

Shrimp on a Treadmill

On his June 6, 2011 news and commentary show, former presidential candidate Mike Huckabee lit into Congress for wasting money in sponsoring research on “how shrimp function on a treadmill.” This “wasteful” science is the work of Dr. Louis Burnett, professor of biology at the Grice Marine Lab at the College of Charleston in South Carolina. Huckabee’s indignant exposé of taxpayers’ dollars squandered on screwball scientific research created the perfect storm for politics and science to collide, and they did so on a very public stage.

But did Mike Huckabee attack Burnett’s work without the essential facts?

Burnett’s research focuses on how changes in the environment and pathogens affect marine organisms. A necessary component of this work is assuring that the organisms he studies in his lab are exposed to the same environmental conditions that they would face if they were in their natural habitats. Shrimp and crabs are extremely active in their natural settings, but they are lazy in the lab. Burnett needed to find a way to increase the metabolic rates of these animals in captivity. His solution? Shrimp on a treadmill.

Burnett fabricated a transparent acrylic glass chamber resembling an aquarium. He then placed a conveyer belt, or treadmill, at the bottom and added a respirometer to measure oxygen uptake by the shrimp – or crabs or whatever organism he wanted to study.

What was intended to be a scientific solution for a problem in experimental design quickly became a media sensation.

Any YouTube search for “shrimp on a treadmill” yields approximately 52 different versions of shrimp running to various songs including “The Final Countdown” and the theme song to *Rocky*.

Alone, these videos are powerless, but they morphed into an unstoppable force when the mainstream media caught wind of this. Suddenly, “shrimp on a treadmill” became synonymous with misappropriation of government funding. Dr. Burnett conducts his research under a grant from the National Science Foundation (NSF), a federal agency responsible for funding approximately 20 percent of all government-supported research performed at universities.

When videos of marine life being placed on exercise machines hit center stage out of context, the significance of the research was no longer important. Without investigating, Mike Huckabee called researchers who spent grant money to put shrimp on treadmills “half-brained idiots” and went on to make statements such as “I don’t care what a shrimp does on a treadmill” and “I don’t want my shrimp going to the gym.”

On more than one occasion, Burnett’s research has been used as a headliner for media pieces about government waste, but he maintains a positive attitude about the ordeal. “Media cannot be bothered with the facts,” Burnett says, and goes on to stress how important it is for scientists to be able to communicate effectively with the media as well as the general public. After all, he says, his project is not the only one to be lambasted by the media.

Some Congressmen also denounced a robot that folded laundry as a huge waste of money. They paraded it on ABC’s *Good Morning America* on May 26, 2011. This robot was the invention of Jeremy Maitin-Shepard and Assistant Professor Pieter Abbeel in Electrical Engineering and Computer Sciences at the University of California, Berkeley. The elected representatives howled that NSF had squandered nearly a million dollars to teach a robot how to do laundry. They complained that this robot took over 20 minutes to fold a single towel and that this funding should be appropriated for more useful causes.

However, Maitin-Shepard and Abbeel’s experiment was one of the first to demonstrate that a manmade robot could manipulate a deformable object. What should have been hailed as a notable

achievement in robotics was reduced to an insignificant, inefficient, costly pile of metal by the news media, urged on by the Congressmen.

Burnett believes scientists must also learn to communicate with the public more effectively to explain the importance of research and its potential benefits. If not, the public will continue to be fed fragments of science that are bent to fit whatever agenda a reporter or commenter wants to advance. Burnett, together with institutions and organizations such as the National Institute of Health and the National Science Foundation, have responded to this problem by supporting programs that help arm young scientists with the skills necessary to successfully communicate their research to the public.

All it takes is just a few minutes on Dr. Burnett's web page to understand the potential impact his research can have on our society. If the changes the marine habitat is currently experiencing ultimately cause the demise of marine creatures, the shrimp and seafood industry would be devastated. Maybe then Mike Huckabee would start advocating gym memberships for his shrimp.