

# 干潟生態系モデルによる窒素循環の定量化 —三河湾—色干潟における事例—

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## Abstract

Nitrogen cycle in a sediment and nitrogen budget between a sediment and an overlying water were evaluated by benthic ecosystem model at Isshiki tidal flat that is the most largest one in Mikawa bay. Model analysis was carried out in two cases of 1994 and 1984 to compare them by the difference of benthic community. The result of the fluxes between sediment and the upper water was in good agreement with that of the budget calculated from particulate organic nitrogen and dissolved organic nitrogen distributions by box model method. Nitrogen cycle greatly change in time and space by the difference of benthic community. Especially, nitrogen budget is influenced by the mass balance between suspension feeding type macrobenthos and benthic microalgae and seagrass (including seaweed). From the view point of water purerify function of tidal flat, the removal ability of particulate organic nitrogen increased 10% than that of 10 years ago, but the removal ability of total nitrogen decreased to 5% of that of 10 years ago. From the numerical simulation in the case supposing that the standing stock of seagrass (including seaweed) of 1984 applies to 1994's case, it was shown that uptake of particulate organic nitrogen by suspension feeder increased 9% and that of total nitrogen changes from slight sink about  $11 \text{ mg N} \cdot \text{m}^{-2} \cdot \text{d}^{-1}$  to large sink about  $200 \text{ mg N} \cdot \text{m}^{-2} \cdot \text{d}^{-1}$ . Seagrass including seaweed is very important to increase the water purerify function.