

# ENVIRONMENT

## Under the sea, students learning science lessons

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Staff Writer

In Ken Weemhoff's unusual Spanish River High School science class, there are no tests or pop quizzes, no textbooks to read. Eight students, all seniors, are handed one assignment to complete by the end of the school year.

It's a doggy. They have to build segments of an artificial reef out of 25 tons of poured concrete and sink them to the ocean off Boca Raton by mid-May.

There are a few matters to take care of first: securing a reef permit from the state and applying for grants.

The funds are needed to pay a barge to tow the reef — 50 hollow concrete domes packed with pebbles — out to sea through the Boca Raton Inlet so it can provide a home for fish on a barren stretch of Atlantic Ocean floor.

Everything is handled by the students.

"I really feel like we have it all under control," said Amy Averbook, 17, a member of Weemhoff's honors-level artificial-reef class.

Last year's class proved it could be done.

**"[The class is] building skills these students can literally use the rest of their life."**

**— Teacher Ken Weemhoff**

Working past the close of school and into the summer, that group molded a dozen flat-bottomed reef balls.

The students then arranged to have them deposited on the ocean floor in June a half-mile off Mar-a-Lago, a Palm Beach mansion.

Donning scuba gear to visit their operations on Friday, some of those students saw them encrusted with a colorful array of sponges, barnacles, hydroids, ca-

city coast during periodic beach replenishment projects. Weemhoff said.

He said he chose reef balls instead of other building blocks because they can be assembled easily by students and do not require more intense government involvement, as does scuttling a ship.

Donning scuba gear to visit their operations on Friday, some of those students saw them encrusted with a colorful array of sponges, barnacles, hydroids, ca-

lans and algae. After six months under 27 feet of water, there's not a square centimeter of those reef balls that doesn't have life growing on it, Weemhoff, who led the three-hour dive that also included students of the current class.

And there's an phenomenal amount of fish hanging around them.

Weemhoff hopes to repeat that success but on a larger scale this spring in 80 feet of water off the coast of Boca Raton, east of the junction of Palm Beach Park Road and State Road 1A.

Rinker Cement has agreed to donate the poured concrete needed to form 25 500-pound and 25 1,500-pound reef balls he aims to deploy, Weemhoff said.

The cement is poured into molds devised by the inventor of reef balls.

The city approved the location and provided a bottom topography map the students used to do scuba survey of the site, Weemhoff said.

One student had to write the state Department of Environmental Protection to obtain a \$200 artificial-reef permit.

Averbook is helping to write this year's grant applications for the \$3,500 to \$4,000 it may cost to hire a barge.

All but \$2,500 of the \$10,000 in donations secured by the class already has been spent and the current group is looking for corporate sponsors to help defray expenses, Weemhoff said.

All those headaches are part of their learning experience, he said. "It's building skills these students can literally use the rest of their life."

"I never heard of a class like this before," said Averbook, who liked the idea of compensating fish for natural reefs destroyed or damaged by boats and other human causes. "I'm getting a lot out of it."

Weemhoff said last year's class had wanted to put the Palm Beach reef off Boca Raton but could not get the approvals required in time.

The city has required the students to place the reef segment in one of three areas where they would not block too many breaks in natural reefs. Those gaps must remain open to accommodate dredge pipes used to shunt sand from the ocean bottom onto the

