We monitored $^{222}$Rn activity in pore water every two hours continuously from August 2010 to January 2011 in a coastal zone, Uljin, Korea. The monitoring station is located ~ 70 cm below seafloor; the distance from shoreline is ~ 4 m; the average water depth is 1.5 m. The activity of $^{222}$Rn was measured using a radon-in-air monitor (RAD7, Durridge Co.) connected to an air-water exchanger. Salinity was measured using a mini conductivity sensor (DST CTD, Star-Oddi). The activity of $^{222}$Rn showed a large variation from 80 to 22000 Bq/m$^3$, with some anomalously high peaks. The $^{222}$Rn activity decreased by a factor of 3 – 4 from August 2010 to January 2011, as mean sea level decreased. The salinity decreased from 36 to 26 as local sea level decreased during the monitoring period. In general, the activity of radon in the subterranean estuary is dependent on hydraulic gradient, wave setup, and tidal pumping. However, we could not find any dominant factor controlling the mixing rate of groundwater with seawater in this subterranean environment. This implies that actual mixing process of groundwater and seawater in the subterranean estuary is much more complicated than what we have thought.