The evolution of the chirp sonar high resolution sub-bottom sonar

Professor Steven G. Schock completed his Ph.D. Graduate program of studies under our guidance in the Department of Ocean Engineering, University of RI. The Chirp Sonar research project that supported Stevens graduate studies was proposed to, and supported by ONR (Dr. Joseph Kravitz) in the early 1980s The PIs were Professors Lester Leblanc (Ocean Engineering) and Professor Larry Mayer (Ocean Engineering and Geological Oceanography). Dr. Mayer and I shared a common interest in improving the quality of sub-bottom sonars so as to provide high quality quantitative data for imaging and classification of the sea floor. It was Stevens hard work at programming the signal processing and assembling and building of components to the chirp sonar that greatly contributed to making this program a success. The initial system, housed in two large racks was tested by Steven in Narragansett Bay RI, and unprecedented high resolution images of the sub-bottom seafloor were generated with the data collected for his research program. This paper will present the theory and technological development of the chirp sonar from the early days to the present transitioned systems that are built, improved, and maintained commercially.