ABSTRACT

Studies were conducted on various aspects of the ecology of the Octocorallia in Trinidad, mainly in the region of the Bocas and along the Trinidad North Coast. Some observations were also made in Tobago.

Hydrographic studies were initiated not only to find out how inshore conditions related to known offshore conditions, but also to determine possible correlations between certain physical parameters and the observed distribution and composition of the octocoral fauna here. Surface salinities were found to remain below oceanic levels throughout the year and fluctuated seasonally. Salinity increased with depth, and the existence of a surface salinity gradient from west to east along the Trinidad north coast was observed. Surface temperatures were found to be higher in the wet season and surface temperatures on the North Coast were generally lower than in the Bocas. Marked decreases in temperature with depth were also found.

Thirty-four octocoral species belonging to three orders were collected. There were 31 gorgonians, two pennatulaceans and one telestacean. The hermatypic gorgonian fauna, apart from being impoverished, was found only on the North Coast and only at depths shallower than 12 metres. Faunal impoverishment appears to be related to the sub-oceanic conditions which prevail here. Population density

and biomass decreased with depth on the North Coast, whereas in the Bocas there was an increase instead, to maxima at 17m. Maximum number of species and highest diversity occurred at 10m on the North Coast and 24m in the Bocas region.

Although gorgonians are thought to be stenohaline, the occurrence of this group around Trinidad indicates the opposite.

Growth studies indicate that *Pacifigorgia elegans* and *Diodogorgia nodulifera* increased to almost twice their size in one year, whereas *Ellisella elongata* colonies increased by about only one half their original size in a year. There was much variability in growth rate, but seasonal variation in growth was not evident.

Observations on the macro-biota associated with Octocorals reveal a greater number of non-predatory epibiotic species than predatory species. Members of the molluscan genus *Cyphoma* appeared to be the most common gorgonian predators, whereas the most common non-predatory species appeared to be barnacles, especially *Balanus tintinnabulum*.

Studies on variation in algal density and pigment concentration with depth in *Eunicea tourneforti* revealed a decrease in symbiont density with depth. However pigment concentration per algal cell was found to increase with depth, especially the carotenoid pigments.