

NJ REEF NEWS

Y2K Annual Edition

FREE

Study Reveals Reefs Enhance New Jersey's Marine Environment

Preliminary results from a recent artificial reef colonization study conducted by the Division of Fish and Wildlife indicate that New Jersey's reefs have hundreds of times more marine life than areas of sea floor with no reefs. The study was conducted to determine the types and amounts of marine life that colonize ocean reefs and to compare those levels with what is normally found on the sandy sea floor. It was an attempt to answer the question do reefs produce marine life or simply attract it?

The study began in 1996 when 30 experimental reef habitats were placed on the Barnegat Light Reef Site. Each habitat consisted of a 3' x 1' square plastic coated wire box embedded in a concrete base. The boxes were filled with a variety of materials to imitate the hiding places found on reefs and to duplicate common reef building materials. Each box contained 10 corrugated fiberglass panels, 50 whelk (large snails) shells and 6-inch diameter plates of four common, reef-building materials—steel, concrete, rock and tire rubber.

The first experimental reef habitat was raised from the sea floor in October of 1998. After spending two years on the sea floor, it was retrieved by scuba divers from the U.S. Environmental Protection Agency. Division biologists then spent the next three months in a lab removing, sorting, counting, identifying and weighing the marine life living within the experimental habitat. The results were impressive. In



An experimental reef habitat brought to the surface after 3 years on the reef.

just two years, the habitat was colonized by 39,938 marine animals, including 25,000 blue mussels, 8,500 barnacles, 2,000 snails, 1,300 worms, 350 crabs, 12 fish, 2 lobsters and much more. In addition, the habitat was also colonized by colonial encrusting organisms, such as bryozoans, hydroids and sponges, that could not be enumerated, but collectively accounted for tens of thousands of organisms. The total biomass of all these organisms amounted to 9.5 pounds. Biomass is a biologist's measure of

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New Jersey Department of Environmental Protection

Division of Fish and Wildlife





Placing concrete bridge parts on the Sandy Hook Reef.

Objectives of The Reef Program

New Jersey's Reef Program is administered by the Department of Environmental Protection's Division of Fish and Wildlife. The objectives of the program are to construct hard-substrate "reef" habitat in the ocean for certain species of fish and shellfish, new fishing grounds for anglers and underwater structures for scuba divers.

