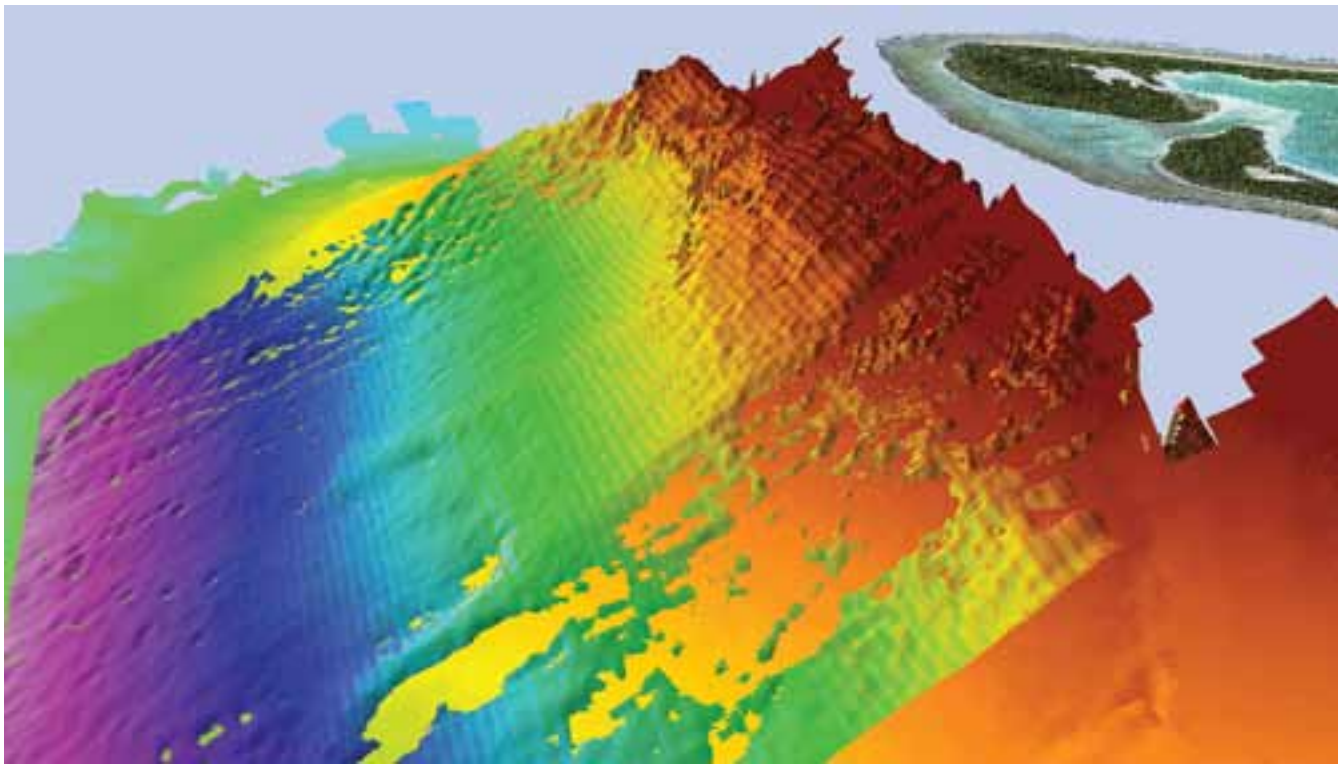
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AMELIA EARHART EXPEDITION TO SOUTH PACIFIC WILL INCLUDE CRUCIAL CLIMATE CHANGE PROJECT

TIGHAR Mission Set for Fall 2014—Funding Deadline June 30, 2014

OXFORD, Pennsylvania, June 3, 2012—The International Group for Historic Aircraft Recovery (TIGHAR) is expanding the mission of its 2014 underwater search for Amelia Earhart's aircraft to include vital ocean science data collection. As explained by TIGHAR Executive Director and Expedition Leader Ric Gillespie, "We have broadened the scope of this expedition because the craggy underwater mountainside that may hold the wreckage of the Earhart plane also holds the answers to questions far more important than what happened to Amelia. The unexplored depths off Nikumaroro contain information crucial to understanding climate change, the most serious environmental challenge of our time.



