Factors affecting the abundance of three commercially important bivalve species (Family: Veneridae) in Puttalam lagoon and Dutch bay in Sri Lanka.

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The effect of water salinity, soil texture and seagrass coverage on the abundance of three commercially important bivalve species namely, *Gafrarium turnidum*, *Marcia hiantina* and *Marcia opima* were studied in Dutch bay and Puttalam lagoon, Sri Lanka for a period of 2 years from September 1991 to August 1993 at 15 sampling sites. The relative abundance of bivalves in Dutch bay and Puttalam lagoon ranged from 21.75 to 41.83/m^2 and from 0 to 20.43/m^2 respectively. Water temperature ranged from 27 to 34°C at all sampling sites during the study period. In the south western part of the lagoon, the abundance of bivalves were low due to high salinity levels which ranged from 35 to 43 ppt. The bivalve abundance in Dutch bay area was high throughout the year possihly due to favourable salinity levels that ranged from 34 to 35 ppt.

The seagrass coverage ranged from 19.2-75.2% recorded at Puttalam lagoon to 76.8-92.8% recorded at Dutch bay area. In Dutch bay and Puttalam lagoon, the percentage sand content in soil ranged from 87.5 to 90.4% and from 71.3 to 86.4% respectively. The percentage clay content in these two areas ranged from 6.0 to 9.5% and from 10.2 to 28.2% respectively.

The percentage organic matter content in the soil in the Dutch bay area and Puttalam lagoon ranged from 5.9 to 6.4% and from 1.6 to 5.2% respectively. The abundance of bivalves in Dutch bay and Puttalam lagoon is highly correlated with the water salinity ($r = -0.57$, $p < 0.001$), sand content ($r = 0.89$, $p < 0.001$), clay content ($r = -0.89$, $p < 0.001$), soil organic matter content ($r = 0.53$, $p < 0.05$) and average seagrass coverage ($r = 0.89$, $p < 0.001$). Therefore, it appears that environmental factors such as salinity, nature of the substrate and seagrass coverage significantly affect the abundance of these three bivalve species in Puttalam lagoon and Dutch bay in Sri Lanka.

Key words: Bivalve abundance, salinity, soil texture,