ings should be considered when modeling pollutant sorption by porous media.

Section B consists of three chapters that emphasize specific retention characteristics of pollutants in soils. The specific behavior of fluoride is treated through the use of soil- and plant-related parameters to suggest criteria for permitted loading of different soils with this element. The second chapter discusses the importance of soil redox potential in regulating the mobility and plant availability of Zn and Cd, two key contaminants in waste materials that may be applied to soils. The effect of soil solution heavy metal toxicants on microbial activity, and the impact on mineralization process and microbial degradation of toxic organic chemicals are then reviewed in the third chapter.

Section C consists of three chapters that address two aspects of solid waste disposal: sewage sludge and utility ashes. The beneficial effects that sewage sludge and utility ash application have on the properties of soils, the various approaches to estimation of the potential risks involved in applying sludges to soils, and the principal sources and pathways of eight elements in the environment are covered in these chapters.

Section D discusses two different field-scale case studies. Both are related to underground water pollution, stemming from vertical flow of water and chemicals through the vadose zone. Irrigation management practices used to increase fertilizer utilization efficiency and reduce the amount of water available for leaching and groundwater contamination are the focus of one study, and the use of atmospheric tritium measurements in groundwater as a means for analyzing the travel velocity of water and pollutants in the subsoil and the mechanism of transport and mixing is the emphasis of the other.

The strong point of this book is the integration of various issues in soil science, chemistry, and engineering to identify solutions for problems associated with vadose zone contamination. The book addresses an important environmental area. It likely will be of interest to a broad array of readers, particularly those working in land and water quality and closely related areas.

Water Pollution Biology: A Laboratory/Field Handbook


Sampling and analysis of aquatic systems is an essential element in assessing their health. Regrettably, the concepts and practices associated with these activities have not received the attention they deserve in recent years, a criticism that is perhaps even more true for aquatic plants than for animals. This book helps to fill this hole in the knowledge base for aquatic biologists, hydrologists, and water pollution control specialists.

The book begins with a section on introduction to water pollution biology, followed by a chapter on water quality analysis and sampling. The remaining chapters cover a variety of topics ranging from the general principles of water pollution biology, including the chemistry and biology of pollutants, to specific aspects of aquatic life, such as plant, animal, and microbial biology. Each chapter is well-organized and includes exercises at the end that are designed to help students apply the concepts they have learned.

The book is intended for use in a laboratory course and is structured around a series of exercises that are designed to help students develop their analytical and observational skills. Each exercise is accompanied by a reference section that provides additional information and resources for students who wish to learn more about the topics covered in the exercise.

Strengths of this handbook include the clear, concise prose and the hands-on approach to learning. The exercises are well-designed and provide a valuable way for students to apply what they have learned. The book is well-organized and easy to use, with a strong emphasis on practical applications.

I highly recommend this book for use in teaching water pollution biology, as it provides a valuable resource for students and instructors alike. It is a valuable addition to the literature on this important topic.