

The Highwave Reef is a Platform for Energy, Innovation & Discovery

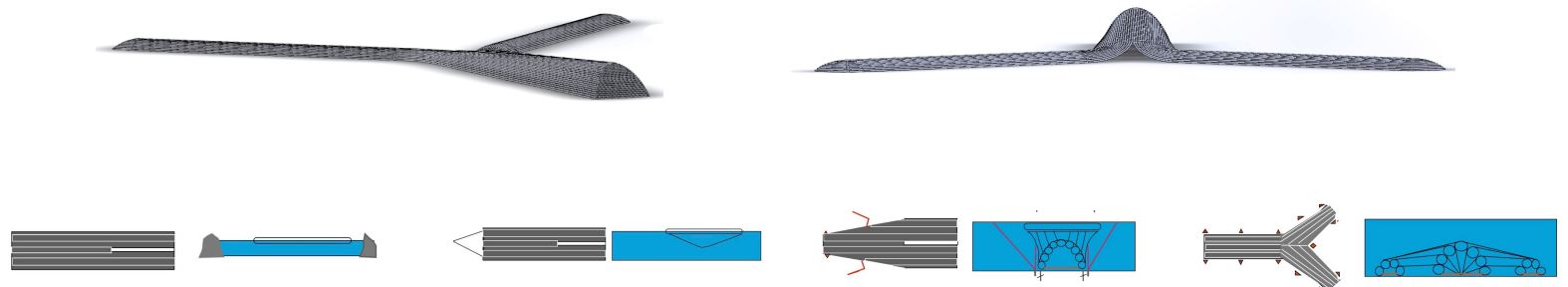
Tropical reefs can capture 97% of the wave's energy as proven from Coastal Conservancy research. A wave shoaling reef mimics a natural reef to focus, amplify and capture wave energy. The reef platform in the wave zone also advances technologies and to provide shore protection and other stakeholder benefits in the high energy wave zone.

CHALLENGE Biomimicry guides the reef and MRE design to harvest wave energy. Natural reefs protect beaches while also creating a good surfing wave and other key stakeholder value.

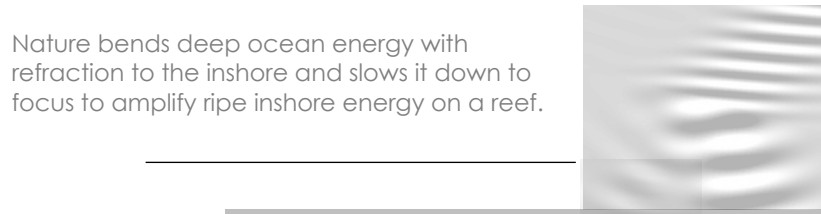
PUBLIC Considers marine life and human access. Goal is to protect and enhance shorelines with a working platform to also develop technology solutions of critical need.

ENGINEERING Solutions were developed and tested and with USA. Resources and experts from academia, NGOs and the Navy. Solutions consider sustainable sources and materials.

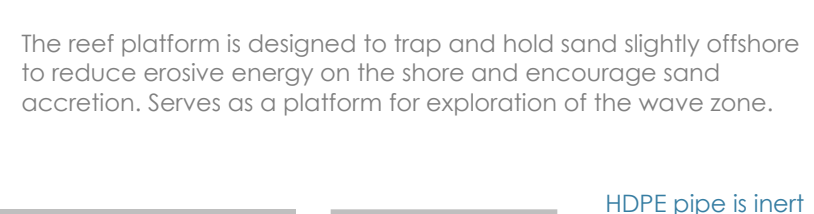
BENEFITS A multiple use reef platform for the inshore wave zone hosts a colony of devices for conversion to energy or desalination. Potentials for mariculture, surfing, sandy shore and critical infrastructure protection and as a platform for inshore energy research.



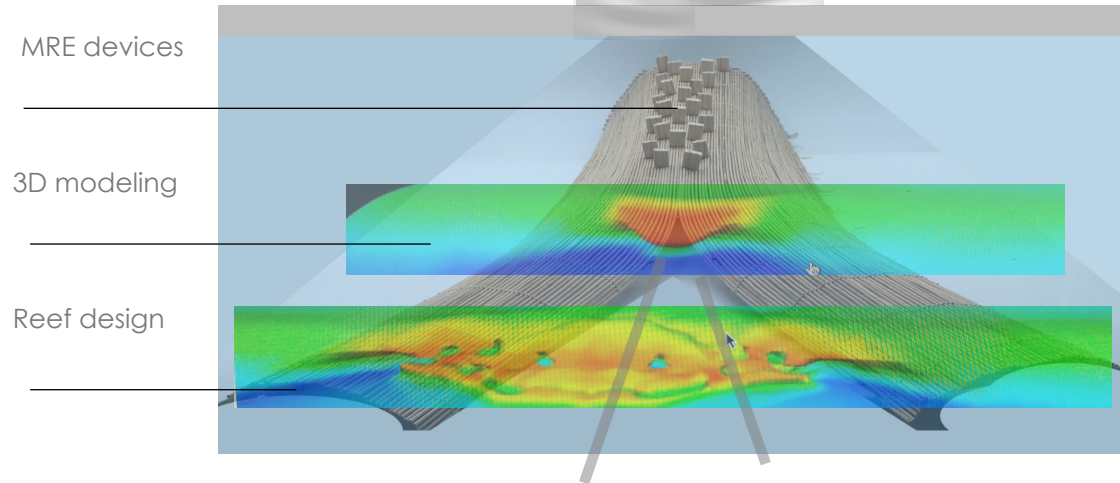
A raft is assembled in a harbor and then towed globally to be formalized off a designated beach to become a wave shoaling reef.



Nature bends deep ocean energy with refraction to the inshore and slows it down to focus to amplify ripe inshore energy on a reef.



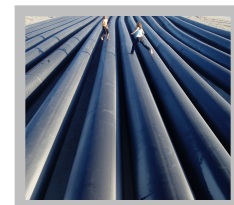
The reef platform is designed to trap and hold sand slightly offshore to reduce erosive energy on the shore and encourage sand accretion. Serves as a platform for exploration of the wave zone.



MRE devices

3D modeling

Reef design



HDPE pipe is inert and hardy and used extensively in the ocean with a 200 year half life. Can be made with 100% recycled HDPE material.

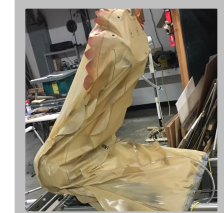
Physical and 3D modeling helped develop a design to mimic natural reefs that can be towed globally and installed quickly.

The HDPE wave shoaling pipe reef is a platform to host removable MRE units and other marine instruments.

A refined surf wave off the beach with less energy on the shore promotes stable beaches.



Pressurized water combine for conversion on shore for AC energy or stage one desalination or estuary flushing. The reef holds sand as its mass to protect to grow a beach inshore of the wave shoaling reef platform.



Patented MRE design to mimic the giant helps undulating motion. It captures and pushes volumes of seawater ashore with all movement.