

PHYSICS

Ocean Waters Studied For Sound Transmission

► THE DEEP DARK waters of the ocean may become a vital part of communications systems across the Atlantic Ocean.

At a certain level under the sea, sound can travel great distances with relatively little decrease in intensity. This deep water channel is a natural sound track in which the underwater sound waves are confined by the interacting effects of the sea's temperature and density, Robert Urick, physicist at the U. S. Naval Ordnance Laboratory, White Oak, Md., reported.

The speed of sound in water increases with temperature and decreases with pressure. At a depth of about 4,000 feet, sea temperatures and density are best to trap sound waves for long-distance transmission throughout the whole ocean. Once confined to this track, sound produced at any output level tends to be refracted to the level of minimum speed and remain there, for long distances.

Naval scientists at the Ordnance Laboratory have just completed the first phase of an underwater acoustics research project. They have been collecting data on sounds at various sea levels across the ocean, as well as on frequencies and other characteristics of explosive sounds transmitted over great distances along the sea's sound velocity channel.

To collect the data, pairs of four-pound explosive charges were dropped every 100 miles across the Atlantic Ocean from Bermuda to Great Britain by way of the Azores. The resulting sounds were recorded with underwater hydrophones located along the sound track's axis near Bermuda.

Underwater acoustics research began during World War II in 1943 when a Naval air-sea rescue system was developed to locate fliers down at sea. Upon receiving an underwater signal from a bomb dropped in the sea, three separate land listening stations could locate the approximate position of the distressed plane. This system was developed too late to be of much use during the war.

• Science News Letter, 83:173 March 16, 1963

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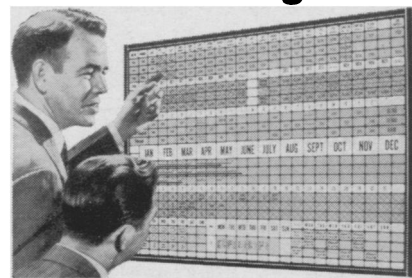
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