

金枪鱼类耳石微化学研究进展

朱国平^{1,2*}

1上海海洋大学大洋渔业资源可持续开发省部共建教育部重点实验室, 上海 201306; 2大洋生物资源开发和利用上海市高校重点实验室, 上海 201306

Otolith microchemistry of tuna species: Research progress.

ZHU Guo-ping^{1,2}

1Ministry of Education Key Laboratory of Sustainable Exploitation of Oceanic Fisheries Resources, Shanghai Ocean University, Shanghai 201306, China; 2Key Laboratory of Shanghai Education Commission for Oceanic Fisheries Resources Exploitation, Shanghai 201306, China

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摘要 近年来, 基于鱼类钙化物中微量元素和同位素等微化学成分分析已成为分析鱼类种群结构、生活史及洄游环境史等的一种新兴手段. 随着鱼类耳石微化学研究及应用的日渐成熟与完善, 该手段也日益成为金枪鱼类生态学研究的良好工具. 目前金枪鱼类耳石微化学的研究内容主要包括微量元素和同位素等, 其中微量元素是应用研究的重点和热点, 其在金枪鱼类, 尤其是蓝鳍金枪鱼种群划分、出生源、洄游环境史和生活史分析等方面发挥了重要的作用. 但多数研究集中在耳石锶钙比率(Sr/Ca)的变化上, 且关于耳石碳氧同位素分馏与温度之间的关系尚无定论. 为了开发耳石微化学的巨大价值, 有必要加强对其沉积机理的研究, 并采用综合研究方法从时空角度分析耳石中多种微量元素的含量及其变化.

关键词: 金枪鱼类 耳石 微量元素 同位素 微化学

Abstract: Microchemistry analysis of trace elements and isotopes in fishes' calcified substances is an emerging approach to analyze the population structure, life history, and migration environmental history of fishes. With the increasing improvement of the researches and applications of otolith microchemistry, this approach has been a good tool for studying the ecology of tuna species. Currently, the research contents of tuna species' otolith microchemistry mainly include trace elements and isotopes, and the former is the emphasis and hotspot in applied research, playing a vital role in the researches of population partitioning, natal origin, migration environmental history, and life history of tuna species, especially bluefin tuna. However, most of the researches are focusing on the variation of otolith's Sr/Ca ratio, and there is no final conclusion on the relationships between the fractionation of isotopes C and O in otolith and the temperature. For the sake of exploiting the huge value of otolith microchemistry, it would be necessary to strengthen the researches on the deposition mechanisms of trace elements in otolith, and to analyze the spatio-temporal variations of various trace elements in otolith by comprehensive research methods.

Key words: tuna species otolith trace element isotope microchemistry

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