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DMF NEWS

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A Buzzards Bay Reef - By Design

Incidental artificial reefs, namely shipwrecks, have a long history in Massachusetts waters. Today, many of these wrecks have limited capabilities serving as fish and invertebrate habitat due to natural deterioration. This has prompted the intentional placement of additional materials to serve as reefs on the ocean floor. For example, in the 1970's DMF assisted the Town of Yarmouth with the siting and monitoring of an artificial reef project in Nantucket Sound using materials of opportunity (3-4 tires bundled together and ballasted with cement). Today most of these tire units are still on site and remain functional as a reef platform.

DMF's Sportfisheries program has been active both regionally and locally with reef programs. Since 1991, DMF has served on the ASMFC Artificial Reef Committee. The committee's current mission is to update the Atlantic states' reef profile data base and to revise the 1984 National Artificial Reef Plan. Over the past year, the Division has worked with the University of Massachusetts at Dartmouth on a Buzzards Bay artificial reef project. Funding for the project was due largely to the efforts of Rep. William Straus.

This project is a pilot study to: (1) gain first-hand knowledge about the many steps involved in the planning, permitting, and monitoring of a reef and (2) experiment with different designs to enhance the selected habitat. The current proposed 2-acre site off the Town of Dartmouth was selected by reviewing a nautical chart of Buzzards Bay and discussing area usage and general fisheries information with knowledgeable personnel and Town officials. DMF biologists/divers, Dartmouth officials, and a local shellfish dredge boat operator determined whether the area was physically suitable for reef materials and identified what shellfish existed on the site.

There are many different refined prefabricated options to use when designing reefs for habitat enhancement. This is a result of 10-12 years of reef management experience in the various states that have reef programs, which have extensively used both opportunistic materials (e.g. tires, derelict vessels, construction rubble,etc...) and prefabricated materials. Specific reef design, stability and longevity provide desirable habitat for target species of fish and invertebrates as well as compatibility with surrounding habitat and fishing activities.

The materials we chose are called Reef Balls, created and patented by the Reef Ball Development Corps, LTD.. These concrete units are dome-shaped with holes placed randomly throughout the hollow body with a hole always on the top. These units are very stable due to the tapering thickness of the walls. The thickest portion is at the base. The top hole allows water to move in, up, and out *(photos in printed newsletter)*.

Units are constructed in various sizes. We'll be using two different sizes: "Pallet Balls" which are 4' wide by 3' high and "Reef Balls" which are 6' wide by 4' high. We have plans to custom design a series of lobster "condos" around the base of the units, which are just dead end holes. The upper holes will remain open to the inside of the unit. The Reef Ball units are compatible with nearby existing bottom structure and fishing activities due to their low profile, holes/crevices, rough surface and lack of corners.

Fishing will be allowed on the reef site. Part of our interest lies with the public's use of the reef as well and what type of effects those activities have on a shallow water reef. DMF will be the permit holder and will use divers to monitor the reef's progress. If individual units are maneuverable and easily placed on a specific spot, then we will experiment with the overall layout to determine the most effective spacing.

The University will collect water quality and plankton data by incorporating this site into their established Buzzards Bay sampling regime. Any additional research studies will be subject to available funds.

by Karen B. Rypka, Sportfish Program Biologist

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