

# CRS Report for Congress

Received through the CRS Web

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

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### Summary

The Littoral Combat Ship (LCS) is a small, fast Navy surface combatant with modular weapon systems. The Navy wants to procure a total of 55. The first was procured in FY2005, three more were procured in FY2006, and the Navy's proposed FY2007 budget requests \$521 million to procure two additional ships. The estimated average unit procurement cost of follow-on LCS "sea frames" (i.e., LCSs without any mission modules) has grown to about \$298 million, an increase of about 33% over last year's estimate of about \$223 million. Section 124 of the conference report on the FY2006 defense authorization bill (H.R. 1815) limits the cost of the two FY2007 sea frames to \$220 million per ship, plus adjustments for inflation and other factors. The Navy's FY2007 unfunded requirements list (URL) — its "wish list" of items desired but not included in the FY2007 budget — includes an additional two LCSs for an additional \$520 million. For a longer discussion of the LCS program, see CRS Report RL32109, *Navy DD(X), CG(X), and LCS Ship Acquisition Programs: Oversight Issues and Options for Congress*, by Ronald O'Rourke. This report will be updated as events warrant.

### Background

The Navy announced the LCS program in November 2001 as part of a proposed family of next-generation Navy surface combatants that also includes the much-larger DD(X) destroyer and CG(X) cruiser.<sup>1</sup> The LCS is a small, fast surface combatant that uses 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 (i.e., "swarm boats") in heavily contested littoral (near-shore) waters. Secondary LCS missions include intelligence, surveillance, and reconnaissance (ISR); maritime intercept; special operations forces (SOF) support; and

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<sup>1</sup> For more on the DD(X) and CG(X), see CRS Report RL32109, *Navy DD(X), CG(X), and LCS Ship Acquisition Programs: Oversight Issues and Options for Congress*, by Ronald O'Rourke.

logistics support for movement of personnel and supplies. The LCS is also mentioned in connection with the Navy's role in the Global War on Terrorism (GWOT).<sup>2</sup>

The Navy wants to procure a total of 55 LCSs. The first was procured in FY2005, and three more were procured in FY2006. The FY2005 ship and one of the FY2006 ships were procured through the Navy's research and development account. The other two FY2006 ships and all subsequent LCSs are being procured through the Shipbuilding and Conversion, Navy (SCN) appropriation account. The Navy's FY2007-FY2011 shipbuilding plan includes two LCSs in FY2007, three in FY2008, and six per year in FY2009-FY2011.

The Navy's proposed FY2007 budget requests \$521 million to procure two additional LCSs. Section 124 of the conference report on the FY2006 defense authorization bill (H.R. 1815) limits the cost of the two FY2007 ships to \$220 million per ship, plus adjustments for inflation and other factors. The Navy's FY2007 unfunded requirements list (URL) — its "wish list" of items desired but not included in the FY2007 budget — includes an additional two LCSs for an additional \$520 million.

On May 27, 2004, the Navy awarded contracts to teams led Lockheed Martin and General Dynamics (GD) for final system design of two "Flight 0" versions of the LCS, with options for detailed design and construction of up to two LCSs each. The Lockheed team is building the FY2006 LCS and one of the FY2007 ships, while the GD team is building the other two FY2006 ships. The Navy wants to build at least a few LCSs to the two Flight 0 designs before deciding whether to continue building one design, the other, or both. Lockheed is building its LCSs at Marinette Marine of Marinette, WI, and Bollinger Shipyards of Louisiana and Texas; GD is building its LCSs at Austal USA of Mobile, AL. These yards are not among the six yards that have built the Navy's major warships in recent years.

The Navy is procuring LCS mission modules through the Other Procurement, Navy (OPN) account rather than the SCN account. **Table 1** shows LCS funding through FY2011 as shown in the FY2007-FY2011 Future Years Defense Plan (FYDP) submitted to Congress in early 2006.

The Navy's FY2007 budget submission estimates the total procurement cost of a class of 56 (not 55) LCS sea frames at about \$17.6 billion in then-year dollars. Using figures in **Table 1**, when other LCS program costs are included, the LCS program might have a total acquisition (development plus procurement) cost of more than \$26 billion, or more than \$470 million per ship, in then-year dollars.

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<sup>2</sup> For more on the Navy's role in the GWOT, see CRS Report RS22373, *Navy Role in Global War on Terrorism (GWOT) — Background and Issues for Congress*, by Ronald O'Rourke.

