

Vertical Flux of Organic Matter in Heavily Eutrophic Embayment, Dokai Bay, Japan

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Abstract

The vertical mass fluxes and chemical characteristics of sinking particles were investigated to assess the material circulation process in Dokai Bay. Sediment trap experiments were conducted 6 times from August 1995 to February 1998.

Total settling mass fluxes varied from 8.2g/m²/day to 307g/m²/day. The organic carbon and nitrogen contents in sinking particles were varied from 18.0 mgC/g to 107 mgC/g and 1.5 mgN/g to 11.7 mgN/g, respectively. The estimated carbon fluxes varied from 0.66 gC/m²/day to 25.6 gC/m²/day.

The mean carbon flux was estimated 6.23 gC/m²/day in August, although primary productivity was estimated 2.44 gC/m²/day from July to September. Thus the carbon flux level was 2.5 times higher than that of the primary productivity. Moreover C/N ratio of sinking particles were estimated from 7.0 to 22.3 and C/Chl_a ratio varied from 121 to 4390. These results indicated that the sinking material was not mainly originated from phytoplankton products but the allochthonous products from the land.