

# Littoral Combat Ship (LCS)



Left: Freedom variant (LCS 1) | Right: Independence variant (LCS 2)

In FY25, the Navy conducted no operational tests of the Littoral Combat Ship (LCS) with the Mine Countermeasures (MCM) Mission Package (MP). In June 2025, the Secretary of the Navy certified the replacement of the *Avenger*-class MCM ships and the MH-53E Sea Dragon helicopters in the U.S. Central Command (USCENTCOM) area of responsibility with the *Independence* variant of the LCS with MCM MP complemented by existing Expeditionary MCM capabilities.

## SYSTEM DESCRIPTION

The LCS is a small surface combatant designed for littoral operations and capable of executing open ocean missions. The LCS comprises two seaframe variants: the *Freedom* variant (odd-numbered) and the *Independence* variant (even-numbered). The *Freedom* variant is a monohull design constructed of steel (hull) and aluminum (deckhouse) with two steerable and two fixed-boost waterjets driven

by a combined diesel and gas turbine main propulsion system. The *Independence* variant is an aluminum trimaran with two steerable waterjets driven by diesel engines and two steerable waterjets driven by gas turbine engines. LCS seaframes host and derive mission capability from the Surface Warfare (SUW) and MCM MPs.

The SUW MP is scheduled to deploy only on the *Freedom* variant and derives its capability from the following components:

- Two Mk 46 30mm guns

- An MH-60R helicopter
- Two 11-meter rigid-hull inflatable boats
- Surface-to-surface missile module with 24 Longbow Hellfire missiles

The MCM MP is scheduled to deploy only on the *Independence* variant and derives its capability from the following baseline components:

- AN/AES-1 Airborne Laser Mine Detection System (ALMDS) employed from an MH-60S helicopter

- AN/ASQ-235 Airborne Mine Neutralization System (AMNS) employed from an MH-60S helicopter
- MCM unmanned surface vehicle (USV) with AN/AQS-20C sonar (MCM USV and mine-hunt)
- Unmanned Influence Sweep System (UISS) that comprises the MCM USV with the mine sweep payload

The MCM MP will incorporate the following system, pending continued system development:

- Barracuda Mine Neutralization System employed from MCM USV

## MISSION

The maritime component commander will employ LCS alone, or within a group of ships, to prepare the environment for joint forces access to littoral regions by conducting MCM or SUW operations, possibly under an air defense umbrella. Due to capabilities inherent to both seaframes, commanders can also employ LCS in a maritime presence role and support deterrence operations. Moreover, the Maritime Security Module of the SUW MP enables the *Freedom* variant to conduct Maritime Security Operations, including visit, board, search, and seizure (VBSS) of ships suspected of transporting contraband.

## PROGRAM

The LCS seaframes and the combined MPs are each Acquisition Category IC programs. Additionally, several components

within the MPs are themselves individual programs of record. The Navy restructured the MCM USV program, subsuming the UISS program into one USV program with both mine hunt and sweep payloads. In FY22, the Navy divested the Anti-Submarine Warfare MP. In FY25, the final *Independence* variant ship and the second-to-last *Freedom* variant ship were delivered. The final *Freedom* variant ship will deliver in 1QFY26.

The Navy declared initial operational capability of the MCM MP and the MCM USV and mine-hunt payload (AN/AQS-20C sonar) and authorized full-rate production of the MCM USV and mine-hunt payload in FY23. An additional payload – the Barracuda Mine Neutralization System – is in development for future integration into MCM USV. The Navy is also implementing a variety of enhancements to improve communications range, system endurance, system employment depth, and post-mission analysis.

In June 2025, the Secretary of the Navy certified that LCS with MCM MP, combined with other remaining Expeditionary MCM capabilities, meets MCM operational requirements in the USCENTCOM area of responsibility and supports sunset of the *Avenger*-class MCM ships and the MH-53E Sea Dragon helicopters in this USCENTCOM area of responsibility. The Navy is in the process of planning a separate certification for the U.S. Indo-Pacific Command area of responsibility.

### » MAJOR CONTRACTORS

- Lockheed Martin Corporation and Fincantieri Marinette

Marine team – Marinette, Wisconsin

- Austal USA – Mobile, Alabama
- Northrop Grumman Corporation – Falls Church, Virginia

## TEST ADEQUACY

In FY25, the Navy introduced no modifications to the *Freedom* variant that would change SUW MP performance and conducted no operational testing.

In FY25, the Navy conducted no operational testing on the *Independence* variant with the MCM MP. DOT&E cannot determine operational effectiveness of the LCS MCM MP due to insufficient performance data on AMNS and ALMDS that the Navy elected to field in FY16 without conducting IOT&E. The Navy has provided relevant fleet data from current employments of AMNS and ALMDS, but the data are insufficient to make a determination.

As discussed in DOT&E’s FY24 Annual Report, the Navy deferred the planned FY24 cyber survivability evaluation of the *Independence* variant with MCM MP to include MCM USV and mine-hunt payload, due to unavailability of the test asset. DOT&E accepted data from Naval Sea System Command (NAVSEA) Red Team cyber security testing conducted onboard USS *Canberra* (LCS 30) with MCM MP embarked, but scope of test was insufficient to determine cyber survivability.

The Navy program office has communicated that it does not intend to conduct a cyber

survivability evaluation and an operational performance evaluation of AMNS and ALMDS, which are needed to complete the MCM MP IOT&E.

## PERFORMANCE

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### » EFFECTIVENESS

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Operational effectiveness of *Freedom* variant with the SUW MP was provided in the classified IOT&E report of July 2020. No modifications have been made that would change that assessment.

The Navy has not provided sufficient data from operational employment of AMNS and ALMDS to determine operational effectiveness of the *Independence* variant with MCM MP.

### » SUITABILITY

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Operational suitability of *Freedom* variant with the Increment 3 SUW MP was provided in the classified IOT&E report of July 2020. No modifications have been made that would change that assessment.

The Navy has not provided sufficient data from operational employment of AMNS and ALMDS to determine operational suitability of the *Independence* variant with MCM MP. However, completed analysis suggests that:

- UISS remains not operationally suitable, as detailed in the UISS IOT&E report of June 2022.
- AMNS and ALMDS demonstrated low reliability prior to fleet release, as detailed in the classified LCS MCM MP Early Fielding Report of June 2016. Insufficient

reliability data are available to re-assess.

### » SURVIVABILITY

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Cyber survivability of the *Freedom* variant with SUW MP was detailed in the classified June 2023 cyber addendum to the June 2020 IOT&E report. The Navy made no modifications to the *Freedom* variant with SUW MP that would change that assessment.

Insufficient data are available to determine cyber survivability of the *Independence* variant with MCM MP.

## RECOMMENDATIONS

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The Navy should:

1. Submit for DOT&E approval an update to the LCS TEMP that addresses changes in the test program, or issue an official memorandum detailing plans and intentions to discontinue testing, in lieu of a TEMP update.
2. Continue to engage with OPTEVFOR and DOT&E to scope future testing requirements as capability changes occur for either of the LCS seaframes, the SUW MP, and the MCM MP.