

Ecological Characteristics of Green Tide Forming Algae (*Ulva* spp.) Appeared in Enclosed Tidal Flat Located in Tokyo Inner Bay

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In recent year, the large chlorophyceae, *Ulva* spp. which is recognized as a biotic indicator of eutrophicated sea area has become observed in Yatsu tidal flat located in Tokyo inner bay. The growth area was 68km² in 1995, about 130km² in 1999 and about 200km² in 2000. This extreme domination phenomena of single species is extraordinary. For ecosystem balance, it is concerned about bad influence for the ecosystem. In this study, influence for material cycle, for conservation of ecosystem in tidal lake on eutrophicated sea area, was investigated from the viewpoint of absorption characteristics of nutrient salts using microcosm culture experiment.

As results, it was cleared that absorption characteristics of nutrient salts was proportional as the enzyme reaction of Michaelis-Menten equation. Furthermore, it was estimated that absorbent quantity of nutrient salts for *Ulva* spp. is 60.5kgNH₄-N/day and 7.89kgPO₄-P/day in Yatsu tidal flat.

On the other hands, it is judged from the species composition that phytoplankton and zooplankton are derived from Tokyo bay. Here, it was postulated that the majority of phytoplankton are supplied from sea area and absorbed nutrient salts is used only cell formation. Redfield ratio (C:N:P = 41:7.2:1) is applied and it is estimated that the quantity of absorbed nutrient salts is 133kgNH₄-N/day and 18.5kgPO₄-P/day. It is generally said that about 20% of phytoplankton is predated by zooplankton, about 26% is predated by macrobenthos and about 52% of zooplankton is predated by macrobenthos.

It is estimated that inflow nutrient salts load for Yatsu tidal flat is 282kgNH₄-N/day and 77.4kgPO₄-P/day. Those nutrient salts is absorbed by *Ulva* spp. and phytoplankton living in Yatsu tidal flat. Quantity of remnant nutrient salts is 88.5kgNH₄-N/day and 51.03kgPO₄-P/day. It is namely considered that 2/3 of inflow load is purified in tidal flat and 1/3 is flown out to Tokyo bay again. Otherwise, it is cleared that outflow T-N and T-P load is little larger than inflow load by this investigation. It is considered that the reason is flown up sediment is flowed out from tidal flat with tidal wave.