



CORAL TEAM

BOARD OF DIRECTORS

Dr. John Anner, *Board Chair*
 C. Elizabeth Wagner, *Secretary*
 Dan Dunn, *Treasurer*
 Michael Bennett
 Kristine Billeter
 Jeffrey Chanin
 Philippe Hartl
 Matt Humphreys
 Vani Keil
 Dr. William Kerr
 Jim Lussier
 Dr. Robert Richmond
 James Tolonen

CORAL STAFF

Senior Leadership

Dr. Michael Webster,
Executive Director
 Dr. Madhavi Colton,
Program Director
 Dory Gannes,
Development Director
 Christine Reyes,
Finance and Administration Director

Program

Chana Ane,
Program Coordinator
 Wesley Crile,
Program Manager
 Sarah Eminhizer,
Associate Program Director
 Jos Hill,
Associate Program Director
 Jenny Myton,
Associate Program Director
 Veronica Niken,
Program Coordinator
 Pamela Ortega,
Program Manager
 Erica Perez,
Program Manager
 Alisi Rabukawaqa,
Program Coordinator
 I Made Jaya Ratha,
Program Coordinator

Program (cont.)

Dr. Antonella Rivera,
Program Manager
 Alicia Srinivas,
Associate Program Manager
 Danielle Swenson,
Engagement Manager
 John Vonokula,
Program Coordinator

Development and Marketing

Kelsey Drivinski,
Development Operations Coordinator
 James Lloyd,
Communications Manager
 Natalie Scarlata,
Grants Manager

Administration

Anne Shelley, *Accountant*

International Council Members

Tony Birdsey, Linda Cain, Steve Cohen,
 Mark Epstein, Sarah Freiermuth, Cindy
 Glancy, Alex Kreston, Jillian Kreston,
 Bradley Mart, Donna Miller, Julian Osinski,
 Tom Schroeder, Steve Weinstock,
 Jeff Yonover

MAIN OFFICE

Coral Reef Alliance
 1330 Broadway, Suite 1602
 Oakland, CA 94612
 1.888.CORAL.REEF

info@coral.org
www.coral.org

Follow Us

-  [@CoralReefAlliance](#)
-  [@coral_org](#)
-  [@coral_org](#)
-  [@Coral-Reef-Alliance](#)

SAVE CORAL REEFS



Over the last few years, we've experienced some the greatest destruction of coral reefs in human history. **THE CULPRIT?** *Coral bleaching caused by climate change.*

Bleaching happens when the water on coral reefs gets too warm. Though corals like warm water, when the water gets too warm, they get stressed and bleach. Many corals never recover and once vibrant reefs fade to white and crumble.

But even in the face of these heartbreaking losses, I have not lost hope. I can assure you that my hope is not just wishful thinking, but instead based on growing scientific evidence that corals can adapt to environmental changes. In fact, corals have been adapting for hundreds of millions of years. We can see evidence of coral adaptation everywhere on coral reefs. For example, scientists are discovering corals that are thriving in harsh conditions, like the murky waters of

Tela Bay, Honduras or Honolulu Harbor, Hawai'i, or unusually warm waters in lagoons in American Samoa. These special corals are defying the assumption that corals are fragile and headed for extinction.

To save coral reefs, we need to find ways to help these special corals survive, grow and spread their genes to the next generation – this is the process of coral adaptation. We believe that the best way to help corals adapt is by creating Adaptive Reefscapes around the world, where diverse corals can thrive in networks of well-protected reefs. This special edition of CORAL Current will give you an in depth look at Adaptive Reefscapes and how we can use this innovative conservation concept to save coral reefs today and for future generations.

Sincerely,

Dr. Michael Webster



Why Save Coral Reefs?



275M people around the world depend on reefs for food and income

Coral reefs generate **\$36B** in global tourism value per year

109 countries have coral reefs

25% of all marine life depend on coral reefs

2M marine species are found in, on and around reefs

Survival and Adaptation in a Changing World

by Alicia Srinivas

“Corals are survivors. They can adapt; we can help.”

