A sediment core was taken to determine if sediment accumulation rates could be conducted using $^{240+239}\text{Pu}$ signatures in the coastal mangrove mudflats of southeastern Brazil. The results from this study show that $^{240+239}\text{Pu}$ fallout activities are sufficient and well preserved in the coastal sediments of this region. Sediment accumulation rates determined from the $^{240+239}\text{Pu}$ signatures were 4.4 mm/year and 4.1 from $^{210}\text{Pb}$ (CIC) method. A sediment mixing coefficient rate was calculated using chlorophyll-α profile (9.5 cm$^2$).