COMMUNITY METABOLISM IN A HAWAIIAN FISHPOND AND ITS RELATIONSHIP TO SELECTED ENVIRONMENTAL FACTORS

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ABSTRACT

Community, microbenthic, and planktonic metabolic rates were measured in a Hawaiian fishpond from June 1966 through June 1967. Incident and penetrating light intensity, dissolved phosphate, nitrate and nitrite, and silicate, temperature, salinity, and pH were measured concurrently. Primary productivity and respiration were greatest in the fall and spring. Light was the most important factor limiting primary productivity because of the turbidity of the pond water. Dissolved inorganic nutrients did not appear to be limiting.

The Q_{10} for community respiration was 3.8 from 22°C to 32°C. Community respiration exceeded gross primary productivity by 212 g C/m^2 yr. Organic matter was probably imported from the surrounding mangrove swamp.