

Primary production in Tokyo Bay and material flux to the open ocean (Abstract)

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Tokyo Bay is one of the most polluted Bay in the world. 110,000 ton of nitrogenous nutrients are annually loaded, and 90% of them are exported to the open sea. Growth of phytoplankton in Tokyo Bay seems to be limited not by nutrients but by physical conditions. Chlorophyll concentration is usually high in summer, but seasonal variation is not clear. Large scale fluctuation was observed in a short time by the influence of offshore water. Multidisciplinary study on the water exchange and material flux at the mouth of the bay has been conducted. Intermittent outflow of surface and bottom water occurs in summer by the intrusion of offshore water to the intermediate layer. Thermohaline front develops in cold winter and mixes the bay water and offshore water, and transports the mixed water to the bottom of Tokyo Bay and to the mid depth of the open sea. Our recent study using sediment trap shows a new mechanism of material transport by the vertical differences in tidal current velocity at the shelf edge.

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