



Press Release

Thursday, January 31, 2013

Dr. Ruth Gates
HIMB Research Professor
808-236-7420
rgates@hawaii.edu

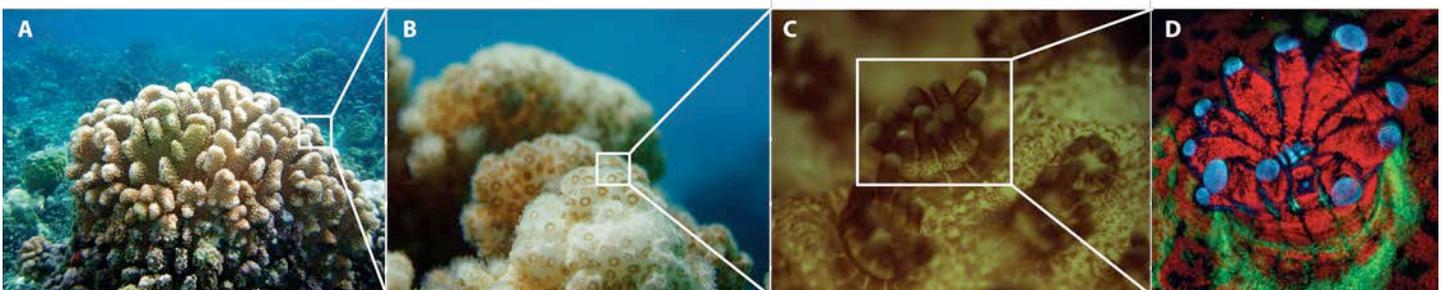
Marcie Grabowski
SOEST Outreach Coordinator
808.956.3151
mworkman@hawaii.edu

UH Hawaii Institute of Marine Biology researchers recognized in the 10th Annual International Science & Technology Visualization Challenge

Honolulu, HI – Drs. Christine E. Farrar, Zac H. Forsman, Ruth D. Gates, Jo-Ann C. Leong and Robert J. Toonen of the University of Hawai'i at Manoa's Hawaii Institute of Marine Biology were awarded Honorable Mention for their video submission, *Observing the Coral Symbiome Using Laser Scanning Confocal Microscopy* (<http://www.youtube.com/watch?v=oluJW7uK7rw&feature=youtu.be>; high resolution version available on request), in the 10th annual International Science & Technology Visualization Challenge.

The National Science Foundation (NSF) along with the journal *Science*, published by the American Association for the Advancement of Science (AAAS), invited researchers, illustrators, photographers, computer programmers, videographers and graphics specialists from around the world to submit creative illustrations, information graphics, interactive visualizations and videos that intrigue, explain and educate others about science.

The HIMB confocal video captures the complexity and glory of corals by documenting patterns in fluorescent molecules innate to the corals, and to the algae (red in color) that live inside and nourish them. No dyes were used in the study. When I saw the images of living corals under the microscope for the first time, "my jaw just dropped" says Ruth Gates, a coral biologist at the Hawaii Institute of Marine Biology and narrator of the video. "Most people think corals are inanimate rocks," she says. "We showcase how beautiful and dynamic they are as animals."



Series of images illustrating the fine scale detail of coral structures the confocal microscope is able to capture on video.
Photo credits: Hollie Putnam. Confocal image credit: Christine Farrar

This latest competition received more than 200 entries from 18 countries, including entries from 19 U.S. states and Canadian territories. The Feb. 1, 2013 issue of *Science* will feature the winning submissions, which are also available to the public without registration at the [NSF's website](http://www.nsf.gov/news/special_reports/scivis/winners_2012.jsp) (http://www.nsf.gov/news/special_reports/scivis/winners_2012.jsp).

"It's the 10th year of this challenge, and each year, partnering with *Science* magazine, we receive beautiful and compelling visualizations that enhance public understanding of science," said Judith Gan, NSF's director of Legislative and Public Affairs. "Researchers are generating more information than ever before and visualization techniques are evolving as well, as evidenced by this year's many outstanding contributions."

The laser scanning confocal microscope that visualizes the biology captured in the HIMB video was purchased with funds donated by Pam Omidyar in 2010. In the video, which compiles images in 3D, time-lapse animations, corals extend and retract their glowing tentacles. Tiny creatures crawl over the corals, all part of a complex and threatened ecosystem. In the future, says Gates, it might be possible to use confocal microscopy to classify different coral species or to identify shifts in fluorescent pattern that link to coral disease and stress loads. Prior to applying this technique, she says, "that was not even a facet in our thinking about coral biology and highlights the potential advances that can be made by simply visualizing behaviors and character traits in living organisms like corals."

"This year's winning entries are a spectacular collection. Each one exposes a hidden facet of the natural world, or puts scientific concepts in a new light. And they use cutting-edge techniques to draw the viewer in," said Colin Norman, *Science* magazine's news editor. "That's exactly what we were hoping for when we joined with NSF a decade ago to launch the science and engineering visualization challenge."

A committee of staff members from *Science* and NSF screened the entries and sent finalists to an outside panel of experts in scientific visualization to select the winners. In addition, as was the case for the first time last year, the public participated in the voting process, selecting their favorite images as People's Choice awardees. The challenge received more than 3,150 public votes. The winning entries are featured in the links below, on NSF's International Science & Engineering Visualization Challenge [Special Report](http://www.nsf.gov/news/special_reports/scivis/index.jsp) (http://www.nsf.gov/news/special_reports/scivis/index.jsp), and several winners will be featured in a video produced by NSF.

Other winning entries feature owls that can perform 270-degree neck rotations, biomineral crystals found in a sea urchin's tooth, a realistic video simulation of a human heart, a flash game about Special Relativity and other compelling visualizations.

The 2012 winning entries are included in five categories: Photography, Illustration, Posters & Graphics, Games & Apps, and Video.

###

For more information about the coral reef research related to the visualization, visit:

http://www2.hawaii.edu/~rgates/Gates_Lab_Website/Gates_Lab.html

<http://www.hawaii.edu/himb/facilities/confocal.html>

<http://www.hawaii.edu/himb/>

resources available within the University. SOEST brings together four academic departments, three research institutes, several federal cooperative programs, and support facilities of the highest quality in the nation to meet challenges in the ocean, earth and planetary sciences and technologies.

www.soest.hawaii.edu