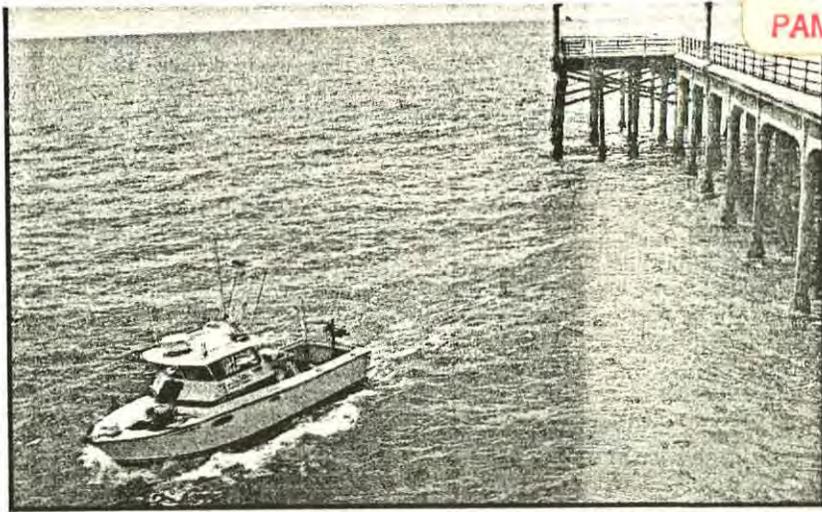


PAMPHLET



Ana Venegas/The Register

The marine surveying team aboard the Con Suerte maps the debris field in the ocean around the Huntington Beach Pier.

Surveyors research possible rebuilding of Huntington pier

By Frank Mickadeit

The Register

O.C. Register - 4-25-88

After hunting on the open seas for the remains of the space shuttle Challenger, the prospect of searching for the remnants of the Huntington Beach Pier in about 40 feet of water was not particularly exciting for Duane E. Maddux.

But Tuesday, on choppy seas off the coast of Huntington Beach, the marine surveyor spent about 11 hours bouncing around in a small fishing boat doing just that.

"It was cold and miserable," Maddux said.

His work represents the first field engineering that has been done in the effort to determine how — or if — the pier should be rebuilt.

The last 250 feet of the 1,830-foot pier — which included a two-story restaurant — broke off from the rest of the pier during a storm the night of Jan. 17. One witness said the restaurant "floated away like a big old houseboat."

It was Maddux's job to determine where the restaurant and the rest of the pier went. If it dropped straight down, in the path of new construction, any rebuilding effort

would require costly removal of the debris.

Maddux also was charting the ocean floor. Accurate topographic information would allow engineers to design a new pier that would better withstand pounding waves.

And to satisfy the purely curious, his search would reveal whether the "big old houseboat" broke up or now sits on the bottom intact like an old shipwreck.

The fishing boat, the Con Suerte, spent the better part of Tuesday traversing a 1,000-by-1,200-foot grid that Maddux had plotted on the ocean surface around the pier.

At points about 50 feet apart, Maddux took readings from his instruments.

Preliminary results of the survey show that there is "virtually no debris" in the water underneath where the pier used to stand.

