

# Naval Seamanship & Shiphandling Conning Officer Virtual Environment (NSS COVE)

NAVAL AIR WARFARE CENTER  
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## EXHIBIT FACT SHEET



# Naval Seamanship & Shiphandling Conning Officer Virtual Environment (NSS COVE)



The COVE family of trainers is a system of scalable, reconfigurable, PC-based simulators, offering an immersive virtual reality maritime training environment. They provide the full continuum of navigation, seamanship, shiphandling, piloting, and tactical ATRP (Anti-Terrorism/Force Protection) training for Naval personnel.

Originally conceived in 2000 as an Office of Naval Research (ONR) Research and Development (R&D) effort, COVE has evolved into a robust and extensible shiphandling simulator, primarily utilized at the Surface Warfare Officers School

(SWOS) in Newport, Rhode Island, but also installed in fleet concentration areas. Based on the VirtualShip2000™ COTS software architecture, COVE contains a high degree of additional functionality to support NSS training. It features hydro dynamically accurate, high-fidelity ship models for all existing U.S. Navy combatants, a selection of U.S. Coast Guard cutters and small boats, and a wide array of vessels from foreign navies, along with merchant and fishing fleets. The collection of over 70 visual harbor databases covers virtually every major U.S. and foreign port that the U.S. Navy regularly visits. These databases are leveraged as a shared resource with the Navy's Virtual Submarine



(VeSUB) programs, which is also based on the VirtualShip2000™ architecture.

The Tactical COVE (TA-COVE) is a full mockup of a ship's bridge, surrounded by a 360-degree screen, with 12 projectors providing a high definition visual scene for day or night tactical training. Unlike the other COVE configurations which are designed to train a single officer, this Full Mission Bridge supports watch team training of six to ten personnel. It includes electronic (virtual view) binoculars for target identification and helmet-mounted displays (HMD's) to supplement the primary on-screen display. This allows the Conning Officer to look down from the bridge wings for docking or pier side maneuvering. TA-COVE teaches core decision-making skills in difficult,



pre-constructed scenarios. These skills include situational awareness, task prioritization, multi-tasking, weapons engagement, tactical maneuvering, and communication. The system is designed with the fidelity to train watch teams in the dynamic decision making process needed to defend against terrorist vessels and other force protection threats.

The Littoral Combat Ship (LCS) bridge trainer is the most recent configuration built on the COVE baseline. Developed to train the officers manning the Navy's newest surface combatant, it features five large LCD screens that provide a realistic, high-fidelity field of view. Responsive controls and integrated radar, navigation, and engineering status displays provide the watch standers with the data needed to conduct everyday operations. The architecture of the LCS COVE trainer allows rapid reconfiguration of the ship control console to support high-fidelity training on both LCS-1 and LCS-2 bridge configurations. The reduced manning of an LCS bridge watch team represents a paradigm shift for the Navy, and the LCS COVE trainer successfully provides the immersive environment needed to train LCS crewmembers to handle this new skill set.