

**---For Immediate Release---**

## **Expedition to Extend Human Intervention within Mesophotic Zone researchers gather imagery and data to depths in excess of 400 feet using advanced manned diving techniques in the Bahamas**

**April 14, 2011**

### **Providence, RI - New York, NY - Exumas, Bahamas**

Ocean Opportunity, a Rhode Island based not for profit organization, is pleased to announce a forthcoming expedition to explore and document the natural history of the mesophotic, or 'middle light', zone from 200 to 500 feet in the Exumas, Bahamas from April 28 through May 8<sup>th</sup> to be hosted at the John H. Perry Jr. Caribbean Research Center – a facility synonymous with a long lineage of advancements in marine technology and innovations in ocean exploration.

This expedition is an extension of a successful November project to Andros, Bahamas in which the team worked to 430 feet – more than 3 times the depth of conventional scuba diving. The expeditions are being led by Explorer Michael Lombardi, who has been funded by the National Geographic Society to carry out the work.

November's expedition proved catalytic and has attracted a multidisciplinary team of collaborators including well respected biologists, geologists, and technologists interested in accessing the unexplored Mesophotic Coral Ecosystems (MCEs) to gather data from this alien environment. Collaborators include individuals from the American Museum of Natural History, the City University of New York, the University of Connecticut, and the University of Kansas.

The deep diving team (including Jeff Godfrey of UConn and NGS/Waite Grantee Michael Lombardi of Ocean Opportunity) will use advanced manned diving techniques to allow direct, hands-on access to the deep coral reef environment. Throughout the Bahamas, a vertical 'wall' provides a direct physical linkage from the shallows to more than 2000 feet. These precipitous drop-offs are the focal point for investigation.

In November, the team conducted six dives deeper than 300 feet, with two deeper than 400 feet. Exploration diver Jeff Godfrey described the dives as "being like diving the Grand Canyon". These depths, especially pushing the lower limit of the mesophotic zone at sub-400 feet, provide an opportunity for very real demonstrations of the working capacity of humans in an extreme environment.

Lombardi commented, "we are continuing to gather data throughout these expeditions that will be analyzed to evaluate the in-water biomechanics and efficiency of humans working at depths considered the 'twilight zone' or 'innerspace' or 'mesophotic' (200-500 feet) in remote locations. This work represents a paradigm shift in scientific diving, as we are now demonstrating a rate of efficiency comparable to more conventional shallow water scuba. This is being done at low cost, and with limited surface support and infrastructure. These deep excursions, while considered exploratory, are providing very real data to enable discovery and drive innovation by both US and international collaborators."

Ambitious, yet critical undertakings for the project includes science tasks to support a multidisciplinary collaborative team of biologists, ichthyologist, ecologists, and chemists from institutions including the American Museum of Natural History, the City University of New York, the University of Connecticut, and others.

When asked 'why work to the frontier limits of manned exploration?', Lombardi states, "The reaction time, real-time decision making, and personal interaction offered by wet diving at these depths, as opposed to robotics use, brings the raw and intimate experience of human exploration back into the game. Nearly 70 years of marine science has been fueled by the ability to routinely access the shallow coral reef ecosystems – that excitement, and creativity made possible by a researcher actually *being there* catalyzed the marine science field that we know today. We are on the verge of creating an opportunity for the next 70 years. This is a very exciting time for benthic marine scientists."

Imagery gathered will be hosted on [www.mesophotic.org](http://www.mesophotic.org), a NOAA sponsored database aimed at distributing data from this difficult to access environment to a wide array of interested researchers and students. Researchers are invited to access these images for their own analyses of the biodiversity, natural history, and geology of this environment.

**Project Support/Funding**

This project is supported by the National Geographic Society/Waitt Grants Program (Award W140-10), Ocean Opportunity Inc., the University of Connecticut, Shearwater Research, Molecular Products, Small Hope Bay Lodge, Perry Institute for Marine Science, Nocturnal Lights, GMS Concepts, Hugyfot, Dive Exuma, and several individual donors.

**More Information**

More information can be found at [www.oceanopportunity.com/BahamaDeep.html](http://www.oceanopportunity.com/BahamaDeep.html) and <http://ocean.nationalgeographic.com/ocean/explore/deep-fore-reef-in-toto/>

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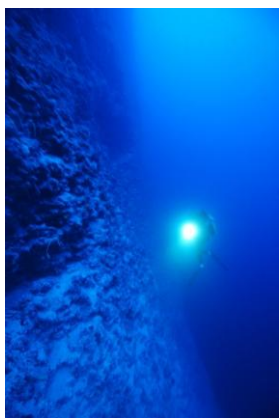
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**Attached Images (All photos by M. Lombardi, high res available upon request)**



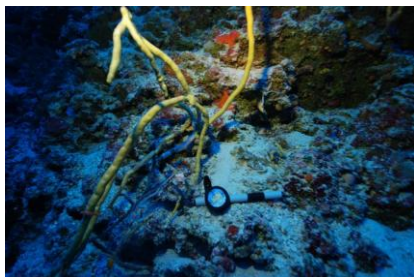
**1880:** Scientific Diver Jeff Godfrey observes the highly diverse benthic communities associated with the undercut ledge at 185fsw.



**1911:** At depths below 300fsw, the vertical wall has more of a shear drop to the abyssal depths, however slopes in 30 to 60 foot intervals. These sloping geomorphological features helped us mentally prepare for ‘touchdown’ on the deeper dives. Overshooting the target working depths would prove incredibly hazardous due to oxygen toxicity. With no physical bottom for at least another 2000 feet, precision buoyancy control and dive management is critical. Here, Jeff Godfrey puts on the brakes and explores a depth of 330fsw.



**1967:** Scientific diver Jeff Godfrey observes the wall face at a depth of more than 300fsw.



**2187:** Branching corals and finger-like sponges make up a significant portion of the vertical reef’s ecosystem at intermediate depths from 140 fsw to 290 fsw. This lower depth limit may be a function of water temperature, as a consistent thermocline was recorded at depths from 260 to 290 fsw. This image was taken to scale for further analysis.