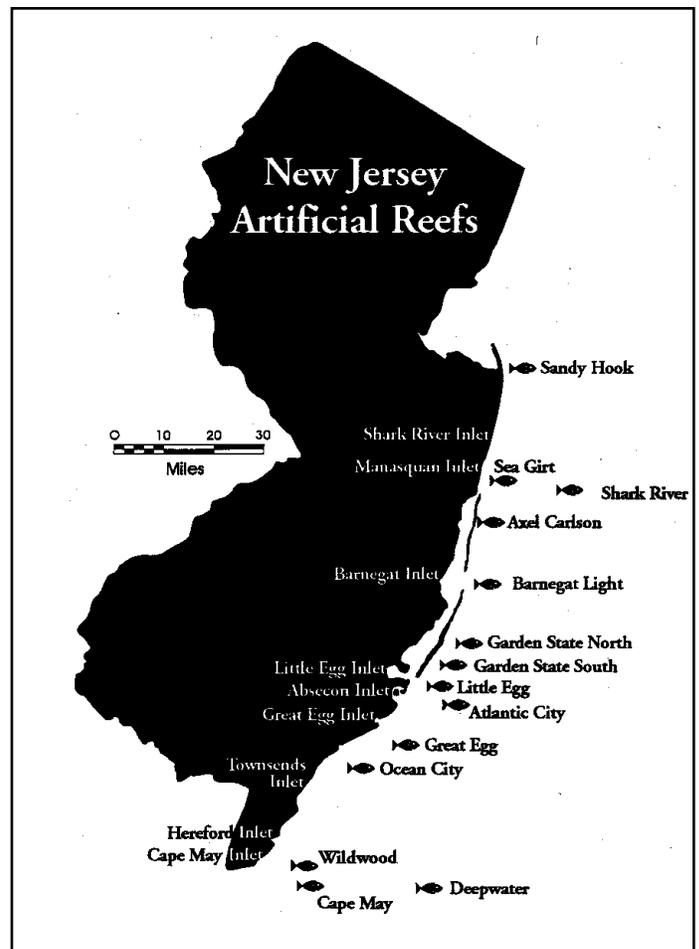


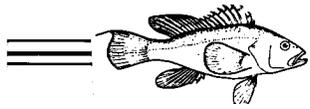
A lobster snagged with a hook is a rare catch for a reef angler.

REEF WEB SITE

ATTENTION: "CYBER DIVERS"

The New Jersey Division of Fish and Wildlife's INTERNET web site provides information about New Jersey artificial reefs: www.state.nj.us/dep/fgw.

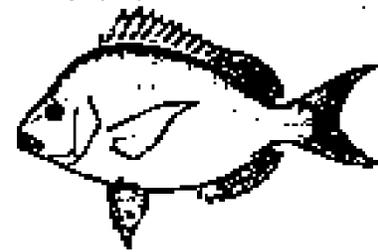




New Wrecks in '99



Red Oak—a 157' Coast Guard buoy tender was sunk on September 13, 1999 on the Cape May Reef at LORAN C coordinates 27025.4 42709.4. Sponsored by Dick Weber and South Jersey Fishing Center.



Waldorf—a 110' deck barge was sunk on December 3, 1999 on the Little Egg Reef at LORAN C coordinates 26921.0 43104.2. Sponsored by Caldwell's Diving Company.

