Abstract

Coral reefs throughout the world are subjected to a number of anthropogenic stressors. Some of the most pervasive of these are a result of climate change. Increasing sea surface temperature of the world's oceans is resulting in unprecedented, mass coral bleaching events wherein coral polyps expel their symbiotic zooxanthellae. Research also suggests these disturbances make coral reefs more susceptible to disease. Occurrences of mass bleaching and disease outbreaks prompted the U.S. National Oceanic and Atmospheric Administration (NOAA) to create Coral Reef Watch, a program that monitors many of the indicators of these events using satellites. Coral Reef Watch provides coral reef managers with near-real-time alerts of bleaching conditions as they develop. For Coral Reef Watch to adequately monitor the environmental conditions of coral reefs throughout the world, it is imperative that collaborations exist between coral reef ecosystem biologists, managers and remote sensing scientists. This technical report documents a workshop held in 2010 in which experts from around the world convened to share information and brainstorm about threats to coral reef ecosystems as a result of climate change. In addition, these experts discussed additional risks to coral reefs and potential remote sensing tools that could be developed in order to monitor the threats. This technical report provides substantive information on experts' current understandings of coral reef biology, best management practices for coral reef ecosystem management, and technical considerations for using environmental remote sensing to aid in these research and managerial pursuits.