

**THE INFLUENCE OF A LARGE DIATOM (*COSCIODISCUS WAILESII*)
VARIABILITY ON THE WATER QUALITY IN COASTAL WATER, THE SETO
INLAND SEA, JAPAN**

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The large diatom *Coscinodiscus wailesii* (160 μm -350 μm) is often observed and it becomes dominant when sea water temperature is low. *C. wailesii* is also one of the harmful species that causes serious damage to Nori (*Porphyra*) culture in the Seto Inland Sea, Japan, because *C. wailesii* depletes nutrients which are available for Nori.

In this study, we investigated the seasonal variations of *C. wailesii* biomass, its chemical components (carbon, nitrogen, phosphorus, silicon and chlorophyll *a* content) and sinking rate of *C. wailesii* in low temperature period.

The cell density became a maximum in late winter and at that time the nutrient concentrations were lowest in the year. On the other hand, *C. wailesii* nearly disappeared from water column in other seasons. C:N:P:Si ratio of *C. wailesii* resulted 103:15:1:52. Our result suggested that *C. wailesii* has higher silicon content (about 3.5 times) compared to other diatoms (106:16:1:15, Brzenzinski 1985). Moreover the measurement of Chl *a* content of *C. wailesii*, it was estimated that *C. wailesii* could account for 0 to 67% of the Chl *a* standing stock in the water column. The sinking rate of *C. wailesii* varied from 1.1×10^4 to 1.6×10^5 cells/m²/day. While cell density went down from maximal value, Secchi disk visibility was very high.

These results suggested that *C. wailesii* has a great role on nutrient concentrations, phytoplankton biomass and the biophilic elements of the coastal water in late winter.