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Abstract

The science of Oceanography deals with the entire marine environment, i.e. seawater (coastal – open sea, shallow – deep systems), marine ecosystems (plankton, fishes, mammals etc), sea bottom (coastal and deep zones), currents, waves, marine pollution etc. The main target of Oceanography is to increase our knowledge about the marine environment in order to ensure proper management following the principles of sustainable development all over our planet. In order to achieve its goal Oceanography incorporates techniques from other sciences, i.e. Chemistry, Biology, Physics, Geology, Economy, Law etc. Chemical Oceanography (or Marine Chemistry) studies the chemical processes taking place in the marine environment, including sea bottom, marine ecosystems, estuaries, lagoons, air-sea exchanges etc. The study of marine pollution is of high priority in the research of Chemical Oceanography in parallel with the study of the exploitation of marine resources without affecting the marine ecosystems. This book includes subjects concerning all parts of the marine environment and the

processes taking place there. Chapter 1 provides information about the history of Oceanography in general and especially in Greece at the 20th and 21st centuries. The main chemical processes in seawater are discussed in chapters 2,3,6,7. The main characteristics of sea bottom and marine sediments are presented in chapter 4. Chapter 5 contains a brief overview of marine life and ecosystems as well as the processes of photosynthesis and chemosynthesis. Some of the processes taking place at interfaces of sea water with marine sediments, fresh water, atmosphere, and marine organisms are presented in chapter 8. This book contains chapters relative to geology (chapters 2 & 4), biology (chapter 5) and physics (chapter 3). The significant problem of marine pollution is presented at length in chapter 9 with emphasis to the Mediterranean Sea. The methodology of Chemical Oceanography research and the main techniques that are used at field work are presented in chapter 10, whereas some key laboratory analytical techniques concerning seawater and sediments are present in chapter 11.

