

# Reef Restoration Program

**Grade Level:** 7<sup>th</sup> and above

**Timing:** Class discussion is 1 hour. Field trip is 3 hours (but can be compressed to 2 hours).

**Summary:** Students spend an hour in the classroom discussing the need for reef restoration and various restoration efforts, including efforts MarineLab instructors assist with in waters of Key Largo. Students will be taken to one of the Coral Restoration Foundation's coral nurseries to observe CRF's efforts while snorkeling. The students will then snorkel a restoration site to see corals MarineLab instructors have assisted to take from the nursery and outplant on the reef.

**\*\* Citizen science option available for both divers and snorkelers to directly participate in CRF's efforts – see "Advanced Reef Restoration" \*\***

## Program Objectives:

Students will be able to:

- Name 3 reasons why reef restoration is necessary
- Explain three reef restoration techniques
- Explain two specific restoration techniques used in the Florida Keys

## Concepts Covered:

- Human vs. natural influences on the reef
- boat grounding damage
- Ecological Restoration: passive vs. active
- Physical vs. biological restoration efforts
- Pros and cons of reef restoration techniques used locally and worldwide
- MarineLab's role in local reef restoration efforts
- Coral Restoration Foundation
- Coral outplanting procedures

**Vocabulary:** prop wash, ecological restoration, active restoration, passive restoration, physical restoration, biological restoration, fragmentation, biorock, ecoreef, reefball, coral nursery, outplanting, corals of opportunity, coral skinning

**Procedures:** Students will discuss concepts and vocabulary listed above with an instructor in the classroom. Students will then go on a boat for two snorkels. The first will be to CRF's Elbow nursery and the second to a restoration site to observe outplanted corals.

**Extensions:** Service Learning/Citizen science options are available for both divers and snorkelers to directly participate in CRF's efforts.

**Resources:** [www.coralrestoration.org](http://www.coralrestoration.org), <http://www.reefball.org/>, <https://www.ecoreefs.com/>, <https://mote.org/research/program/coral-reef-restoration>, <http://sanctuaries.noaa.gov/science/conservation/wellwood2.html>



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# Standards Addressed:

## *Next Generation Sunshine State Standards*

SC.912.L.17.8: Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.

SC.912.L.17.18: Describe how human population size and resource use relate to environmental quality.

## *Ocean Literacy Principles*

### **Principle 6.** The ocean and humans are inextricably interconnected.

d. Humans affect the ocean in a variety of ways. Laws, regulations and resource management affect what is taken out and put into the ocean. Human development and activity leads to pollution (point source, non-point source, and noise pollution), changes to ocean chemistry (ocean acidification) and physical modifications (changes to beaches, shores and rivers). In addition, humans have removed most of the large vertebrates from the ocean.

g. Everyone is responsible for caring for the ocean. The ocean sustains life on Earth and humans must live in ways that sustain the ocean. Individual and collective actions are needed to effectively manage ocean resources for all.

