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Nota di contenuto	Photosynthesis in the Marine Environment; Photosynthesis in the Marine Environment; Contents; About the authors; Contributing authors; Preface; About the companion website; Part I Plants and the Oceans; Introduction; Chapter 1 The evolution of photosynthetic organisms in the oceans; Chapter 2 The different groups of marine plants; 2.1 Cyanobacteria; 2.2 Eukaryotic microalgae; 2.3 Photosymbionts; 2.4 Macroalgae; 2.4.1 The green algae; 2.4.2 The brown algae; 2.4.3 The red algae; 2.5 Seagrasses; Chapter 3 Seawater as a medium for photosynthesis and plant growth; 3.1 Light; 3.2 Inorganic carbon 3.2.1 pH 3.3 Other abiotic factors; 3.3.1 Salinity; 3.3.2 Nutrients; 3.3.3 Temperature; 3.3.4 Water velocities; Summary notes of Part I; Part II Mechanisms of Photosynthesis, and Carbon Acquisition in Marine Plants; Introduction to Part II; Chapter 4 Harvesting of light in marine plants: The photosynthetic pigments; 4.1 Chlorophylls; 4.2 Carotenoids; 4.3 Phycobilins; Chapter 5 Light reactions; 5.1 Photochemistry: excitation, de-excitation, energy transfer and primary electron transfer; 5.2 Electron transport; 5.3 ATP formation; 5.4

Alternative pathways of electron flow

Chapter 6 Photosynthetic CO₂-fixation and -reduction 6.1 The Calvin Cycle; 6.2 CO₂-concentrating mechanisms; Chapter 7 Acquisition of carbon in marine plants; 7.1 Cyanobacteria and microalgae; 7.1.1 Cyanobacteria; 7.1.2 Eukaryotic microalgae; 7.2 Photosymbionts; 7.3 Macroalgae; 7.3.1 Use of HCO₃⁻; 7.3.2 Mechanisms of HCO₃⁻- use; 7.3.3 Rubisco and macroalgal photosynthesis: The need for a CO₂ concentrating mechanism; 7.4 Seagrasses; 7.4.1 Use of HCO₃⁻; 7.4.2 Mechanisms of HCO₃⁻-use; 7.5 Calcification and photosynthesis; Summary notes of Part II

Chapter 9 Photosynthetic responses, acclimations and adaptations to light 9.1 Responses of high and low-light plants to irradiance; 9.2 Light responses of cyanobacteria and microalgae; 9.3 Light effects on photosymbionts; 9.4 Adaptations of Carbon acquisition mechanisms to light; 9.5 Acclimations of seagrasses to high and low irradiances; Chapter 10 Photosynthetic acclimations and adaptations to stress in the intertidal; 10.1 Adaptations of macrophytes to desiccation; 10.1.1 The ever-tolerant Ulva; 10.1.2 The intertidal Fucus; 10.1.3 The extremely tolerant Porphyra 10.1.4 Acclimations of seagrasses to desiccation (or not)

Sommario/riassunto

""Marine photosynthesis provides for at least half of the primary production worldwide..."" Photosynthesis in the Marine Environment constitutes a comprehensive explanation of photosynthetic processes as related to the special environment in which marine plants live. The first part of the book introduces the different photosynthesising organisms of the various marine habitats: the phytoplankton (both cyanobacteria and eukaryotes) in open waters, and macroalgae, marine angiosperms and photosymbiont-containing invertebrates in those benthic environments where there is enough light f