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New Research Seeks to Crack the Code of Coral Reef Heat Resilience

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--News Direct--

The Paul G. Allen Family Foundation today announced a suite of new grants supporting the next phase of groundbreaking research to identify naturally heat tolerant corals, accelerate corals' evolution processes, improve restoration methods, and ultimately slow the decline of coral reefs. Coral reefs sustain more than a quarter of all marine life and drive $2.7 trillion dollars in economic benefits such as tourism and food each year. Climate change, however, is rapidly accelerating their path toward extinction, threatening the safety, livelihood, and food security of almost one billion people across the globe.

"The rapid decline of coral reefs in the face of climate change makes finding adaptation techniques essential if corals are to survive," said Jody Allen, co-founder and chair of the Paul G. Allen Family Foundation. "These grants build on the foundation's longstanding commitment to coral reefs and support of applicable, scalable solutions to protect them. We are at a critical juncture with coral reefs facing extinction and the world must continue to invest in actionable research that ensures their preservation and long-term survival."

Coral reefs are among the most diverse and valuable ecosystems on the planet, but are facing extinction at a more accelerated rate than any other ecosystem on Earth. As a result of climate change, half of the world's coral reefs have died in the last 50 years, and without drastic intervention to reduce carbon dioxide emissions, all will die by the end of this century under the current climate warming trajectory.

By merging the latest advances in biomedical science, technology, and coral reef ecology, grantees will help corals survive while the world deals with the climate crisis. This suite of new research grants will provide field-deployable solutions to accelerate the natural evolution and identification of heat tolerant corals, and the scaling up of restoration strategies.

The following research teams are receiving immediate support for their work.

1. **Professor Christian Voolstra at Konstanz University of Germany and a global academic team from Old Dominion University, Institute for Systems Biology, Australian Institute of Marine Science, and Pennsylvania State University** are searching for corals with natural resilience to climate change, or "super corals," so they can be prioritized for conservation and restoration efforts and studied to understand what makes a coral reef more heat tolerant.
2. **Professor Madeleine van Oppen and team at the Australian Institute of Marine Science** are adapting the single-cell algae within corals to withstand greater temperatures and speed their natural evolutionary process. This grant will help bring their work from the lab to the field.
3. **Dr. Crawford Drury and team at the Hawaii Institute of Marine Biology, University of Hawaii,** use selective breeding of corals to pursue additional methods of speeding their natural evolutionary processes. They will determine if reproduction of known thermally tolerant corals can produce high-temperature-tolerant offspring.
4. **Professor Peter Harrison and team at Southern Cross University, Australia** are focused on enhancing the survival rate of juvenile corals to restore reefs. They will use this funding to scale up the restoration of degraded coral reefs by clearing reefs of seaweed and settling the coral larvae both on the reef and in new settlement designs.

The foundation's $7.2 million will support grantees to build on their successful initial research and enter into phase two, turning innovative ideas into scalable, sustainable solutions for coral reefs. This new suite of research grants is designed with a three-year timeline and focuses on applied solutions that can be deployed in the field by 2024.

The Paul G. Allen Family Foundation has long supported the work of those preserving and protecting coral reefs from the impacts of climate change. In 2014, the Paul G. Allen Ocean Challenge awarded $4.3 million to van Oppen and Dr. Ruth Gates at the University of Hawaii to support their research, considered radical at the time, to assist the evolution of coral reef thermotolerance. The foundation is also a founding partner of the Global Fund for Coral Reefs, a blended finance mechanism that uses public and philanthropic funding to catalyze private investment in coral reef conservation and restoration. In addition to the foundation's support of corals, in 2017 Paul G. Allen and Jody Allen's private investment and management firm Vulcan Inc. partnered with Arizona State University, Planet Labs, National Geographic, and University of Queensland to launch the Allen Coral Atlas. The first of its kind global coral reef mapping and monitoring system provides a comprehensive and unprecedented level of high-resolution, comparable, and up-to-date data about the world's reefs, and will complete its mapping mission this fall.

Fact sheet and images for download available here .

About Paul G. Allen Family Foundation

For more than three decades the Paul G. Allen Family Foundation has focused on changing the trajectory of some of the world's toughest problems. Founded by philanthropists Jody Allen and the late Paul G. Allen, co-founder of Microsoft, the foundation initially invested in community needs across the Pacific Northwest with a focus on regional arts, underserved populations, and the

environment. Today, the foundation supports a global portfolio of frontline partners working to preserve ocean health, protect wildlife, combat climate change, and strengthen communities.

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