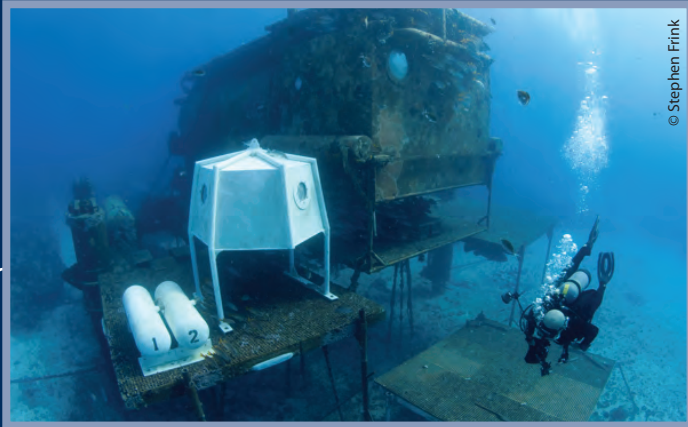


What Is Aquarius?

The only undersea research lab allowing scientists to live underwater for up to 2-week missions.



A diver approaches the Aquarius reef base.

Owner: National Oceanic and
Atmospheric Administration
(NOAA)



Operator: University of
North Carolina Wilmington
(UNCW)



Partners: NASA, US Navy

Participants: 1266 astronauts, scientists, and grad students from 205 institutions.

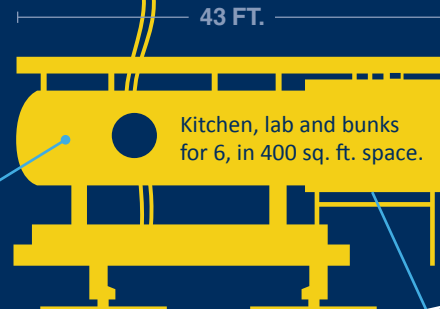
100 mbps connectivity
for broadcast quality
streaming video, and
call capability to
international space
station in orbit.

Life support buoy at
surface provides power,
air, communications, and
support equipment.

Built in Victoria, TX, in 1986.
Since 1993, the lab has
supported 114 missions.

50 FT.

86-ton steel
chamber,
pressure
rated to
120 feet
deep.



Kitchen, lab and bunks
for 6, in 400 sq. ft. space.

Moon pool allows
aquanauts to
enter/leave without
airlocks or hatches.

Additional air tanks on
seafloor within 1000 ft.

Located four miles from
Key Largo, in a "research
only" zone on Conch Reef,
Florida Keys National
Marine Sanctuary.

Mission aquanauts
living in Aquarius can
stay indefinitely and
have 6 to 9 hours of
diving down to about
95 feet each day

95 FT.



Houses the world's most in depth
coral reef monitoring program.

A Five Fold Mission

- **Scientific research:** Hundreds of peer-reviewed scientific papers. Cancer drugs Ara-C and Halaven were both derived from sea sponges (Aquarius is one of the top sea sponge research facilities in the world).
- **Coral reef & ocean observation:** 20 years of in-depth research on coral reefs, providing much of what we know of shallow reef ecosystems. Site of the first underwater use of a mass spectrometer on a coral reef, which analyzes every chemical flowing over the reef in real time.
- **Training:** NASA astronaut training, to simulate extreme, isolated space environment.
- **Ocean education and outreach:** Live broadcasts from a single 16-day mission reached 450,000 students. Two JASON expeditions reached 1 million students.
- **R&D of undersea technology:** Development of various technologies for ocean exploration, including Remotely Operated Vehicles and pioneering underwater measurement of UV light.

Living Underwater

- **Saturation diving:** Aquarius maintains the underwater pressure of 2.5 atmospheres, so divers don't have to decompress until the mission is over. This allows individual scuba dives of 9 hrs, instead of the typical 1-2 hour surface-based dives. Scientists can accomplish in 9 days what might take 6-12 months otherwise. "It's a time machine," said Aquarius veteran, Dr. Mark Patterson.
- **Decompression:** Before returning to the surface after a mission, aquanauts decompress inside Aquarius for 16 hours, during which they can continue working, then ascend to the surface directly.

Funding

- The program receives \$2.5 million annually from a National Undersea Research Program grant, which ends this year, down from a previous annual budget of \$18 million. The final mission is slated for July 2012.