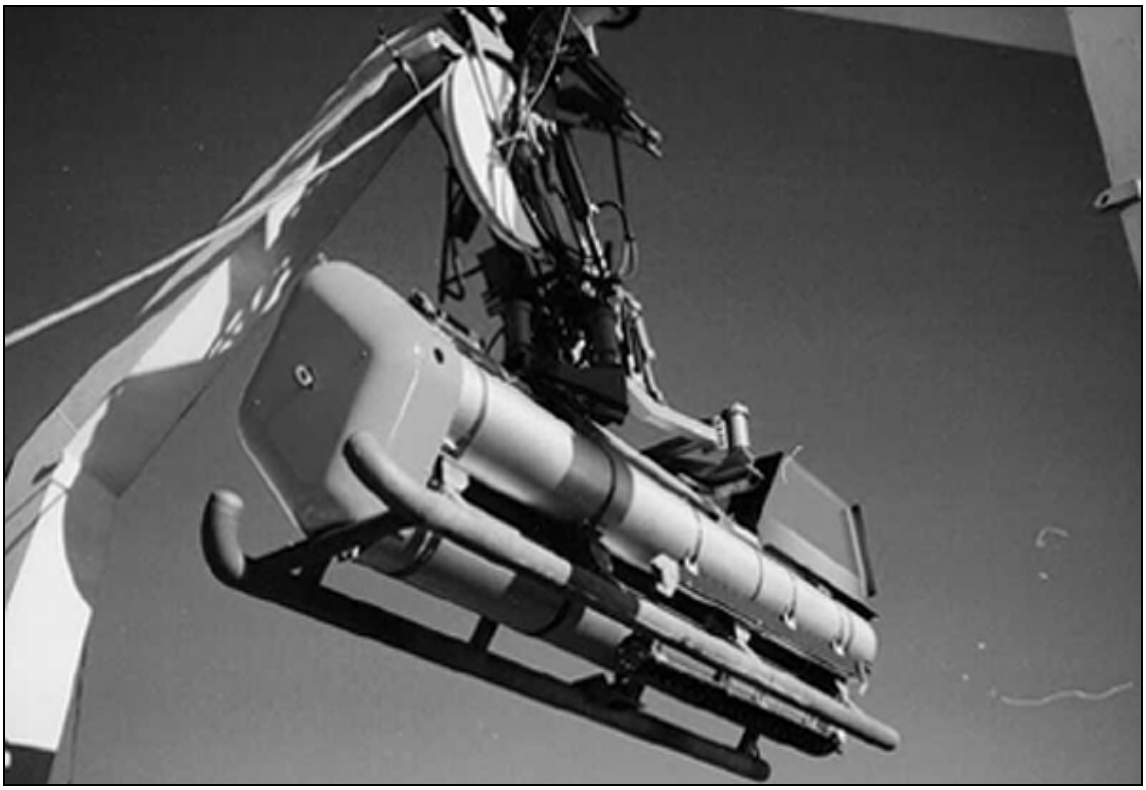
FIXED DISTRIBUTED SYSTEM (FDS) AND ADVANCED DEPLOYABLE SYSTEM (ADS)



Navy ACAT II Programs

Total Number of Systems:	1 FDS, 16 ADS
Total Program Cost (TY$):	FDS-$1095.7M ADS-$1028M
Average Unit Cost (TY$):	FDS-$1095.7M ADS-$64.3M
Full-rate production:	ADS-FY05

Prime Contractor

Raytheon and Lockheed Martin

SYSTEM DESCRIPTIONS & CONTRIBUTIONS TO JOINT VISION 2010

The Fixed Distributed System (FDS) is an ocean surveillance system that employs seabed acoustic sensors distributed over large ocean areas to detect, classify, localize, and track submarine contacts in selected areas of the world. The Advanced Deployable System (ADS) is a littoral water deployable undersea surveillance system designed to provide the Joint Force Commander with a timely and reliable picture of undersea activity. Both of these systems contribute to ***full-dimensional protection*** through ***information superiority***. FDS consists of two subsystems: an Underwater Segment (UWS) and a Shore Signal Information Processing Segment. FDS was designed to augment the existing Sound Ocean Surveillance System and be compatible with the Integrated Undersea Surveillance System, including Surveillance Towed Array Sensor System ships. Similarly, ADS consists of an UWS, a Processing and Analysis Segment (PAS), and a Mission Support Segment.

