## Preface

This book is based on the results of studies on artificial radioactivity published by seven Japanese scientists who have been investigating artificial radioactivity in the marine environment following the accident at the Fukushima Dai-ichi Nuclear Power Station, F1NPS, of Tokyo Electric Power Company in March 2011. We agreed to summarize the knowledge obtained from multiple fields and describe the results of discussions among the authors in eight chapters.

During the 10 years since the accident, approximately 300 articles have been published on the behaviour of artificial radioactivity in the marine environment. Although these articles cover individual issues, a compilation of scientific findings from the perspectives of oceanography, geochemistry, and environmental radioactivity may not be available. Therefore, we explicitly integrated the findings of oceanography and marine biology and presented novel discoveries in the post-accident research. Furthermore, not only the research results clarified in the past papers, but also the data including the very latest are used, and the extension of the findings or new findings obtained as a result of the discussion is also described in this book. Additionally, we also presented what issues remain for future study.

Among the artificial radionuclides released in the accident, the main target nuclide discussed in this book is radiocaesium. In addition, the primary subjects of discussion are the radionuclides dissolved and in particulate form in seawater, in sediments and interstitial waters, and in marine biota. The results of research using the ocean general circulation model are also presented.

Similar to the many nuclear plants worldwide, the Fukushima Dai-ichi Nuclear Power Station is located on the coast for the intake of cooling water for the reactor. A correct understanding of how artificial radionuclides behave when they are released into the ocean during an accident or planned release is important for the national and international nuclear policymakers, radioactivity monitoring organizations, marine environment monitoring organizations, and researchers of the marine environment. We believe that this book will be useful for that purpose as well.

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