

**A DEMONSTRATION PROJECT USING REEF BALLS FOR
WAVE ENERGY REDUCTION AND SHORELINE
STABILIZATION**

MACDILL AIR FORCE BASE, TAMPA, FLORIDA



MACDILL AIR FORCE BASE SHORELINE STABILIZATION PROJECT

The Current Situation

The southeastern shoreline along MacDill AFB is rapidly eroding. The rate of erosion has been estimated to be approximately one foot per year. Shoreline erosion may be due to a number of factors including an increase in the size and volume of commercial ship traffic through Hillsborough and Tampa Bays.



Old fence post with concrete footer shows amount of erosion that has occurred.

Shoreline erosion has been observed at many locations throughout coastal areas around Tampa Bay. Due to the steady shoreline erosion at MacDill, more than half a mile of remnant coastal shoreline is continually being lost. Some of the natural resources along the shoreline that will be lost soon include historic Live Oaks (100+ years old) and large Black Mangroves. In addition to the natural resource losses resulting from the disappearing shoreline, an eligible cultural resources site is also being impacted by the continuing shoreline erosion. The Gadsden Point site (MacDill Site 8 Hi50) is located in the

northern portion of the southeastern shoreline area that is rapidly eroding.



Exposed roots of "historic" Live Oak along southeastern shoreline. Oaks will be lost soon.

Erosion of the shoreline in the area around the Gadsden Point site resulted in the discovery of Native American remains around 1994. Continued erosion of the shoreline around the Gadsden Point site could result in exposure of more archeological resources. The site contains important Native American burial remains and middens that may experience new exposure almost daily.



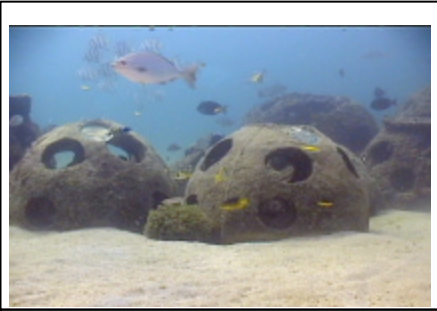
Black mangroves along southeastern shoreline, roots exposed, will be dislodged/toppled soon.

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Early coordination received from local tribe indicates base is taking correct action by neglecting to control erosion, however tribe will favor erosion over seeing more remains washed into Tampa Bay.

Plans for Stabilizing Shoreline

Stabilization of the MacDill AFB southeastern shoreline would be completed through construction of a shallow wave-energy barrier constructed of concrete "reef-balls". The pre-fabricated reef-balls are designed to reduce wave energy and encourage establishment of oyster beds/bars (or live coral depending on the environment in which they are used).



Full size Reef Ball used for coral reef reconstruction, habitat enhancement project.

MacDill AFB intends to conduct a demonstration project along the northern portion of the southeastern shoreline. The demonstration project would involve creating a reef ball breakwater approximately 800 feet long parallel to the shoreline. The reef ball breakwater would be constructed approximately 200 feet off-shore where the water is

typically 1.5 to 2.0 feet deep at high tide (see attached bathometric survey of demonstration site).



Looking south at northern portion of MacDill's southeastern shoreline, site proposed for demonstration project.

A smaller version of the Reef Ball shown in the photo would be used for the demonstration project. The "Lo Pro Reef Ball" is about two feet wide at the base and one foot tall and weighs about 75 pounds. These reef balls are well suited for the establishment of oyster and mussel beds that are common throughout Tampa Bay and along MacDill's shoreline. Placing the reef balls in approximately two feet of water would allow the balls to be mostly exposed during low tide and totally submerged at high tide, conditions which are generally suitable for oysters and other mollusks.



Photo showing a similar Reef Ball barrier in shallow water environment.

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The Benefits of the Project

Natural resources benefits of the project include the preservation of an undeveloped coastal shoreline and the associated ecosystems. The project would preserve critically imperiled natural shoreline, threatened and endangered species habitat, and related wetlands. This shoreline is contiguous to critical habitat of the East Indian manatee (*Trichechus manatus*) and others.



Restored mangrove shoreline just south of demonstration site.

Cultural resources benefits include preservation of an eligible-for-listing archeological site where native American remains have been exposed in the past as a result of shoreline erosion.



Erosion exposing roots of palm tree.



Shoreline erosion has imperiled several old (100+ years) Live Oak trees.

The base currently has no funds to support erosion control in this area. MacDill has programmed for Conservation funding for fiscal years 2002 through 2005 but has not yet received funding. The base has also applied for a Legacy Fund grant. The Legacy Fund is a Department of Defense fund dedicated toward implementing valuable natural and cultural resources projects.

MacDill AFB is actively seeking organizations to partner with for implementation of this demonstration project, as well as the follow on shoreline stabilization projects, that would focus on stabilizing the shoreline at the southeast corner of the base.

Future projects along the southeastern shoreline may include construction of a shoreline nature trail with boardwalks and interpretative signs that describe the project and the value of coastal ecosystems.

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Southeastern shoreline at low tide. No recruitment of sea grasses along this area due to shoreline erosion.



Southern shoreline at low tide. Sea grass recruitment occurs naturally in this area due to low wave energy.

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April 4, 2003

Ms. Cathy D. Litscher
Environmental Specialist II
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, FL, 33619

SUBJECT: MacDill AFB Oyster Dome Project
File number: 29-0207327-001.

Dear Ms. Litscher:

MacDill Air Force Base and Tampa BayWatch are working together on a community-based restoration project to create a series of oyster reef domes and shell bars along the eastern shoreline of the Base. Enclosed you will find the \$600.00 fee (check #3455) required for a Standard General Permit for the proposed activities in Hillsborough Bay.

This oyster dome project is designed to buffer MacDill Air Force Base from erosion, create habitat for benthic organisms, which in turn will provide a food source for birds and fish, and to improve water quality through biological filtration by the oysters themselves.

Thank you for your expeditious review of our project. Every effort is being made to install the oyster domes in time for the springtime spat set that will allow accelerated oyster growth through the summer. If I can provide any additional information please feel free to contact me at 727-867-8166.

Sincerely,

Peter A. Clark,
Executive Director

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