Dr. Michael Webster

When I watched the critically-acclaimed documentary film “Chasing Coral,” I was struck by the powerful and moving underwater time-lapse footage that bears witness to the devastation of a coral bleaching event. By the end of the film, there was hardly a dry eye in the audience. While messages like these play a critical role in creating global awareness and inciting action, it’s equally important to bear in mind that not all is doom and gloom for coral reefs. Corals are excellent survivors and adapters, and there are concrete actions we can take to save them.

Ancient Survivors

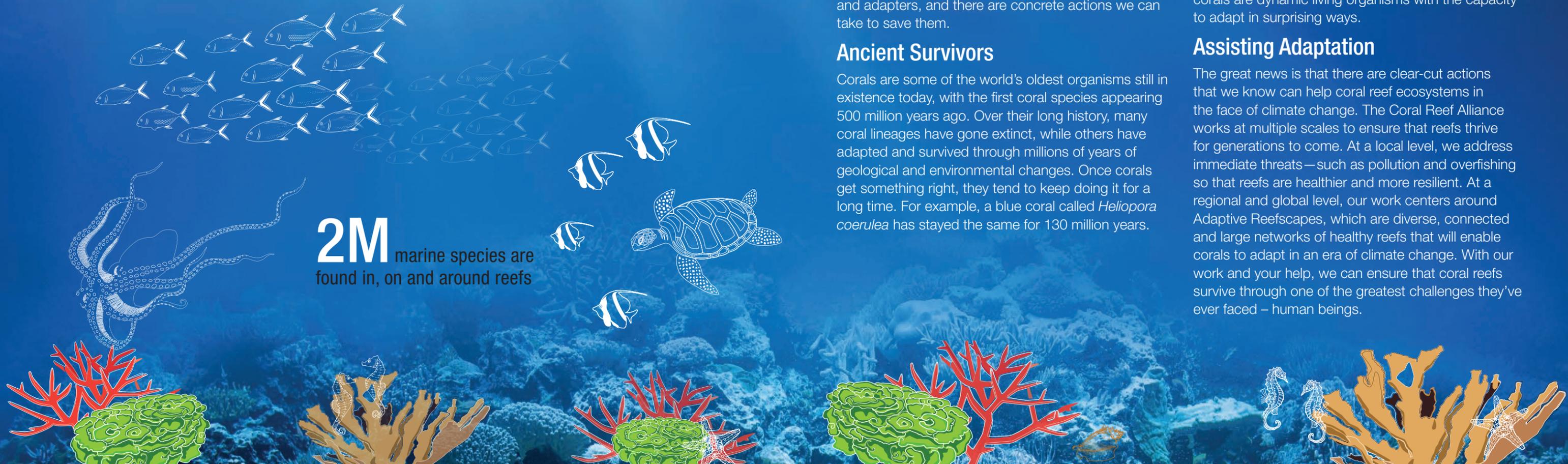
Corals are some of the world’s oldest organisms still in existence today, with the first coral species appearing 500 million years ago. Over their long history, many coral lineages have gone extinct, while others have adapted and survived through millions of years of geological and environmental changes. Once corals get something right, they tend to keep doing it for a long time. For example, a blue coral called *Heliopora coerulea* has stayed the same for 130 million years.

Diverse Responses

There is much more variation in coral response to climate change than one might think. Some corals die during a bleaching event, some get bleached and later recover, and some show signs of resistance to bleaching altogether. Sometimes corals surprise us by doing well in unexpected places like murky waters or warm-water lagoons. It’s helpful to remember that corals are dynamic living organisms with the capacity to adapt in surprising ways.

