

Technological Advances in Mapping The Florida Keys Marine Sanctuary

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NOAA/NOS/Photogrammetry has produced accurate base mapping of the Florida Keys National Marine Sanctuary (FKNMS) by combining the technological advances of aerial photography, Global Positioning System (GPS), and Geographical Information Systems (GIS). This Sanctuary covers 2600 square nautical miles including Key Biscayne and Florida Bay and is managed by the Florida Department of Natural Resources Coastal and Marine Resources Assessment (CAMRA) program. The mapping is part of an extensive cooperative program to position and classify resources within the FKNMS.

GPS positioning and aerial photogrammetry provide the basis of the mapping. GPS is currently used in a two-fold manner. GPS determined positions provide overall accuracy for the aerial mission and used in the aircraft provides for accurate photograph center positions. The aerial photographs provide a detailed pictorial representation of the features to be mapped. These two GPS procedures combined with the aerial photography allow for maps to be produced well within National Map Accuracy Standards.

Aerial triangulation, compilation, and classification of the benthic features produce an accurate, continuous database of the area. In this project, the highly accurate data is imported into a GIS to produce maps, both hard copy and digital. Through the CAMRA project the data will also be incorporated into The Marine Resources Geographical Information System (MRGIS) to manage the coastal and marine resources. It is the accurate data obtained by means of GPS and its time-dependent nature that make the data critical for comparison and thus managing the resources.

The phases of the development of the data collection for the Florida Keys GIS and the map output will be displayed in the poster session. These phases include the initial field work, data computation, aerotriangulation, and benthic classification, as well as, the final data and map product. The data base is used in a GIS to produce the maps and will be the basis of the MRGIS to manage the marine resources in the Florida Keys Marine Sanctuary.