Some DGPS Coordinates

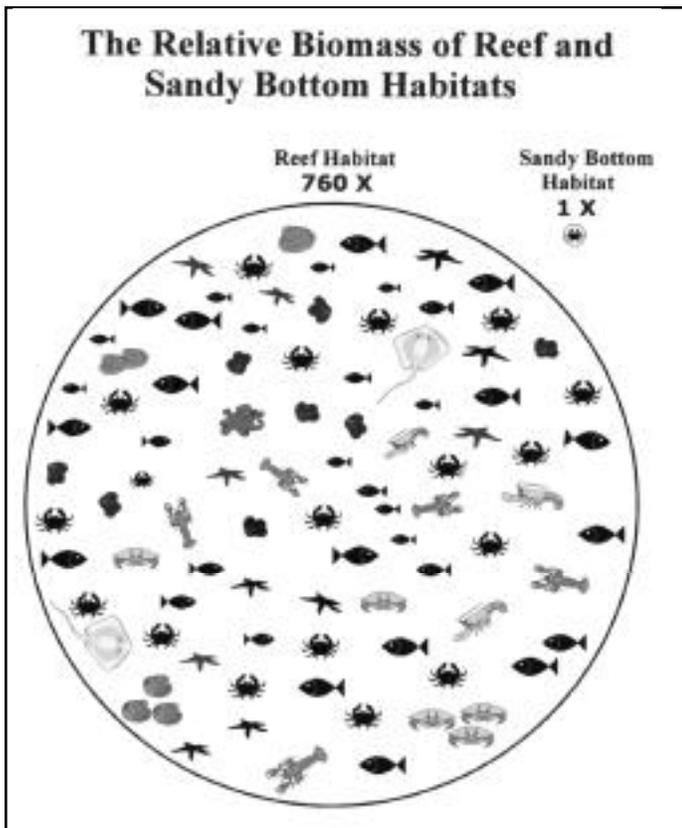
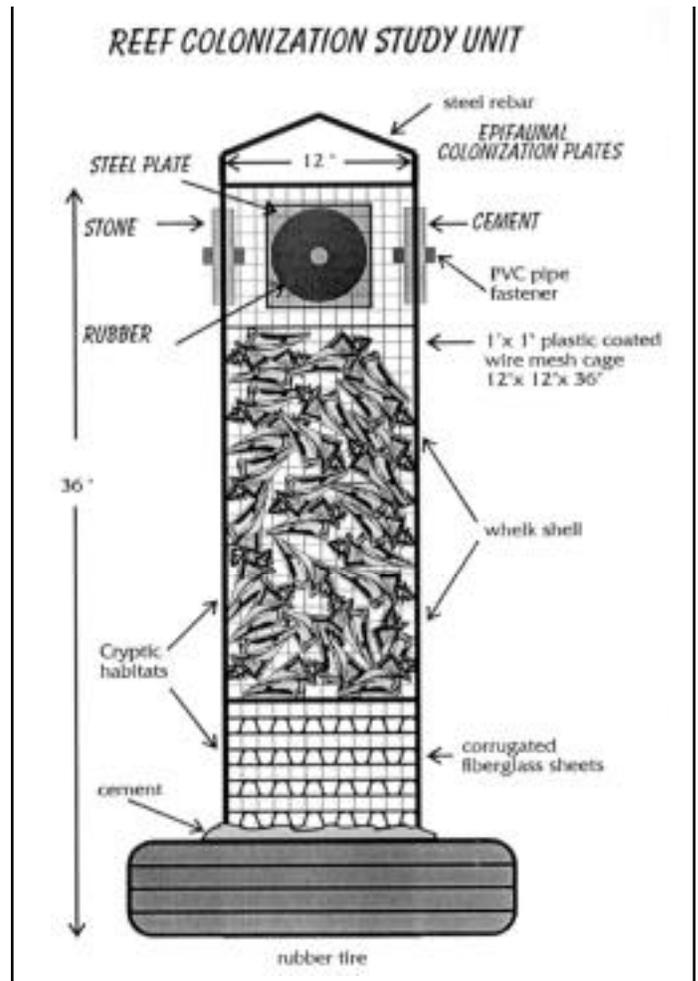
Structure	Latitude	Longitude
V.L. Keegan, tanker	4021.525	7356.110
Billy D, tug	4006.320	7341.855
Subway Cars	4006.675	7357.077
Capt. Ed Schmidiger, tanker	4001.832	7359.677
Antares, sailboat	3945.067	7401.892
Aqua II, barge	3937.474	7401.217
The Rhino, crew boat	3933.693	7406.123
Jessie C, crew boat	3928.501	7411.631
First Lady, trawler	3913.703	7412.486
1000 Fathom Reef, tank	3914.818	7421.488
Libra, barge	3910.801	7432.741
Michael DePalma, barge	3856.970	7441.337
Ben Franklin Bridge, concrete	3853.230	7440.252

Reefs Enhance Environment

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the weight of all the organisms living in a particular habitat. In this study, biomass referred to the weight of all marine life inhabiting a square foot of sea floor.

Part of the study focused on comparing the biomass on reefs with that found on the sandy sea floor. For this phase of the study, 60 square-foot samples were taken with a scientific sampling dredge on the sandy sea floor around the Cape May Reef. Marine organisms were separated from the sand using sieves. The biological samples were then analyzed by the Center for Coastal and Marine Studies at Rutgers University. These samples yielded an average of 58 marine organisms with a biomass of 0.2 ounces per square foot of sea floor. More than 99 percent of New Jersey's sea floor consists of sand. Since sand is constantly shifting and does not provide a foothold for marine life, the biomass of sand bottom is low. Sand bottom life includes burrowing animals, such as surf clams, snails, crabs and sand worms. In comparison, the reef habitat had 689 times the number of organisms and 760 times more biomass than the same area of sandy sea floor. The increased biomass of the reef habitat is significant because it represents a far greater food source for marine life and a greater number of food and game



species (fish, lobster, crabs, mussels) available to anglers and divers.

New Jersey reefs are colonized entirely by marine animals. The depths (generally over 60 feet) on reef sites are too great for the penetration of sufficient light to sustain plant growth. Instead of plants, the basic level of the reef food web consists of many species of filter feeding animals that live attached to reef structures and feed by straining the plankton that is carried past them by ocean currents. The filter feeders (i.e., mussels, barnacles, tubeworms and others) are in turn eaten by fish, crabs and lobsters. The stationary filter feeders also serve another function on the reef by providing a carpet of cover or hiding place for small mobile invertebrates, such as shrimp, snails and worms. These animals, too, may end up as food for larger predators.

