Dynamics of benthic invertebrates in a tropical man-made lake (Volta Lake 1964—1968)
Standing crop and bathymetric distribution

By T. PETR, Clayton, Australia

With 6 figures and 3 tables in the text

Abstract
During the first five years of filling of Volta Lake (in Ghana, West Africa) two major groups of invertebrates dominated the benthic fauna: ephemeropterans, especially the nymphs of Povilla adusta NAVAS, and chironomids, especially the larvae of Nilotorom brevibucca FREEMAN and Chironomus spp. Their later decline in numbers resulted in a decrease in the biomass of the benthic invertebrates in the lake.

The quantitative and qualitative changes in the benthic fauna in this lake seem to be determined to a large extent by changes in the substratum due to shoreline erosion. The lowering of the oxygen discontinuity and the prolongation of periods of high dissolved oxygen content in deep water helped the bottom fauna to occupy greater depths, but did not seem to prevent the decrease in the total standing crop of benthic invertebrates in the lacustrine sector during the process of lake ageing. The major inflows may be held responsible for maintaining a high biomass of the bottom fauna in areas under their direct influence.

Introduction
The damming of the Volta River in Ghana in 1964 presented a unique opportunity to determine whether or not the bottom of the new lake would be colonized by benthic organisms, and, if so, how long this process would take. It was important initially to know the answer to these questions in order to know whether the insectivorous fishes of riverine origin, especially benthic feeders, present in the new lake, would find enough food in the new environment.

A narrow epilimnion, which established itself soon after the closure of the dam in the gorge region close to the dam, was expected to prevent the bottom organisms from occupying the deep bottom. An exception to this would be Chaoborus larvae which are mobile and capable of surviving certain periods of time in deoxygenated mud. But even this organism did not establish itself in the gorge region (PETR 1972 a) although it appeared in large numbers in one other area of the lake. All the other bottom inverte-

DOI:10.1127/archiv-hydrobiol/73/1974/245
(c) 2017 www.schweizerbart.com