**Table 1. LCS Program Funding, FY2002-FY2011**  
(millions of then-year dollars; totals may not add due to rounding)

	03	04	05	06	07	08	09	10	11	Total thru FY11
<b>Research, Development, Test &amp; Evaluation, Navy (RDT&amp;EN) account</b>										
Ship 1 construction	0	0	206.7	59.2	8.5	0	0	0	0	274.5
Ship 2 construction	0	0	16.0	207.1	55.0	0	0	0	0	278.1
Ships 1 and 2 outfitting/post delivery	0	0	0	8.7	36.7	36.8	7.1	0	0	89.3
LCS ship development	35.3	160.1	228.0	86.0	57.0	60.3	43.2	43.9	22.4	736.2
LCS mission package project ( <i>qty</i> )	0	0	0	213.0 (3)	162.3 (1)	90.4	82.5	100.1	40.8	689.2
<b>Subtotal RDT&amp;EN</b>	<b>35.3</b>	<b>160.1</b>	<b>450.8</b>	<b>574.0</b>	<b>319.6</b>	<b>187.6</b>	<b>132.8</b>	<b>144.1</b>	<b>63.2</b>	<b>2067.3</b>
<b>Shipbuilding and Conversion, Navy (SCN) account</b>										
Ships 3-27, ( <i>qty</i> )	0	0	0	440.0 (2)	520.7 (2)	947.6 (3)	1764.3 (6)	1774.2 (6)	1825.4 (6)	7272.3 (25)
<b>Subtotal SCN</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>440.0</b>	<b>520.7</b>	<b>947.6</b>	<b>1764.3</b>	<b>1774.2</b>	<b>1825.4</b>	<b>7272.3</b>
<b>Other Procurement, Navy (OPN) account (for LCS mission modules)</b>										
<b>Subtotal OPN (<i>qty</i>)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>40.1 (0)</b>	<b>79.1 (1)</b>	<b>207.6 (3)</b>	<b>652.3 (13)</b>	<b>656.2 (12)</b>	<b>720.2 (15)</b>	<b>2355.5 (44)</b>
<b>Weapons Procurement, Navy (WPN) account</b>										
<b>Subtotal WPN</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12.5</b>	<b>39.1</b>	<b>91.0</b>	<b>134.2</b>	<b>276.8</b>
<b>TOTAL</b>	<b>35.3</b>	<b>160.1</b>	<b>450.8</b>	<b>1054.1</b>	<b>919.3</b>	<b>1355.3</b>	<b>2588.5</b>	<b>2665.6</b>	<b>2743.0</b>	<b>11971.9</b>

Source: Navy Office of Legislative Affairs, March 6, 2006.

## Issues for Congress

**Cost Increase On LCS Sea Frame.** Estimated LCS sea frame procurement costs as shown in the FY2007 budget submission have increased from figures shown in the FY2006 budget submission. The estimate for the first LCS has increased from \$212.5 million to \$274.5 million, an increase of about 29%. The estimate for the second LCS has increased from \$256.5 million to \$278.1 million, an increase of about 8%. As shown in **Table 2**, the estimate for follow-on ships to be procured in FY2009-FY2011, when the LCS program is to reach its maximum annual procurement rate of 6 ships per year, has increased from \$223.3 million in then-year dollars to \$298 million in then-year dollars, an increase of about 33%. These increases raise potential oversight issues for Congress, including the following:

- Why have estimated LCS procurement costs increased since last year?
- When did the Navy first know that estimated LCS procurement costs were increasing above figures shown in the FY2006 budget submission?
- What is the potential for the costs of LCS sea frames to be procured in FY2009 and future years to increase above figures shown in the FY2007 budget submission?

- Is the Navy's estimated \$520 million cost for the two LCSs requested for FY2007 consistent with the FY2006 legislation limiting the cost of these two ships to \$220 million each, with adjustments for inflation and other factors?

Navy officials, in comments to reporters following a March 1, 2006, hearing before the House Armed Services Committee, stated that, after permitted adjustments for inflation and other factors are taken into account, the \$520 million estimated combined cost for the two LCSs requested for FY2007 is consistent with the FY2006 legislation limiting the cost of these two ships to \$220 million each. They also acknowledged that there has been growth in the estimated cost of the LCS sea frame.<sup>3</sup>

**Table 2. Estimated LCS Sea Frame Unit Procurement Costs In FY2006 and FY2007 Budget Submissions**  
(Costs in millions of then-year dollars)

	FY07	FY08	FY09	FY10	FY11	FY09-11
<i>FY2006 budget submission</i>						
<b>Total procurement cost</b>	542.4	779.7	1,127.2	1,112.3	1,110.3	3,349.8
<b>Number of ships</b>	2	3	5	5	5	15
<b>Unit procurement cost</b>	<b>271.2</b>	<b>259.9</b>	<b>225.4</b>	<b>222.5</b>	<b>222.1</b>	<b>223.3</b>
<i>FY2007 budget submission</i>						
<b>Total procurement cost</b>	520.7	947.6	1,764.3	1,774.2	1,825.4	5,363.9
<b>Number of ships</b>	2	3	6	6	6	18
<b>Unit procurement cost</b>	<b>260.4</b>	<b>315.9</b>	<b>294.1</b>	<b>295.7</b>	<b>304.2</b>	<b>298.0</b>
<b>% change in unit procurement cost, FY07 compared to FY06</b>	<b>(4%)</b>	<b>21%</b>	<b>30%</b>	<b>33%</b>	<b>37%</b>	<b>33%</b>

