

CRS Report for Congress

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Navy Littoral Combat Ship (LCS): Background and Issues for Congress

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Summary

The Littoral Combat Ship (LCS) is a proposed small surface combatant for the Navy. For FY2005, the Navy is requesting \$107.7 million to begin building the first LCS, and an additional \$244.4 million for research and development for the LCS program. The issue for Congress is whether to approve, modify, or reject the Navy's plan for the LCS program. For a longer discussion of the LCS program, see CRS Report RL32109.¹ This report will be updated as events warrant.

Background

The LCS program was announced by the Navy in November 2001 as part of a proposed family of next-generation Navy surface combatants that also includes the much-larger DD(X) destroyer (which the Navy also wants to begin building in FY2005) and a future CG(X) cruiser.² The Navy has testified that the LCS program is its number one budget priority. Prior to announcing the LCS program, the Navy had no plans to acquire a smaller combatant like the LCS and had resisted proposals for such ships.

The LCS would be a small, fast surface combatant that would use modular "plug-and-fight" mission payload packages, including unmanned vehicles (UVs). The primary intended missions of the LCS are countering enemy mines, submarines, and fast attack craft (sometimes called "swarm boats") in heavily contested littoral (near-shore) waters. Secondary LCS missions, also to be performed in littoral waters, include intelligence, surveillance, and reconnaissance (ISR); homeland defense/maritime intercept; special operations forces (SOF) support; and logistics support for movement of personnel and

¹ CRS Report RL32109, *Navy DD(X) and LCS Ship Acquisition Programs: Oversight Issues and Options for Congress*, by Ronald O'Rourke.

² For more on the DD(X) and CG(X), see CRS Report RL32109, *op cit*, and CRS Report RS21305, *Navy DD(X) Destroyer Program: Background and Issues for Congress*, by Ronald O'Rourke.

supplies. Each LCS would have a core crew size of 15 to 50 people, plus additional personnel for operating embarked mission modules.

The Navy wants to procure a total of 30 to 60 LCSs. The FY2005-FY2009 Future Years Defense Plan (FYDP) calls for procuring the first LCS in FY2005, another two in FY2006, one more in FY2007, and three more in FY2008, and six more in FY2009. A long-range shipbuilding plan that the Navy submitted to Congress in May 2003 showed the remaining ships in the program being procured in FY2010 and future years at a rate of five ships per year.

The Navy wants the first LCS to cost between \$150 million and \$220 million in then-year dollars, exclusive of any mission modules, and wants follow-on LCSs to cost no more than \$250 million in then-year dollars, including a representative payload package. Navy budget figures (see **Table 1** on the next page) suggest that individual mission modules to be procured during the FYDP would cost an average of \$82 million each. Using the \$250-million figure for an LCS with a representative payload, the total procurement cost for a fleet of 30 to 60 LCSs might be \$7.5 billion to \$15 billion, not including at least \$1.4 billion in general research and development costs for the program.

The Navy intends to procure the first and second LCSs through the Navy's research and development account rather than the Navy's ship-procurement account. The Navy plans to procure LCS mission modules through the Other Procurement, Navy (OPN) account rather than the Navy's ship-procurement account.

On May 27, 2004, the Navy awarded contracts to teams led Lockheed Martin and General Dynamics (GD) for final system design of the LCS, with options for detailed design and construction of up to two LCSs each. The third competing team, led by Raytheon, was not awarded a contract. If Congress approves funding for the ships, the Lockheed team would build the LCS proposed for FY2005, while the GD team would build one of the two LCSs proposed for FY2006. **Table 1** on the next page shows funding for the LCS program through FY2009.

Issues for Congress

Force Structure Justification for Program. The last officially approved Navy force-structure plan — the 310-ship plan from the 2001 Quadrennial Defense Review — contains no slots for LCSs. The Navy's recent proposal for a fleet of 375-ships contains slots for 50 to 60 LCSs but was not approved by the Secretary of Defense. The Navy at this juncture thus appears to be without an officially approved force-structure plan that includes slots for any significant number of LCSs. LCS supporters could argue that a plan for the Navy with slots for 30 to 60 LCSs will eventually be approved. Critics could argue that, until such a plan is approved, the Navy has no approved force-structure basis for proposing a program to build any significant number of LCSs.

