

Animal $^{13}\text{C}/^{12}\text{C}$ Correlates with trophic level in pelagic food webs

G. H. Rau^{2,3}, A. J. Mearns⁴, D. R. Young⁵, R. J. Olson⁶, H. A. Schafer⁷, and I. R. Kaplan²

¹*Southern California Coastal Water Research Project, Long Beach, CA*

ABSTRACT

Ecologists have long been interested in the feeding relationships, the nutrient and energy pathways, within animal communities (Odum 1968). Such relationships among animal consumers can be of more than academic interest from the point of view of harvesting, academic interest from the point of view of harvesting, managing, and protecting species of importance to man managing, and protecting species of importance to man (e.g., Ryther 1969, Odum 1971, Steele 1974, Whittaker 1975, Beddington and May 1982, among others). However, the consumer pathways nutritionally linking an animal to a community's food base and the subsequent role played by that animal in the diet of higher consumers (in sum the trophic status of that animal) are often difficult to evaluate. Direct observation of feeding behavior can be logistically impractical, and indirect methods such as analysis of gut contents or feces can be less than satisfactory. In an attempt to explore other ways of discerning trophic status, we elected to measure stable carbon isotope natural abundance in a variety of marine animals spanning a known range of feeding behaviors within certain geographic regions.

Due to distribution restrictions, the full-text version of this article is available by request only.

Please contact pubrequest@sccwrp.org to request a copy.