Richter, G. 1969 ["1968"]. Heteropoden und Heteropodenlarven im Oberflächen-plankton des Golfs von Neapel. Pubbl. Staz. Zool. Napoli, 36:346-400.

Wertzberger, Judy. [1968]. Observations on the behavior, life history and shell polymorphism in *Hiloa variabilis* Pease. Unpubl. M.Sc. thesis, Univ. Hawaii.

REMARKS ON SHELL MORPHOLOGY

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Abstract

Dr. Bruce Miller and I are approaching the problem of a workable generic separation of the Terebridae from different angles. Mine is based on shell morphology. The genera proposed for this family in the past are impractical, being based for the most part on shell characteristics which are variable within many species. There are shell characteristics which do not vary within a species of this family: shape of nucleus; interior columella; shape of whorl outline (concave, straight, convex); lamination of the columella. My hope is that a combination of some of these unvarying features will correlate with the work Dr. Miller is doing on animal morphology to produce a really sound basis for generic division.

A STUDY OF THE GROWTH RATE AND LONGEVITY OF THE NAIAD *AMBLEMA PLICATA* (SAY, 1817) IN LAKE ERIE (BIVALVIA: UNIONIDAE)

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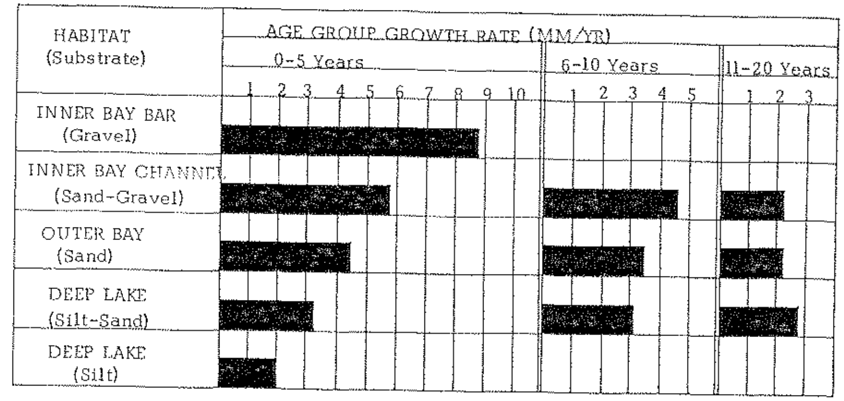
Although studies of the age and growth of domestic animals and wild animals of economic importance are rather commonplace, there exist a number of animal species which man has either not studied in this regard or has limited his observations to a relatively few unsatisfactory measurements. This condition was true of fresh water bivalves in general until many of the commercially valuable species were harvested to a point dangerously near extirpation by collectors for the button industry and pearl-seekers.

The first indication of the depletion of this natural resource prompted government sponsored studies of these forms in the first several decades of this century and resulted in valuable studies by Lefevre and Curtis (1912), Isely (1914), Coker et al. (1921), Grier (1922), and, most especially, by Chamberlain (1931). Chamberlain used the annular ring method to demonstrate growth rate and longevity in several unionid species and went further to note differences in growth rate in different populations of the Yellow Sand Shell, *Lampsilis anodontoides*, due apparently to differences in habitat.

Grier (1922) first noted the unusual regularity of the annular rings in Lake Erie naiads and Stansbery (1967) took advantage of this characteristic in

MEAN GROWTH RATES OF AMBLEMA PLICATA (SAY) IN

LAKE ERIE IN RELATION TO HABITAT



deriving generalizations about growth variation in the lake fauna relative to both habitat and classification.

This study is an attempt to investigate variation in the growth and longevity of a single species as affected by differences in habitat in a relatively small area. Data were collected from specimens taken from five different habitat areas in the Bass Island region of Western Lake Erie. These sampling sites included: 1) Deep Lake (silt bottom); 2) Deep Lake (fine sand bottom); 3) Fishery Bay, Outer Bay (silt bottom); 4) Fishery Bay, Inner Bay Channel (coarse sand bottom); and 5) Fishery Bay, Inner Bay Bar (gravel bottom).

Mean lengths for each year of growth for each habitat were calculated from measurements taken from the specimens. These means, along with their respective extremes, were plotted on graph paper giving a growth curve for each habitat sampled. The growth rates for the different habitats were compared on the basis of age periods since it was observed that the rates decreased differently with age. Rates of growth of specimens during their first five years of life were slowest in the fine sediment substrates in the deepest water. The most rapid rates during this early growth period were exhibited by mussels from coarse sediments in shallow water. Although all rates decreased during the second five year growth period, the rate of the deep-water, fine-sediment specimens decreased least so that the rates become more nearly the same. In the third and fourth five-year periods the rates of the deep lake specimens continued to decrease at a relatively slower rate. This resulted in those specimens (deep lake) which exhibited the lowest initial growth rate having, after ten years of growth, the greatest relative growth rate at that time. Rates in the study varied from a low of 2.4 mm/yr to a high of 8.8 mm/yr. The general inference is that those individuals living in the deeper water, and finer sediments (factors associated with reduced current) grow slower, undergo less change in growth rate during their lives, and live longer. The oldest specimen aged was estimated to be 32 years of age and was living at the time collected.