






THE WORLD CORAL CONSERVATORY PROJECT

A NOAH'S ARK FOR CORALS AND REEF ECOSYSTEMS

CORAL REEFS ARE ESSENTIAL FOR OUR PLANET

-  Coral reefs are the "rainforests of the sea": 30% of the known marine life forms depend on healthy coral reefs
-  Coral reefs protect coastlines from storms and erosion, provide jobs for local communities, and offer opportunities for recreation
-  Coral reefs also are a source of new medicines that could treat diseases such as cancer, arthritis, human bacterial infections, Alzheimer's disease, heart disease, viruses etc.
-  Over 800 million people depend on reefs for food, income, and protection
-  The net economic value of the world's coral reefs is estimated to be nearly tens of billions of U.S. dollars per year



Credit: Martin Colognoli / Coral Guardian





The biodiversity of coral reefs has an economic, social, cultural and aesthetic value. **Therefore, in a nutshell, the whole planet ecosystem relies on healthy coral reefs.**



Credit: Matt Curnock / Ocean Image Bank

The Ocean Agency / Ocean Image Bank

CORAL REEFS ARE UNDER THREAT DUE TO HUMAN ACTIVITIES

-  Global warming: the rise of oceans' temperature causes thermal stress that contributes to coral bleaching and infectious disease
-  Acidification (result of increased CO₂): causes a reduction in pH levels which decreases coral growth and structural integrity
-  Deoxygenation: warm water holds less oxygen than cold water and coral reefs struggle to get the oxygen they need
-  Oceans' pollution: plastic debris has a direct effect on the development of disease by causing physical damage to coral tissue

Since 1998, there was a progressive loss amounting to 20% of the coral from the world's coral reefs, which is more than all the coral currently living on Australia's coral reefs. The Intergovernmental Panel on Climate Change (United Nations body) special report (2018) anticipates **a loss of 90% of reef-building corals by 2100** under a warming scenario of +1.5 °C.

WHAT THE WORLD CORAL CONSERVATORY PROPOSE TO HELP SAVE THE CORALS

- By collecting 1000 living coral species using a network of worldwide public aquariums and scientific institutes
- By preserving coral genetic and species diversity and therefore contributing to protect coral reef biodiversity
- By providing researchers and aquarists with biological material
- By using "assisted evolution approaches" to develop and maintain resistant/resilient coral stocks. For instance, make studies of strain already resistant to warming stress : corals from persian/Arabic gulf (70 species) are resistant to thermal stress until 36°C. Another example is to crossbreed resistant coral strains with sensitive strains to obtain new resistant strain. Or apply a stress in laboratory and therefore select coral strains that resist to the stress
- By providing these new strains to **restore** degraded coral reefs
- By providing comprehensive information on corals and coral reefs for education purposes