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Sommario/riassunto

The Brazilian coral reefs form structures significantly different from the well-known reef models, as follows: they have a growth form of mushroom-shaped coral pinnacles called "chapeirões"; they are built by a low diversity coral fauna rich in endemic species, with most of them relic forms dating back to the Miocene; and the nearshore bank reefs are surrounded by siliciclastic sediments. The reefs are distributed into four major sectors along the Brazilian coast: the northern, the northeastern, and the eastern regions, and the oceanic islands, but certain isolated coral species can be found in warmer waters in the embayment of the southern region. There are different types of bank reefs, fringing reefs, isolated "chapeirões" and an atoll present along the Brazilian coast. Corals, milleporids, and coralline algae build the rigid frame of the reefs. The areas in which the major coral reefs occur correspond to regions in which nearby urban centers are experiencing accelerated growth, and tourism development is rapidly increasing. The major human effects on the reef ecosystem are mostly associated with the increased sedimentation due to the removal of the Atlantic rainforest and the disposal of industrial and urban effluents. Fishing resources are seriously declining due to pollution and overfishing, and this reduction impacts artisanal fishers, who are impoverished and face food security risks. The effects of warming oceanic waters that have been affecting several reef areas with high-intensity coral bleaching did not show until the 2010 event, episodes of coral mass mortality in Brazilian reefs. However, since 2016, bleaching has increased, as has the mortality of milleporids. There are opportunities to develop purposeful biotechnologies that can support coral reef restoration and conservation. Reciprocally, preserved coral reef ecosystems containing peculiar genetic resources allow biotechnological opportunities to provide products and processes for economically and ecologically prosperous societies.