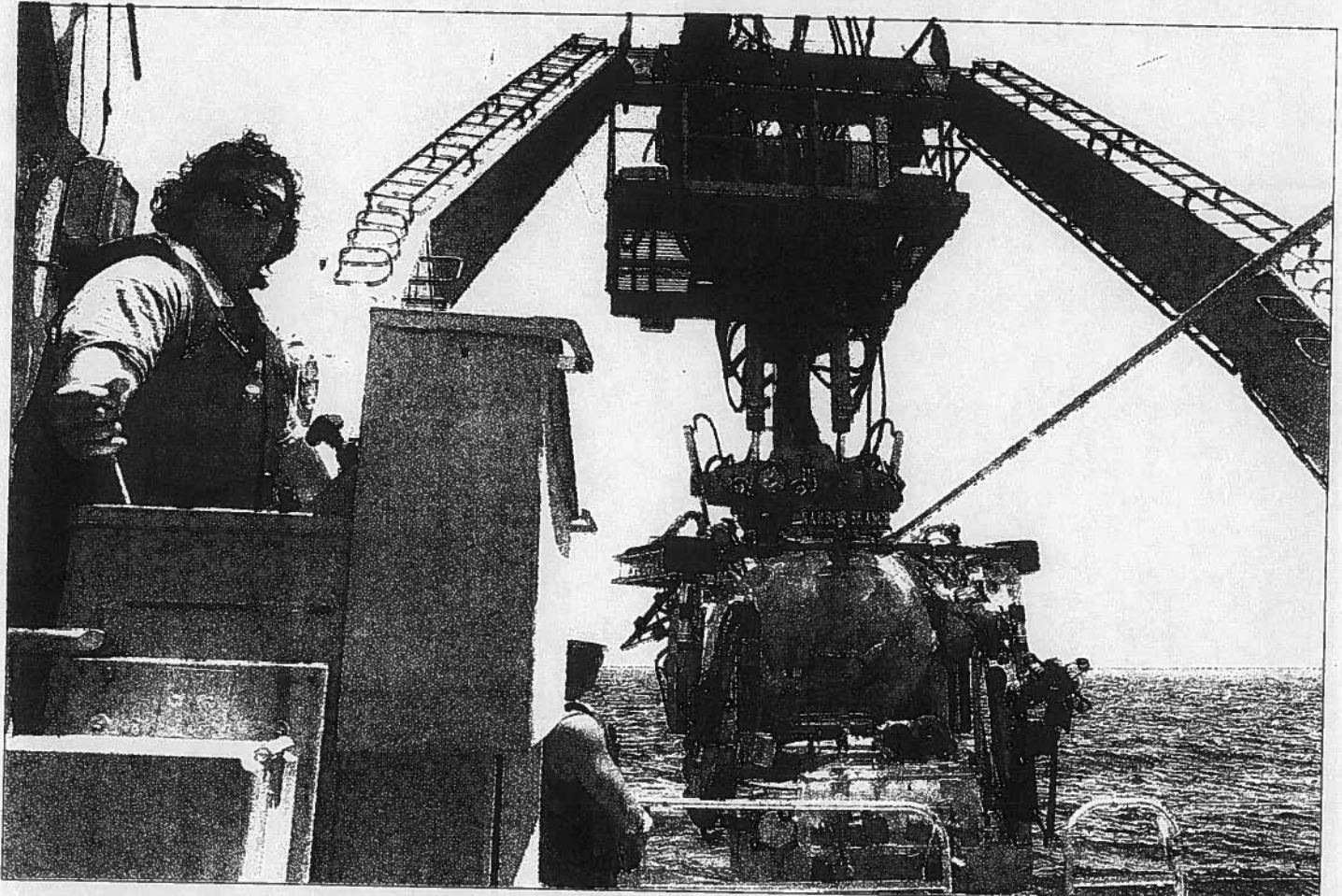


CORAL REEFS HARBOR BRANCH RESEARCHERS DIVE IN

Scientists go deep to explore coral reef 1,000 feet under sea



Stewart Moreaux, port engineer for Harbor Branch Oceanographic Institution, operates the hydraulic Submersible Handling System, which launches and recovers the JSL Submersible, as it lowers the vessel Tuesday. Photos by SARAH GRILE • sarah.grile@scripps.com

BY SUZANNE WENTLEY
suzanne.wentley@scripps.com

ONE THOUSAND FEET UNDER THE SEA —

As a speckling rain of plankton continuously washed through the cold, royal-blue waters 15 miles from Dania Beach, researchers with Harbor Branch Oceanographic Institution on Tuesday explored a previously undocumented northern section of the Miami Terrace.