The goal of building reefs, which provide firm, stable substrate for the attachment of marine organisms, is to enhance the biological productivity of the sea floor. Based on the preliminary results of this study, building reefs does enhance New Jersey's marine environment.



A tog makes its home in the tread of a sunken army tank
(Photo by Herb Segars, Undersea Photo).



The star angler on a party boat fishing the Cape May Reef.

Artificial Reef Association

The Artificial Reef Association (ARA) was founded in 1991 by a group of party and charter boat captains and marina owners. The goal of the ARA is to promote reef construction throughout the state's coastal waters. The primary function of the non-profit organization has been to raise money to help pay the costs of cleaning, preparing and towing ships and barges destined for sinking on reef sites. So far the ARA has provided funds to sink 19 vessels.

The ARA has raised most of its funds through the sale of Reef T-shirts and Reef Charts (order blank enclosed). Donations from fishing and diving clubs are particularly helpful. If your club would like to help sponsor the sinking of a vessel on a reef, contact:

ARA, PO Box 16, Oceanville, NJ 08231



Sportfish Fund

The Sportfish Fund is a nonprofit foundation administered by the Fisherman Magazine. Its purpose is to raise money to promote recreational fishing opportunities. Funds donated to the Reef Program are held in the Sportfish Fund account until they are needed to pay for reef construction activities.

PARTICIPATING AGENCIES

The following agencies have helped make New Jersey's Reef Program a success:

Federal

- U.S. Fish and Wildlife Service
- U.S. Coast Guard
- U.S. Army Corps of Engineers
- National Marine Fisheries Service
- U.S. Navy and Reserves
- U.S. Army and Reserves
- U.S. Customs Service
- U.S. Environmental Protection Agency

State

- N.J. State Police
- N.J. State Police, Marine Bureau
- State Agency for Surplus Property
- Division of Land Use Regulation
- Southern State Correctional Facility
- N.J. Army National Guard

County

- Ocean County Bridge Department
- Ocean County Department of Corrections
- Cape May Municipal Utilities Authority

Municipal

- Atlantic City Police Bomb Squad

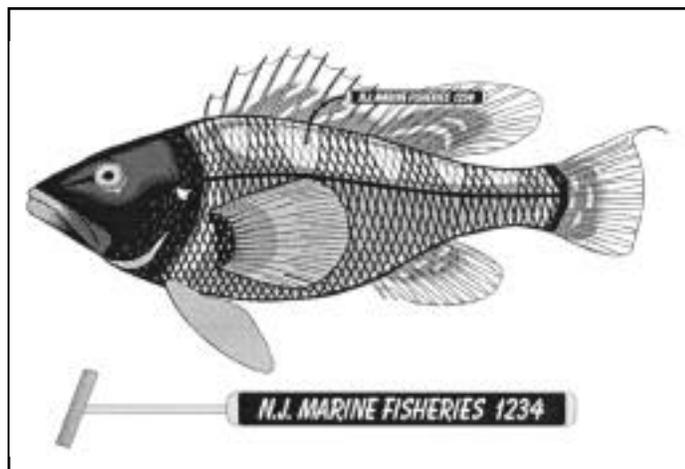


Obsolete army tanks, cleaned and prepared by the NJ Army National Guard at Ft. Dix, waiting in line to be transported offshore for reef deployment.

Accomplishments, 1984-1999

Since the inception of the Division of Fish and Wildlife's Reef Program in 1984, 1,314 patch reefs have been built on New Jersey's network of 14 ocean reef sites. A patch reef is a several-square yard to several-acre reef created by sinking a ship or placing a barge load of other material on the sea floor. In 1999, 78 patch reefs were constructed.

