

PB8) Geochemical Characteristics of Halophyte (*Scirpus planiculmis*) Habitats in the Nakdong Estuary, Korea

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The Nakdong Estuary has experienced hydraulic and topographic changes over the last century. These alterations in the physical environment have had negative effects on habitat loss and fragmentation. The population of *Scirpus planiculmis*, which is a major food plant for wintering birds in Nakdong Estuary, has decreased over the last decade. To identify factors that influence *S. planiculmis* population, 2 short core samples (about 30cm) were collected at Vegetation Area (VA) and Non-Vegetation Area (NVA) in June, 2018. In sediment cores, temperature, salinity and pH were measured at 2 cm intervals *in situ*. Grain size, stable carbon isotope ratios ($\delta^{13}\text{C}$) and elements (major and minor) contents were analyzed in laboratory. Both sediment cores contained more than 80% sand but the percentage of silt and clay in NVA core was higher than VA core. The result of Principal Component Analysis indicates that sediment grain size influences the elemental composition of sediment. Salinity between VA (17.7 ± 0.81 psu) and NVA (17.8 ± 0.69) was similar, but pH was different between VA (6.75 ± 0.28) and NVA (7.03 ± 0.16). At upper 10 cm (root depth of *S. planiculmis*: about 9 cm), especially, pH of VA (6.44~6.72) was about 0.69 lower than that of NVA (7.18~7.33), indicating that sediment pH was not influenced by dam discharge but other reasons, such as secretion of acids as root exudates. $\delta^{13}\text{C}$ of sediment cores ranged from -25.3 to -22.6. $\delta^{13}\text{C}$ of sediment cores fell within the estuarine Particulate Organic Matters (POM) and the highest $\delta^{13}\text{C}$ value was observed at the surface indicating inputs of marine POM to the Nakdong Estuary. Sediment salinity was exceed the suitable salinity of *S. planiculmis* growth, 0~15 psu, and it might result from decrease of dam discharge in Nakdong estuary. The increase of salinity might influence the reduction of *S. planiculmis* population. Also, fine-grained sediment content might be considered as a major factor in suitable habitats distribution of *S. planiculmis*.