

OCEANOGRAPHY

Gulf Stream Probed

Two research vessels are being used in a study of the Gulf Stream being conducted in order to better predict weather and fishing conditions affected by the stream.

► THE GULF STREAM, a massive "ocean river" 40 miles wide and 2,000 feet deep, is being probed by oceanographers in an extensive year-long effort to solve some of its mysteries.

The oceanographic research ships, the Explorer and Peirce, which are two vessels of the "white fleet" of the U.S. Department of Commerce's Coast and Geodetic Survey (now, together with the Weather Bureau, known as the Environmental Sciences Services Administration) launched the probe on July 15. The study is designed to enable oceanographers to predict changes in the strength and flow of the constantly changing Gulf Stream, which discharges 100 billion tons of water each hour.

The scientists hope that their findings will yield better predictions of weather over the huge area affected by the Stream. They also hope for better predictions of fishing conditions.

The Explorer's task will be to map the Gulf Stream in the North Atlantic to find out whether there is a regular pattern to changes in its meanderings. On its trip to the North the vessel will track the Stream with a thermister sensor, a temperature-measuring instrument that will be towed about 650 feet under the water far out into the Atlantic.

On the trip back, the Explorer will track the Stream and measure the water's temperature and salt content.

Each round trip will take from 10 to 14 days and will be repeated monthly during the year.

The Peirce has been assigned the job of determining the volume and pattern of water carried by the Gulf Stream off Charleston, S.C.

The vessel will steam back and forth along a course perpendicular to the Stream's axis and will stop every 10 miles to get water samples and temperature measurements at various depths.

Also participating in the giant undertaking will be Weather Bureau planes, which will record temperature changes taking place from the sea surface to the atmosphere.

Other participants in the study will be the Massachusetts Institute of Technology, Cambridge, Woods Hole (Mass.) Oceanographic Institution, University of Rhode Island, Columbia University, University of Miami, Lerner Marine Laboratory at Bimini in the Bahamas. Additional cooperative investigations will be made by the Bureau of Sport Fisheries and Wildlife and the Coast Guard.

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Can Man Live Undersea?

► A NEW TEST of man's ability to live for extended periods of time in a hostile environment is set to get underway shortly on the bottom of the Pacific 210 feet below the surface offshore La Jolla, Calif.

In this experiment to be conducted in mid-August, two Navy researchers will try to stay down for 30 days. They will be part of two diving teams of 10 men each. Other members of the teams will alternate their stays undersea. Astronaut M. Scott Carpenter is on loan from the National Aeronautics and Space Administration to head one of the teams.

For the pair, home for a month (euphemistically called "habitat" in Navy jargon) will be a 57-foot-long cylinder 12 feet in diameter. Named "Sealab II," it will be divided into a laboratory, galley and bunkroom. Eleven portholes are provided.

The teams have two methods of getting to and from the tube. One is an especially designed "personnel transport capsule" and the other is a standard diving bell. Once on the bottom the men will swim about 10 yards to the "Sealab," and enter through an anti-shark cage and a hatch.

The tube will be self-contained as to food

and breathing apparatus for at least six weeks. Power and water will be provided by lines from shore.

Among the experiments will be several involving various techniques to salvage sunken aircraft or ships. The aquanauts will use a new plastic foaming technique to attempt to raise a Navy fighter plane to be sunk for the test.

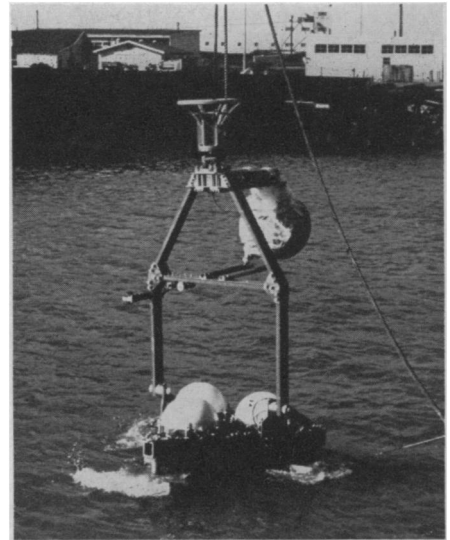
In addition, a new underwater velocity power tool will be tested for its worth in attaching lifting devices to hull structures.

Marine biologists will work with marine life in a 10-foot square fish cage that will be placed on the ocean floor to provide an at-depth undersea aquarium. A census of marine life in the area will be made and large fish will be given special tests including the taking of "internal gas samples."

Geologists will study the composition of the bottom, and an undersea weather station will be maintained to collect temperature and current data.

The tests are being run in cooperation with the Scripps Institution of Oceanography in La Jolla.

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Columbia University

OCEAN-BOTTOM SEISMOGRAPH—The unit is being lowered into 30 feet of water off Oakland, Calif., for tests before being sent more than two miles to the bottom of the Pacific to establish the first permanent undersea station by Columbia University's Lamont Geological Observatory.

SEISMOLOGY

Instrument Under Ocean Records First Earthquake

► A SENSITIVE INSTRUMENT has been lowered under the sea to record vibrations of earthquakes and possible nuclear explosions.

The ocean-bottom seismograph station, installed and operated by the Lamont Geological Observatory of Columbia University, has been set up more than two miles under the Pacific Ocean, about 100 miles south and west of Point Arena, Calif.

The instruments, protected inside three spheres, each two feet in diameter, are mounted on the inside of a triangular frame and connected to recording instruments on shore by cable. The undersea seismograph recorded its first earthquake April 29. The station is sponsored jointly by the U.S. Advance Research Projects Agency and the Office of Naval Research.

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PUBLIC HEALTH

Nuclear Digging Study Set for New Canal

► WHETHER ATOMIC ENERGY will be utilized for the construction of a new sea-level canal to replace the Panama Canal will depend largely on the results of a new study which is just beginning.

The dangers to the near-by population of using nuclear explosions to dig the canal will be investigated by the Battelle Memorial Institute, Columbus, Ohio.

The study is expected to be completed by mid-September.

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