Assisting Adaptation

The great news is that there are clear-cut actions that we know can help coral reef ecosystems in the face of climate change. The Coral Reef Alliance works at multiple scales to ensure that reefs thrive for generations to come. At a local level, we address immediate threats—such as pollution and overfishing so that reefs are healthier and more resilient. At a regional and global level, our work centers around Adaptive Reefscapes, which are diverse, connected and large networks of healthy reefs that will enable corals to adapt in an era of climate change. With our work and your help, we can ensure that coral reefs survive through one of the greatest challenges they’ve ever faced – human beings.



ADAPTIVE REEFSCAPES

DIVERSE, CONNECTED and LARGE networks of healthy reefs.

DIVERSE

Adaptive Reefscapes include many types of reefs, habitats, species and genes. We safeguard DIVERSITY to preserve options for an unpredictable future.

CONNECTED

Rapid adaptation requires a CONNECTED network of healthy reefs such as Marine Protected Areas or Locally Managed Marine Areas to facilitate the spread of baby corals to different reefs and repopulate degraded reefs.

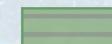
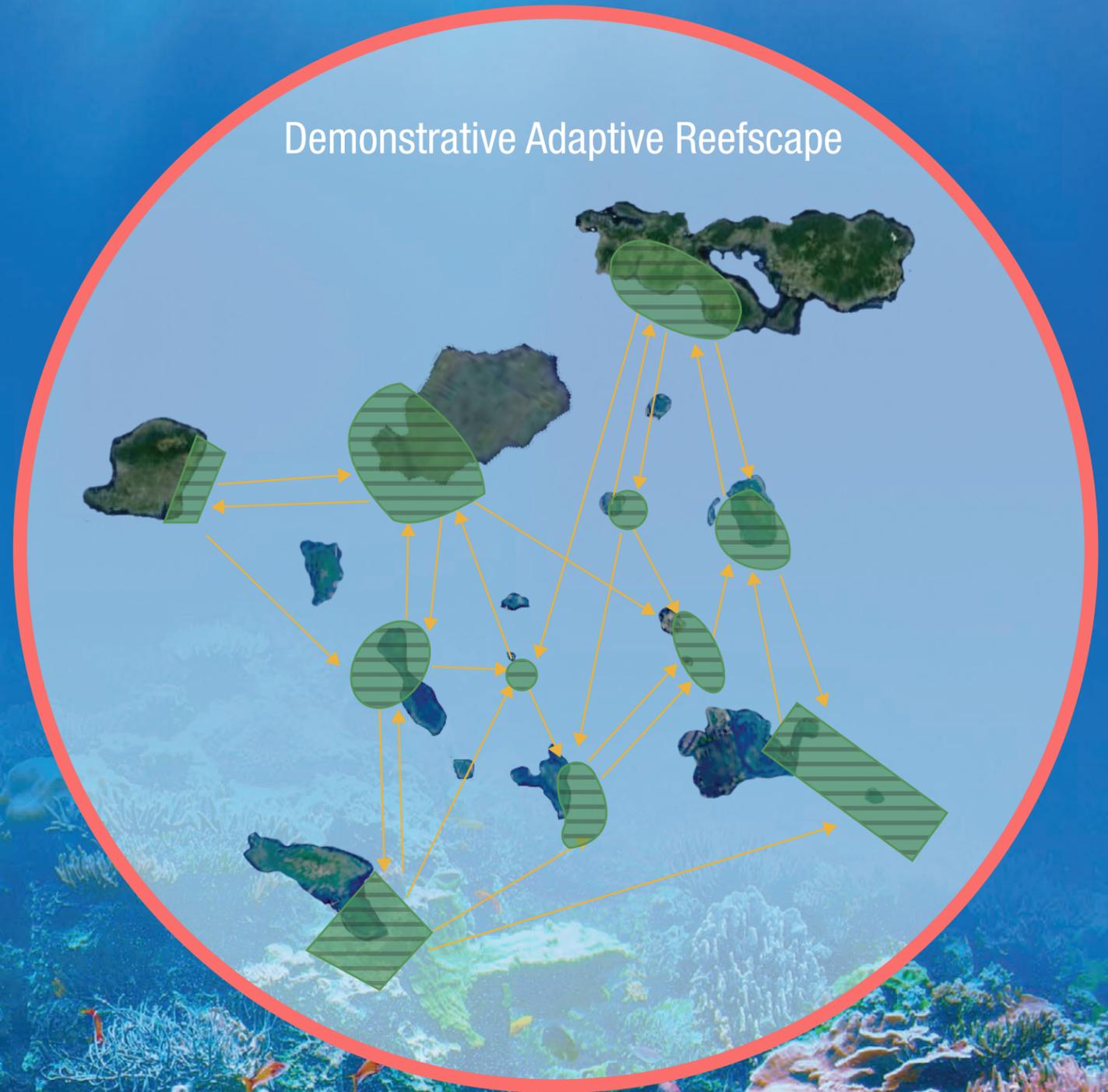
LARGE

