Brown-Band coral disease (BrB) is a serious threat to reefs around the globe. By uncovering the mechanisms leading to the onset of the disease and by revealing the involved pathogens, a deeper understanding can be gained on the coral’s susceptibility to infections, allowing for more effective management.

Sefano’s current project focuses on the microbial ecology of BrB on the GBR. The project is investigating the susceptibility of corals to infestations of BrB and the mechanisms leading to the onset of the disease. Using molecular techniques, the genetic relationships of the microbial communities associated with the disease from geographically separated regions of the GBR are investigated; and the chemical cues attracting the opportunistic pathogenic ciliates (*Porpostoma guamense*) will be examined.

The research has demonstrated that Crown of Thorns starfish predation and physical injuries promote the rapid infestations of *P. guamense* ciliates, resulting in BrB disease lesions and the mortality of the infected corals. However, *P. guamense* is not the initial causative agent harming corals, as it is not attracted to and not able to infect healthy corals, but rather is an opportunistic invader taking advantage of impaired corals. Thus, if elevated and extensive actions towards reducing external pressures inflicting corals will be incorporated, the potential devastating impact of BrB might be controlled.

