

# Risk Assessment of TBT using Japanese Short-neck Clams (*Ruditapes philippinarum*) of Tokyo Bay

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## ABSTRACT

A risk assessment of Tributyltin (TBT) in Tokyo Bay was conducted using the Margin of Exposure (MOE) method. Risk to marine life of Tokyo Bay exists when no-observed effect levels are less than estimated environmental concentrations (i.e. when MOE values are less than one). Sources of TBT in this study were assumed to be commercial vessels in harbors and navigation routes. Concentrations of TBT in Tokyo Bay were estimated using a three-dimensional hydrodynamic model, ecosystem model, and chemical fate prediction model. These models calculate temporal and spatial distributions of TBT concentrations at a fine scale: 1 km × 1 km grids and at a time step of one day. The risk assessment was conducted at the species level using a common marine species of the Bay: the Japanese short-neck clam, *Ruditapes philippinarum*. The assessment endpoint was defined as TBT induced growth reduction on the Japanese short-neck. NOEC for the Japanese short-neck clam with respect to the endpoint was estimated from experimental results published in the scientific literature. MOEs for Japanese short-neck clams were estimated for the years 1990, 2000, and 2007. There was no risk for these cases, and the risk from TBT decreased temporally in Tokyo Bay.