CAN-041-NASA & Coral Reefs- World's Oceans

Join us to save coral reefs

Vic Ferguson

The World Federation for Coral Reef Conservation 281.971.7703 P.O. Box 311117 Houston Texas 77231

5/25/16

FORWARD: NASA is a particularly important resource for our conservation efforts, in that their ability to gather information about our ever changing world and the problems we face.

"We all should realize that there is a problem with our oceans and should be addressed globally, it's our ocean to save……Executive Director WFCRC

ENERGY/ENVIRONMENT

First Look

How NASA plans to study underwater coral reefs from the sky

Exploratory dives give researchers an up close view of coral reefs, but capturing the broader perspective has been more difficult. That's where NASA comes in.

By Story Hinckley, Staff **JUNE 9, 2016**

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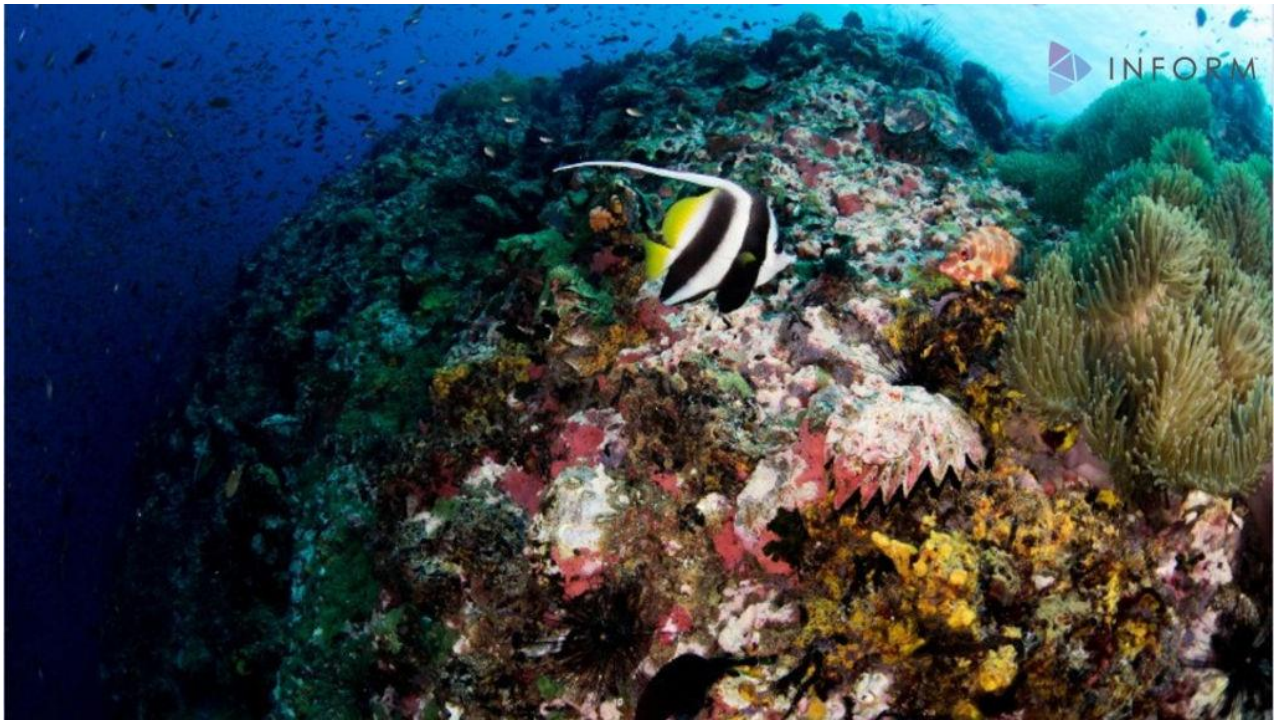

A new program by NASA is taking coral reef research from below watery depths to the Earth's atmosphere.

Scientists have long reported increasing die-offs of the world's coral reefs. Last month coral experts from James Cook University found that 35 percent of corals in the northern and central sections of the Pacific Ocean's Great Barrier Reef have died from bleaching, a phenomenon that occurs when abnormally warm waters spur symbiotic algae to leave the coral.

The bleaching concerns conservationists, biologists, and businesspeople alike because coral reefs around the world are sources of tourism revenue, biodiversity, and storm protection.

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Researchers from around the world have ramped up efforts to protect these crucial ecosystems. But scientific divers say their research runs into practical roadblocks: they can only venture to certain depths for limited amounts of time.

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"As scientific divers, we're limited by the depth we can work at and the amount of bottom time that we have while we're diving, so much of underwater marine science, especially on coral reefs, is a painstakenly slow process," Julia Baum, a biology professor at the University of Victoria, told the Associated Press.

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And the Great Barrier Reef is big. If it were transposed on North America's western coast, it would span from Baja California to British Columbia.

"How do you study that big of an area by doing hour-long hikes?" Eric Hochberg, a researcher at the Bermuda Institute of Ocean Sciences, asked the Huffington Post.

To fix this problem, Dr. Hochberg became the principal investigator for the Coral Reef Airborne Laboratory (CORAL), a three-year long project launched Thursday by NASA's Jet Propulsion Lab to study the Pacific Ocean's coral reefs from above.

"CORAL will provide the most extensive picture to date of the condition of a large portion of the world's coral reefs from a uniform data set," NASA's Jet Propulsion Lab writes in a press release. "The data will reveal trends between coral reef condition and biogeophysical forcings, both natural and those arising from human activities. With this new understanding of reef condition, we can better predict the future of this global ecosystem and provide policy makers."

By installing the Portable Remote Imaging Spectrometer (PRISM) in a commercial airplane, "in situ data are obtained to validate the remote observations." In other words, CORAL researchers will receive data on the Pacific's key coral reefs around Hawaii, the Mariana Islands, Palau, and the Great Barrier Reef without touching the water.

"The idea is to get a new perspective on coral reefs from above, to study them at a larger scale than we have been able to before, and then relate reef condition to the environment," Hochberg told the Associated Press.

The spectral image data will describe the reef's condition through three measurements: primary productivity, calcification, and relative amounts of coral, algae, and sand. CORAL researchers will record these figures and ratios as a baseline comparison for future assessments.

CORAL planes will fly approximately 23,000 feet above the water, roughly 10,000 feet below the flight of a typical passenger plane.

"Right now, the state of the art for collecting coral reef data is scuba diving with a tape measure," Hochberg says in a NASA press release. "It's analogous to looking at a few trees and then trying to say what the forest is doing."

Although CORAL will focus only on the Pacific during its 2016-2017 campaign, Hochberg says the group hopes to have a round-the-clock satellite registering coral reef data within the next decade. *This report contains material from the Associated Press.*

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Inform

- **FIRST LOOK** Coral reefs are dying – just when we need them most
- Why does coral reef diversity cluster in southeast Asia?

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*The only thing necessary for the triumph of evil is that good men do nothing"….**Edmund Burke***