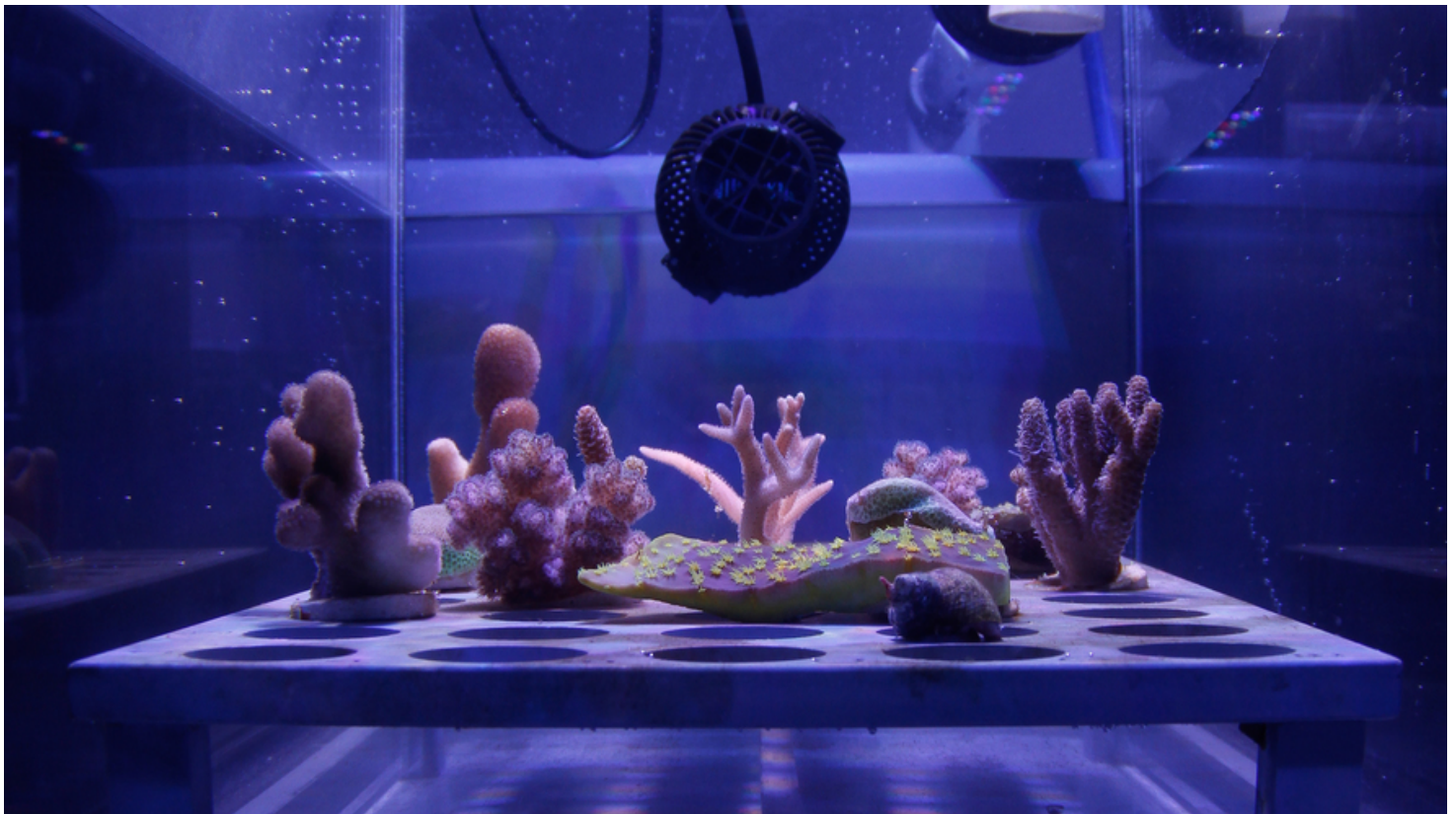


Scientists test ultra-thin sun shield to protect Great Barrier Reef

By Agence France-Presse, adapted by Newsela staff on 04.26.18

Word Count **667**

Level **1030L**



A floating "sun shield" made of calcium carbonate has been shown to protect coral from the effects of bleaching. Photo by: Phil Mercurio, Australian Marine Science Institute

A way to protect the Great Barrier Reef could come in the form of a film some 50,000 times thinner than a human hair. Researchers announced their findings on a "sun shield" on Tuesday, March 27.

The huge site in Australia attracts millions of tourists each year. However, the reef is reeling from significant bouts of coral bleaching due to warming sea temperatures linked to climate change. Earth's climate has heated up. It is believed to be connected to the burning of fossil fuels including coal, oil and wood.

The reef is an ancient natural feature, made of living coral. Stress from heat on the coral leads to bleaching, which causes them to lose their color. Corals can survive bleaching, but they are under more stress. That makes them more at risk of dying.

Coral reefs are the most diverse of all marine ecosystems. They overflow with life, with perhaps one-fourth of all ocean species depending on reefs for food and shelter.

