

Pompano Beach, Florida Reef Tract, U.S.A.

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Pompano Beach, Florida Reef Tract, U.S.A. The continental margin along the southeast Florida coast is relatively narrow, as the late Cenozoic geomorphology of the Anastasia Formation and the Miami Limestone seem to have been truncated offshore. Due to previous Holocene sea-level rises, the present eastern Florida continental shelf became inundated and merged with the Florida Reef Tract (FRT), a pronounced shelf-edge barrier coral reef system extending offshore of Martin County southwards to the Florida Keys. Exposures to the Miami Limestone in this area, which formed during the Sangamonian high sea-level stand (OIS 5e substage), affected the morphology of the underlying bedrock along the southeast Florida continental shelf. This phenomenon contributed to the formation of submerged lithified paleoshorelines, interreefal sand channels, paleomarine abrasion surfaces, and ultimately aided in the formation of the FRT, which is currently the third-largest barrier reef chain in the world at approximately 580 km long. This offshore barrier reef system includes geomorphological features such as coral reef tracts, interreefal sand flats, hardground rock reef areas, and a multitude of unconsolidated sedimentary components.

The expansion of the reef is relatively slow, with individual coral colonies growing only one to seventeen centimeters per year, depending on the species. Coral reefs are in a constant state of flux, where new polyps (*i.e.* the living tissue) grow on the outer surface, while their skeletons erode to contribute unconsolidated sand for the beaches. During long periods of favorable conditions, these reefs may reach high levels of growth and diversity. An example of this is shown in the photograph above, where several species of hard coral (*e.g.*, *Colpophyllia natans*, *Montastraea cavernosa*, *Diploria* spp., *Porites* spp.), soft coral (*e.g.*, sea fans, sea whips), marine sponges, macroalgae, fish, and a green moray eel (*Gymnothorax funebris*) are all different parts of the reef ecosystem complex. (Photograph taken July 2017 by Chris Makowski, *Coastal Education and Research Foundation-Journal of Coastal Research* (CERF-JCR), Coconut Creek, Florida, U.S.A.)