

SEAKEYS YEAR 3 PROGRESS REPORT

July 1, 1999 - June 30, 2000

for

**Continued Operation, Maintenance, and Enhancement of the SEAKEYS
Environmental Monitoring Network****P.I.:** John C. Ogden**Co-P.I.:** Sandra L. Vargo**Organization:** Florida Institute of Oceanography
830 First Street South
St. Petersburg, Florida 33701
(727)553-1100

The SEAKEYS program is a continuing program to provide near real time oceanographic and meteorological data to researchers and managers in the South Florida region in support of the South Florida Ecosystem Restoration Prediction and Modeling initiative.

Three major tasks were required in Year 3 to accomplish this project -

1. Continued upgrading of existing stations at Fowey Rocks, Molasses, Sombrero, Sand Key, Dry Tortugas, and Long Key.
2. Completion of the installation of a meteorological and oceanography/water quality monitoring station in northwest Florida Bay.
3. Continued regular maintenance of the existing stations and the new northwest Florida Bay station.

Narrative detail is given for the progress by task as listed in the Year 3 workplan in the following sections.

Task 1 - Continued upgrade of the existing stations

The Hydrolab conductivity/temperature (C-T) sensors were upgraded at 100% of the stations in 1999 and replaced with Falmouth Scientific C-T sensors. At two of the existing stations (Long Key and Sombrero) other sensors have been installed in addition to the upgraded C-T recorders. Water level recorders, fluorometers, and transmissometers have been installed at these two stations. The water level recorder at these stations was installed by the National Data Buoy, National Weather Service (NDBC). The NDBC is also responsible for maintenance of all the meteorological sensors and the satellite data transmission package. As part of the upgrading of these existing stations, the NDBC installed new satellite data transmission packages at these stations to allow installation of the additional instruments and transmission of additional oceanographic and water quality parameters. At Sombrero and Long Key the FIO staff has installed a fluorometer and transmissometer as part of the oceanographic/water quality instrumentation. NDBC has made modifications to the satellite transmission package to insure that it is appropriately interfaced for satellite transmission of the data. The data from these stations is displayed daily on the bulletin board maintained by the Atlantic Oceanographic and Meteorological Laboratory (http://www.coral.noaa.gov/cman/cman_menu.html).

Task 2 - Completion of the installation of a meteorological and oceanography/water quality monitoring station in northwest Florida Bay

Installation of the northwest Florida Bay station was completed in late summer 1999. This new station has the same suite of sensors as Long Key and Sombrero, including a transmissometer and

fluorometer. The data from this station is received at the DMS/USF facility through the GOES satellite and relayed by anonymous FTP transfer on the Internet to James Hendee (AOML/NOAA) for QA/QC and dissemination. The data from this station is displayed daily on the website at <http://comps.marine.usf.edu/nfb>. The data is archived on the SEAKEYS bulletin board maintained by the AOML on a daily basis.

Task 3 - Continued regular maintenance of the existing stations and the new northwest Florida Bay station

The FIO field staff based at the Keys Marine Laboratory (KML) continued routine maintenance of the existing SEAKEYS stations at Fowey Rocks, Molasses, Sombrero, Sand Key, Dry Tortugas, Long Key, and northwest Florida Bay throughout Year 3. This routine maintenance includes cleaning the sensors, ground-truthing, scheduled rotation of the oceanographic recorders for calibration, and sampling for calibration of the fluorometer and transmissometer to insure consistent data quality. As was anticipated the installation of the Falmouth Scientific C-T recorders has significantly reduced the maintenance required for these sensors due to the reduced biofouling and signal drift. This has allowed us to maintain the FIO field staff at 2 persons despite the addition of new types of sensors (transmissometers, fluorometers, water level). However, the fluorometers and transmissometers still require frequent cleaning.

Other Programs Supported:

In addition to the maintenance, enhancement, and operations of the SEAKEYS network, the SEAKEYS staff have worked cooperatively with the Florida Keys National Marine Sanctuary (FKNMS) and other NOAA and EPA programs working in Florida Bay and in the FKNMS. Examples of these programs are the Florida Bay Circulation Studies (Ned Smith, P.I.; Tom Lee, P.I.), an atmospheric sampling program (P. Whung, P.I.), and the Level I benthic monitoring program (J. Ogden, P.I.). In conjunction with the Level I benthic monitoring the staff is also providing assistance in the operation of environmental monitoring instruments which are providing additional data for the FKNMS management goals.

The SEAKEYS platforms with the basic suite of meteorological and oceanographic measurements have proved to be very attractive and cost-effective sites for more specific research oriented studies which build on the information available from the basic network. The Sand Key station is now a test platform for a NASA sponsored program (C. Yentsch, PI) to determine the feasibility of using satellite images to determine the productivity of coral reefs. A specially designed fluorometer and transmissometer unit has been installed in addition to the SEAKEYS suite of instruments. Additionally a program to determine the dissolved organic matter in the water column (E. Mueller, PI) is also supported at the Sand Key station. Dr. Mueller has designed and installed a second fluorometer/transmissometer package for this purpose. The SEAKEYS staff has provided logistics support and technical advice to the principal investigators greatly expediting the implementation of these programs.