上海崇明岛明珠湖浮游植物群落结构

陈立婧1,吴竹臣1,胡忠军2,彭自然2,刘其根2**

1上海海洋大学省部共建水产种质资源发掘与利用教育部重点实验室, 上海 201306; 2上海海洋大学农业部水产种质资源与养殖生态重点开放实验室, 上海 201306

Phytoplankton community structure in Mingzhu Lake of Chongming Island, Shanghai.

CHEN Li-jing1, WU Zhu-chen1, HU Zhong-jun2, PENG Zi-ran2, LIU Qi-gen2

1Ministry of Education Key Laboratory of Exploration and Utilization of Aquatic Genetic Resources, Shanghai Ocean University, Shanghai 201306, China; 2Ministry of Agriculture Key Laboratory of Aquatic Genetic Resources and Aquaculture Ecology, Shanghai Ocean University, Shanghai 201306, China

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摘要 2007年1月至12月对崇明岛明珠湖的浮游植物群落结构和物种多样性的周年动态进行了初步研究.共发现浮游植物120种, 隶属于8门63属.优势种包括小席藻、微小平裂藻、旋折平裂藻、不定微囊藻和肘状针杆藻.浮游植物的年平均丰度和年平均生物量分别为5361.57×10^4 cell·L^{-1}和7.68 mg·L^{-1}.浮游植物现存量各月间差异极显著($P<0.01$),在7月达到最高峰值, 但各站点间差异不显著.浮游植物的Shannon多样性指数和Margalef指数夏秋季低, 冬春季高.生物学评价显示, 明珠湖冬春两季的水质要优于夏秋两季, 且目前正处于中富营养阶段, 水体为α-中污型.典范相关分析结果表明, 影响明珠湖浮游植物群落结构的主要因子依次为温度、总磷和总氮.

关键词: 明珠湖 浮游植物 多样性指数 典范相关分析 环境因子

Abstract: A preliminary study was conducted on the phytoplankton community structure and the annual variation of species diversity in Mingzhu Lake of Chongming Island from January to December 2007. A total of 120 phytoplankton species belonging to 8 phyla and 63 genera were collected, among which, *Phormidium tenue, Meismopedia tenuissima, M. convoluta, Microcystis incerta* and *Synedra ulna* were the dominant species. The mean annual density and biomass of the phytoplankton were 5361.57×10^4 cell·L^{-1} and 7.68 mg·L^{-1}, respectively. There was a significant difference in the monthly phytoplankton standing crop ($P<0.01$), being the highest in July, but no significant difference was observed among different observation stations. The Shannon index and Margalef index of the phytoplankton community were higher in spring and winter than in the summer and autumn. Biological evaluation indicated that the water quality of Mingzhu Lake was better in spring and winter than in the other two seasons, and canonical correlation analysis (CCA) suggested that the main factors affecting the phytoplankton community were water temperature, followed by total phosphorus, and total nitrogen.

Key words: Mingzhu Lake phytoplankton diversity index canonical correlation analysis (CCA) environmental factor

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[1] . **秦岭山地油松群落更新特征及影响因子**[J]. 应用生态学报, 2011, 22(07): 1659-1667.