Analytical Basis For Program. Prior to announcing the LCS program in November 2001, the Navy apparently did not conduct a formal analysis — called an Analysis of Multiple Concepts (AMC) — to demonstrate that a ship like the LCS would be more cost-effective than potential alternative approaches for performing the LCS's stated missions. Potential alternative approaches for performing the LCS's stated missions include (1) manned aircraft, (2) submarines equipped with UVs, (3) a larger

(perhaps frigate-sized) surface combatant equipped with UVs and operating further offshore, (4) a non-combat littoral support craft (LSC) equipped with UVs, or (5) some combination. The absence of an AMC for the LCS program raises a question regarding the analytical basis for the program, particularly given the Navy's resistance to the idea of a small ship like the LCS prior to November 2001.

Table 1. Funding For LCS Program, FY2002-FY2009
(millions of then-year dollars; totals may not add due to rounding)

	2002	2003	2004	2005	2006	2007	2008	2009	Total thru 2009
Research, Development, Test & Evaluation, Navy (RDT&EN) account									
Ship 1 construction	—	—	—	107.7	107.8	—	—	—	215.5*
Ship 2 construction	—	—	—	—	106.7	107.0	—	—	213.7*
All other**	—	35.3	166.2	244.4	288.4	285.9	130.5	207.5	1358.3
Subtotal RDTEN	0	35.3	166.2	352.1	502.9	392.9	130.5	207.5	1787.5
Shipbuilding and Conversion, Navy (SCN) account									
Ship 3	—	—	—	—	219.7	—	—	—	219.7
Ship 4	—	—	—	—	—	220.0	—	—	220.0
Ships 5, 6, 7***	—	—	—	—	—	—	625.7	—	625.7
Ships 8 thru 13***	—	—	—	—	—	—	—	1303.6	1303.6
Subtotal SCN	0	0	0	0	219.7	220.0	625.7	1303.6	2369.0
Other Procurement, Navy (OPN) account for procurement of LCS mission modules									
(Qty of modules)	—	—	—	—	(2)	(2)	(4)	(15)	(23)
Funding	0	0	0	0	180.0	180.0	351.3	1171.3	1882.6
TOTAL	0	35.3	166.2	352.1	902.6	792.9	1107.5	2682.4	6039.1

Source: Navy data provided to CRS by Navy Office of Legislative Affairs, February 20 and 27, 2004.

* Cost figures for each ship include detailed design/nonrecurring engineering (DD/NRE) costs for that ship.

** Funding for all program RDT&E other than for construction of Ships 1 and 2.

*** Three ships funded in FY2008 at total cost of \$625.7 million; six ships funded in FY2009 at total cost of \$1,303.6 million.

Supporters argue that the LCS builds on about four years of analytical work on small, fast surface combatants done at the Naval War College, responds to the Navy's need for forces that can operate in littoral waters against enemy anti-access and area-denial forces, and is consistent with the concept of network-centric warfare, the growing importance of UVs, and the need for more affordable Navy ships. They can also argue that the Navy in the past has built prototype ships without having first done an AMC. Critics could argue that these arguments may be true but do not demonstrate that the LCS is the best or most promising approach for performing the LCS's stated missions. Absent a formal AMC, they could argue, the Navy has not, for example, shown why it would be necessary or preferable to send a small and potentially vulnerable manned ship into heavily defended littoral waters to deploy UVs when UVs could also be launched from aircraft or from larger ships operating further offshore. The Administration, LCS critics could argue, is being proposed on the basis of "analysis by assertion." They can argue that while it may be acceptable to build one or a few ships as operational prototypes without first having

analytically validated the cost-effectiveness of the effort, it is quite another thing to propose a 30- to 60-ship program costing billions of dollars without first examining through rigorous analysis whether this would be the most cost-effective way to spend such a sum.