Reef Material	Patch Reefs Built 1999	Total Patch Reefs Built 1984-1999
Tire Units	—	228
Concrete	5	178
Rock	—	392
Vessels, Barges	2	91
Army Vehicles	56	397
Reef Balls	15	15
Other	—	13
Total	78	1314



Reef Plans for 2000

YOG 58—165' Navy oil tanker

Buterick—60' deck barge

Point Swift—83' Coast Guard Cutter

700 Reef Ball Habitats

Rock 500,000 cubic yards



Reef Ball Habitat Sponsors



Sponsor Gordon Wetmore in memory of Ken Page, Jr.

Sponsors Charles and Carol Nash in memory of Herbert and Anna Nash.

Sponsor Lori Danek in honor of the Squid Hound, Jeff Tirpak.

Sponsor Michael C. Petrick created the habitat called "Mike's Fish House".

See page 9 for details on how you can sponsor a reef habitat.

Designed Habitats on the Reefs

During the summer of 1999, 700 Reef Ball habitats were deployed on the Barnegat Light and Garden State North Reefs. The concrete habitats, resembling small igloos, were fabricated by inmate laborers at Southern State Correctional Facility, located in Cumberland County. Transportation from the prison to the ocean reef sites was provided by the Ocean County Bridge Department. The Reef Ball Program is ongoing, with 700 more habitats scheduled for deployment in 2000.

In most cases, the strategy for deployment is to disperse the Reef Balls far apart on the reef site. The distance between habitats makes them harder to fish and thus, provides a refuge for fish and shellfish. These small sanctuaries will then provide additional fish to help replenish larger reef structures that are subject to greater fishing effort.



A Reef Ball habitat is placed on the Barnegat Light Reef.



The Ocean County Bridge Department delivering new homes for sea life on the Garden State North Reef.

1999 Reef Adoptions



“Red Oak”

A 157' Coast Guard buoy tender sponsored by Dick Weber and South Jersey Fishing Center was sunk on September 13, 1999 on the Cape May Reef.

“Joseph J Palladino Reef”

Six army tanks were sunk on the Atlantic City Reef on August 12, 1999. “Joe Palladino—husband, father, son, brother, friend, restaurateur, sportsman, fisherman extraordinaire. Joe lived for his family first, to fish a close second. Gone too soon, but always in our thoughts.”

“Joseph J Palladino Redhook Reef”

Three army tanks sponsored by family and friends of Joseph J. Palladino were sunk on the Ocean City Reef on July 30, 1997.

“Phil Weintraub Memorial Reef”

Three army tanks sponsored by family and friends were sunk on the Atlantic City Reef on August 10, 1999, “in memory of an avid South Jersey fisherman and conservationist.”

“Charles B. Durborow Reef”

An army tank sponsored by Charlotta E. Probasco was sunk on the Barnegat Light Reef on June 23, 1999, “in memory of my father, one of the first real estate promoters of Long Beach Island.”

“Manasquan Fishing Club Reef”

An army tank sponsored by the Manasquan Fishing Club was sunk on the Axel Carlson Reef on August 21, 1998.

“Forked River Tuna Club Reef II”

Twelve Reef Ball habitats sponsored by the Forked River Tuna Club were deployed on the Barnegat Light Reef on September 24, 1999. “Dedicated to the memory of the deceased members of the Forked River Tuna Club.”

“Tracy’s Treasure”

An army tank sponsored by Anne Radziunas was sunk on the Barnegat Light Reef on June 23, 1999. “This tank is dedicated to the loving memory of Tracy Faunce Levine by her mother, Anne Radziunas, both

employees of the Division of Responsible Party Site Redemption. Let Tracy’s love of life and the environment be eternalized forever more.”

BHMTc V and BHMTc VI

Two army tanks sponsored by the Beach Haven Marlin and Tuna Club were sunk on the Garden State South Reef on June 24, 1999.

“Penn Reels Reef”

Sixty Reef Ball habitats sponsored by the Penn Fishing Tackle Mfg. Co. were deployed on the Garden State North Reef on June 22, 1999.

