

# 三河湾における貧酸素化によるアサリ (*Ruditapes philippinarum*) の 死亡率の定式化 II

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## Abstract

It is necessary to improve ecosystem models such that they include a function to calculate the mortality of macrobenthos that accompanies hypoxic conditions, because the macrobenthic community plays an important role in the nutrient budget between the sediment and overlying water in estuaries. The authors attempted to compute the change in mortality of the Japanese littleneck clam (*Ruditapes philippinarum*) (the species typically found in Japan's estuaries), which is caused by a decline in the bottom dissolved oxygen concentration (DO), as a function of the change in dissolved oxygen in the shallow muddy bottom of Mikawa Bay. Thereafter, seven cases of the same observations were performed for data collected from 1997 to 1998, in order to improve the precision of the computation of mortality. It was thought that mortality was associated not only with DO, but also with physiological activity, such as glycogen content in the body. Thus, the authors constructed a new model which included glycogen content as a function. The mortalities calculated by that model satisfactorily fitted the observed mortalities in almost every case. The model could express the damage to clams caused by the DO deficiency as a function of glycogen content.