

## **2008 Pew Fellowship in Marine Conservation Awarded to Dr. Andrew Baker to Help Protect Corals against Climate Change**

*Dr. Baker is an Assistant Professor at University of Miami's Rosenstiel School of Marine and Atmospheric Science*

NEW YORK CITY, Feb. 5 – Coral reef scientist Dr. Andrew C. Baker has been awarded the prestigious 2008 Pew Fellowship in Marine Conservation to help protect reef corals from climate change. Dr. Baker, an Assistant Professor at the University of Miami, plans to develop novel and groundbreaking techniques to enhance the thermal tolerance of corals and help them survive dangerously warming oceans around the world.

Baker, a native of the United Kingdom, is among five of the world's most innovative and progressive thinkers in ocean science to receive this highly competitive three-year, \$150,000 fellowship in support of critical marine environment conservation initiatives. The Pew Institute for Ocean Science administers the awards and today announced the 2008 Fellows, whose projects will be based in Florida, China, France, Australia and Canada (Learn more about the other recipients and their projects at [www.pewoceanscience.org](http://www.pewoceanscience.org)).

“Dr. Baker is an exceptional scientist, and the Pew Fellowship in Marine Conservation will support his efforts to protect corals around the world from climate change through direct interventions,” said Dr. Ellen Pikitch, Executive Director of the Pew Institute for Ocean Science. “Reefs are under siege from many threats, but climate change is among the most serious risks to their survival. Dr. Baker's work gives us hope that the oldest and largest corals might be saved.”

Corals are simple animals that thrive within a narrow temperature range. They depend on partnerships with microscopic algae (often called zooxanthellae) to help them thrive in shallow tropical seas. These symbiotic algae live inside the corals and provide them with energy from photosynthesis, allowing corals to build their slow-growing limestone skeletons. However, rising temperatures caused by global warming disrupts this partnership, resulting in mass “bleaching” events in which corals lose their colorful algae and often die.

Dr. Baker's research focuses on these algal partners, which genetic studies have shown to be very diverse. Dr. Baker has shown that many important coral species are flexible in the types of algae they host, and that some of these algae are more heat tolerant than others. Corals with the heat tolerant types of algae are more resistant to bleaching caused by rising temperatures.

Through his Pew Fellowship in Marine Conservation, Dr. Baker plans to develop practical techniques for boosting the natural abundance of heat-tolerant algae inside reef corals. He will then apply these techniques in the field to thermally enhance corals and help them survive bleaching events. In addition, Dr. Baker plans to use these methods to help coral nurseries raise local stocks of heat-tolerant corals that can be used to re-seed reefs devastated by coral bleaching.

“The Pew Fellowship in Marine Conservation gives me the opportunity to build on the basic research I have been doing for the last few years, and develop these findings into a practical tool that might help us maximize the survival of reef corals over the next few decades,” Dr. Baker said. “We need to make every effort to ensure the short-term survival of the world's reefs while we take the necessary steps to reduce greenhouse gas emissions that will ultimately ensure their survival in the long-term,” said Baker, who

earned his PhD in Marine Biology and Fisheries from the University of Miami in 1999. “We have to take urgent action in the policy, management and scientific arenas to stem the continuing decline of coral reefs. This Fellowship represents an effort to apply recent scientific discoveries to finding practical solutions in the real world. It’s an ambitious project that will have its share of controversy because of the scale of the problem it is trying to address, but I hope that it will serve as an example of how scientists must attempt to do whatever it takes to avoid the collapse of these beautiful and important ecosystems.”

Combined with overfishing, disease, pollution, and habitat destruction, warming oceans have contributed to the death of corals worldwide, even on some of the world’s most protected reefs. The year of 2008 has been declared the “International Year of the Reef,” a worldwide campaign to raise awareness about the threats facing coral reefs, and their value in protecting coastlines, providing habitat that supports vital fisheries worldwide, generating tourism revenues and representing unique biodiversity hotspots.

Dr. Baker’s initial breakthrough discovery that reef corals may be able to withstand climate change by switching algal partners was published in the journal *Nature* and hailed by *Discover* magazine as one of the “Top 100 Science Stories of 2001.” His follow-up work on corals’ response to climate change has been underway for almost nine years: since 2005 at the University of Miami’s Rosenstiel School of Marine and Atmospheric Science; as a research scientist with the Pew Institute for Ocean Science; and previously, at the Wildlife Conservation Society in New York., where he remains an Associate Conservation Zoologist. His collection of more than 12,000 samples of coral tissue, from over 20 countries on four continents, is maintained under long-term cryopreservation at the University at temperatures of -176°F (-80°C). In the lab, Dr. Baker and his team of graduate student researchers run experiments on live corals, and extract and purify DNA from corals and their algae, in a quest to pinpoint the specific genetic and physiological factors that enable certain corals more bleaching-resistant.

Since the early 1990s, the Pew Fellowship in Marine Conservation has been awarded to more than 100 leading marine scientists, economists, attorneys, and other ocean conservationists from 29 countries. The fellowship program supports innovative projects led by mid-career, emerging leaders in ocean conservation and designed to develop and implement solutions to critical challenges in the marine realm. The four other 2008 Fellows will pursue projects that aim to: safeguard Antarctic krill fisheries that serve as critical food sources for whales; protect China’s threatened marine environment by creating an unprecedented network of Marine Protected Areas; document the government subsidies leading to unsustainable ocean fishing globally; and, determine whether “selective” commercial fishing, in which only certain fish are captured, harms the ecosystem more than “even fishing,” in which fish are broadly captured and there is extensive bycatch and discards.

“Each Fellow will carry out pioneering projects to further understand and safeguard marine ecosystems that are sorely in need of protection,” said Dr. Pikitch, a shark expert and conservation biologist, and a 2000 Pew Fellow in Marine Conservation herself. “The ocean can’t speak for itself, and these are the people who give it voice.”

The mission of the Pew Institute for Ocean Science is to advance ocean conservation through science. Established by a generous multi-year grant from the Pew Charitable Trusts, the Pew Institute is a major program of the University of Miami's Rosenstiel School of Marine and Atmospheric Science and has offices in Miami and New York. Visit us online at [www.pewoceanscience.org](http://www.pewoceanscience.org).

Photographs and more information about each of the 2008 Pew Fellows are available upon request. Learn more about The Pew Fellows Program in Marine Conservation at [www.pewoceanscience.org/fellowssite/fellows.php](http://www.pewoceanscience.org/fellowssite/fellows.php).