

PATTERNS OF VERTICAL DISTRIBUTION, VERTICAL MIGRATION,
AND REPRODUCTION IN THE HAWAIIAN MESOPELAGIC SHRIMP
OF THE FAMILY OPLOPHORIDAE

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ABSTRACT

The vertical distributions and reproductive patterns of six common species of Hawaiian Oplophoridae are presented. Two different patterns of adult vertical distributions were observed: one common species was found below 700 m both day and night; five common species lived above 700 m and underwent extensive vertical migrations to shallower waters at night. The vertical distributions of the larval stages were related to the depth distributions of the adults, the type of embryonic development, and the amount of yolk in the embryo at the time of hatching.

Seasonal peaks in spawning were observed in two common species, and evidence of continuous spawning was observed in four common species. It is suggested that the period of spawning of Acanthephyra smithi, whose zoeal stages inhabit the upper 200 m, occurred when surface waters were warmest.

The patterns of reproduction observed in the family Oplophoridae suggest that selective pressures on the populations, which appear to be near the carrying capacity of the environment, have resulted in either long life and multiple reproductions, or non-seasonal reproduction.