The steep series of underwater sandstone steps, the black limestone cobble like a broken asphalt road, and the areas thick with soft and hard corals, sponges and crustaceans all created a habitat that was never seen before by man.

"This is a very weird topography, unlike the other places I've seen,"

said John Reed, who led the 3,507th expedition in the Johnson-Sea-Link submersible. "The habitat was totally different."

Reed, along with submersible pilot Phil Santos and senior submersible technician Frank Lombardo, explored the uncharted territory as part of a two-week research cruise designed to better understand deep-water coral reefs off Florida's coast.

THE OUTSIDE VIEW

Early Tuesday, Reed plotted the course with the help of an

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ON TCPALM: Read Suzanne Wentley's dispatches from the research ship R/V Seward Johnson on her At Sea blog.



Chris Langdon, left, of the University of Miami, hands Tara Pitts, senior research technician for Harbor Branch Oceanographic Institution, rocks that were found at the bottom of the ocean for further studies Tuesday after the JSL Submersible returned from its dive.

CORAL

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echosounder, a graphics-based instrument that measures depth using acoustics. Some of the bumps on the echosounder, he later verified by videorecording the area, translated into areas where corals thrived from the cold water currents that bring food to the living reefs.

Once underwater, Santos could rely on a magnetic compass and constant communication with a technician positioned on the bridge of the nearby 204-foot research vessel Seward Johnson.

That technician would update the sub pilot to the direction and distance from predetermined points of interest, based on Reed's original reading of the echosounder.

"Once we get down there, we only know north-south-east west," said Lombardo, who traveled in the separate aft chamber of the submersible, which has two small portholes and is shaped much like a small daybed covered in blue plastic cushions and a nylon mesh fabric to prevent condensation from dripping on the instruments.

At one point during the exploration, Reed discovered a number of strange hollow rock tubes, which could be petrified, million-year-old shrimp burrows, jutting out from the bottom.

"Wouldn't it be neat if there was a million-year-old, petri-

fied shrimp in there?" Reed said as Santos rammed the rock with the bottom of the submersible to break it off for study.

"All you'd need is some million-year-old cocktail sauce," Santos replied.

THE INSIDE VIEW

Surrounded by 40-degree water during the three-hour dive, the researchers wore sweat shirts and covered themselves in blankets.

In the front, glass sphere of the submersible, Reed and Santos deployed crab traps and collected dirt, corals and sponges for researchers from Harbor Branch and other agencies back on the boat.

Lombardo, who has logged more than a thousand dives and whose duties included filling water samples with valve tube, safety checks and backup in a crisis, spent some of his down-time reading a paperback novel.

Reed said he was most interested in the fact that the new site varied so drastically from another explored area about a mile away in the same depth.

Just minutes after the submersible docked on the boat Tuesday evening, researchers filled the laboratory on the boat to look at what the sampled corals were eating, what fish species were seen in the video transects and how other information gleaned from the submersible dive could explain how the barely understood ecosystem worked.

"We'll get a lot of good information," Reed said.

EQUIPMENT ON THE JOHNSON-SEA-LINK SUBMERSIBLE

- Camera.
- Insulated fiberglass tank to bring creatures back to surface with constant temperature.
- Video camera with robotic arm.
- Claw and clam scoop for

grabbing samples.

- 12 buckets on a conveyor belt to store samples.
- Cable cutters in case the sub gets caught in fishing line.
- An acrylic sphere that's 5 1/4 inches thick.
- Emergency gear and enough air for the four passengers to survive five days in a crisis.

WHAT THEY SAW

What scientists saw on Tuesday 1,100 feet below the ocean along the northern edge of the Miami Terrace:

Fish: Spiny dogfish, mora codling, black-bellied rose fish.

Corals: Stylaster coral, Lophelia coral, button corals, sea whips, giant golden sea fan, black coral.

Skate: A tornado skate with blue and gray

spots feeding on the bottom.

Sponges: Elephant ear sponge, plate sponge, barrel sponges shaped like vases.

Crabs: Only a few squat lobsters, known as *Eumunida picta* — significantly fewer than previous sites.

Starfish: Brittlestar, basketstars and a melon-colored species that has thick arms.

Interesting geography: Mesa-shaped mounds, smooth rock ledges, barren ground similar to broken asphalt.