

, Construction and Qualification of a Modular Prototype Hydroacoustic Node

The concept of a modular alternative for the current linear hydroacoustic triplet design has been the focus of significant development by the University of Washington Applied Physics Laboratory (APL-UW) in recent years. A number of options have been studied from the perspective of two key criteria: the desirability of maintaining the existing highly effective linear deployment method, and the strategic introduction of modularity to reduce servicing cost and to increase servicing efficiency. A Monte Carlo-based statistical tool was developed that integrates detailed deployment and servicing scenarios with historical wave or wind data to provide probabilistic estimates of elapsed time to complete a given scenario at any site and time of year. Output from this tool, named the Monte Carlo Mission Time Simulation (MMTS), clearly points to one design option that has the shortest deployment time and also the shortest ship time on site for servicing operations. The steps required for the detailed design, construction and qualification of a prototype of the most promising option will be presented. Also presented will be the characteristics of the optimum test site and a survey of existing test facilities that have been investigated for this purpose.

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