O63. FIELD SURVEY FOR REFRACTORY ORGANIC MATTER QUANTITYIN THE MARINE SEDIMENT OF ISE BAY AND EVALUATION OF ITS EFFECT ON THE PERSISTENCY OF HYPOXIC WATER GENERATION

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This study was performed to investigate the effect of the refractory organic matter (ROM) in the marine sediment on the lengthening of the large scale generation of the hypoxic water in Ise Bay. A field survey for collecting core samples of the sediment was conducted in 2015. The analysis with the data of sedimentation rate revealed many important features. A considerable amount of ROM deposited during the period of excess eutrophication in the past was found in the sediment. The total quantity of the degradable ROM (d-ROM) per unit seafloor area was from 71 to 231 mgC/cm^2. The mean characteristic time of degradation of d-ROM was about 47 years. A pelagic ecosystem -marine sediment coupled model was employed and the long-term simulation from 1950was carried out.The simulation results showed the total quantity of d-ROM reaches its maximum at the year around 2000 and there is about a 20 year delay from the peak time of the eutrophication. This feature caused the prolongation of the higher oxygen consumption as well as the higher nutrient release from the sediment in recent years. The increase of the hypoxic water area and the volume in 2010 due to the excess ROM was about 11% and 18%, respectively. These findings show the substantial effect of ROM in the marine sediment on the persistency of water pollution.