

Abstract:

The applicability of steelmaking slag was examined to improve the bottom sediments in several sea areas. The experimental results showed that massive steelmaking slag controlled the occurrence of sulfide, and that the materials were available as a submerged embankment material, which can be used for a base of algae and benthonic organisms. It is also found that the granules of the steelmaking slag can be an effective base and can supply nutrients for attached algae.

1. Introduction

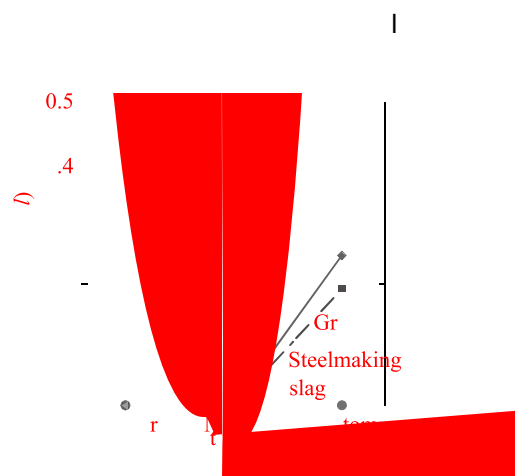
In the inner bays and coastal districts in Japan, many sea areas have vertical seawalls installed after land reclamation and suffer from eutrophication due to the environmental restoration. In these areas, problems such as red tide and blue tide, as well as decline in marine life have often used natural sand and stones, but the extraction of these natural resources may itself destroy the environment.

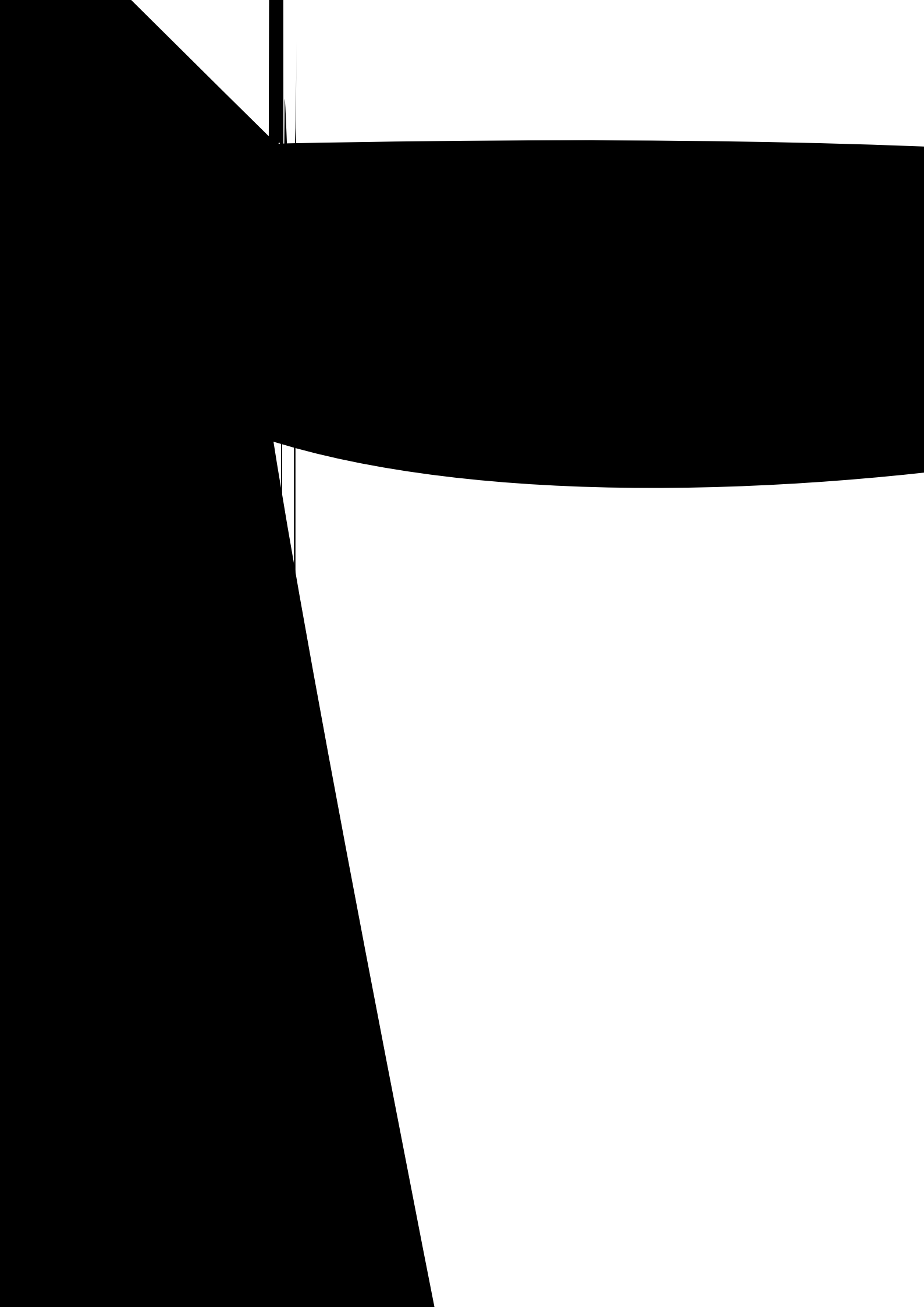
1). This paper outlines some examples.

