

chemical, ecological factor and chlorophyll a density of coastal sea water. At the same time, the statistical software SPSS was used to make further optimization analysis to the correlation of marine ecosystem structure, function and environmental indicators. On this basis, perfect the method of ecosystem assessment, guarantee the accuracy and scientificity of assessment method, which promote the comprehensive understanding of ecosystem healthy.

Distribution of Polycyclic Aromatic Hydrocarbons (PAHs) concentrations in different size fractions sediments from the intertidal zone of Bohai Bay in China

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Distributions of 15 polycyclic aromatic hydrocarbons (PAHs) were analyzed in different particle size fractions (<0.031 , $0.031-0.063$, >0.063 mm) for three sediments from Intertidal Zone of Bohai Bay. The results indicated that the total PAH concentrations ranged from 58.60 to 1289.75 ng /g dry weight and varied remarkably among the different size fractions in these sediments. In all three sediments, the highest of PAH concentrations is in the sand fraction (>0.063 mm), the lower in the medium silt-clay fraction (<0.031 mm) relatively, and the lowest in the coarse silt fraction ($0.031-0.063$ mm). However, the relative contribution of PAH to environment in the medium silt-clay fractions for Qikou estuary sediments is absolutely main fraction, but in the sand fractions for Dagu estuary and Lüju river sediments because of the different percent ratio of three size fractions in the sediments.

Topographical change of the sandbar and estimation of suspended solid flux in the Nakdong River Estuary, Korea

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The ecological environmental zones in coastal area, like tidal flat, salt marsh and sandbars, were gradually decreased and changed due to large scale of coastal development projects, land reclamation, dike construction, and large amounts of soil dredging and so on. In this study, to establish a countermeasure from marine casualties as a basic study for long-term prediction of topographical change around Jinudo in the Nakdong river estuary, spatio-temporal topographical change monitoring was carried out. Also, In order to estimate the deposition changes concerning SS (Suspended Solid) flux at St.S1, SS concentration and current velocity were measured using the Van Dorn water sampler and RCM-9 during spring and neap tides.

From the monitored results of topographical change, it was found that the annual mean ground level and deposition rate were 158.8 mm and 0.43 mm/day and all parts except the northern part of Jinudo had the active topographical changes and a tendency to annually deposit. From vertical distribution of SS net fluxes, The depth averaged values of latitudinal and longitudinal SS net fluxes(SS_{LH} and SS_{LV}) during spring tide were estimated about 28.0 kg/m²/hr (eastward) and 11.1 kg/m²/hr (northward), respectively. It was found that SS_{LH} was 2.5 times higher than SS_{LV} . The maximum SS net flux was estimated to be about 39.7 (eastward) and 9.1 kg/m²/hr (northward) at the 3 m depths. Those during neap tide were estimated about 4.8 kg/m²/hr (eastward)

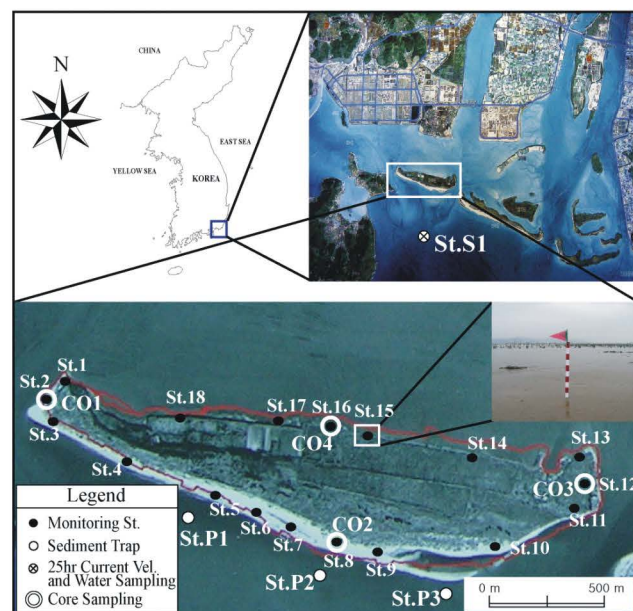


Fig.1 The geographical location and field survey Stations of Jinudo in the Nakdong river estuary, Korea

