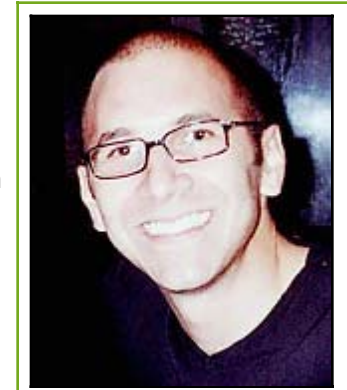


In The Spotlight: Joshua Idjadi, M.S.

August 2002 -- For most graduate students in the Department of Biological Sciences, the summer means spending a lot of time doing research in a laboratory. There would be no exception for Joshua Idjadi, a Ph.D. candidate and member of [Dr. Ron Karlson's](#) research group. But instead of working within the confines of Wolf Hall or McKinly Lab in Newark, Delaware, Josh was chosen to conduct research in the Florida Keys in a lab that is 60 feet below sea level.

[Aquarius](#), the world's only underwater laboratory, is owned by the National Oceanic and Atmospheric Administration and operated by the National Undersea Research Center at the University of North Carolina at Wilmington. Scientists live there during ten-day missions to study and explore the area using a method known as [saturation diving](#). This technique is extremely helpful for doing research: before, if a diver wanted to go down to 120 feet, they would only be able to spend about fifteen minutes at that depth before risking decompression sickness (commonly known as "the bends"). Using saturation diving, Josh could stay at 120 feet for three and a half hours.



Joshua Idjadi

Not just anyone can go to live and work in Aquarius, however. For Josh, the trip ended a six-month process preparing for the event. It began in January when Dr. Peter Edmunds from California State University, Northridge, approached him with the offer to be a part of [his mission](#). It wouldn't be easy; the physical requirements are similar to what potential astronauts have to contend with at NASA. All of the participants had to be experienced divers with research and rescue certifications, but fortunately Josh had already earned these beforehand. After passing the medical requirements in the spring, he entered the training program. There was a week of intense training to become familiarized with the equipment and safety procedures of Aquarius. Finally, on June 10, Josh and the rest of the team began the first of ten days below sea level.



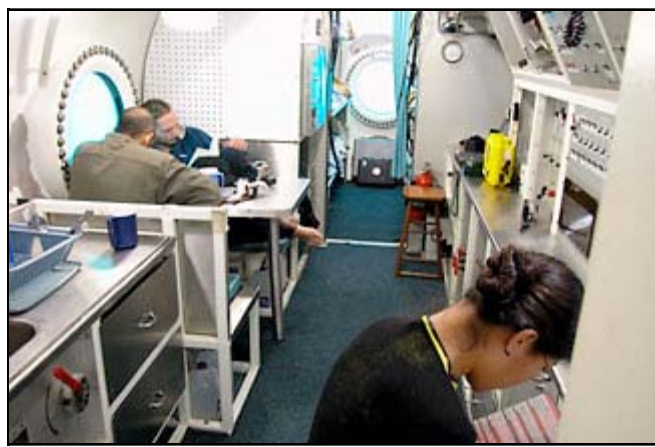
Josh swimming by a portal outside Aquarius

The team's daily routine was fairly steady: they would spend six hours working in the water outside of Aquarius, nine hours working, relaxing, and eating inside, and the remaining nine hours sleeping. Using a combination of cameras and instrument readings, two people on the surface monitor the habitat around the clock to make sure its inhabitants are kept safe and its equipment is working properly. The space inside is fairly tight; Josh describes it similar to, "living in a modestly sized RV." The food they ate was mostly freeze-dried, but they had a microwave and a hot water heater to help them with preparation. Josh recalls the six sleeping bunks as, "narrow and treacherous. Despite the risk of falling, it was easy to sleep because we were so tired after working." There is a shower, but since fresh water has to be pumped in, each person cannot use it for any longer than one minute. It was also constantly cold in the habitat; the humidity has to be kept down so that condensation does not interfere with the indoor electronics.



Josh (right) with Bill Leggat in the equipment storage area of the wet porch, the section of Aquarius that gives access to the ocean

These are all minor inconveniences though, especially considering the view. Josh describes the wide variety of fish and plankton that are constantly swimming by the windows as, "the greatest show on earth."



One of the main sections of Aquarius
 Left: Josh and Bill Leggat share a table next to the kitchen area
 Back: The sleeping bunks
 Right: Sarah Lee works on the habitat computer

During the first half of his time in Aquarius, Josh would track coral larvae by checking traps on the underwater landscape, and measuring the topographic relief of the reef. In the afternoons, he would be inside recording data, reading, and doing other miscellaneous work. The second half of the ten days were spent doing surveys of the abundance and distribution of two different species: Mustard Hill Coral and the Giant Barrel Sponge. Getting in and out of the water to do this work is fairly easy; there is an opening in the floor that leads right to the ocean. It's putting on the diving gear that's the hard part: it weighs over 100 pounds. Once in the water, a diver has to carefully follow safety lines and buoys connected to Aquarius. If a diver wants to stray from these lines, they have to attach their own line-and-reel to a safety line, then reel themselves back in when they wish to return.

In looking back at his time in Aquarius, Josh considers it a tremendous experience. He hopes to write a grant in the future that will take him back for another mission. He's also looking forward to December of this year, when he and the general public will get to relive the event when the Discovery Science channel will be broadcasting a one hour special on the mission. This documentary will include footage of preparation for the mission, as well as their work being conducted underwater.



June 2002 Team Members
 Back row (left to right): Sarah Lee, Bill Leggat, Laurie Requa, Casey Terhorst
 Front row (left to right): Dr. Peter Edmunds, Dr. Ruth Gates, Joshua Idjadi, and Dr. Ove Hoegh-Guldberg
 Not pictured: James Talacek, Mark Hulsbeck