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Aquarius Undersea Laboratory begins 2003 mission year
Scientists dive deep to investigate the future of coral reefs in Florida

Key Largo, FL - The first science mission of the Aquarius 2003 season begins May 19, 2003, when a research team submerges into the ocean for the start of a ten-day underwater mission. Aquarius is located in the Florida Keys National Marine Sanctuary, 3.5 miles offshore, adjacent to deep coral reefs. Owned by the National Oceanic and Atmospheric Administration (NOAA) and operated by the University of North Carolina at Wilmington (UNCW), Aquarius is a national asset and is the only undersea research platform of its kind in the world.

Coral reefs support a growing coastal economy in south Florida that is estimated at $1.2 billion a year. Unfortunately, catastrophic amounts of coral death have occurred in the last 20 years. The current Aquarius mission is dedicated to understanding not only the cause of coral decline but also factors related to the potential recovery of coral reefs. Aquarius is an essential element in the study because the underwater laboratory provides a support base for a special type of diving - called saturation diving - that provides nearly unlimited time underwater to conduct this research. Aquanauts, the term used to described saturated divers, will spend up to nine hours a day working underwater to depths over 105 feet.

A week of special training preceded the start of today's mission to prepare the scientists for the extra hazards of saturation diving. In conventional diving, if you go too deep or stay too long underwater, you risk getting a disease call "The Bends," which is typically quite painful - but treatable. In saturation diving, a case of the bends can be fatal so the scientists must understand and learn to manage the extra risk. "We have conducted 58 Aquarius saturation missions in the Florida Keys and never had a serious accident," said Dr. Steven Miller, Director of UNCW's National Undersea Research Center. He added, "Scientists pay attention to our training program because they know that they are going to get more work accomplished in ten days using Aquarius than they could otherwise conduct in several months using conventional diving from the surface. It's all about hard work and risk management and we have a pristine safety record."

Dr. Mary Alice Coffroth, State University of New York at Buffalo, and Dr. Jerry Ault, U. of Miami, Rosenstiel School of Marine and Atmospheric Science, are this month's principal investigators. This is the second year of a two-year program. "Our research combines a study of coral sizes, growth rates, mortality estimates, and fine-scale surveys of coral recruits ("coral babies") with an analysis of the genetic structure of corals on the reef," Coffroth said. "We hope to answer questions about what this reef will look like in the future, as well as how it functions as part of a network of Marine Protected Areas throughout the Keys," she added. Aquanaut team leader, Dione Swanson, is collecting data as part of her Ph.D. program with the University of Miami. Swanson, who has participated in four previous Aquarius missions said, "We tagged and marked hundreds of corals last year and I can't wait to see how much they grew, which ones survived, and where new corals appeared." Leanne Miller Rutten, UNCW, an experienced aquanaut as well, and Dr. Mark Vermeij, University of Miami and NOAA, will assist Swanson in her surveys.

Additional science team members include Tonia Shearer, a Coffroth Ph.D. student whose research examines the potential sources of corals that will repopulate the reefs. Shearer said, "I'm doing the genetics work to answer the question - where do future generations of corals on the reef come from, the local reef itself or from distant locations?" Also during this mission the aquanauts will resurvey sites first visited in 1994 to assess changes that may have occurred after almost ten years. "This project represents a great mix of innovative field work with state-of-the-art laboratory techniques to complete the genetics. When complete, the result will represent a landmark effort in coral reef science that also has real management implications," said Miller. Two NURC/UNCW staff, Mark Hulsbeck and Kia Foreman, will saturate with the science team; they will operate and maintain life support systems and direct dive operations from Aquarius.

Live web cameras, expedition journals, an interactive virtual tour of Aquarius, and detailed project information are available on the Aquarius website: www.uncw.edu/nurc/aquarius.