and $1.5 \text{ kg/m}^2/\text{hr}$ (northward), respectively. It was found that SS_{LH} was 3.2 times higher than SS_{LV} . The maximum SS net flux was estimated to be about 9.8 (eastward) and $1.1 \text{ kg/m}^2/\text{hr}$ (northward) at bottom layer (6 m). As result of, the depth averaged values of SS_{LH} and SS_{LV} during spring tide were approximately 6 times higher than those during neap tide. In order to estimate SS net flux of two tidal periods, and topographical changes in the southern part of Jinudo from the monitoring, both SS_{LH} and SS_{LV} overall presented the maximum at bottom layer. Therefore, we considered that topographical changes were arisen by resuspension due to the bottom friction sediment by strong flow in the flood tide. The SS net fluxes in the Nakdong River estuary transport to the NE during spring and neap tides, this is well corresponding to the direction of residual currents. Future studies will identify changes of seasonal deposition and estimate quantitative behaviors of resuspended sediment. Besides, this field survey will be conducted at the other stations in summer.

Long term variation and major impact factors of nitrogen and phosphorus transportation by the Yellow River, China

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Monitored data of nitrogen and phosphorus of latest 40 years (for nitrogen) or 20 years (for phosphorus) in the lower reaches of the Yellow River were collected. Meanwhile, corresponding population, nitrogen and phosphorus fertilizer application data, and industrial wastewater data of the Yellow River basin were also collected. Statistical analysis was used to exam the relationship of these social economic development data and the water quality, in order to explore links between the population growth, fertilizer application, wastewater discharge and the variation of nitrogen and phosphorus transportation. The results indicated that nitrogen transportation in the Yellow River had an increasing trend during the last 40 years, however, it declined considerably in the later 1990s due to the desiccation of the Yellow River. In regard to the estuary, the nitrogen contribution from Huayuankou to Lijin was minus due to the huge amount of water diversion from the Yellow River for irrigation. The phosphorus contents fluctuated

in a certain range without tendency and also decreased in the later 1990s due to the desiccation. Further analyses indicated that the nitrogen transportation in the Yellow River was mostly impacted by the population and nitrogen fertilizer application, but showed no statistically significant relationship with wastewater loads. In contrast, the total phosphorus contents in the Yellow River showed no relationship with population, phosphorus fertilizer use and wastewater loads in the basin, but presented statistically significant relationship with suspended solid concentrations of the Yellow River. Calculation by regression equation indicated that the phosphorus content in suspended solids of the Yellow River was 0.54 g.kg^{-1} , which was quite close to the P background value in the soil from the Loess Plateau, the intensive soil erosion area in China, through which the Yellow River flows. Therefore, it was concluded that phosphorus transportation in the Yellow River was dominantly controlled by the soil erosion from the Loess Plateau. This study can supply basis for the total nutrient load control and load allocation in the watershed and marine areas.

Grain size effect on PBDEs concentrations in sediments from the intertidal zone of Bohai Bay, China

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This research provides particle-scale understanding of PBDE distribution in sediments obtained from three intertidal flats of Bohai Bay, China. The sediments were classified into three groups: sand (particles $>63 \mu\text{m}$), coarse silt (particles $31-63 \mu\text{m}$) and medium silt-clay (particles $<31 \mu\text{m}$). In all three sediments, the total organic carbon was not associated with grain size, also the PBDE concentration as the same. But the silt-clay fraction contributed 82%, 56% and 85% of the total mass and 97%, 53% and 100% of PBDEs in Qikou estuary, Luju river and Dagu estuary, respectively. The coarse silt faction had the lowest percentage of the total organic carbon in all three sediments, although it had the highest percentage of the total mass in Dagu estuary sediment. The results indicated that the BDE209 was the dominate congener, and its distribution was not associated with grain size. Results of this