“Philip A Cameron, Jr. Reef”

An army tank sponsored by the Cameron family was sunk on the Wildwood Reef on August 25, 1995, “in tribute to a man whose love for his family was as deep as the sea.”

“Michael R Deitzler Reef”

Twelve Reef Ball habitats sponsored by the family were deployed on the Barnegat Light Reef on September 27, 1999, “in loving memory of their husband, father and grandfather.”

“Joseph M. Doherty Reef”

An army tank sponsored by family and friends was sunk on the Axel Carlson Reef on August 21, 1998 in memory of Joe Doherty, a true all-around sportsman. “May his love of the outdoors live on in the future in this reef.”

“DVD Banana Barge”

A 140' deck barge sponsored by the Delaware Valley Divers was sunk on September 14, 1998 on the Sea Girt Reef.

“VHFC Reef II”

Twelve Reef Ball habitats sponsored by the Village Harbor Fishing Club were deployed on September 28, 1999 on the Barnegat Light Reef.

“LBI Scuba Reef”

Twenty Reef Ball habitats sponsored by Long Beach Island Scuba Shop were deployed on September 29, 1999 on the Garden State North Reef.

ADOPT-A-REEF HABITAT

A great gift or memoriam for a fisherman or diver

CREATE AN UNDERSEA CONDO FOR NEW JERSEY MARINE LIFE

New Jersey's marine life—sea bass, blackfish, lobsters, crabs and others—need a place to live. You can help by sponsoring the placement of a concrete reef habitat on a New Jersey ocean reef. Not only will your habitat create a home for marine life to thrive, but it will also provide anglers and divers a new place to fish and explore.

A tax-deductible donation will help pay for the fabrication and transportation of you habitat(s) to a New Jersey ocean reef site.

Adoption costs:

Number of Habitats	Cost
1	\$ 125
3	\$ 300
7	\$ 500
12	\$ 750
20	\$1,000



What you will receive:

- Your nameplate attached to a habitat placed on a New Jersey ocean reef.
- A "New Jersey Reef" T-shirt.
- A certificate describing the location of your habitat.
- Listing as a reef sponsor in "Reef News".
- For 12 or more habitats, the name you have selected for your reef will be published on New Jersey reef charts.

