

SOME ASPECTS OF THE ECOLOGY OF LINGULA  
(BRACHIOPODA) IN KANEOHE BAY, HAWAII

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## SUMMARY

The ecology of the brachiopod Lingula reevii was investigated in Kaneohe Bay, Oahu, Hawaii. The results of the study are as follows.

1. The species was found to be abundant only on the shallow reef platforms of the southern sector of the bay. Although found over large areas of the reef platforms, their greatest densities were found in sandy sediments near the reef edges. The distribution and abundance appear to be related mainly to substratum, predators, food supply and clam diggers.

2. It had a random microdistributional pattern, in areas of high density, that suggests intraspecific independence.

3. It did not have a preferred shell orientation.

4. It proved to be well adapted to sediment instability.

5. It can survive in waters having salinities between 20 and 35‰.

6. It can endure prolonged starvation.

7. Portunid crabs are important predators of L. reevii. Their predatory effect may be severe. Predation can account for the absence of the brachiopod in the deeper parts of the bay.

8. Although L. reevii and the clam Tapes philippinarum co-occur, their niches appear to be separate and competition is not considered to be significant.

9. L. reevii has a 1:1 sex ratio and appears to spawn most of the year.

10. Shell growth was estimated by a notch-recovery method. Shell length decreased linearly with increasing size. Growth depended on the food supply of the waters.

11. A synthetic age-length curve was constructed on the basis of growth data. Longevity is estimated to be 5 to 8 years.

12. L. reevii is not considered to be an important member of the Kaneohe Bay ecosystem.

13. Positive estuaries are thought to be the typical environment of Lingula

14. Fossilization of Lingula probably is not occurring in Kaneohe Bay. It is suggested that abnormal environmental events are responsible for fossil Lingula.