1. Record Nr. UNINA9910138992503321

Titolo	Imaging marine life : macrophotography and microscopy approaches for marine biology / / edited by Emmanuel G. Reynaud
Pubbl/distr/stampa	Weinheim an der Bergstrasse, Germany : , : Wiley-Blackwell, , 2014
ISBN	3-527-67542-6 3-527-67541-8 3-527-66420-3
Descrizione fisica	1 online resource (277 p.)
Altri autori (Persone)	ReynaudEmmanuel G
Disciplina	578.77
Soggetti	Marine biology - Research Macrophotography Marine biology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Imaging Marine Life; Contents; Preface; List of Contributors; Chapter 1 Under the Eye of Neptune: An Historical Perspective of Marine Creature Imagery; 1.1 Introduction; 1.2 Ancient Uses of the Oceans; 1.2.1 Seafarers; 1.2.2 The Mediterranean Sea: the cradle of marine biology; 1.2.2.1 Aristotle and Pliny the Elder, the Founding Fathers; 1.2.2.2 Understanding the Oceans; 1.3 From Neptune to Animalcules; 1.3.1 Age of European Discovery and Exploration; 1.3.2 Voyages of Exploration and finally Science; 1.3.3 A Glimpse at the Invisible; 1.4 The Birth of Oceanography (The Nineteenth Century) 1.4.1 Drawing the Jellyfish 1.4.2 The H.M.S. Challenger Expedition; 1.4.3 Stations and Institutions; 1.5 The Twentieth Century: Institutions and moving images; 1.5.1 New tools - new images:; 1.5.2 Jean Painleve; 1.5.3 The Writers and the Explorers; 1.5.4 The Future; 1.6 Time Line of Ocean Imagery; Further Reading; Basic Texts; Source Books; Ships and Expeditions; Institutions; Chapter 2 New Solutions in Underwater Imaging and Vision Systems; 2.1 Introduction; 2.2 Underwater Optical Image Formation; 2.3 Illumination Techniques; 2.3.1 Illumination Sources

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4.3 Prerequisites for Generating High-Quality Confocal Laser Scanning Micrographs 4.4 Using Autofluorescences for Detailed Three-Dimensional Morphological Imaging; 4.5 Application of Fluorescence Dyes; 4.6 Surface Topography Analyses; 4.7 Future Perspectives; Acknowledgements; References; Chapter 5 Optical Projection Tomography; 5.1 Introduction; 5.2 What Is Optical Projection Tomography?; 5.2.1 Assembly of an OPT System; 5.2.1.1 Detection Unit; 5.2.1.2 Illumination Units; 5.2.1.3 Sample Manipulation Unit; 5.2.2 Illumination Sources; 5.2.3 System Capabilities and Limitations
5.3 Comparison with Other 3D Microscopy Techniques

Sommario/riassunto

Written by an international team of experts from the Tara Oceans Marine Biology Imaging Platform (TAOMI), this is the first and only compendium on marine imaging technologies, and includes all known underwater as well as on-land techniques. TAOMI is imaging the largest collection of marine organisms in recent history, ranging from viruses to corals, and is duplicated on land to perform high throughput confocal analysis of plankton, X-ray tomography as well as cryo-electron microscopy. This unique platform combines underwater imaging with cytometry, stereomicroscopy, fluorescence microscopy