BACKGROUND INFORMATION

Engineering development of FDS commenced in 1989. An initial seabed subsystem for the first FDS was installed and became the test article for OT. Initial operation of this system occurred in 1995. Plans had called for procurement of 11 operational systems through 2006. However, the Navy truncated the program and limited procurement to the engineering development model for the first full field, an additional FDS system, and training equipment. The additional system supported the demonstration of a rapidly deployable variant, FDS-D (deployable) in 1994. The FDS-D experiment proved the deployment and retrieval concepts and successfully demonstrated the FDS acoustic detection and tracking concepts with submarine targets using Navy operators. The FDS-D experiment led to the signing of the ADS Operational Requirements Document (ORD) in 1994. The TEMP was drafted and development proceeded.

After the entire system FDS-1 was installed and operating and the initial Surveillance Direction System (SDS) software was installed, an OA of FDS (OT-IID / SDS OT-I) was conducted at the FDS-1 site in September 1996. SDS is the command and control component that interfaces the FDS with the Integrated Undersea Surveillance System. This OA was conducted in lieu of an OPEVAL due to the cancellation of FDS Milestone III in 1994.

OPTEVFOR found FDS potentially operationally effective and potentially operationally suitable but noted some problems in the areas of tactical support and survivability. FDS achieved Full Operational Capability in September 1996. Due to the cancellation of OPEVAL and Milestone III, testing in accordance with the FDS TEMP 1009 Rev. 2.3 has been essentially completed.

Initial system level testing of ADS was conducted in March 1998 in an Integrated Article Test (IAT) designated OT-IA. The test configuration consisted of two complete nodes of the system deployed in shallow water. The objectives included exercising the emplacement procedures and calibrating the in water segment as to location, orientation, and straightness. The arrays were deployed by a craft of opportunity (COOP). The PAS was installed in shore-based vans. The full system was exercised using the current software build and included classification and target tracking of real targets and a towed projector.

Using the IAT results, modeling and simulation reviews, and other development tests dating back to 1996, COMOPTEVFOR completed an Early Operational Assessment of ADS in June 1998. The COOP variant of ADS was potentially operationally effective. Potential operational suitability could not be determined due to system immaturity. Four significant areas of risk were identified by this EOA: Deployment Time, Joint Interoperability, Interoperability, and Tactics.

TEST & EVALUATION ACTIVITY

An Operational Assessment (OT-IB) was conducted on the ADS system over a 60-day Fleet Exercise Test, in conjunction with various fleet sponsored exercises between March and May 1999. In support of this OA, an installation of ADS was deployed offshore in a fleet operating area. ADS was tested using a DOT&E approved test plan as a combined DT/OT for a one week Limited Objective Exercise (LOE-99), a one week Fleet Exercise (Kernel Blitz-Prime), and a one week Third Fleet Exercise. This effort examined the value of ADS deployed in shallow waters to support an amphibious landing operation. DOT&E observed this test that included four submarines, (one SSBN, two SSNs and

one diesel electric), and multiple surface vessels as targets for ADS. Navy personnel were trained and utilized as operators. The background noise conditions imposed by coastal traffic and fleet naval vessels were severe during this test but were representative of the expected operational environment.

The Analysis of Alternatives for ADS was completed in July 1999, and ORD and TEMP updates should be approved in 2QFY00. ADS OPEVAL is planned for FY04.

TEST & EVALUATION ASSESSMENT

COMOPTEVFOR finished the final report for OT-IB in December 1999. Performance of the ADS system during the LOE-99 was disappointing. ADS did not generate very much target information that was recognized by the operators and the C^4I systems provided to report the information did not perform as required.

Subsequent analyses of the recorded acoustic data has shown that, in many cases, target information was present and detectable on ADS despite the high background noise levels, even though not detected/recognized by the operators. This was largely due to insufficient operator training with the actual ADS equipment. The result was that the ASW commander did not receive the target queuing information needed to protect the fleet units from submarines in LOE-99. However, the performance of the operators improved markedly for the subsequent FLEETEX and Kernel-Prime exercises, largely due to the learning experience provided by the earlier test.