

DEPTH ZONATION OF DEEP-SEA MEGAFUNAL SCAVENGERS
OF THE HAWAIIAN ISLANDS

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ABSTRACT

Scavengers are important structural and functional components of deep-sea ecosystems. However, the scavenging fauna of oceanic islands, such as the Hawaiian archipelago, has remained very poorly studied. The deep-sea benthic and demersal scavenging communities of Oahu and the Northwestern Hawaiian Islands were explored with the use of baited time-lapse free-vehicle cameras. My aim was to identify scavenger assemblages and investigate depth related trends in community composition, species richness, and scavenger size and abundance. Twenty-two deployments ranging in depth from 250 - 4783 m yielded 37 taxa attracted to bait including records of 5 fish species previously unknown to the Hawaiian Islands and the first occurrence of the family Zoarcidae. Cluster analysis of Bray-Curtis similarity of species peak abundance revealed 4 main depth groupings (250-500, 1000, 1500-3000, and ≥ 4000 m) with significant separation between designated groups. Dominance in species assemblage shifted from decapod crustaceans to teleosts with increasing depth. A major faunal break was identified at the 500-1000 m transition, where species turnover was greatest. Significant size differences (TL) with depth were found for 2 of the 4 fish species examined. *Synaphobranchus brevidorsalis* were larger deeper while for *Simenchelys parasitica* the opposite relationship held (smaller deeper), in opposition to previous reported depth trends for scavenging fish. A logarithmic decline was observed in scavenger relative abundance with depth. Evidence of scavenger-scavenger interaction between *Synaphobranchus affinis* and *Neolithodes* sp. (competition) and *Histiobranchus bathybius* and an Aristied shrimp (possible predator-prey) was observed, indicating the need for caution when using baited cameras to index abundance.