Multi-beam sonar data acquired during TIGHAR's 2012 expedition reveals the steep, rugged underwater terrain off the west end of Nikumaroro. Depths in the colored area range from 200 meters (656 ft) down to more than 3,100 meters (10,000 ft).

> **"The craggy underwater mountainside that may hold the wreckage of the Earhart plane also holds the answers to questions far more important than what happened to Amelia."**
>
> ***—Ric Gillespie, Expedition Leader***

According to legendary ocean researcher and National Geographic Explorer-in-Residence Dr. Sylvia Earle, "Never before has there been such a convergence of the need to know with effective tools poised ready to provide answers concerning the nature of deepwater ecosystems in this pristine part of the planet."

The mid-September to mid-October expedition will use the University of Hawai‘i’s two three-person Pisces submersibles to search the deep water off the west end of Nikumaroro Atoll in the Phoenix Islands for whatever remains of Earhart’s Lockheed Electra and collect data crucial to understanding the effects of climate change.



Pisces IV



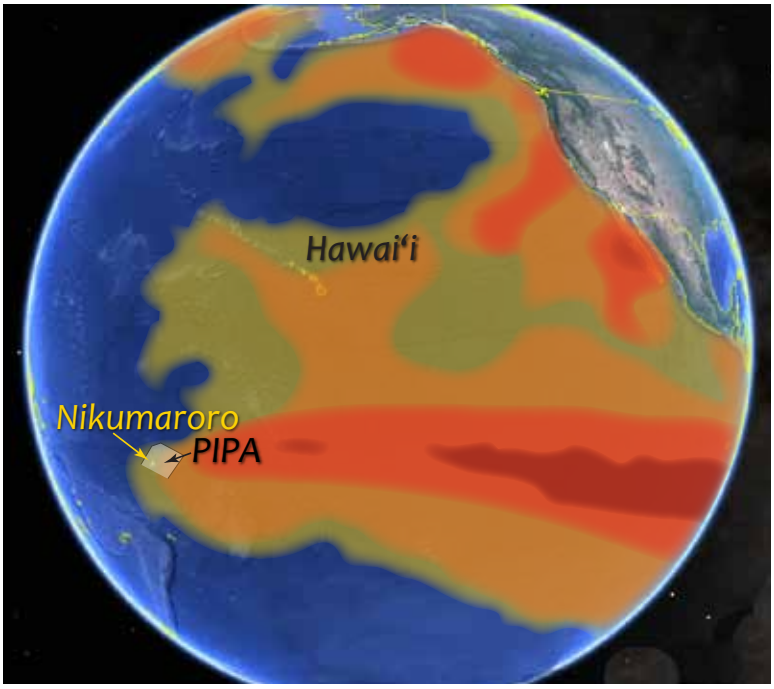
Pisces V

The HURL Pisces subs can operate to a maximum depth of 2,000 meters (6, 561 feet).

“The Phoenix Islands are ground zero for the study of climate change.”

—Dr. Gregory Stone, Conservation International

The scientific importance of Nikumaroro and the surrounding area is well known. According to Dr. Gregory S. Stone, Executive Vice President of the Moore Center for Science and Oceans at Conservation International, “The Phoenix Islands are ground zero for the study of climate change.” TIGHAR’s early Earhart Project expeditions in the 1980s and 90s first brought the remote Phoenix Islands to the attention of ocean scientists at the New England Aquarium, who recognized the atolls and surrounding water as one of the Earth’s last intact oceanic coral archipelago ecosystems. The reefs of these islands are what coral reefs might have looked like a thousand years ago. In 2006, the Republic of Kiribati, the island nation of which Nikumaroro is a part, declared the creation of the Phoenix Islands Protected Area (PIPA). Now encompassing 157,626 sq. miles, PIPA is one of the largest and deepest marine protected areas in the world. In 2010 PIPA was added to the list of UNESCO World Heritage sites.



