

# Reef balls: best for the bay

Times Staff Report  
by Laurel Newman

The reef balls that the Organization for Artificial Reefs will be using in the construction of the "Two dogs" reef are an innovative, economical and effective artificial reef form. They are a product of the Reef Ball Development Group, a volunteer group whose mission stated, "charters the group to help restore our world's ocean ecosystem through the development and installation of aesthetically pleasing, ecologically sound, and economically designed artificial reefs."

The group has constructed and deployed more than 40 thousand reef balls in over 250 projects worldwide.

The reef balls' construction and design is considered to be superior to other forms of artificial reef materials, many of which contain toxins harmful to marine life that can leach into the sea. Old tires leach petroleum compounds, old military ships frequently contain large amounts of PCBs, and "materials of opportunity" such as old cars and barges contain many contaminants.

Steel favors the growth of certain marine organisms that require iron, and although those may be stimulated, the natural growth and diversity does not exist as on a natural reef.

Stability is an important factor. An artificial reef base should last

hundreds of years. Many reef objects are too light or have too high a profile in comparison to weight to remain stable, and may move in storms, destroying life already growing on them.

Short-lived materials, such as steel, are not satisfactory. Many corals take many years to reach maturity, and as a steel structure rusts, the young corals simply fall off with the rust and never adequately establish a colony.

Ordinary concrete contains calcium hydroxide, which gradually leaches out in the sea over a period of three to six months. This compound is harmful to many forms of sea life and beneficial to a certain few, like barnacles. By the time the entire chemical has leached out, the few organisms have established tenacious colonies that prohibit other species. Reef balls' concrete contains microsilica, a compound which bonds to the calcium hydroxide, forming "cement glue" which makes the structures stronger while neutralizing the chemical.

In addition to their ecologically sound construction, reef balls are designed for the life they support, with holes to the inside, and holes between the walls. The large opening in the center provides shelter for the fish, and the small holes within the walls become home to assorted corals and invertebrates.

The simple yet practical surface

design of reef balls provides maximum life support in minimal space. Other reef materials may have large profiles, which attract fish, and large surface areas, but they can't support the fish. The available surface area needs both current and light for its inhabitants.



*The molded-concrete reef balls can be constructed with or without the base shown here.*

The final favorable item of reef balls is economy. Although in the project planned here, the balls will be barged to their site, in many other areas they have simply been floated and towed to their site. They are constructed so that a bag can be put inside, inflated, and the modules will bob along in the wake of a towboat.

When Carrabelle's reef is

complete, it will be added to a list of state- and worldwide sites including, in Florida, West Palm Beach, Sarasota, Cape Canaveral, the Keys, and Ft. Lauderdale. Other U.S. projects: Massachusetts, Seattle.

International: Malaysia, the Middle Eastern countries of Qatar and Oman, Australia, British Columbia and Berry Islands, Bahamas.