

New underwater computer to map S. Florida's reefs, help in protection efforts

By KARLA SCHUSTER Sun-Sentinel
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DANIA BEACH -- Scientists looking for ways to preserve South Florida's coral reefs say they soon will have a new weapon -- a good map.

Researchers at [Nova Southeastern University's Oceanographic Center](#) are teaming up with two Australian companies to develop an underwater computer that will allow them to plot the position of reefs more quickly and accurately than before.

"We have a lot of information about reefs, but a lot of it is not very scientifically done," said Jim Thomas, executive director of the [National Coral Reef Institute](#) at NSU. Scientists have been mapping coral reefs for years, Thomas said, but the tools used are usually rudimentary and ripe for error -- tape measures, string, underwater notebooks and, sometimes, underwater cameras.

"It requires a lot of training and, invariably, there are transcription errors and mistakes that creep in," Thomas said.



On Wednesday NSU marine experts and a pair of Australian scientists began the first U.S. field tests of a computer called the SeaPC, a hand-held device that divers can use to instantaneously record information about the reefs they observe, including temperature, sediment types and water purity.

First developed as a way to help divers in the Australian Army sweep the ocean for mines, the SeaPC is unique because it can perform several tasks using different types of technology -- underwater cameras, sonar, acoustic radar and global positioning.

"There's really nothing quite like it in the world because it is a general use computer, something that can be used for a lot of different purposes, much like a desktop but you're using it underwater," said Peter Moran, managing director of WetPC.

The details of the partnership are not yet set, but in exchange for helping with the design, NSU officials hope to begin using one here in South Florida before the end of the year.

The success of the SeaPC, which will be tested again in Bali later this month, could be vital to the future of coral reefs here and all over the world. Without detailed, exact information about reefs, understanding how they develop and under what conditions they deteriorate is far more difficult.

Reefs are increasingly being threatened by pollution, over-fishing and development, but researchers say it is tough to measure the impact of such activities without solid maps to work with. The accuracy of any monitoring of the development or destruction of a coral reef, they say, is only as good as the maps you start with.

"A single diver can cover an area the size of four or five football fields in a single day with this computer," Thomas said. "It's fast and it's highly detailed. We'll finally have the information we need to make decisions about the reefs in a confident manner."

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The Miami Herald

Underwater Laptop Makes Waves

by Johnny Diaz



The diver was 40 meters deep, enveloped by blue water when he pulled out his computer.

Not just any computer but a newly developed underwater one that maps reefs, monitors sea life and reads the water's temperature.

The computer, called the SeaPC, is the latest device to make a splash at the National Coral Reef Institute, a research institution at the Nova Southeastern University Oceanographic Center in Dania Beach.

Such a technology will help local and global scientists better understand how a coral reef is faring. Is it healthy or is it dying? How badly did last year's hurricane or this summer's oil spill endanger local reefs?

``We could look at a reef and return to see if anything has changed," said Stephen John, an engineer with Australian-based Nautronix Ltd., which developed the computer with the Australian Institute of Marine Science and WetPC. Australian scientists were on hand Wednesday showing Nova's Dania Beach crew how to use the computer during a field test.

Scientists say by using the computer they will be able to better network and share information on reefs here and down under.

The computer is more practical than logging information on a plastic-coated paper with a pencil underwater, scientists say.

``Imagine you are a diver with a lot of gear, it is difficult to write," said Peter Moran, managing director of WetPC. ``Divers used to use pad and pencils underwater but it wasn't very practical. The idea is to bring a general purpose computer to help divers perform tasks they would on a regular laptop."

The computer looks like something you would see in a video arcade. You wrap your hands around two joysticks flanking a flat monitor.

The grips feature five buttons used to control the computer. Graphic symbols on the display tell the diver which keys to press to activate a specified function.

The screen logs the diver's swim path, depth and map and shows the position of objects on the seabed. Divers may access reference material from a database and funnel data through the water to the surface over long distances.

It is powered by batteries and its charge lasts eight hours. It is neutral-buoyant so the diver can drag it almost anywhere underwater.