

## Cell From Hell Found in Chesapeake

Posted by [TBN](#) On 01/12/2007

Federal researchers announced Thursday they have identified the toxin released by *Pfiesteria* - the microscopic marine organism nicknamed "the cell from hell" responsible for mass fish killings and human health problems in the Chesapeake Bay and elsewhere along the East Coast in the late 1990s.

Peter Moeller, a chemist with the National Oceanic and Atmospheric Administration, studied the marine organism over the past seven years and said he has concluded that heavy metals - mainly a copper sulphur complex - cause *Pfiesteria* to release a toxin that stuns fish and destroys skin, leaving bloody lesions and causing death.

"I think metals and their involvement in toxicity in general has to some extent been greatly overlooked," said Moeller.

Moeller said he is not sure yet whether man-made pollution has played a role in the large amount of heavy metals in *Pfiesteria*-infested estuaries.

*Pfiesteria* is responsible for killing millions of fish most notably in Maryland, Virginia and North Carolina. A 1997 outbreak in the Chesapeake Bay was linked to watermen memory loss and quarter-sized lesions on dead rockfish.

Moeller said the combination of heavy metals and slow moving nutrient-rich water causes *Pfiesteria* to emit a short-lived but highly-lethal toxin.

The toxin will last only a few days, and decomposes under bright light. *Pfiesteria* experts say this ends the debate within the scientific world as to whether the deadly toxin in fact exists.

Professor of Aquatic Ecology and Toxic Dinoflagellates at North Carolina State University, JoAnn Burkholder, was the first to propose the existence of a *Pfiesteria* toxin, arguing that it killed fish in her lab experiments. Other scientists challenged her ideas, claiming *Pfiesteria* merely fed on fish and did not release a toxin.

"It is a happy day for our lab. We are vindicated by Dr. Moeller. He quietly persisted and this is no easy toxin group to identify. It is an excellent piece of work," said Burkholder.

*Pfiesteria* has been around for ages, but it has only recently been discovered by scientists. Most of the time, the organism is not toxic.

"The structure of the *Pfiesteria* suggests it is a very old organism . . . When you combine it with toxic heavy metals, it acts fast, ripping skin apart. It doesn't hang around, it's busy reacting," said Burkholder.

There has not been a large outbreak of *Pfiesteria* for the past few years because of the severe sediment disruption of Hurricanes Isabel and Floyd, which drove the *Pfiesteria* cells into more open waters where they could not survive, according to Burkholder.

Although heavy metals - such as mercury, lead and zinc - naturally occur in the Earth's crust, agricultural and industrial runoff as well as acid rain can significantly add to the amount of metals in waterways. According to Moeller, the estuaries most affected by *Pfiesteria* have naturally high amounts of heavy metals and more tests need to be conducted in order to understand if there is a significant human impact.

The people most affected by the *Pfiesteria* outbreak were those who worked the water everyday. The outbreak of 1997 not only caused economic hardship but also harmful symptoms such as memory loss, skin rashes, abdominal pain and headaches.

"The more we know about it the better we are, and maybe we can even prevent it from happening and stop the stuff that's going in the water," said Larry Sim