

西沙群岛主要岛礁鱼类物种多样性及其群落格局

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Fish species diversity and community pattern in coral reefs of the Xisha Islands, South China Sea

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摘要

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摘要 为了解珊瑚礁海域鱼类物种多样性及其群落特征, 作者2003年5月在西沙群岛7座主要岛礁(北礁、华光礁、金银岛、东岛、浪花礁、玉琢礁和永兴岛)采用底层刺网进行了调查, 运用聚类分析和非度量多维标度(NMDS)等多元统计分析方法, 对7个岛礁鱼类的种类组成、优势种、多样性和群落格局进行了分析。调查海域共记录鱼类146种, 隶属10目31科; 各主要岛礁的鱼类以典型的热带种类为主, 如鹦嘴鱼科、蝴蝶鱼科、笛鲷科等珊瑚礁鱼类; 白边锯鳞鳗(*Myripristis murdjan*)、四带笛鲷(*Lutjanus kasmira*)、灰若梅鲷(*Paracaesio sordidus*)、双带梅鲷(*Caesio diagramma*)、单板盾尾鱼(*Axinurus thynnoides*)和灰六鳃鲨(*Hexanchus griseus*)为主要优势种; 全海域鱼类的Shannon-Wiener多样性指数(H')在1.91 - 3.33之间, 平均为2.81, 明显高于纬度较高的东海和黄渤海海域; 该海域鱼类可划分为两个群落, 即永乐群岛群落(群落I)和宣德群岛群落(群落II)。ANOSIM和RELATE检验表明, 两个群落间鱼类组成的差异显著($R=0.685$, $P=0.029<0.05$), 且群落格局较为稳定($R=0.958$, $P=0.003<0.01$)。

关键词: 鱼类 物种多样性 群落格局 底层刺网 珊瑚礁 西沙群岛

Abstract: We assessed fish communities using bottom gillnet surveys in 7 coral reefs (Beijiao Reef, Hua-guang Reef, Jinyin Island, Dongdao Island, Langhua Reef, Yuzhuo Reef and Yongxing Island) of the Xisha Islands in May, 2003 and analyzed species composition and diversity, dominant species, and community pattern using the software Primer. A total of 146 fish species belonging to 31 families and 10 orders were collected during the survey. Fishes in the coral reefs were dominated by the typical tropical species, including members of the families Scaridae, Chaetodontidae and Lutjanidae. According to the Index of Relative Importance (IRI), the six most dominant fish species were *Myripristis murdjan*, *Lutjanus kasmira*, *Paracaesio sordidus*, *Caesio diagramma*, *Axinurus thynnoides* and *Hexanchus griseus*, respectively. Shannon-Wiener diversity indices (H') ranged from 1.91 to 3.33 among reefs, with an average of 2.81. Overall, diversity indices for the Xisha Islands were higher than those found in the East China Sea, the Yellow Sea and the Bohai Sea, all of which are found at a higher latitude. The spatial pattern of fish communities was analyzed using hierarchical clustering and non-metric multidimensional scaling. Two major groups based on fish assemblages were identified, with group I located in the Yongle Islands and Group II in the Xuande Islands. ANOSIM and RELATE tests showed significant differences ($R=0.685$, $P=0.029<0.05$) in fish assemblages between these groups and the community pattern were quite stable ($R=0.958$, $P=0.003<0.01$).

Keywords: fish species diversity community pattern bottom gillnet coral reef Xisha Islands

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