The part of the Pacific where Amelia Earhart disappeared is where El Niño events are born. These abnormally warm pools of Pacific Ocean water have a large but poorly understood impact on global weather. Their effect on coral reefs is a key indicator of how these events relate to climate change, but it is difficult to determine which changes to corals are attributable to abnormal warming and which are the result of human activity. That’s why the atolls of the Phoenix Islands are so important.

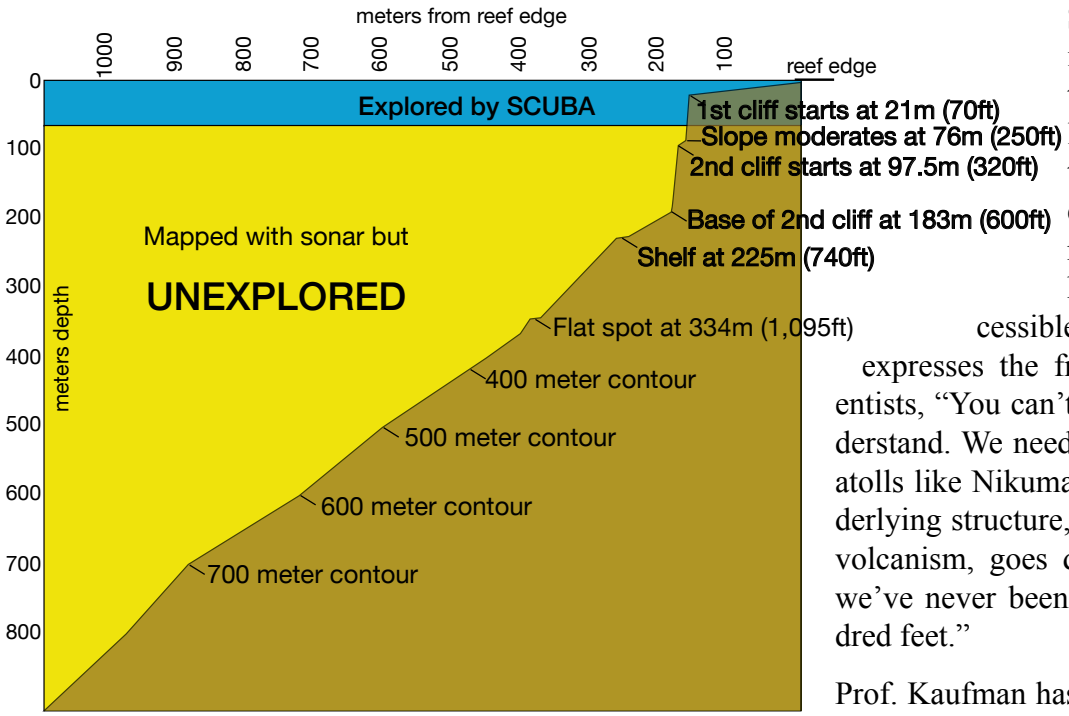
As explained by Dr. Les Kaufman, Professor of Biology at Boston University, “The key is that these corals have most likely been undisturbed. We think

The El Niño event of 1997/98 began in the Phoenix Islands and caused flooding in the southeastern U.S., ice storms in the northeast, flooding in California and tornadoes in Florida. Another major El Niño event appears to be building.

that there has not been any deep seamount fishing on these atolls, so there has been little or no human physical disturbance. Also, the corals are far removed from any local human impact making the climate change signal clear and much more easily understood."

"You can't manage what you don't understand."

