



Project O.R.B (Operation Reef Ball): Creating Artificial Reefs, Educating the Community

A. Phipps

United States (Ahipps@nsf.gov)

The Project O.R.B. (Operation Reef Ball) team at South Plantation High School's Everglades Restoration & Environmental Science Magnet Program is trying to help our ailing south Florida coral reefs by constructing, deploying, and monitoring designed artificial reefs. Students partnered with the Reef Ball Foundation, local concrete companies, state parks, Girl Scouts, Sea Scouts, local universities and environmental agencies to construct concrete reef balls, each weighing approximately 500 lbs (227 kg). Students then deployed two artificial reefs consisting of over 30 concrete reef balls in two sites previously permitted for artificial reef deployment. One artificial reef was placed approximately 1.5 miles (2.4 km) offshore of Golden Beach in Miami-Dade County with the assistance of Florida Atlantic University and their research vessel. A twin reef was deployed at the mouth of the river in Oleta River State Park in Miami. Monitoring and maintenance of the sites is ongoing with semi-annual reports due to the Reef Ball Foundation and DERM (Department of Environmental Resource Management) of Miami-Dade County.

A second goal of Project O.R.B. is aligned with the Florida Local Action Strategy, the Southeast Florida Coral Reef Initiative, and the U.S. Coral Reef Task Force, all of which point out the importance of awareness and education as key components to the health of our coral reefs. Project O.R.B. team members developed and published an activity book targeting elementary school students. Outreach events incorporate cascade learning where high school students teach elementary and middle school students about various aspects of coral reefs through interactive "edu-tainment" modules. Attendees learn about water sampling, salinity, beach erosion, surface runoff, water cycle, ocean zones, anatomy of coral, human impact on corals, and characteristics of a well-designed artificial reef. Middle school students snorkel on the artificial reef to witness first-hand the success of this artificial reef. Over 3,000 students have been reached through the educational outreach endeavors of Project O.R.B.

This successful STEM project models the benefits of partnerships with universities, local K-12 public schools and community conservation organizations and provides students with authentic learning experiences. Students are able to have a positive impact on their local coral reef environment, their peers and their community through this comprehensive service-learning project.