Small networks of reefs are vulnerable to a single disturbance such as a storm or a disease outbreak. Connecting LARGE networks of reefs protects reefscapes against losing everything all at once.



Reef-building corals are the foundation of coral reef ecosystems. Their skeletons provide homes for the millions of species that live on, in and around reefs.

Demonstrative Adaptive Reefscape



DIVERSE Protected Reefs



CONNECTED Healthy Reefs



LARGE Network of Reefs

SPOTLIGHT: REEF-BUILDING CORALS

Reef-building corals come primarily from a group of corals called Scleractinians, or “hard” corals. Found in sunlit tropical waters where temperatures stay above 18 degrees Celsius, they provide food, shelter and nurseries to 25 percent of marine life and protect coastal communities from wave action, erosion and tropical storms. These corals share a symbiotic relationship with the algae, called zooxanthellae, that live inside them. Most live in colonies comprised of thousands of individual animals called coral polyps and build reefs by secreting layers of a hard mineral substance called calcium carbonate.

The IUCN Red List, founded in 1964, is the world’s authority on the global conservation status of species. Scientists assign species with a status as follows:

- CR = Critically Endangered**
- EN = Endangered**
- VU = Vulnerable**
- NT = Near Threatened**
- LC = Least Concern**
- DD = Data Deficient**

There are estimated to be **845** species of reef-building coral species.

One-third of reef-building corals are at risk of extinction due to climate change and local threats.

Elkhorn coral (*Acropora palmata*) **CR**



Shape: Branching (tree-like)

Distribution: West Atlantic/Caribbean

Fun Fact: Acropora is the most abundant and species-rich genus of corals in the world

Boulder star coral (*Montastraea annularis*) **EN**



Shape: Massive

Distribution: West Atlantic/Caribbean

Fun fact: Recent studies have revealed that what was previously thought to be only one species actually turns out to be three different species

Cabbage coral (*Montipora foliosa*) **NT**



Shape: Foliose (leaf-like)

Distribution: Indo-Pacific, Indian Ocean, Red Sea

Fun fact: A favorite of reef aquarists, thanks to its beauty and ease of care

Elephant skin coral (*Pachyseris rugosa*) **VU**



Shape: Foliose (leaf-like)

Distribution: Indo-Pacific, Indian Ocean

Fun fact: Unique in that its coral polyps do not extend to catch food

Mushroom coral (*Fungia fungites*) **NT**

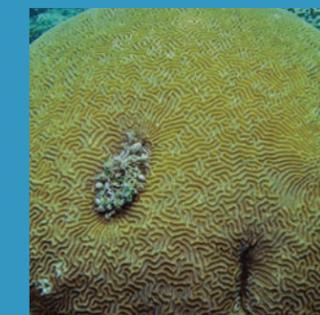


Shape: Solitary

Distribution: Indo-Pacific, Indian Ocean, Red Sea

Fun fact: Unique in that they are not attached to the bottom and can move short distances; they’re also a single polyp (they do not live in colonies)