Adopt-A-Reef Habitat Application



Your Name _____

Address _____

_____ Phone No. _____

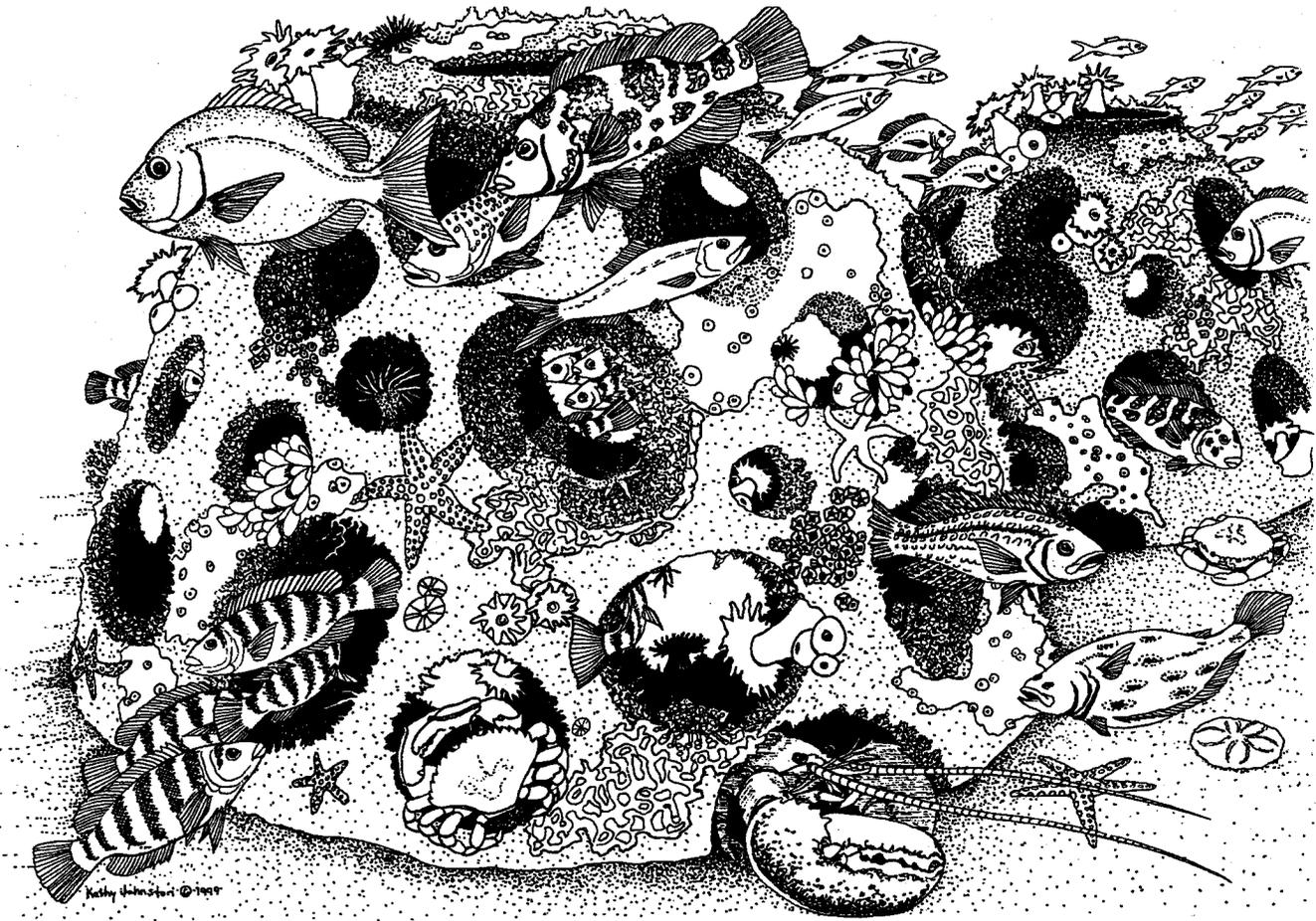
Your Habitat Name " _____ " Number of Habitats sponsored _____

Select a T-shirt Size: S M L XL XXL

Make check, tax-deductible donations, payable to "**Sportfish Fund**" and mail to:

Adopt-A-Reef Habitat
Artificial Reef Association
P.O. Box 16
Oceanville, NJ 08231

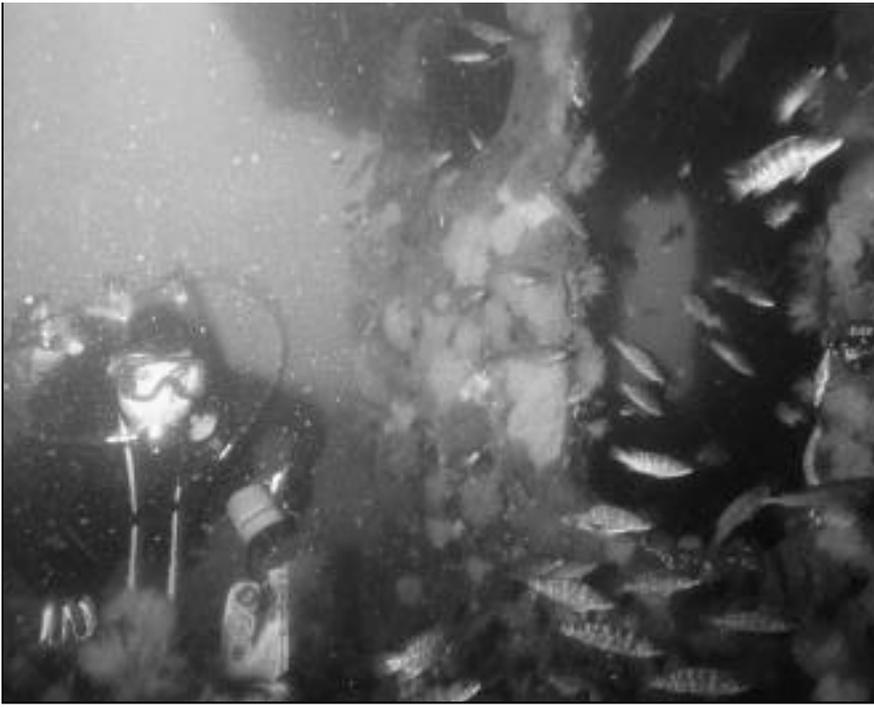
For information call the Reef Program at 609-748-2020.