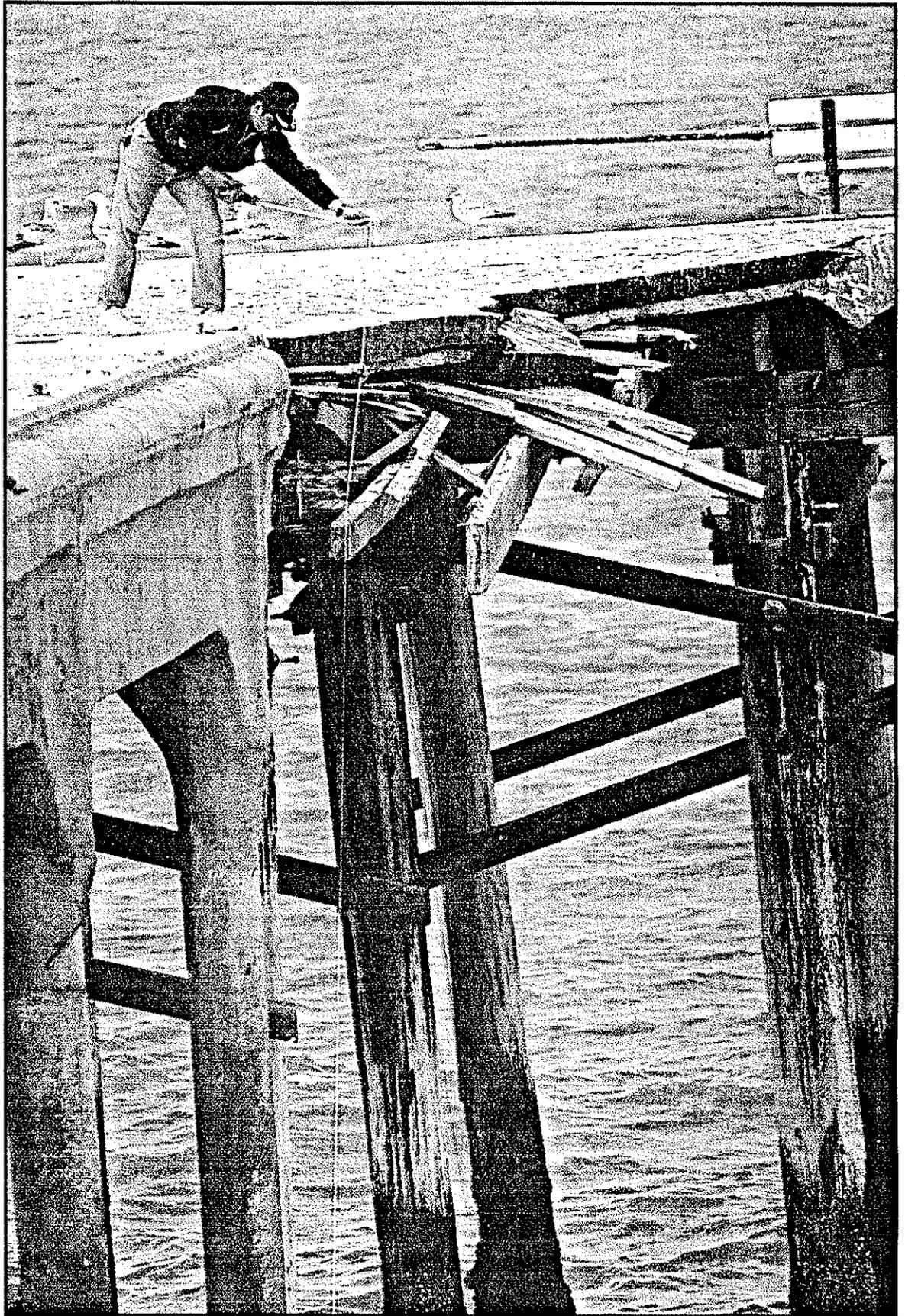
"It's pretty widely scattered throughout the area," Maddux said. "Most of it is lying on the bottom. There's nothing that really protrudes directly up with any elevation."

He also said there is nothing re-

Please see PIER/4



Plumbing the depths



George Allen of the Scientific Services staff measures the depth of the water off the damaged Huntington Beach Pier to determine how — or if — the pier should be rebuilt.

PIER: Debris widely scattered

FROM 1

sembling the hulk of the restaurant, confirming what city engineers had believed — that it was battered to pieces by waves.

Maddux will diagram each piece of debris on a chart and turn it over to coastal engineers working for Fluor Daniel Inc., the prime contractor on the \$56,135 pier study.

The study, due out in June, will help city officials decide how much it will cost to rebuild the pier and how it should be rebuilt — if at all. Some city officials are worried that the pier's length made it inherently dangerous and that it should not be rebuilt.

The study also will assess the structural condition of the remaining pier and whether it needs to be rebuilt or shored up.

Maddux, 56, has worked on some of the most publicized underwater salvage operations of the past several years.

In 1986, he spent seven months off the Florida coast helping the Navy locate parts of the Challenger, including the crew capsule. In 1983, his San Diego-based company, Scientific Services, led the un-

successful search for the Korean Airlines passenger jet that was shot down by the Soviets over the Sea of Japan.

To assist him Tuesday, Maddux took two divers and about \$150,000 worth of equipment on the 25-foot Con Suerte out of Dana Point. With last week's storms, underwater visibility was about zero and the divers were of little help. The work depended solely on the equipment, which included:

- A side-scan sonar, a torpedo-shaped device that sends and receives acoustic pulses. The pulses are recorded on a computer, which uses the fluctuations to plot any debris on the bottom.

- A magnetometer, similar in appearance to the sonar device, which measures fluctuations in the earth's magnetic field. It can detect and chart metal objects on the ocean floor.

- A depth sounder, which bounces signals off of the ocean floor and makes high-resolution drawings of the contours of the sea bottom.