Porter, J. and O. Meier. 1992. Quantification of Loss and Change in Floridian Reef Coral Populations. *American Zoologist* 32:6:625-640.

Abstract: Six coral reef locations between Miami and Key West were marked with stainless steel stakes and rephotographed periodically between 1984 and 1991. The monitored areas included two photostations in the Looe Key National Marine Sanctuary, two photostations in the Key Largo National Marine Sanctuary, and two photostations in the Biscayne National Park. Stations were monitored for species number, percent cover, and species diversity of the scleractinian and hydrozoan stony corals. Monitoring began in 1984 for photostations in the National Marine Sanctuaries and in 1989 for stations in the National Park. All six areas lost coral species between the initial survey year and 1991. Survey areas lost between one and four species; these losses constituted between 13% and 29% of their species richness. Five of the six areas lost live coral cover. Based upon photographs taken repeatedly at these locations, net losses ranged between 7.3% and 43.9%. In the one station showing an increase in coral cover, the increase was only for the canopy branches of *Acropora palmata*; understory branches of this same species lost surface area at the same rate as canopy branches gained area. For most of the common species, there was a reduction in the total number of living colonies in the community, and a diminution in the number of large, mature colonies. Throughout the study period, there was no recruitment to any of the photostations by any of the massive frame building coral species. Mortality of this magnitude is often associated with hurricane damage, but in this survey the losses occurred during a period without catastrophic storms. Sources of mortality identifiable in the photographs include (1) black band disease and (2) "bleaching" other potential sources of mortality are also considered. We conclude, for our survey areas, that loss rates of this magnitude cannot be sustained for protracted periods if the coral community is to persist in a configuration resembling historical coral reef community structure in the Florida Keys.