3.0 kg *Hydrilla verticillata* with the floating bed of 312 hills of *Iris hexagonus* in Enclosure V was the most effective in controlling aquacultural pollution, with TN, TP and COD_{Mn} decreased in concentration from 3.41, 0.32 and 14.34 to 0.79, 0.02 and 11.96 mg·L⁻¹, respectively. In this enclosure, the Margalef index of phytoplankton was 4.00, the Shannon-Wiener diversity index 3.32, and the evenness index 0.76, which demonstrate that its water environment is quite stable and its water quality quite good. A new aquacultural water purification model of combining submerged macrophyte with ecological floating beds has been developed in this study.

Keywords: submerged macrophyte ecological floating bed Land-based enclosure aquacultural pollution water purification

Received 2010-09-14:

Fund:

国家水体污染控制与治理科技重大专项(2008ZX07101);上海市科学技术委员会重大项目(08dz1900408);上海市重点学科建设项目(Y1110、S30701)

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引用本文:

罗思亭,张饮江,李娟英,黄子贤,霍姮翠,董悦.沉水植物与生态浮床组合对水产养殖污染控制的研究[J] 生态与农村环境学报,2011,V27(2): 87-94

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