

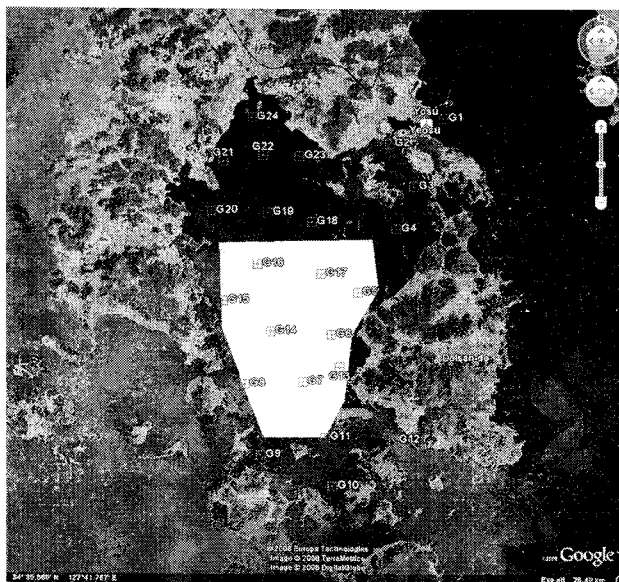
OD1) Cluster Analysis of Phytoplankton in Gamak Bay

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1. Introduction

The Gamak Bay is a closed bay surrounded by the Yeosu peninsula and Dolsando Island. The total water area of Gamak Bay is 112 km² with 15 km length and 12 km width and that of mean water depth is 6.3 m. The tidal range is about 3m, and sea water is exchanged by a tide through two channels. At high tide, tide flows through Yeosu Harbor channel in the north and the bay mouth in the south

Aquaculture farm of Shellfish are 118 unit and take possession of 951ha in Gamak Bay. Shellfish farm is producing oyster, a hard-shelled mussel, thin shelled surf clam, thin clam. Fishery industries are 31 unit, occupy 136 ha, and are consisting of flatfish, seabastes schlegeli, red sea bream, perch as a brim form. Within Gamak Bay, Food Designated Area(FDA, U.S.) possess of about 500 ha for shellfish aquaculture. Those FDA designated 20 years ago, fishermen and local government officers ask to adjust the FDA to enlarge or modify.

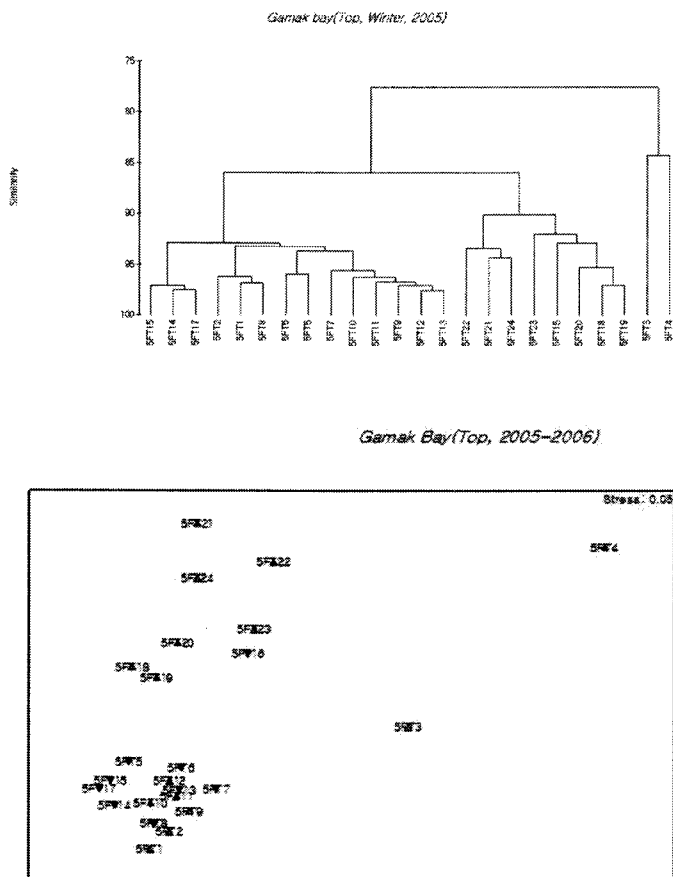


2. Data and Method

The Gamak Bay were sampled seasonally in 2005~2006 at 24 stations including FDA stations(G5, 6, 7, 8, 11, 13, 14, 15, 16, 17, 18). The 7 most northwest stations (G 18, 19, 20, 21, 22, 23, 24) were situated in the polluted freshwater reaches and occurred anoxia every summer. And outer bay stations (G1, 2, 9, 10, 12) water samples also were collected by same means. The Primer V. 5 and Matlab 6p5 software were used to calculate the contribution of major algal groups to total chlorophyll a, pigments cluster analyse to assess the healthyness in FDA comparing to Gamak Bay .

3. Results and Discussion

The cluster analysis and MDS show the similarity between FDA and outer bays pigments data, and dissimilarity between G3-G4 and northwest inner bay stations. Among FDA stations(▼), G16 pigments are more similar with general stations(▲). And, present conditions of phytoplankton in outer bay stations show similar preferences with FDA stations.



References

- Mackey M. D., D. J. Mackey, H. W. Higgins, and S. W. Wright, 1996, CHEMTAX-A program for estimating class abundances from chemical markers: Application to HPLC measurements of phytoplankton, Marine Ecology Progress Series, Vol. 144, 265-283.