Thin Shield Shown To Protect Reefs From Bleaching

Scientists from the Australian Institute of Marine Biology are hopeful about test results of the floating "sun shield." The thin shield is made of calcium carbonate that has been shown to protect the reef from the effects of bleaching. It is a biodegradable film made from the same material found in coral skeletons.

"It's designed to sit on the surface of the water above the corals, rather than directly on the corals, to provide an effective barrier against the sun," said Anna Marsden. She is the Great Barrier Reef Foundation managing director.

The trials on seven different coral types found that the protective layer decreased bleaching of most species. It cut off sunlight by up to 30 percent.

The project "created an opportunity to test the idea that by reducing the amount of sunlight from reaching the corals in the first place, we can prevent them from becoming stressed," Marsden said. That can help to prevent the bleaching.

Researchers from a variety of fields contributed to the project, which was headed by the scientist who developed the country's polymer bank notes, or dollar bills. Plastic is one type of polymer.

"We had chemical engineers and experts in polymer science working with marine ecologists and coral experts," Marsden said.

Australia Among World's Worst Polluters To Reefs

Australia is considered one of the world's worst per capita greenhouse gas polluters. That is the worst per number of people who live there. Its use of coal-fired power is heavy although the country has a relatively small population. Those who are active in the fight against climate change urge Australia's government to do more to protect the environment.

The reef is also under threat from coral-eating starfish known as crown-of-thorns. The run-off byproducts of farming are also a worry.

The site is on the World Heritage List of UNESCO as a place of "outstanding universal value."

Marsden said it was impractical to suggest that the "sun shield" could cover the entire reef. It covers 216,000 square miles. That is double the size of Nevada.

However, it could be used on a smaller, local level, she said. It could protect "high-value or high-risk areas of reef," she added.

"The concept needs more work and testing," she said. Still, "it's an exciting development at a time when we need to explore all possible options to ensure we have a Great Barrier Reef for future generations," she said.

Reef Worth Valued In The Billions

Hard corals are also called reef-building corals. They produce a rock-like skeleton made of the same material as classroom chalk, calcium carbonate. Soft corals produce smaller amounts of calcium carbonate.

A report last year from Deloitte Access Economics put a value on the Great Barrier Reef. The report said it was worth \$56 billion in Australian dollars. That is \$43 billion in U.S. dollars. The reef's worth included its tourism revenues and indirect value for people who have not yet visited the site but know about it.

Quiz

- 1 What is most likely to happen next with the shield?
- (A) The Australian government will consider using it to protect the Great Barrier Reef.
 - (B) Scientists will not be able to get further funding for the shield.
 - (C) Anna Marsden will decide that the shield is ineffective because it can't cover the entire reef.
 - (D) People will continue to test it in several different situations.
- 2 According to this article, why are scientists worried about climate change?
- (A) Climate change means that humans are living with more pollution. This could mean shorter lifespans for people.
 - (B) Climate change creates many challenges for humans. It gets harder and harder to manage these challenges.
 - (C) Climate change may decrease coral health. This means fewer people will visit the Great Barrier Reef.
 - (D) Climate change is probably responsible for warming up the earth's oceans. This warming contributes to coral bleaching.
- 3 What sentence shows how the author conveys the importance of protecting the Great Barrier Reef?
- (A) by communicating how much it is worth
 - (B) by sharing how many people care about it
 - (C) by explaining its scientific importance
 - (D) by emphasizing its popularity with divers
- 4 The author wrote this article mostly to inform about a new strategy to protect the Great Barrier Reef. What is the author's point of view about the Great Barrier Reef?
- (A) The author believes it is impossible to protect the Great Barrier Reef.
 - (B) The author believes the Great Barrier Reef should be protected.
 - (C) The author believes the Australian government should take action about climate change.
 - (D) The author believes the Great Barrier Reef's greatest threat is starfish.

Answer Key

- 1 What is most likely to happen next with the shield?
- (A) **The Australian government will consider using it to protect the Great Barrier Reef.**
 - (B) Scientists will not be able to get further funding for the shield.
 - (C) Anna Marsden will decide that the shield is ineffective because it can't cover the entire reef.
 - (D) People will continue to test it in several different situations.
- 2 According to this article, why are scientists worried about climate change?
- (A) Climate change means that humans are living with more pollution. This could mean shorter lifespans for people.
 - (B) Climate change creates many challenges for humans. It gets harder and harder to manage these challenges.
 - (C) Climate change may decrease coral health. This means fewer people will visit the Great Barrier Reef.
 - (D) **Climate change is probably responsible for warming up the earth's oceans. This warming contributes to coral bleaching.**
- 3 What sentence shows how the author conveys the importance of protecting the Great Barrier Reef?
- (A) **by communicating how much it is worth**
 - (B) by sharing how many people care about it
 - (C) by explaining its scientific importance
 - (D) by emphasizing its popularity with divers
- 4 The author wrote this article mostly to inform about a new strategy to protect the Great Barrier Reef. What is the author's point of view about the Great Barrier Reef?
- (A) The author believes it is impossible to protect the Great Barrier Reef.
 - (B) **The author believes the Great Barrier Reef should be protected.**
 - (C) The author believes the Australian government should take action about climate change.
 - (D) The author believes the Great Barrier Reef's greatest threat is starfish.