

Section 4

Chapter 4

Biodiversity

Introduction

The present chapter contains information on the state of biodiversity for nine important marine groups, ranging from phytoplankton to marine mammals. For the taxonomic groups that were included in the second *World Ocean Assessment*, the focus is on changes observed since 2018. A key change in the Biodiversity chapter (sect. 4, chap. 4) is the division of the subchapter Marine plants and macroalgae in the second *World Ocean Assessment* into two distinct subchapters: Marine plants and Algae other than phytoplankton. The third *World Ocean Assessment* introduces a new subchapter on cephalopods (4B) to fill a gap identified in the second *Assessment*. That subchapter is focused on general information to establish a baseline for the current regional and global status. Subchapter 4A is focused on the highly diverse group of organisms including phytoplankton, zooplankton and marine microbes. It explores how plankton communities respond to both long-term environmental changes and short-term climate-related extreme events. Subchapter 4C, Marine benthic invertebrates, includes updated data on newly identified and threatened species, along with newly developed maps illustrating relevant human activities and their associated pressures and spatial impacts. Subchapter 4D, Fish, offers insights into global marine fish taxonomy, biology, distribution, habitat and conservation status. The subchapter on marine mammals (4E) highlights the alarming fact that over a quarter of marine mammal species, including those in freshwater ecosystems, are under threat. Chapter 4 also covers recent changes in the biodiversity of marine reptiles (4F) and seabirds (4G). The subchapter on marine plants (4H), includes entirely new material on sabkhas (coastal salt flats) providing fresh insights into these unique ecosystems. Subchapter 4I, Macroalgae, not including phytoplankton outlines the current status of red, green and brown macroalgae, highlighting changes occurring since 2018. Overall, the present chapter discusses the need for conservation efforts and sustainable practices to safeguard marine biodiversity.