—Dr. Gregory Stone, Conservation International

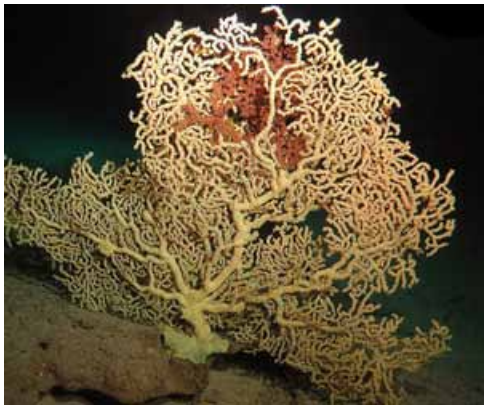


Despite their importance to climate change research, the reefs slopes in the Phoenix Islands have been examined only to SCUBA depth. TIGHAR has mapped the reef at Nikumaroro with sonar but less than 2% of the underwater terrain has been visually inspected with video mounted on remote vehicles.

Several New England Aquarium expeditions have studied the coral in the Phoenix Islands but, due to the re- moteness of the area and the expense of deep-diving technology, scientific exploration has been limited to depths accessible to scuba divers. Dr. Stone expresses the frustration felt by ocean scientists, "You can't manage what you don't understand. We need to know how resilient coral atolls like Nikumaroro are to El Niño. The underlying structure, created by coral growth and volcanism, goes down thousands of feet, yet we've never been able to get below two hundred feet."

Prof. Kaufman has also dived the reef at Nikumaroro. "The planned TIGHAR expedition affords us the opportunity to conduct the same exploration of a relatively undisturbed deep atoll community as we have been doing for the shallow reef. Again, this helps us to understand the influence both of local (trawling, other fishing, pollu- tion) and global (climate change) anthropogenic stressors. One reason this is so important at Nikumaroro is the existence of astoundingly ancient corals in the deep shelf wall habitat."

The Pisces subs of the University's Hawai'i Undersea Research Laboratory (HURL) have a maximum operational depth of two thousand meters. The corals that live at depths of 400 to 500 meters include Gold Coral (species *Gerardia*), which are among the oldest living organisms on the planet. One colony in Hawai'ian waters has been dated as 2,740 years old and others may be as old as 5,000 years. These extraordinarily ancient corals can reveal an historical record of previous changes in the earth's climate and provide badly needed perspective on the current climatic shift.



Gold Coral is among the oldest forms of life on the planet.

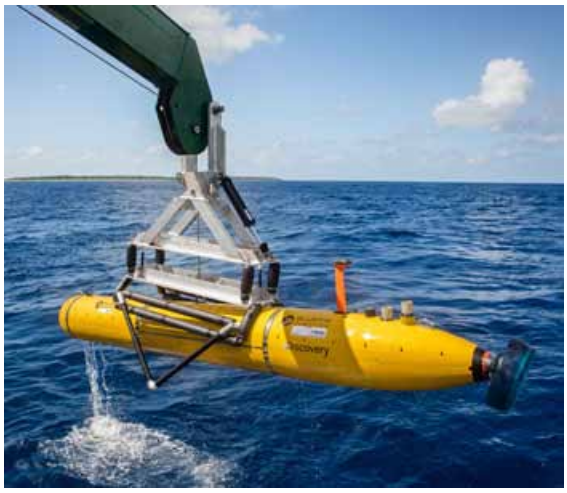
On two previous expeditions, in 2010 and 2012, TIGHAR attempted to search the reef slope at Nikumaroro using video cameras mounted on tethered remote operated vehicles (ROVs). Those searches were not successful. Gillespie says, "It's like searching for your lost car keys in the backyard at night with a flashlight while looking through a toilet paper tube. An ROV is a good way to examine something in a known location but it's not an effective way to search a large area." In 2012 TIGHAR also tried searching with side-scan sonar deployed from a free-swimming Autonomous Underwater Vehicle (AUV) – the

same Bluefin 21 that more recently was used in the unsuccessful search for Malaysian Flight 370. "We found the Bluefin 21 to be unreliable and ill suited to the rugged coral environment at Nikumaroro."

