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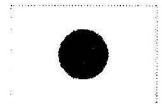
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Food organisms for fish gathering at artificial reefs

Kenji NAKAMURA

matsu@chateau-kaiyou.co.jp



Chateau Marine Survey Co., Ltd. 1-4-2 Katamachi, Miyakojima-ku, Osaka-shi-JAPAN

Abstract

Artificial reefs are considered as the places for various kinds of fishes to gather, hide or search for prey. In order to comprehend the function of artificial reefs as feeding spots, the food organisms for two fish species from two types of artificial reefs in Japan were investigated. Our study focused on the Jack mackerel (*Trachurus japonicus*), which gathered around the high-rise artificial reefs, and the Chicken grunt (*Parapristipoma trilineatum*) that gathered in the artificial upwelling fishing grounds. Target species were caught through angling and gillnetting, and then their stomach contents were analyzed. We also collected the food organisms for fishes at and around the artificial reefs, and analyzed them by carbon and nitrogen stable isotope ratios. According to stable isotopes, which could reflect the dietary history, prey species were estimated. Through analyzing the stomach contents, it was confirmed that Jack mackerel mainly fed on zooplankton, while Chicken grunt mainly fed on amphipods and decapods. On the other hand, by the carbon and nitrogen stable isotope ratios, the food organisms for Jack mackerel were estimated to be zooplankton, while for Chicken grunt were zooplankton and larval fishes. The study comes to a conclusion that artificial reef not only is a place for fish gathering, but also forms a food chain which relates prey to predator fishes. It is suggested that artificial reefs can be utilized effectively for fish feeding, since fishes feed on the food organisms that inhabit or surround them.

Keywords: carbon and nitrogen stable isotope ration, food chain, *Parapristipoma trilineatum*, stomach content, *Trachurus japonicus*