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SOME ASPECTS OF THE
ECOLOGY OF THE INTERTIDAL BENTHIC
BIOTA OF THE MANAWATU RIVER ESTUARY

A thesis presented in partial fulfilment of
the requirements for the Degree of Master of
Science in Zoology at Massey University

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This study was undertaken to investigate some of the aspects of the ecology of the benthic flora and fauna on mudflats at the Manawatu River estuary. Scientists and laymen alike are becoming generally aware of the dearth of information known about most New Zealand estuaries.

Four samples were taken at four stations along transects that were positioned up the estuary to give a transition from almost seawater to river water with no tidal influence.

Previous works on estuaries, and descriptions of the methods implemented are given, followed by the results obtained.

One section is devoted to the testing of salinity (chlorinity) tolerances and preferences of male Helice crassa (Dana), the common mud crab. This work is not in the depth of that carried out by Phillips (1968) on Hemigrapsus edwardsi (Hilgendorf), but it does give a hitherto undocumented account, albeit brief, of the effects of various salinities on the serum chloride content of male specimens of Helice crassa of varying body weights.

The author has tried to relate environmental salinities along with the other factors measured; Sediment size, pH, Redox potentials (Eh), Oxygen content and temperature, to the distribution of all the plants and animals found.

It appears that mainly sediment size, incorporating silt content, exposure time of the mudflat between tides and the water content of the sediments are the factors determining biotal distributions. Temperature is so variable seasonally that the animals adapt to the changes, oxygen appears in high enough concentrations as not to be significant, pH is reasonably constant and Eh is highly variable but within a range tolerated by all animals found.

A possible beach zonation is also discussed.

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