

BASIC KNOWLEDGE IN MARINE SCIENCES

Edited by

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Introduction

Bottom sediments consist of particles that have been transported by water, air or glaciers from the sites of their origin in a terrestrial environment and have been deposited on the floor of a river, lake, or ocean. In addition to these particles, bottom sediments will contain materials precipitated from chemical and biological processes. Natural processes responsible for the formation of bottom sediments can be altered by anthropogenic activities. Many man-made materials have entered bodies of water through atmospheric deposition, runoff from land, or direct discharge into the water. Most hydrophobic organic contaminants, metal compounds, and nutrients, which enter the water become associated with particulate matter. This particulate matter then settles and accumulates in the bottom sediments. Under certain conditions the contaminants in the bottom sediments may be released back into water or enter the food chain. Consequently, bottom sediments are a sink as well as a source of contaminants in the aquatic environment. These contaminants may pose a high risk to the environment on a large scale and hence need to be monitored at regular intervals. Environmental monitoring includes sampling and analyses of the sediments.

Extensive surveillance, monitoring, and research activities are required to assess the extent and severity of sediment contamination, to evaluate the effects of contaminated sediments on freshwater and marine environment, and to prepare a plan for appropriate remedial action. In many reports on the investigations of sediments, a detailed description of sampling techniques is often overlooked. Sampling procedures often vary depending on the objectives of the monitoring, method of analysis and the need of the analyst. It is worthy to mention that analysis of sediments provides environmentally significant information.