

# U.S. Demonstrates Advanced Submarine Combat Control System Technology for UK Counterparts



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GROTON, Connecticut – As part of the AUKUS trilateral security partnership, the U.S. Navy recently demonstrated its advanced AN/BYG-1 submarine combat control system to sailors and industry members from the United Kingdom (UK). The AN/BYG-1 developed under a joint U.S. / Australian program office and is used aboard both nations' submarines.

Representatives from the UK, including the Royal Navy, government, and industry, visited Naval Submarine Base New London in Groton, Conn., in November 2025 to observe U.S. Navy Sailors from Los Angeles-class nuclear-powered fast-attack submarine USS Hartford (SSN 768) operating the AN/BYG-1 combat control system at the shore-based virtual Submarine Multi-Mission Team Trainer (SMMTT).

This capability demonstration supports the integration of the AN/BYG-1 into the future SSN-AUKUS which is being designed by the UK and will be built and operated by both the Royal Navy and the Royal Australian Navy under the AUKUS program, the trilateral security agreement between Australia, the UK and U.S. to deliver a nuclear-powered, conventionally armed submarine capability to Australia.

Currently, the U.S. Navy and Royal Australian Navy operate the AN/BYG-1 aboard their submarines. Including the system in the baseline SSN-AUKUS design highlights the interconnectivity and

interoperability of the three nations' attack submarine fleets.

The AN/BYG-1 links sensor inputs and controls submarine combat operations, including targeting and firing torpedoes and missiles. The system integrates tracking of other submarines and surface ships, improving situational awareness for the submarine's crew. Unlike combat control systems of the past, the AN/BYG-1 utilizes commercial off-the-shelf technology and software updates to enable easier upgrades over the life of the submarine.

During the first days of the demonstration, U.S. Navy Sailors and instructors briefed the UK contingent on the AN/BYG-1 system. Following the briefs, the group observed crew from Hartford operating the version of AN/BYG-1 recently installed on their submarine. After observing Hartford's crew, UK personnel took the controls in the SMMTT and spent six days operating the system.

"We are extremely grateful to the crew of USS Hartford and the U.S. Naval Submarine School, who provided us with a fantastic demonstration of submarine warfighting that gives the UK a greater understanding of the AN/BYG-1 system. This is an important milestone for the Royal Navy and demonstrates the significant progress made in submarine combat system capability collaboration across all of the AUKUS partner nations," said Cmdr. Rob Richards, RN, AUKUS Combat System Technology Insertion. "The UK is committed to integrating this combined U.S./Australian system in SSN-AUKUS and driving forward our true AUKUS ambitions of future interoperable, collaborative submarine forces."

"The great thing about systems like BYG-1 is that once you're trained and proficient, you can go to any submarine in the Navy and be familiar with your station and the system you are operating," said Lt. Scott Buckman from the Modernization

Training Team. "Ultimately, with three nations operating variations of the system, we could see personnel from the three nations serving on each other's boats, greatly enhancing interoperability, training, and ultimately improving our collective warfighting capabilities."

Australia's acquisition and employment of nuclear-powered attack submarines under AUKUS Pillar I directly supports U.S. and allied efforts to ensure a favorable balance of power in the Western Pacific through deterrence. Increasing the number of partner submarines in the region expands combined undersea capabilities and builds peace through strength while enhancing the U.S. force posture in the Indo-Pacific. The trilateral program bolsters readiness and undersea warfighting capability by growing submarine interoperability, expanding access and sustainment infrastructure and ensuring seamless operations during crises.

The AUKUS Integration and Acquisition program office, within the Department of the Navy, is responsible for executing the trilateral partnership to help Australia acquire conventionally armed, nuclear-powered attack submarines while setting the highest nuclear stewardship standards and continuing to maintain the highest nonproliferation standard.