

# Coral disease research in Dominica

There is a growing concern about the status of coral reefs worldwide. Many scientists believe that reef health in general is declining at an unprecedented rate. The Caribbean region has been widely studied, with many examples of localized reef deterioration. Beautiful, thriving coral reefs are a symbol of pride, a source of revenue for fishing communities and an attraction for tourism to many Caribbean islands. It is imperative to understand the threats imposed on coral reefs and to ensure the longevity of reefs by expanding our base of knowledge here in Dominica.

Threats to corals include coral diseases, which have been gaining a great deal of attention in the Caribbean, the Red Sea and the Indo-Pacific region during the last 10 years. Most of the coral diseases identified thus far are caused by bacterial pathogens that are capable of killing coral tissue at rates of up to 2 cm per day. This can lead to the death of individual coral colonies in a time frame of weeks to months. It is not yet known what role humans may play in contributing to the apparent increase in disease density at certain locations, but many scientists believe that there is a connection. It is likely that the run-off of urban and agricultural pollutants from the mainland onto the reefs may be exacerbating the situation by either weakening the corals' immune system or by promoting the growth of pathogenic bacteria.

This year 2002 marks the third consecutive year of a coral disease monitoring project directed by Jill Borger, from the University of Miami, USA, who is also a staff scientist at the Institute for Tropical Marine Ecology (ITME) in Dominica. With the assistance of Dr. Sacha Steiner, director of ITME this study has focused on the distribution and change of coral diseases over time, while simultaneously documenting coral tissue mortality by species along Dominica's west coast. Dr. Borger has identified 4 coral diseases on the reefs of Dominica, which include Black Band Disease, White Plague, Dark Spots Disease and Bleaching.

A total of 14 coral species have been affected by these diseases, with White Plague infecting the largest number of species and causing the highest amount of coral tissue mortality. The three species that are most impacted by coral diseases in

Dominica are *Siderastrea siderea*, *Montastraea faveolata*, and *Montastraea annularis*. These corals tend to be quite large in size, and thereby contribute greatly to the general framework of coral reefs. So, their loss may be damaging to the overall structure of various

reefs. The surveys also revealed that some species affected by disease in Dominica have not yet been reported as affected in other Caribbean locations. Disease prevalence is highest during the summer months, due to the warmer water temperatures that facilitate

the faster growth of the bacterial pathogens. The density of coral diseases in Dominica is comparable to other areas of the Caribbean (e.g. U.S. Virgin Islands, Puerto Rico, and the Florida Keys). A positive sign is that the overall number of diseased corals in

Dominica did not increase between the years 2000-2001. However, there is still a great deal to learn and information on coral health is critical to a successful management and conservation of Dominica's many wonderful marine resources.