2014 年 3 月 31 日受付，2014 年 5 月 26 日採録

Abstract

Hypoxia extending over the bottom water every year during summer involves Ohmura Bay in a serious environmental issue. Rise and fall of the hypoxic water mass was simulated with a 3D numerical eco-hydrodynamic model in order to investigate the relation with the influencing factors. The result shows that increased stratification during July-September induces and develops hypoxia in the bottom layer from June to mid-August by limiting vertical transport of oxygen. The benthic hypoxia reaches the highest stage in mid-August, then begins to decline gradually afterwards but lasts until early October. The recovery process of oxygen turned out to be closely related with change in the pathway of oceanic water intrusion into the central basin. After September, the oceanic water with rich oxygen begins to flow directly into the central basin, contributing toward alleviation of the hypoxia. Episodic wind event enhances vertical mixing and destroys the bottom hypoxic water quickly but only intermittently: hypoxia comes back and covers the seabed again immediately after the wind ceases. It is only a strong northerly wind caused by a tropical storm in the early stage of October that leads it to a termination every year.