

# US scientists turn to public to help fund research

July 9 2014, by Malcolm Ritter

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In this June 30 .2014 photo, Ken Buesseler, senior scientist of marine chemistry and geochemistry sits in his office at his Woods Hole Oceanographic Institution research facility in Woods Hole, Mass. Buesseler with the help of crowdfunding, the practice of using the Internet to raise relatively small amounts of money from a lot of people to finance a project, is investigating the amount of Cesium 134 that can be found in the waters off the U.S. in the wake of the Fukushima Daiichi nuclear disaster. (AP Photo Stephan Savoia)

Duke University professor Kathleen Pryer has received her share of

grant money. But for her newest project, she's getting help from a retired nurse in Canada and a 17-year-old in Arkansas.

It's her first foray into the modern-day world of [crowdfunding](#), the practice of using the Internet to raise relatively small amounts of money from a lot of people to finance a project. It's quite a departure from the normal sources of funding for scientific research, chiefly industry, government and philanthropies.

Outside of science, it's been successful for projects like developing video games and other consumer products, publishing books and making films and other entertainment programs. A campaign to finance a movie sequel to the cult television show "Veronica Mars" pulled in \$2 million in less than a day, eventually gathering more than \$5.7 million in 30 days.

But "science has yet to gain Veronica Mars status," notes Jeanne Garbarino, director of science outreach at Rockefeller University in New York, who has used crowdfunding and informally advised others. Instead, scientific projects tend to be far more modest, generally raising just thousands or tens of thousands of dollars.

One researcher, for example, raised about \$2,000 to hire a truck and buy camp supplies to recover a triceratops skeleton he'd found in Wyoming. Current campaigns on the website [experiment.com](#) include \$5,000 to investigate a parasite in North Carolina bay scallops, \$3,560 to study a disease of bats, and \$17,400 to tag sharks for migration research.

In one impressive success, more than \$150,000 was raised to contact an old research satellite and put it back to work.

Pryer launched a six-week campaign last month to raise \$15,000 to decipher the DNA of a fast-growing aquatic fern called Azolla. It's small

enough to fit on your thumbnail, but she says learning more about the plant could pay big benefits.

Azolla captures and processes nitrogen from the air with the help of bacteria that live on it, and further study may let scientists engineer that trick into crop plants, reducing the need for fertilizer, she says. Azolla also sucks heat-trapping carbon dioxide out of the atmosphere, making it potentially useful for fighting global warming, according to Pryer.



In this June 30, 2014 photo, Ken Buesseler, senior scientist of marine chemistry and geochemistry, holds an extract of a water sample taken from the Pacific Ocean off the coast of the United States in a lab at his Woods Hole Oceanographic Institution research facility in Woods Hole, Mass. Buesseler with the help of crowdfunding is investigating the amount of Cesium 134 that can be found in the waters off the U.S. in the wake of the Fukushima Daiichi nuclear disaster. (AP Photo Stephan Savoia)

She turned to crowdfunding after being "turned down flat" by the National Science Foundation, and rejected by other traditional sources of funds.

But her project caught the eye of Andrew Willoughby, 17, of Little Rock, Arkansas, when he learned about it on Twitter. With his interest in botany, he thought any steps toward engineering crops that get and process their own nitrogen would be "a great idea." He pitched in \$15.

Similarly, retired nurse Ingrid Kern of Toronto was impressed by the project when she read a commentary by Pryer in her local newspaper. She tracked down Pryer's page on [experiment.com](http://experiment.com) and donated \$100, her first contribution to a crowdfunding campaign.



This undated photo provided by Duke University shows the fast-growing aquatic fern called Azolla. Crowdfunding, the practice of using the Internet to raise relatively small amounts of money from a lot of people to finance a project, has helped Duke University professor Kathleen Pryer raise money in order to to

decipher the DNA of the fern. (AP Photo/Duke University, Fay-Wei Li)

The fern "interests me because it's tiny and it has great potential," said Kern, who'd been an industrial microbiologist before turning to nursing.

By late June, Pryer's campaign had raised only about a third of her goal, with just two weeks to go. Then things took a dramatic turn. BGI, a nonprofit institution in China that does DNA research, said it would carry out Pryer's project for free.

If that hadn't happened, "I do not think we would have met our goal," she said.



In this June 30, 2014 photo, Erin Black, a Ph.D. candidate, works with Ken Buesseler, right, senior scientist of marine chemistry and geochemistry at his Woods Hole Oceanographic Institution research facility in Woods Hole, Mass. Lead shielded, copper lined chambers, foreground, holding extracts of water



samples taken from the Pacific Ocean off the coast of the U.S. were analyzed for the presence of Cesium 134 in the wake of the Fukushima Daiichi nuclear disaster. (AP Photo Stephan Savoia)

Her campaign now has a new fundraising target. She hopes to use donated money to pay for analysis of the data she'll get from BGI. The effort ends this week.

While scientists normally have to pique a donor's interest, sometimes it's public concern that leads to a project. That's what happened for ocean scientist Ken Buesseler of the Woods Hole Oceanographic Institution in Massachusetts.



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helped Duke University professor Kathleen Pryer raise money in order to to decipher the DNA of the fern. (AP Photo/Duke Photography, Les Todd)

Sometime this year, Buessler says, radioactive material from Japan's damaged Fukushima nuclear reactor is expected to arrive in the ocean off the West Coast. He doesn't believe it will be a health hazard. But some of the public's legitimate concerns are mixing with alarmist statements, he said, and so he wanted to sample coastal water over the next few years to provide hard data to the public.

With no government money available for that, he launched a website for suggesting sites for sampling by volunteers and donating money for testing.

Since January, the project has raised over \$55,000 from more than 350 donations. None of the samples analyzed so far from 30 sites has shown any sign of Fukushima radiation.



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How much science will crowdfunding support? It's not clear yet. But apart from the money, there's an educational payoff from having scientists explain their work clearly to lay people as they ask for money, says Edward Derrick of the American Association for the Advancement of Science.

"It's more engagement with the public," he said. "We're all in favor of engagement."

**More information:** Fukushima project page:



[www.ourradioactiveocean.org/](http://www.ourradioactiveocean.org/)

Fern project page: [bit.ly/1qFdqAd](http://bit.ly/1qFdqAd)

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