

Appendix A

History of the R/V Alpha Helix

Prepared by Thomas Smith, Director, UAF Seward Marine Center

The R/V Alpha Helix was designed by Glostten Associates and constructed by J. M. Martinac Shipbuilding Corporation in Tacoma, Washington. It was launched in 1965. The vessel is 133 ft long with a 31-foot beam. It is 433 gross tons based on the International admeasurements system. The National Science Foundation (NSF) is its owner and also funded the vessel's construction.

Scripps Institution of Oceanography, University of California in San Diego, initially operated the vessel under agreement with NSF. The vessel was originally designed to meet the needs of experimental marine biology and was specifically built to conduct this research along the Australian Great Barrier Reef, the Amazon River and Bering Sea. To meet the latter requirement, the vessel's hull was ice strengthened to allow it to operate around the ice edge and in ice conditions. In 1966 and 1967, the vessel operated in tropical waters of the Great Barrier Reef and Amazon River. In 1968 it proceeded to the Bering Sea for operations. It was soon learned that the vessel lacked the power to penetrate deeply into the ice pack unless escorted by icebreaker. Its shortcomings pointed out the need for a larger more capable icebreaking research and this was the initial impetus to the design of the ARRV.

In 1980 the vessel was transferred to the University of Alaska Fairbanks where it replaced the 80-foot R/V Acona that the University had operated since 1964. To operate in this new environment, the Alpha Helix underwent extensive modifications to convert it from a primarily biological research vessel to a more diverse oceanographic vessel. This included modernizing labs, preparing the vessel for extended cold weather operations, and locating deep-sea oceanographic winches below decks. The vessel was also brought up to American Bureau of Shipping classification standards. These modifications provided the University of Alaska with a deep-sea research vessel capable of long-range deployments in a very hostile marine environment.

Since its arrival, the vessel has conducted studies in waters surrounding Alaska, western Russia and into the Arctic Ocean. It provided a systematic description of the Alaska Coastal Current from British Columbia to where it empties into the Bering Sea at Unimak Pass. This current is a major factor in why the Alaskan waters contain a highly productive fishery. The results of this study were also used to predict the path of the oil spilled during the Exxon Valdez disaster in 1989.

The vessel also has participated in major studies of the oceanographic mechanisms of the rich Bering Sea fisheries. The results of these studies are compared to present day studies that indicate the Bering Sea is undergoing substantial ecosystem changes that will have a direct effect on Alaska's sport, subsistence and commercial fisheries. It has studied how the Gulf of Alaska's marine ecosystem varies in response to climate forcing. Understanding these changes can make possible both more accurate weather predictions and the impact of these changes on agriculture and other natural resources. Other studies in which the vessel were involved included investigating of the tectonically active Aleutian Island area, examining the water exchange between the Bering Sea and North Pacific Ocean along the Aleutian Island chain, studies of the ecology and behavior of seabirds, sea otters, whales and other marine mammals, and investigating

Figure 1



While the above totals are of interest, they are also somewhat misleading. They fail to show the