RED TIDE OUTBREAK OF A NOXIOUS FLAGELLATE *KARENIA MIKIMOTOI* (DINOPHYCEAE) IN HIKETA BAY IN THE SETO INLAND SEA, JAPAN: THE COMPARISON OF ENVIRONMENTAL CONDITIONS BETWEEN A RED TIDE OCCURRENCE YEAR AND A NON-OCCURRENCE YEAR

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Continuous field observation was carried out at a station of Hiketa Bay, in the Seto Inland Sea, in summer, 1996 and 1997, to discuss the relationship between red tide occurrence of *Karenia mikimotoi* and ambient environmental conditions. In this study, physicochemical parameters and abundances of *K. mikimotoi* and diatoms in 1996 (red tide occurrence) and in 1997 (non-occurrence) were compared. In 1996, the cell density of *K. mikimotoi* in July was 10^0-10^2 cells/ml, after that, it increased gradually and reached 18,000 cells/ml at 0 m on 17 August. The cell density of *K. mikimotoi* in July in 1997 was similar to that in 1996, however, it did not increase any more. Apparent differences in the environmental conditions between 1996 and 1997 were concentrations of nutrients and diatom abundance. Phosphate and silicate concentration in 1997 were higher than those in 1996, on the contrary, the concentration of dissolved inorganic nitrogen was higher in 1996 except during the bloom of *K. mikimotoi*. The cell density of *Chaetoceros* spp. in 1996 was low ($<10^2$ cells/ml) through the survey. In contrast, the cell density of *Chaetoceros* spp. in 1997 was 10^2-10^3 cells/ml, showing 10 times higher abundance than that in 1996. These observations suggest that, in 1997, *K. mikimotoi* could not grow largely because of higher abundance of diatoms.