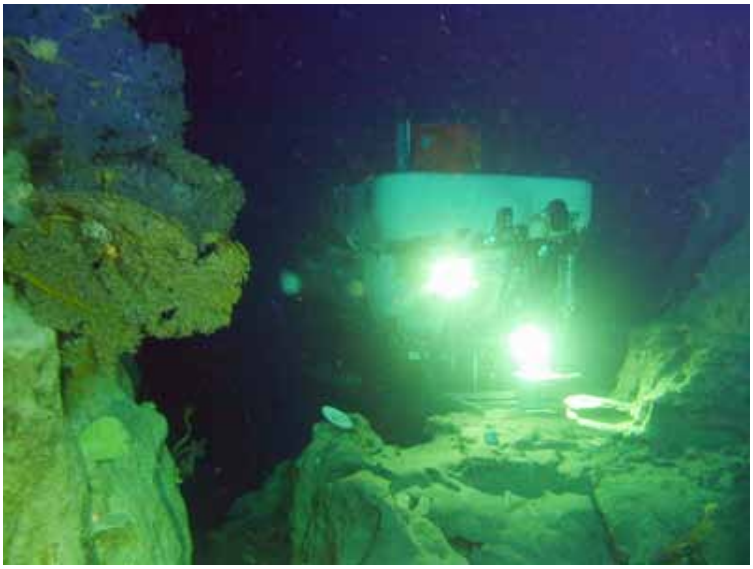
"There's no substitute for having eyeballs and brains on the bottom."

—Terry Kerby, Hawai'i Undersea Research Laboratory

The Pisces subs, by contrast, have a long history of operating safely and successfully in steep coral terrain. HURL director and chief pilot Terry Kerby says, "Those environments are our briar patch. We can operate safely where others dare not venture." The Pisces subs have also made many significant historical discoveries, including a Japanese miniature submarine sunk during the Pearl Harbor attack. As Kerby says, "There's no substitute for having eyeballs and brains on the bottom."



The Bluefin 21 Autonomous Underwater Vehicle (AUV) proved to be unsuited to the rugged underwater terrain at Nikumaroro.



The Pisces subs have a long history of working safely and successfully on coral reef slopes in the tropical Pacific.

Dr. Sylvia Earle urges support for the expedition. "The Pisces subs and their expert crew are the most effective – and cost effective – means available to meaningfully explore the deepwater systems of the Phoenix Islands, a venture that is urgently needed for realistic management of this wondrous UNESCO World Heritage area."

The Pisces subs are undoubtedly the best, and probably the only, way to carry out a thorough examination of the reef slope. Their three-person crews, made up of a HURL pilot, a trained TIGHAR observer, and an ocean scientist, will be going where no one has ever gone before, simultaneously watching for aircraft wreckage and making crucial scientific observations and measurements.

The opportunity is unprecedented and, sadly, not likely to be repeated. The Pisces subs are the perfect tool for the job, but they're an endangered technology. Until last year, the Hawai'i Undersea Research Laboratory (HURL) was funded in large part by the National Oceanographic and Atmospheric Administration (NOAA). This year NOAA dropped the funding for the Pisces subs in favor of remote technologies. The University of Hawai'i School of Ocean and Earth Science and Technology (SOEST) cannot maintain the Pisces program without proof of its continued value and utility. The survival of the subs depends on this expedition.

Right now the subs are in top condition, inspected and ready to go. If they are allowed to fall into disuse it is unlikely that they will ever dive again. There are other demands on the ship and personnel that are on hold until it is known whether the TIGHAR expedition can be funded. The deadline for cash in hand or firm pledges to cover the cost of the charter is June 30, 2014.

The University of Hawai'i has quoted TIGHAR a charter rate of $48,000/day for the Pisces subs and their dedicated support ship, the oceanographic research vessel M/V *Ka'Imikai-O-Kanaloa* (aka KOK). Terry Kerby has budgeteded ten days on-site – seven days to cover the designated search area and three days for weather or equipment

delays. Transit Honolulu/Nikumaroro is nine days each way. The twenty-eight day charter will cost $1,344,000. A major foundation has pledged to cover the final $100,000 so there is $1,244,000 remaining to be raised.

