Mass Mortality of the Staghorn Coral *Acropora cervicornis* in Jamaica: Unique Event or Repeated Pattern?

By
Cheryl M. Wapnick
University of South Alabama, Dauphin Island Sea Lab, Department of Marine Sciences, Dauphin Island, AL (cwapnick@disl.org)

Caribbean coral reefs are encountering problems including reduced coral cover, increased macroalgal cover, declining fish abundance, the loss of herbivorous sea urchins, and decreasing accretion rates. Whether these recent shifts represent unusual conditions remains unanswered. These changes have been observed in the coral reefs at Discovery Bay, Jamaica, for decades. The goal of this study is to extract cores from Columbus Park in Discovery Bay and use fossil coral assemblages from the Holocene to reconstruct the community structure of these reefs in a broader historical context. I am testing the hypothesis that the modern transitions from acroporid corals to macroalgal dominance are unique on a centennial to millennial scale. *Acropora cervicornis* essentially dominated these reefs continuously prior to the 1980s, however, like previously studied lagoonal reefs of Belize and Panama, it is likely that these reefs are currently exhibiting a community structure unique to the past several hundred years. Extreme levels of both human and natural disturbance have caused this species to decline precipitously and be unable to recover. The search for large-scale, ecological upheavals in the past is critical to evaluating the role of human activities in degrading coral reefs. If no mass mortality of *A. cervicornis* occurred before the present episode, the contention that the current situation is novel would be supported. Understanding the recovery responses of the reef community to local mortality events through time is also critical to answering whether the recent shift is a unique event or repeated pattern.