

ASPECTS OF THE BIOLOGY OF MESOPELAGIC FISHES OF THE GENUS CYCLOTHONE

(PISCES: GONOSTOMATIDAE) IN HAWAIIAN WATERS

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ABSTRACT

Seven species of the abundant mesopelagic genus Cyclothone (Pisces: Gonostomatidae) occur off Hawaii; C. alba, C. pseudopallida, and C. pallida comprise more than 98% of the genus' standing stock which averages 318 fishes and 31 g (wet weight)/100 m² of ocean surface. Larvae develop in epipelagic waters. Adults of these three species do not undertake diel vertical migration and occupy slightly overlapping depth ranges between 425 and 1,350 m. The Cyclothone stock appears to be in equilibrium; no temporal pattern was found in the course of two years' sampling for length-frequency distribution, standing stock, and gonad development. Copepods and ostracods constitute the most common prey. The feeding rate appears remarkably low and shows no diel periodicity. Adult otolith growth increments present a paradox--neither a daily nor an annual periodicity seems consistent with other life history aspects. Sexual dimorphism includes smaller, macrosomatic males which are less numerous than females, but no evidence of protandry was found. Both sexes have large reproductive investments. These characteristics seem to be adaptations to a life of lethargy and concealment which allow Cyclothone to maintain their numerical superiority over other midwater fishes.