FEEDING HABITS OF CYCLOTHONE IN THE NORTH PACIFIC SUBTROPICAL GYRE INFERRED FROM STABLE ISOTOPIC COMPOSITIONS

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ABSTRACT

Micronekton communities are important in the ocean's food web and are an important prey resource for larger predatory species, thus they are a gateway for biomass transfer through the mesopelagic food web. Understanding the feeding habits of *Cyclothone*, the most abundant micronektonic fish in the world, is important for determining the significance of food webs fueled by sinking particulate organic matter (δ^{15}N ~3‰ bulk) or suspended particles (δ^{15}N 8‰ bulk). The δ^{15}N values of animals are commonly used to estimate trophic position and recognize trophic connectivity. Bulk tissue and amino acid compound specific stable isotope analyses were performed on *Cyclothone* specimens collected from two cruises at Station ALOHA (22.45°N, 158°W). Species differences were observed. *C. pallida*, *C. atraria*, and *C. microdon* average bulk tissue δ^{15}N values were similar to that of large predatory species (10.77 ± 2.45‰, 12.75 ± 0.21‰, and 12.85 ± 1.88‰, respectively), whereas *C. alba* and *C. pseudopallida* average bulk tissue δ^{15}N values were similar to that of other meso- and bathypelagic micronekton species (7.08 ± 0.51‰ and 7.78 ± 0.70‰, respectively). δ^{15}N values of individual amino acids were used to investigate if the differences in the δ^{15}N value of bulk tissues of these two groups of *Cyclothone* were due to variations in nitrogenous nutrient sources or trophic position. *C. pallida* trophic position were greater by ~0.4 compared with *C. alba* and *C. pseudopallida*. Mass balance models using source AAs indicated suspended particles as a significant base of food webs contributing to *C. pallida* diet and which influence their bulk tissue δ^{15}N values.