Maze brain coral (*Platygyra lamellina*) **NT**



Shape: Massive

Distribution: Indo-Pacific, Indian Ocean, Red Sea

Fun fact: The pattern on brain corals is often referred to as a series of ridges and valleys; the coral polyps’ mouths are located in the valleys

Pillar coral (*Dendrogyra cylindrus*) **VU**



Shape: Digitate (finger-like)

Distribution: West Atlantic/Caribbean

Fun fact: Tentacles remain extended during the day, giving the colonies a furry look

Lobe coral (*Porites lobata*) **NT**



Shape: Massive

Distribution: Indo-Pacific, Red Sea, Hawaiian Islands, Pacific coast of the Americas

Fun fact: Colonies can be up to 1000 years old, making them some of the oldest life forms on earth

OUR BLUEPRINT

Making Adaptive Reefscapes a reality requires a blueprint that can be replicated around the world. This blueprint includes several steps that we follow whenever we begin work in a new region.

Develop a Regional Conservation Plan

- Assess the work already happening within a region
- Draw on cutting-edge science to strategically identify where and how to invest our resources
- Collaborate with and unite communities, government leaders, organizations and philanthropists around a regional plan to save coral reefs

Establish Networks of Healthy Reefs

- Work directly with local communities to reduce threats to key reefs in ways that provide tangible benefits to people
- Create partnerships and alliances to enhance conservation work that is already underway
- Engage policymakers and government officials to create legal support for reef protections

Refine, Exit, Share and Repeat

- Assess our progress and refine our work based on new information
- Ensure local leaders have the capacity, tools, autonomy and financial support they need for long-term success
- Share findings with a global network of partners to apply our blueprint around the world

Our Science

In collaboration with research partners at the University of Washington and Rutgers University, we are building a powerful mathematical model to simulate different future scenarios for coral reefs and help us answer questions like:

- Does focusing on “pristine” reefs help corals deal with climate change?
- What happens to corals in the future if we protect a network of diverse reefs?
- How large does a reefscape have to be to ensure that it can adapt to change in the coming decades?

Our Blueprint in Action

With our many partners, we are creating an Adaptive Reefscape along the Mesoamerican reef region, which spans the Caribbean coasts of Mexico, Belize, Guatemala and Honduras. Already, we have been able to identify key reefs where we are reducing coastal pollution and improving fisheries management. We are also developing a mathematical model to pinpoint additional reefs that we should protect to help corals adapt. Our goal is to launch similar Adaptive Reefscapes in three other key coral reef regions around the world. Creating successful reefscales in these regions will provide a proven blueprint for global coral reef conservation.

Coral Reefs Need People Like You

The **world needs coral reefs** for food, jobs and recreation. Corals are extraordinary animals, and the reefs they build are one of the most biodiverse and valuable ecosystems on the planet.

Today, corals are in crisis. A startling **75 percent** of our **coral reefs** are **threatened** or **gone**. Rising sea temperatures and increased ocean acidity caused by climate change leave corals vulnerable.

But there is hope. **Corals can adapt** to changing conditions. Coral reefs need people like you to help protect the two million marine species and two hundred seventy-five million people that depend on them.

The Coral Reef Alliance has a solution that promotes coral adaptation with diverse, connected and large networks of healthy reefs called **Adaptive Reefscapes**. Together with you, we can save corals.

Join us and learn more at coral.org/adapt.

Photo by Craig Holmes



CORAL REEF ALLIANCE
1330 Broadway, Suite 1602
Oakland, California 94612

CORAL. A Trusted Nonprofit.



**CHARITY
NAVIGATOR**



Four Star Charity

CORAL is pleased to announce that we have received a 100 percent score from Charity Navigator for our Accountability and Transparency procedures. With an overall score of 97 percent and a 4 out of 4-star rating for the fourth consecutive year, you can be confident in our capacity as a financially healthy, accountable and transparent organization.

Learn more at coral.org/4-star.