



**NOAA UNDERSEA RESEARCH CENTER  
UNIVERSITY OF NORTH CAROLINA - WILMINGTON**



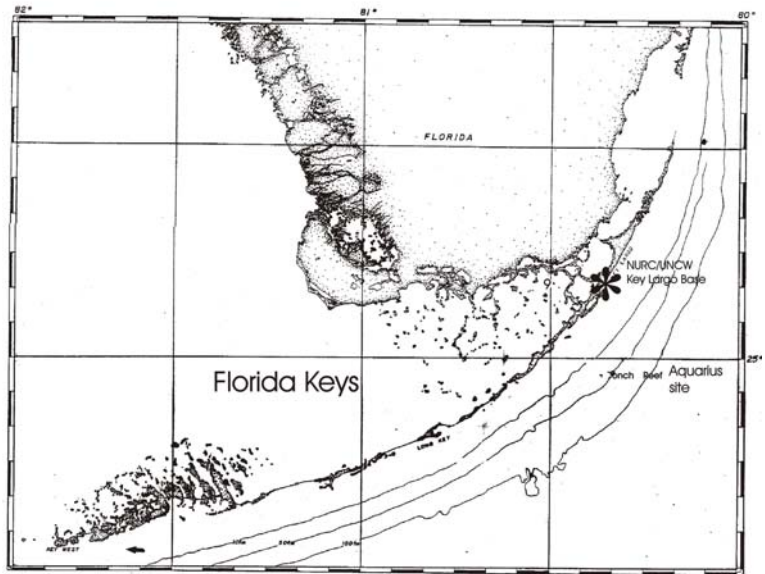
*SOUTHEAST & GULF OF MEXICO REGIONAL (SEGM) CENTER FOR NOAA'S UNDERSEA RESEARCH PROGRAM*

***NURC/SEGM CAPABILITIES: AQUARIUS UNDERSEA LAB & OBSERVATORY***

The Center operates the world's only undersea lab and ocean observatory, *Aquarius*, deployed at Conch Reef in 62 feet of water, three miles off Key Largo, Florida, on the outer reef tract of the Florida Keys National Marine Sanctuary.

***Saturation diving:***

Scientists live in *Aquarius* for up to a month. After 4 hours, aquanauts' tissues become "saturated," absorbing a maximum amount of nitrogen at the depth of the habitat. Thus, they can stay down for weeks while only having to decompress once, and dive for up to nine hours per day to 100 feet-- far exceeding the two hours a surface diver can accomplish. In a ten-day mission, aquanauts can get an equivalent of two months of surface-based diving science done! *Aquarius* is a fully functional laboratory complete with power and telecommunications capabilities. The research base in Key Largo serves as mission control for saturation missions, and provides dormitories, wet and dry labs, and boats.



***Aquarius* undersea lab & observatory (left). Life Support Buoy (right) supports real-time data stream to Internet.**

*Aquarius* is an integral capability in NURP's coral reef research program, including studies on: water quality and nutrients, reef fish behavior and recruitment, coral biology and response to stressors such as temperature increase, ultraviolet radiation, and coastal development, and development of new technologies for these critical research activities. The research agenda is largely dictated by the Florida Keys National Marine Sanctuary's management plan.

***Ocean Observing:***

Also at Conch Reef, an instrument package transmits real-time data to shore via the Life Support Buoy, including information on waves, currents, oxygen, temperature, salinity and light levels. The data are processed, archived and posted to the Web by NOAA's Atlantic Oceanographic and Meteorological Laboratory, which integrates the Conch Reef station with their South Florida Program observing network. AOML and partners at the University of Miami use the SFP data to develop models for predicting storm tracks, storm surge, current and wave patterns, and the fate of larvae and nutrients across the Keys and southeast U.S. shelf ecosystem.

FOR MORE INFORMATION: Otto Rutten, FLK Associate Director (rutteno@juno.com, 305-451-0233 x202).  
*Online Resources:* NOAA Undersea Research Center at the University of North Carolina Wilmington: <http://www.uncw.edu/nurc>; Aquarius Undersea Laboratory and Observatory: <http://www.uncw.edu/aquarius>; South Florida Program observing network: <http://www.aoml.noaa.gov/sfp/>.