Program Cost. Navy officials acknowledge that the total number of LCSs, the cost of individual LCS mission modules, and the ratio of mission modules to LCSs, is not yet clear, and that the potential total procurement cost of the LCS program, including mission modules, is therefore unknown. Supporters could argue that total program cost will become clearer as the Navy works through the details of the program. Critics could argue that a major acquisition program like the LCS program should not be initiated until its potential total costs are better understood.

As shown in **Table 1**, the first 13 LCSs would cost an average of \$215 million each, and the first 23 mission modules would cost an average of \$82 million each. Using these figures, the combined average cost for an LCS equipped with a single mission module would be \$297 million, which is 19% more than the Navy's \$250-million target cost for an LCS with a representative payload package. Navy officials, moreover, have spoken about equipping each LCS with more than one, and possibly as many as four or five, mission modules. Achieving the Navy's \$250-million cost goal may therefore require reducing average procurement costs for LCSs, mission modules, or both, after FY2009.

Rapid Acquisition Schedule. The Navy's plan calls for Congress to approve the start of LCS construction in 2004, less than three years after the LCS program was first announced. Supporters of this rapid schedule could argue that it responds to an urgent Navy need for improved littoral warfighting capability and is consistent with defense acquisition streamlining and reform. Skeptics could argue that it is not clear, based on recent Navy combat operations in Kosovo, Afghanistan, and Iraq, whether the need for the LCS is urgent, and that the Navy's rapid acquisition strategy may be motivated more by other considerations, such as getting the LCS program started before there is a change in the Administration, or before there is a change in Navy leadership, or before supporters of the DD(X) destroyer possibly try to end the LCS program, or before Congress fully understands the details of the LCS program. Skeptics could also argue that allowing LCS program to proceed as planned could provide DOD with a precedent to begin other major acquisition programs in a similar rapid manner, which might reduce Congress' ability to conduct effective oversight of proposed DOD procurement programs.

Funding Strategy for Lead Ships. The Navy argues that the Navy's plan to fund the lead LCSs in the Navy's research and development account rather than in the Navy's ship-procurement account will permit the Navy to mitigate technical risk by permitting the LCS's new technologies to be developed in a more R&D-like managerial environment. Skeptics could argue that it would permit the Navy to blend construction funding with traditional research and development funding, obscuring the construction cost of the lead LCSs, and permit the Navy to fund the construction of the ships incrementally, rather than all at once (as normally required by the full funding policy for defense procurement), further obscuring the total construction cost of the ship. Both these things, skeptics could argue, could weaken congressional oversight of the program, which depends in significant part on making total ship construction costs clear and fully visible.

Lack of Gap Years After Lead Ship. Past Navy shipbuilding programs have often included a “gap” year between the year that the lead ship is procured and the year that the second ship in the class is procured, so as to help ensure that design problems discovered during the construction of the lead ship are identified and fixed before construction of follow-on ships begins. Supporters of the Navy’s plan to not have a gap year between procurement of the lead LCS (in FY2005) and the next ship built to the same design (the second ship planned for FY2006) could argue that this approach is consistent with the Navy’s goal to have LCSs enter the fleet quickly. They could also argue that the technical risks involved in building the LCS are relatively low because the LCS is similar to other small, fast ships that have already been built for foreign navies and for non-military uses. Critics could argue that the Navy may be underestimating the technical risks involved in building the first LCSs, and that the absence of a gap year is inconsistent with the assertion, implicit in the Navy’s argument, that there is enough technical risk in the LCS program to warrant building the ship in a research-and-development environment.

Funding Strategy for Mission Modules. Supporters of the Navy’s plan to procure LCS mission modules through the OPN account can argue that it is consistent with the traditional practice of procuring ship weapons (e.g., missiles and gun shells) through the Weapon Procurement, Navy (WPN) appropriation account or the Procurement of Ammunition, Navy and Marine Corps (PANMC) appropriation account rather than the ship-procurement account. Skeptics could argue that the LCS mission modules are not missiles and gun shells, and that funding the modules through the OPN account would effectively obscure a significant portion of the total LCS program acquisition cost by placing them in a part of the Navy’s budget where they might be less visible to Congress.

