
Marine specimen banking: archive and pollution control for the 21st century

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Abstract: The oceans have in the past been extensively used as disposal sites for various kinds of waste. The world ocean – being the final sink for many natural and anthropogenic substances – is a ‘labile’ ecosystem, which is and has for a long time been the focal point of extensive interdisciplinary research. Measurements of heavy metals and a suite of various chemical compounds in the marine environment have mostly been carried out on limited scales, within national (or regional at best) monitoring programmes (e.g. the Mussel Watch programme in the USA, or the North Sea or Baltic survey by the Northern European countries). Most of these actions were restricted to coastal waters and estuaries, which are more severely impacted by pollution than the open ocean. A long-term systematic investigation of human impact on the oceans of the world (along the global currents, the Gulf Stream or El Niño and verging on the main shipping trails) would ideally require a central survey station accompanied by an extensive banking facility, capable of handling a large volume of various marine samples. As biological specimens seem to be a category highly suitable for collection and processing for analysis, one of the aims of a Marine Environmental Specimen Bank (MESB) should be to focus on such samples. Storage of authentic materials is not only valuable for real-time monitoring and basic research activities but also opens the possibility for long-term trend evaluation through retrospective analysis of well-characterized samples taken according to stringent sampling protocols.

Keywords: environmental impact assessment, marine environment, pollution, specimen banking.

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