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KEY WORD:

TREND ANALYSIS /BIOLOGICAL MAGNIFICATION /HEAVY METAL / GULF OF THAILAND.

PIYANAD TUMWON : HEAVY METAL ACCUMULATION IN ORGANISMS AND LONG-TERM VARIATIONS OF WATER QUALITY OF THE INNER GULF OF THAILAND.

THESIS ADVISOR : PROF. DR. PIAMSAK MENASVETA, Ph.D. CO-ADVISOR ASS. PROF. DR.

PADERMSAK JARAYABHAND, Ph.D. 111 pp. ISBN 974-635-004-8

The objectives of this investigation are to study the variation of water quality parameters from 1990 to 1994 and to study heavy metal accumulation and biological magnification of Hg, Cd, and Pb in trophic levels in Bang Sa-re coastal area of the eastern part of the Inner Gulf of Thailand.

Long-term variations (1990-1994) of water quality parameters i.e. temperature, salinity, DO, pH and transparency were investigated. Multiple regression analysis was employed to test on the relationships between the water quality parameters and independent variables i.e. time (year), season (dry and wet), sampling station, and depth. The obtained results showed that temperature significantly was depend on time and season. Salinity was significantly depend on time and sampling station. DO and pH were significantly depend on time. Finally, transparency was significantly depend on time, season, and sampling station. However, the linear relationships between those water quality parameters and time were not significant. It can be concluded that the changing trends of those water quality parameteres during 1990-1994 are not clear.

Two hundred and thirty three samples of 13 species of marine organisms belonged to form trophic levels were analysed for Hg, Cd, and Pb. Hg was analysed by the Cold Vapor Atomic Absorption method. Cd and Pb were analysed by the Flameless Atomic Absorption method. The study revealed that the concentrations of the three metals among the four trophic levels were significantly different ($\alpha < 0.05$). The biological magnification of Hg was clearly observed in this study. The Hg concentrations in biota of this study were higher than previous studies. Cd and Pb concentrations in biota were still within the limit set by the FAO.

ภาควิชา INTER-DEPARTMENT

สาขาวิชา ENVIRONMENTAL SCIENCE

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