Industrial Base. Supporters of the idea of building some or all LCSs in a yard or yards other than the two current surface combatant builders — General Dynamics’ Bath Iron Works (BIW) and Northrop Grumman’s Ship Systems (NGSS) division — could argue that this will help constrain LCS construction costs because the yards in question have lower overhead costs than BIW or NGSS. Skeptics could argue that BIW and NGSS have considerable unused building capacity, that building LCSs at BIW or NGSS could reduce the cost of other Navy shipbuilding programs being performed at these yards by spreading BIW’s or NGSS’ fixed overhead costs over a larger amount of shipbuilding work, and that building LCSs at yards other than those that already build major ships for the Navy will exacerbate the current excess-capacity situation in Navy shipbuilding by creating additional shipyards with a strong dependence on Navy shipbuilding contracts.

Potential Options for Congress. Potential options for Congress for the LCS program include the following:

- approve the LCS program as proposed by the Navy;
- shift procurement of the lead LCSs to the Navy’s ship-procurement account;
- shift procurement of LCS mission modules to the Navy’s ship-procurement account;
- insert a gap year between procurement of the lead LCSs and their respective follow-on ships;
- defer procurement of the lead LCS to FY2006 or a later year;

- procure LCSs at a rate of up to 10 per year to get LCSs into the fleet sooner and achieve better production economies of scale;
- procure LCSs at a rate of less than 5 per year so as to reduce annual LCS funding requirements;
- procure a few LCSs and then evaluate them in exercises and experiments before deciding whether to put the LCS into larger-scale series production;³
- terminate the LCS program (and the DD(X) program) and instead procure a new-design frigate as a common replacement;⁴ and
- terminate the LCS program and invest more in other littoral-warfare improvements.

Legislative Activity for FY2005

FY2005 Defense Authorization Bill (H.R. 4200/S. 2400). The House Armed Services Committee, in its report (H.Rept. 108-491 of May 14, 2004) on H.R. 4200, expressed concerns about the justification and analytical underpinning of the LCS program and recommended disapproval of the \$107.7 million requested for FY2005 to begin building the lead LCS. The committee recommended that construction of the lead ship be delayed until FY2006. The committee recommended approval of the remainder of the program's FY2005 funding request. (Page 184-185) **The Senate Armed Services Committee**, in its report (S.Rept 108-260, May 11, 2004) on S. 2400, recommended approval of the program's funding request for FY2005.

FY2005 Defense Appropriations Bill (H.R. 4613/S. 2559). The House Appropriations Committee, in its report (H.Rept. 108-553 of June 18, 2004) on H.R. 4613, recommended a net \$57-million increase in funding for the LCS program, consisting of a \$107-million increase to fully fund the lead LCS in FY2005 at a total cost of \$214 million, and a \$50-million decrease for Phase I pre-design/concept studies for a subsequent improved version of the LCS design. The committee stated that it views the lead LCS as a prototype and that design and construction of the next version of the LCS should not proceed until the prototype is completed and tested. (Pages 288-289; see also page 274.) **The Senate Appropriations Committee**, in its report (S.Rept. 108-284 of June 24, 2004) on S. 2559, recommended approval of the FY2005 funding request for the program. The committee stated that it views the lead LCSs as prototypes and directed the Navy to include no funding in its FY2006 budget request for construction of a second ship of either prototype design. (Pages 156-157; see also page 148).

³ This option would also provide time to confirm the emergence of projected littoral threats and an opportunity to conduct an Analysis of Multiple Concepts that would not be tainted by a Navy commitment to putting the LCS in larger-scale production. For a discussion of this option see Robert O. Work, *Naval Transformation and the Littoral Combat Ship*, Center for Strategic and Budgetary Assessments, Feb. 2004.

⁴ For a discussion of this option, see U.S. Congressional Budget Office, *Transforming the Navy's Surface Combatant Force*, Mar. 2003, pp. 4-17; and CRS Report 94-343 F, *Navy DDG-51 Destroyer Procurement Rate: Issues and Options for Congress*, by Ronald O'Rourke, pp. 27-28, 63.