

ONR scientist generates 'mud power' for NPR radio audience

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Dr. Linda Chrisey, a leading scientist at the Office of Naval Research, discussed how researchers are generating electricity from bacteria found in mud and wastewater during National Public Radio's recent "Science Friday" segment.

"We're in the process of testing the utility of the microbial fuel cell to power different types of sensors that are of value to us," said Chrisey, a program officer for ONR's Naval Biosciences and Biocentric Technology Program. "What we'd like to do is be able to persistently power sensors so that, instead of putting a diver in the water to change a battery, which would happen with some frequency, we could put a device in the water and allow it to sustainably operate for months or even years."

Interviewed on April 30 by Ira Flatow, host of "Science Friday," Chrisey said a continuously powered device could have several other practical, nonmilitary applications, such as powering underwater microphones that capture [seismic activity](#) underwater or monitoring the movements of marine wildlife.

"A D-cell battery has about one watt of energy, or enough to run continuously for about an hour," she told Flatow. "A [microbial fuel cell](#) could provide that same energy continuously for nine months, 12 months or even longer. And that amount of power is sufficient to [power](#) some of the sensors and sensor networks that the Navy is interested in."

By harnessing the [electrical charge](#) inherent in the movement of Geobacter bacteria, the device offers an efficient, clean and reliable alternative to batteries and other environmentally harmful [fuel sources](#), Chrisey said.

"The Office of Naval Research's investment in biological research is an important part of the Department of Defense's portfolio of programs to develop breakthrough technologies. These technologies will address the capability gaps faced by the Department," said Zachary Lemnios, director of defense research and engineering for the Department of Defense. "Dr. Chrisey's work in the biosciences is advancing not only our understanding of the natural world around us, but also equipping us with an impressive catalog of knowledge that has applications in autonomous systems, medical treatment, environmental conservation and more."

Provided by Office of Naval Research

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