Reef Ball Mangrove Division

www.mangrovesolutions.com

Restoring the World's Mangrove Ecosystems

Mangrove ecosystems are one of the most threatened habitats in the world. The increase of human activities such as shoreline development (construction of marinas, seawalls, channels, and commercial and residential developments) in addition to adverse environmental conditions have wiped out millions of acres of mangrove forests worldwide. This destruction not only leaves coastlines susceptible to erosion and degradation but also creates a void of habitat for a variety of juvenile fish and other sea creatures. Nearby reefs also get deprived of essential nutrients.

The importance of mangroves for both terrestrial species and surrounding oceanic eco-systems is well documented, yet the destruction of these habitats has been seemingly overlooked by regulation bureaus and government agencies for decades. Efforts to restore the world's degraded mangroves are needed, and innovative methods to increase the success of specifically targeted areas of restoration are also needed to increase success rates and save millions of dollars from failed efforts.

Restoring Mangroves in Challenging Environments

Traditional efforts of restoring mangroves in protected environments have had relatively successful results. Usually, a method known as "hand planting" is used where collected propagules or "mangrove fruit" are individually stuck into the muck. This method can be an inexpensive, sufficient solution to restoration if the environment **ISN'T** exposed to the following threats:

- strong wave action
- high currents/erosion rates
- high winds
- floating/sunken debris
- predators

The presence of any of these threats to juvenile mangroves reduces success rates dramatically, often leading to repeated failure of projects and the conclusion that restoration is too time consuming and costly to be viable in the area. Unfortunately, these are precious areas that create habitat for juvenile fish, nutrients for nearby reefs and stabilization for shorelines.

A system that protects juvenile mangroves when they are in their most vulnerable stages is necessary in these challenging environments. One that protects against the major threats, while promoting optimal growth to ensure the tree makes it to its self sustaining age as soon as possible. The Reef Ball Mangrove Division developed such a system which solves the problems associated with this type of restoration.

Benefits of Mangroves

- provide shelter to fish, crustacean, and birds
- reduce shore erosion
- protect against waves and storms
- filter upland run-off
- enhance offshore productivity
- stabilize land elevation by sediment accretion
- produce nutrients through leaf litter

About Us

Reef Ball Mangrove Solutions, is a division of Reef Ball Foundation, Inc. and is a 501(c) 3 publicly supported non-profit that functions as an international environmental NGO. Our division's mission is to rehabilitate damaged mangrove ecosystems and to protect existing mangrove stands. Our focus is on mangroves that are directly connected to oceanic ecosystems...usually Red Mangroves. To accomplish our mission, we use Reef Ball technology, innovative red mangrove nursery systems, and we train communities to propagate, set up nurseries and plant mangroves. During our work, we use public educational opportunities to make people aware of the importance of protecting mangrove stands.

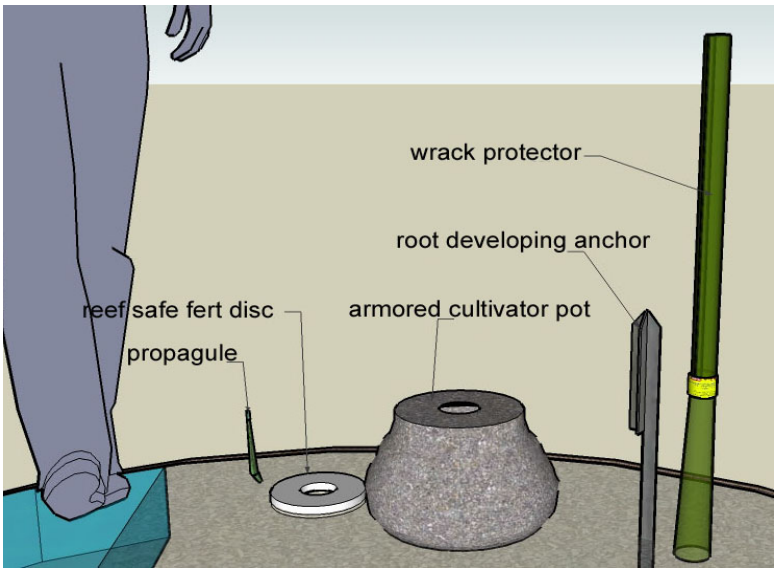
Our Solution

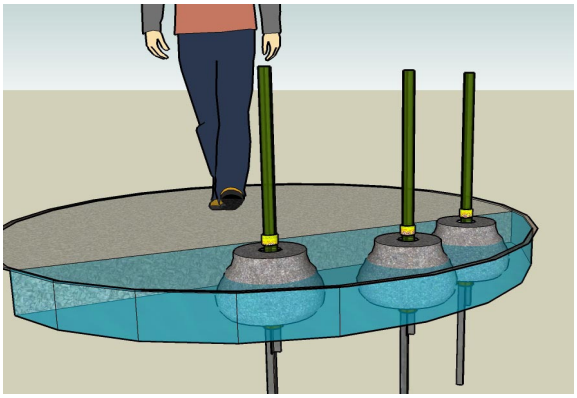
In challenging environments, or in areas where the normal tidal hydrology is disrupted, natural mangrove recolonization is compromised. The Reef Ball Mangrove Division has engineered a unique mangrove planting system that can be used for direct planting of propagules in areas of high energy.

Our system was specifically designed to address the threats mangroves are exposed to while in their juvenile stage. We also focused on keeping the costs down to make restoration efforts cost effective.

The system provides protection from high wave action, wind, floating/sunken debris and predators while promoting fast growth by providing a competition free, enriched environment and natural gibberellins pathway stimulation. It also allows for extended planting zones, making possible restoration efforts that aim to increase near-shore habitat.

Below are images of the system's components and possible applications. For more detailed information on this system please visit **www.mangrovesolutions.com**





Donate

The Reef Ball Mangrove Division relies on public support to continue our work in saving mangrove ecosystems around the world. Unrestricted funding helps us to most efficiently spend your donations where it is needed most but you may always designate donations for specific projects. Even small amounts help so please show your support by making a donation.

www.mangrovesolutions.com/sponsor.php

Get Involved

We work with NGO's, government agencies, contractors, scientists, teachers, volunteers, and private land owners to promote and accomplish mangrove restoration.

For more information about our restoration methods or to get involved in a project, please visit our website or contact us

Dr. Catherine Jadot
President/Founder
Reef Ball Mangrove Division
catherine@reefball.com

Ben Chisholm
Vice President/Project Coordinator
Reef Ball Mangrove Division
ben@reefball.com
Cell: 904-248-8025

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