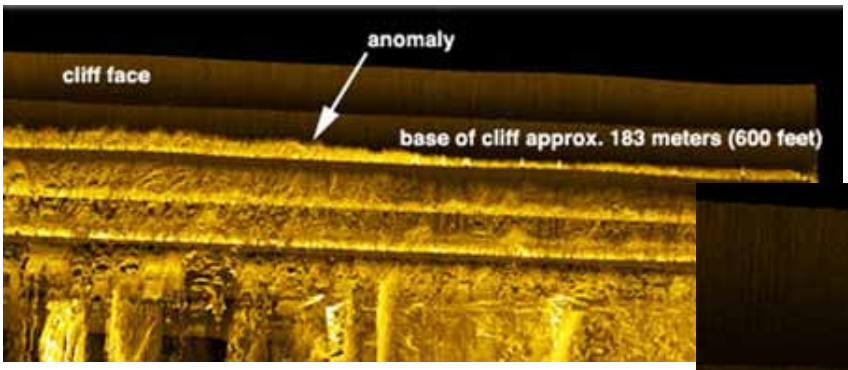


The University of Hawai'i oceanic research vessel M/V Ka'Imikai-O-Kanaloa (aka KOK) is specifically designed to deploy and support the Pisces subs.

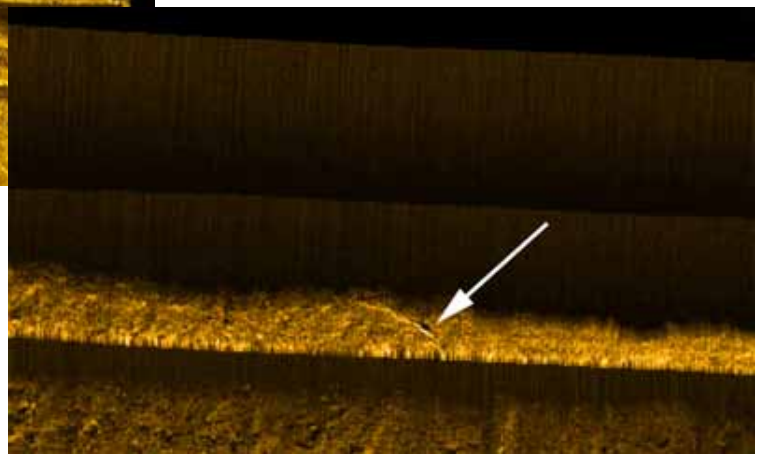
"Investment in space exploration has paid off handsomely; neglect of ocean exploration is costing us dearly."

—Dr. Sylvia Earle

Prof Kaufman has made an astute observation: "Compared to a Mars rover this is incredibly cheap, yet entails venturing into an environment that is nearly as poorly known." Dr. Earle concurs. "Investment in space explora- tion has paid off handsomely; neglect of ocean exploration is costing us dearly. Deploying the Pisces subs to explore the deep reefs of the Phoenix Islands will yield insights about the nature of this part of the Solar system that are as vital as knowing about the depths of Jupiter's moon, Europa. All things considered, the need to understand Earth's ocean is a lot more urgent and a whole lot less costly."



Post-expedition analysis of sonar data collected during TIGHAR's 2012 expedition revealed the presence of an anomaly that may be the remains of the Earhart aircraft.



TIGHAR's Ric Gillespie says, "The timing is perfect. A major El Niño event is reportedly now developing in the region. We have known targets to investigate that may well be aircraft wreckage. The ship and the subs are in top condition. The historical and ocean science teams are standing by. The stars may never align this way again. Between now and June 30 we'll be doing all we can to find the sponsorship to make sure this incredible opportunity does not slip away. We need to find people who care and are willing to act. We've made great progress with funding for the expedition, but much more has to be raised by our June 30 deadline."

Inquiries, donations, or sponsorship commitments may be made either through the TIGHAR website at tighar. org or by contacting TIGHAR Executive Director Richard Gillespie at ric@tighar.org or phone 610-467-1937.

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