2. Utilization of Massive Steelmaking Slag

2.1 Verification Test of Sulfide Generation Inhibiting Effect on Enclosed Coastal Areas

at the coastal test site of Tokai Univ. at Orido, Shimizu-ku, Shizuoka, Japan in order to verify the effect of steelmaking slag on sulfide generation in enclosed coastal areas.





to compare the quantity of deposit. As a result, a smaller groove showed greater adhesion.

NaOH was used to control the hydrogen ion concen

WUDWLRQ LQ WKH DUWL¿FLDO VHDZDWHU LQ WKH WHVW WR H[DPLQH WKH LQÀXHGH RI WKH K\GURJHQ LRQ FRQFHQWUDWLRQ \$V D

result, the multiplication of adhering phytoplankton was

FRQWUROHG ZKHQ WKH S+ YDOXH H[FHHGHG ,Q JHQHUDO

the multiplication range of phytoplankton is considered

to be pH 6.3–10 DQG LW ZDV NISQJ PHG WKDW

sp. also multiplied when the pH was below 9.4.

It is therefore suggested that the adhesion character

LVLFLV RI SK\WRSODQNWRQ GR QRW FKDQJH VLJQL¿FDQWO\ ZLWK

the difference in adhesion surface area (grain size), but

that the surface shape and hydrogen ion concentration

KDYH D VXEVDQWLDO LQÀXHGH

3.2 Adhesion to Steelmaking Slag

In order to examine the characteristics of phytoplankton that adheres to steelmaking slag, dephosphorization slag, decarbonization slag, and steelmaking slag with carbonic acid were used and the quantity of adhering phytoplankton was examined (Fig. 8). For comparison,

glass beads and blast furnace slag of 0.1 mm in diameter

as well as blast furnace slag were used as the control

in the experiment. The surface area of the phytoplankton (la.g.) TJ/TT0 1 Tf 0.216 Tw T* [(Themichros)cpnic nalynseso

was low on the decarbonization slag and steelmaking slag. €`RIDQRUD JH FRORU•p 0

slag, which was considered to be stable to the

LRÀXHUQWUR À WKH K\GURJHQ LRQ FRQFHQWUDWLRQ EHFDXVH WKH

hydrogen ion concentration in these solutions was high

compared with the glass beads. Meanwhile, the dephos

phorization slag and steelmaking slag with carbonic acid

showed higher hydrogen ion concentration than glass

beads, but the cel-1< j í @jÁ ðuqjÁpí¼««î -á@!ð) Ê -î ê j äªp j êÑÀ ð !7Q3Ó H ²WJH0 ° €`SK (WL Õ DW LVRQ