The reef habitats are made entirely of concrete. Their dimensions are 4 ft base diameter and 3ft in height. Each habitat weighs 1500-1700 pounds. Reef habitats were designed by Reef Ball Development Group of Sarasota, FL and are used throughout the world's oceans to build reefs.

How The Reef Habitat Works

- The 1500-pound concrete reef structures provide a stable substrate for the attachment of marine invertebrates (called fouling organisms), such as blue mussels, barnacles, hydroids, tube worms, sponges and anemones. These stationary animals feed on plankton carried past the habitat by ocean currents. Within just two or three years, the reef habitats will be colonized by a luxuriant, 3-inch thick carpet of invertebrate growth.
- Mobile invertebrates, such as crabs, shrimp, starfish, worms and snails, live upon and within the carpet of attached growth. The living carpet serves as a hiding place and as a source of food for the mobile animals.
- Fish, including sea bass, blackfish, porgy, fluke and triggerfish, use their undersea condos as refuges from large ocean predators. They feed upon the mussels, barnacles, crabs, worms and other invertebrates inhabiting the reefs. Lobsters hide in burrows they dig in the sand under the concrete habitats. Baitfish, such as scad, round herring and menhaden, often school over the top of reefs to feed on the plankton concentrated by currents deflected upwards by reef structures.



Every fisherman and diver needs this Reef Guide to find the sunken treasure (fish and lobster) on New Jersey's 14 reef sites. (Photos by Herb Segars and Neal Robbins.)



The ultimate reef book is here!

***A Guide to Fishing and Diving
New Jersey Reefs***



- This 64-page book is a complete directory of New Jersey's 14 ocean reef sites, which encompass over 1200 reefs.
- The book features both LORAN and DGPS charts of all of the state's 14 reef sites.
- LORAN and DGPS coordinates of every named reef are provided.
- The pages are made of durable, waterproof plastic-designed for use in bad weather and at sea.
- The book can be purchased at many bait and tackle shops or ordered through the mail (an order form is provided on the back cover).

**DON'T LEAVE THE
DOCK WITHOUT IT .**

ORDER FORM

“The Untimate Reef Book”

Name _____

Address _____

_____ Zip _____

Phone _____

Please send a copy of “A Guide to Fishing and Diving New Jersey Reefs.” Enclosed is my check, payable to “ARA” for \$20.00 (\$17.95 for book plus \$2.05 for postage).

**Artificial Reef Association
PO Box 16
Oceanville, NJ 08231**

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If you did not receive Reef News in the mail with a mailing label, please complete and return this form to be placed on the mailing list.

★ PRINT ★

Check all that apply:

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I am a:

Address _____

Charter Captain _____ Party Boat Captain _____

Evening phone _____

Wreck/Reef Fish Wreck/Reef Dive

Boat name _____

From your boat _____

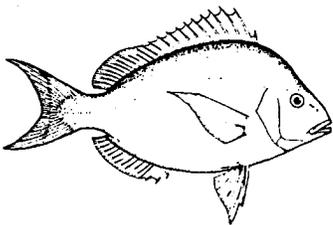
From friend's boat _____

From charter boat _____

From party boat _____

**MAIL TO: Reef Program
PO Box 418, Port Republic, NJ 08241**

**REEF PROGRAM
DIVISION OF FISH, GAME
AND WILDLIFE
P.O. BOX 418
PORT REPUBLIC, NJ
08241**



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