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Trophic structure and the cesium-potassium ratio in pelagic ecosystems

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ABSTRACT

Collections of plankton and pelagic squid, fishes, and marine mammals from the Southern California Bight and the eastern tropical Pacific were made to determine what, if any, relationships exist between trophic level and the cesium-potassium (Cs/K) ratio. Numerical trophic levels assignments were computed independently from stomach content analysis data and were then compared to concentrations of Cs and K, as determined by atomic absorption spectrometry of muscle tissues, and to the Cs/K ratio, which was found to increase by a factor of 2.4 per trophic step. This increase is higher than that found in inshore food webs, suggesting that pelagic food webs may be more highly structured than those inshore. The need for more rigorous methods for making tropic levels assignments is discussed.