

## Effect Of Steelmaking Slag On Marinebenthos

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Steelmaking slag is a byproduct of iron-making, and generally rich in silicate and iron oxide, which might contribute to increase primary production in the sea. Thus the slag is thought to be a suitable material to increase the coastal marine biodiversity. However the slag raises pH and extremely solidifies itself, which results in an adverse impact on macroorganisms. To examine the effect of steelmaking slag on coastal marine benthos, we compared the benthos that emerged between the slag and the silica sand, both including dredge soil (8 % total dry weight) put on tidal flat simulator. Sediment environment was different between slag and silica sand, i.e., pH in silica sand (range: 7.3-8.2) which was similar to seawater (range: 7.3-8.3) was consistently lower than that in slag (range: 8.3-10.8) and ORP in silica (range: -97 - 205 mV) tended to be higher than that in slag (range: -128 - 99 mV). The most dominant macroalgal species was *Ulva pertusa* in slag but *Ulva linza* or *Ulva californica* in silica sand on October 2012 to January 2013. The highest median coverage of macro algae was over 55 % on slag but 0.5 % on silica sand. Furthermore, red seaweed and *Colpomenia sinuosa* exclusively occurred in the slag section. Infaunal macroinvertebrates were scarce in the slag section. Macrobenthic community structures were clearly significantly different between the two soils, rather than among seasons. We further compared macrobenthic food web between the slag and the silica sand using stable isotope  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ . The result suggests that a certain red seaweed species get great nutrient for its life from the slag.

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