

## **Abstract**

The use of steelmaking slag as a material is being advanced as a means of improving the marine environment in coastal waters. Recently, mixing steelmaking slag with dredged material has been developed for restoring tidal flat estuaries. In this study, the control of microalgae outgrowth from dredged material by steelmaking slag was examined in a batch experiment and mesocosm experiment. The dredged material in artificial seawater showed both the release of nutrients ( $\text{PO}_4\text{-P}$ , D-Inorganic N, D-Si) and the outgrowth of planktonic microalgae. Also, it was found that the predominant species of planktonic microalgae in the artificial seawater was Haptophyta, Coccolithophorids. On the other hand, when steelmaking slag was added to the dredged material, the hardness of the resulting mixture increased, and the outgrowth of microalgae from the dredged material was inhibited. The mechanism for this is follows. The application of steelmaking slag to the dredged material improved the hardness of the dredged material by forming calcium-silicate-hydroxide (CSH), which strongly affected the microalgae outgrowth from the dredged material.