

## Seasonal changes in *Porteresia coarctata* (Tateoka) beds along a subtropical coast

### ABSTRACT

Shoot density, standing crop (above- and below-ground biomass) and habitat of salt marsh grass *Porteresia coarctata* were investigated along the coast of Bakkhali estuary, Cox's Bazar, Bangladesh from January to December 2006. Shoot density of *P. coarctata* was influenced by season and was found to be higher ( $>2\ 500$  shoots/m<sup>2</sup>) in post-monsoon and minimal in monsoon season; plants were particularly active in vegetative propagation during pre-monsoon. Above-ground biomass was greater along the protected coast compared with the exposed one in this estuary. Below-ground biomass was higher (7.75-269.53 g DW/m<sup>2</sup>) than that above ground (2.20-114.75 g DW/m<sup>2</sup>). Standing crops of *P. coarctata* showed a negative relationship ( $R = -0.77$ ;  $P < 0.05$ ) with sedimentation rate, while seasonal activity influenced sedimentation. The recorded sedimentation rate was lower (6.09 mg/(cm<sup>2</sup>·d)) in pre-monsoon and highest (14.55 mg/(cm<sup>2</sup>·d)) in monsoon season. The mean value of pore water salinity was higher ( $34.25 \pm 5.05$ ) during post-monsoon and lowest ( $18.0 \pm 3.71$ ) in monsoon season. The soil was sandy clay in this *P. coarctata* bed; it consisted of 86% sand, 13% clay and 1% silt. Soil organic matter dropped during the monsoon season (0.78%-0.67%) and was highest ( $(2.17 \pm 1.42)\%$ - $(2.3 \pm 1.47)\%$ ) during post-monsoon, probably owing to accumulation of decomposed peat on the marsh surface. The mean pore water NH<sub>4</sub>-N concentration ranged from  $2.44 \pm 1.65$  to  $3.33 \pm 1.82$  µg/L, with a minimum air temperature of 22.09°C in post-monsoon and a maximum of 31.16°C in pre-monsoon. Variations of physico-chemical parameters in the soil, water, and climate governed biological parameters of *P. coarctata* in the Bakkhali estuary, and were comparable with estuarine environments elsewhere.

**Keyword:** Bangladesh; *Porteresia coarctata*; Salt marsh; Standing crop