

东太平洋大青鲨脊椎骨的稳定同位素比值研究

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Analysis of stable isotope ratio of vertebrae of blue shark (*Prionace glauca*) in the eastern Pacific Ocean

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摘要

脊椎骨常用于鉴定鱼类年龄,但脊椎骨也包含了摄食信息,这方面的研究在国外也刚起步。文章以大洋性鲨鱼——大青鲨 (*Prionace glauca*) 脊椎骨为样品,对椎体中心(椎心)、椎心与外缘的中间部位(中部)、椎体外缘(外缘)3个部位的碳、氮稳定同位素比值($\delta^{13}\text{C}$ 、 $\delta^{15}\text{N}$)和由此估算的营养级进行比较研究。结果表明,样品的 $\delta^{13}\text{C}$ 值、 $\delta^{15}\text{N}$ 值和营养级范围分别为 $-16.64\text{‰} \sim -13.08\text{‰}$ 、 $9.29\text{‰} \sim 22.37\text{‰}$ 和 $2.73\text{‰} \sim 5.73\text{‰}$ 。椎心与中部、中部与外缘、椎心与外缘的 $\delta^{13}\text{C}$ 值、 $\delta^{15}\text{N}$ 值和营养级估算值分布均不存在显著性差异(K-S检验, $P > 0.01$)。运用椎骨进行相关研究时,可以椎骨的不同部位作为样品,开展基于脊椎骨碳、氮稳定同位素比值的鲨鱼摄食与营养级研究,为进一步揭示大洋性鲨鱼的摄食动态提供参考。

关键词: 大青鲨, 脊椎骨, 稳定同位素, 营养级, 东太平洋

Abstract:

Vertebrae are usually used to determine age and growth for sharks. Recent studies have shown that vertebrae contain important information about feeding and trophic level. In this study, vertebrae of blue shark (*Prionace glauca*) were used to estimate stable isotope ratios of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ which were $-16.64\text{‰} \sim -13.08\text{‰}$, $9.29\text{‰} \sim 22.37\text{‰}$, and $2.73\text{‰} \sim 5.73\text{‰}$, respectively. The vertebra samples were sub-sampled from the origin, middle and outer edge of centrum. The $\delta^{13}\text{C}$, $\delta^{15}\text{N}$, and TL between origin and middle, between middle and outer edge, and between origin and outer edge were not significantly different, indicating sub-sampling might be made at any of these positions. This results provide important information for further studies on trophic dynamics of pelagic sharks.

Key words: *Prionace glauca* vertebra stable isotope trophic level the eastern Pacific Ocean

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