

Littoral Combat Ship (LCS)

Executive Summary

- The Navy is pursuing purchase of at least 15 baseline configuration or “Flight 0” ships through FY09, up from 13 reported in FY05.
- The Navy’s Test and Evaluation Strategy is inappropriate for the proposed acquisition strategy.
- Early Operational Assessment reports indicate high-level risks in systems integration, manning, and survivability.

System

- The Littoral Combat Ship (LCS) is a new class of ship designed to operate in the shallow waters of the littorals where larger ships cannot maneuver as well. It can accommodate a variety of individual warfare systems (mission modules) assembled and integrated into interchangeable mission packages.
- There are two competing basic ship (seaframe) designs:
 - The Lockheed Martin design is a steel monohull.
 - The General Dynamics design is an aluminum tri-maran style hull.
- The designs propose different combat systems for self-defense against anti-ship cruise missiles.
- Both designs use combined diesel and gas turbine engines with waterjet propulsors.
- More than a dozen individual programs of record, involving sensor and weapon systems and other off-board vehicles, have been chosen to make up the individual mission modules. All but three are Acquisition Category (ACAT) II and ACAT III programs.

Mission

- The Maritime Component Commander can employ LCS to conduct Mine Warfare (MIW), Anti-Submarine Warfare,



or Surface Warfare, based on the mission package fitted into the seaframe. Mission packages are designed to be interchangeable, allowing the Maritime Component Commander flexibility to reassign missions.

- Commanders can employ LCS in a maritime presence role regardless of the installed mission package based on capabilities inherent to the seaframe.
- The Navy can deploy LCS alone or in conjunction with other ships.

Activity

- No developmental or operational testing was conducted in 2007.
- In March 2007, the Navy announced that it was restructuring the LCS program because of significant cost growth. The revised acquisition plan reduced the number of Flight 0 ships to be acquired, included a “Fly-Off” between the two seaframe designs in 2009, and called for the start of Flight 1 ship acquisition in 2010. Flight 1 was to be based on the seaframe design selected during the Fly-Off, but would include a Common Combat System and Common Command, Control, Communications, Computers, and Intelligence Systems provided by the government. The revised acquisition plan also called for renegotiation of the contract for LCS 3.

Those negotiations were ultimately unsuccessful and the LCS 3 contract was terminated.

- In July 2007, the Navy announced its intention to amend the new acquisition strategy to retain the option of acquiring Flight 1 ships based on both seaframe designs.
- The first LCS Mission Package, a partial MIW Mission Package, was delivered at Naval Surface Warfare Center, Panama City, Florida, in September 2007.
- The Integrated Test Team continued to develop plans for LCS 1 and LCS 2 Post-Delivery Tests and Trials, developmental testing, and operational testing, which are now expected to commence in the fall of 2008.

NAVY PROGRAMS

- Commencement of the System Development and Demonstration Phase (Milestone B) has been postponed to 2008.

Assessment

- The LCS program does not have an approved acquisition strategy that reflects the acquisition decisions announced during 2007. The multitude of program changes has delayed development of an appropriate test and evaluation strategy, and pending congressional action, appears likely to cause further program revisions.
- The Navy's citation of urgent operational need and stated intention to deploy LCS 1 and LCS 2 as early as possible threatens to compress the post delivery schedules for LCS 1 and LCS 2 and reduce the time available for critical tests and trials normally conducted on lead ships. These tests and trials include developmental testing, deficiency correction, signature measurements, sensor accuracy determination, and determination of operational effectiveness and suitability of the sea frames.
- Pending an approved acquisition strategy, DOT&E's intention is that IOT&E be conducted on LCS 1 and LCS 2 seaframes prior to fleet introduction even though only MIW Mission Packages will be available and those packages will be incomplete. This will provide the warfighters a system for which sea frame mission capability has been determined.
- Several phases of follow-on operational test and evaluation will be required to assess the operational effectiveness and operational suitability of the baseline (fully-capable) MIW,

Anti-Submarine Warfare, and Surface Warfare mission packages.

- The lead Flight 1 ship should also undergo IOT&E before it is introduced into the fleet. If the Navy opts to acquire Flight 1 ships based on both seaframe designs, then IOT&E of both lead ships will be required.

Recommendations

- Status of Previous Recommendations. The Navy fully addressed two of eight prior recommendations and is making progress on two others. The Navy still needs to complete the risk assessment to confirm that Level I survivability is sufficient for a class of small combatants (FY05). It also must continue its analysis to determine the minimum number of MIW mission module programs of record that will be sufficient to provide genuine MIW capability (FY05). Additionally, the Navy must revise the test and evaluation strategy to conduct IOT&E on the lead ships (seaframes) of each design (FY06). It must also revise LCS lead ship post delivery schedules to include test events such as signature measurement, analysis of performance characteristics, and sensor accuracy to determine basic performance baselines before deployment (FY06). Finally, the Navy must continue detailed manning analyses to determine the appropriate number of personnel necessary to man LCS, with mission packages, given its level of automation and systems integration (FY06).
- FY07 Recommendations. None.