Title: CORAL REEFL EVALUATION AND MONITORING PROJECT (CREMP).

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Project Summary: The Coral Reef Evaluation and Monitoring Project (CREMP) documented a significant decline in stony coral percent cover at CREMP sites throughout the Florida Keys National Marine Sanctuary (FKNMS) from 1996 to 1999. However, CREMP data shows the trend abated between 1999 and 2002. Analysis of the CREMP disease data for the first seven years of the project showed a significant increase in the number of stony coral species affected by disease as well as the number of sampling stations where disease is present. This is consistent with the catastrophic and systematic declines detected throughout the Caribbean basin in the past two decades. The Comprehensive Everglades Restoration Plan (CERP) will inevitably alter biological communities and water quality in Florida Bay. Downstream of Florida Bay, the Florida Keys reef tract provides the last opportunity to quantify downstream CERP induced changes.

The CREMP proposes to continue annual non-consumptive sampling at 40 established sites from Key Largo to Tortugas Banks to document status and trends in the coral reef ecosystem. Inventories of stony coral species richness and presence of disease and bleaching will be continued. Underwater video will be statistically analyzed to determine percent cover of stony coral and other benthic components (octocorallia, zoanthidea, macroalgae, etc.). Density and size of bioeroding sponges of the genus *Cliona* (an indicator of organic enrichment in the water column) will be recorded. Coral mucus will be collected and analyzed to detect human enteroviruses in order to distinguish possible sources of nutrient input (human vs other).

As in 2002, at nine of the original 40 sites we will perform an expanded sampling regime, to include studies of coral community dynamics and mortality rates associated with individual coral stressors. *In situ* data loggers placed at each of these 9 Value Added Sites will provide a

	continuous record of water temperature. This expanded sampling regime will help define cause and effect relationships related to coral stressors. Hypothesis testing and multivariate change analyses will be performed to quantify significant changes in the benthic fauna from the project's inception in 1996 through 2006.The comprehensive CREMP project data set on stony coral cover, species richness, bleaching, disease, bioeroders, temperature, community structure, human enteroviruses, and recruitment will assist COP development of landscape-seascape program models to characterize physical, chemical and biological stressors.
Relevance to Restoration and/or Resource Management:	Data from this project will assist managers by providing a baseline to measure the downstream effects of CERP on the Florida Keys reef tract.
Geographic Area:	Florida Keys Reef Tract.