Zooplankton Studies in Lentic Ecosystems: Phase V - Cyclomorphosis

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The purpose of this project was to determine if cyclomorphosis occurs among any of the zooplankton populations in Lake Springfield and, if so, when does it occur. Samples were collected twice per month, every other week, beginning in March and ending in November. During each sampling date, physical, chemical and biological parameters were collected. Physical parameters of depth, 1% light, impinging light, ambient air and surface water temperatures were measured using the appropriate equipment. Chemical parameters of pH, carbon dioxide, dissolved oxygen, phosphates and nitrates were analyzed using a HACH limnology test kit and test strips. Zooplankton samples were collected with an 80 micron mesh zooplankton net. All zooplankton samples were then observed and analyzed in the lab using a Ward Zooplankton Counting Wheel placed under a dissecting microscope. Six different categories of zooplankton were identified and counted. Cyclomorphosis was only observed in the Daphnia populations, with cyclomorphic Daphnia initially appearing in July, peaking in August and completely disappearing in late October of 2020. As predicted in the original hypothesis for this experiment, various zooplankton populations in Lake Springfield do exhibit cyclomorphosis, and this phenomenon occurs during warmer temperatures. By examining the cyclic nature of growth of all the zooplankton populations observed in this study, predator avoidance would seem to be a more likely explanation for the induction of cyclomorphosis in Daphnia.

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