

# Froehlich, designer of Alvin deep-sea vessel, dies at 84

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St. Paul, Minn. — (AP) - Harold E. Froehlich, who designed a deep-sea vessel used in the search for ocean life forms as well as the Titanic, died at St. John's Hospital in Maplewood, a Twin Cities suburb. He had cancer and died May 19 at age 84, his family said Wednesday.



Engineer Bud Froehlich designed a small submersible, nicknamed Alvin, when he worked for General Mills. "The Bureau of Ships was skeptical about a Wheaties company designing a submarine. They really didn't want to see this precedent set," he said. (MPR file photo)

Froehlich was named project manager for the vessel, named Alvin, in 1962 when the Navy and the Woods Hole Oceanographic Institute gave General Mills a contract to build a small, deep-diving submarine.

Two years earlier, he had helped build a mechanical arm for the Navy-owned bathyscaph Trieste, which once descended more than 35,000 feet underwater.

Alvin -- nicknamed after Allyn Vine of the Woods Hole Oceanographic Institute -- could reach depths of more than 14,000 feet. In 1966, it was used to find a hydrogen bomb that was lost after a U.S. military plane crashed off the Spanish coast.

Later, scientist Robert D. Ballard found giant tube worms and other then-undiscovered aquatic life 7,000 feet underwater off the Galapagos Islands.

Ballard also used Alvin in 1986 to find the Titanic, which rested more than 12,000 feet underwater in the North Atlantic.

Today, Alvin has made more than 4,100 dives, according to the Woods Hole Oceanographic Institute.

Though Alvin was his best-known project, Froehlich worked on many others during his career, such as high-altitude balloons and, after joining 3M Co., surgical equipment such as skin staplers, his wife, Avanelle Froehlich, recalled Wednesday.



In the 1960s, Bud Froehlich of General Mills designed a small, deep-diving submarine for the U.S. Navy, nicknamed Alvin. (Photo courtesy of Bud Froehlich)

Asked what he was most interested in, she said: "I think anything that he could puzzle out and make work. And of course his family."

Harold Edward Froehlich was born July 13, 1922, in Minneapolis and served as a Navy signalman during World War II.

He graduated from the University of Washington with bachelor's degrees in aeronautical and mechanical engineering and earned his master's degree in aeronautical engineering

from the University of Illinois at Urbana-Champaign.

He retired from 3M Co. in 1989 and lived in St. Anthony, a Twin Cities suburb. He is survived by his wife, of St. Anthony; two children, Steve Froehlich of Grasston, and Jane Hansen of Deerwood; a sister; and eight grandchildren.

Services were held Wednesday in St. Anthony.

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