**Source:** Prepared by CRS using Navy data from FY2006 and FY2007 Navy budget submissions.

**Total Acquisition Cost.** Although this CRS report estimates that a 55-ship LCS program might have a total acquisition cost of more than \$26 billion, Navy officials acknowledge that the cost of individual LCS mission modules and the ratio of mission modules to LCSs is not yet clear, and that the potential total acquisition cost of the LCS program, including mission modules, is therefore uncertain. Supporters could argue that total program acquisition 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 proceed at full pace until its potential total costs are better understood.

**Funding Strategy for Mission Modules.** Table 1 suggests that the Navy's plan to procure LCS mission modules in the Other Procurement, Navy (OPN) account may result in roughly 25% of the LCS program's total costs being funded through this account. Supporters of this plan could argue that procuring LCS mission modules in the OPN account is consistent with the practice of procuring ship weapons (e.g., missiles and gun

<sup>3</sup> Dave Ahearn, "CNO Says LCS Cost Increase Doesn't Breach Lawmakers' Cap," *Defense Today*, March 2, 2006.

shells) through the Weapon Procurement, Navy (WPN) appropriation account or the Procurement of Ammunition, Navy and Marine Corps (PANMC) appropriation. Skeptics could argue that the LCS mission modules are not missiles and gun shells, but rather elements of the ships' combat systems, and that funding the modules through the OPN account rather than the ship-procurement (SCN) account would effectively obscure a significant portion of total LCS program procurement costs by placing it in a part of the Navy's budget that is less visible to Congress.

**Industrial Base.** Supporters of the current plan to build LCSs in 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 create one or more additional shipyards with a strong dependence on Navy shipbuilding contracts and thereby exacerbate the current excess-capacity situation in Navy shipbuilding.

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

- shift procurement of LCS mission modules to the Navy's ship-procurement (SCN) account to make these costs more visible to Congress;
- procure a few LCSs and then evaluate them in exercises before deciding whether to put the LCS into larger-scale series production;<sup>4</sup>
- 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 five per year so as to reduce annual LCS funding requirements; and
- terminate the LCS program and invest more in other littoral-warfare improvements.

## Legislative Activity for FY2006

**FY2006 Defense Authorization Bill (H.R. 1815/P.L. 109-163).** Section 124 of the conference report (H.Rept. 109-360 of December 18, 2005) on H.R. 1815/P.L. 109-163 of January 6, 2006 limits the cost of the fifth and sixth LCSs to \$220 million per ship, with the limit to become effective with the budget that request funds for the procurement of the two ships. (This is the FY2007 budget.) The section also requires an annual report on the content, cost, and number of LCS mission packages, and states that no funds may be used for procurement of LCSs or LCS mission packages after the procurement of the first four LCSs until the Navy certifies in writing that stable designs exist for the LCS.

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<sup>4</sup> 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.

**FY2006 Defense Appropriations Bill (H.R. 2863/P.L. 109-148).** The conference report (H.Rept. 109-359 of December 18, 2005) on H.R. 2863/P.L. 109-148 of December 30, 2005 approves funding for the procurement of three LCSs in FY2006. The report approves \$582.7 million in research and development funding for the LCS program, a \$6.2-million increase over the requested amount. This total includes funding for the procurement of one LCS, as requested by the Navy. The conference report also includes an \$440 million in the Shipbuilding and Conversion, Navy (SCN) account, not requested by the Navy, for the procurement of two additional LCSs. Of the \$6.2-million increase in research and development funding, \$3.0 million is to be used for remote operation of active sonar technology (ROAST), \$2.2 million is for unmanned surface vehicle concepts and technology solutions, and \$1.0 million is for antisubmarine warfare multistatic sensor mission planing upgrade and LCS mission package projects.

The conference report states that “The conferees agree to the report on Littoral Combat Ship (LCS) mission modules proposed by the House, and specify that such report should include cost estimates for these modules by fiscal year.” The **House Appropriations Committee**, in its report (H.Rept. 109-119 of June 10, 2005) on **H.R. 2863**, stated:

The Committee directs that, prior to obligation of SCN funds for the third and fourth “flight zero” LCS ships, the Navy certify in writing to the congressional defense committees that the ship designs from each prime contractor are sufficiently stable to allow further construction. The Committee also believes that, while the LCS ship itself is of stable and mature design, the mission modules essential to LCS warfighting capabilities are less mature. A number of these technologies have not been demonstrated in an operational environment, and cost estimates for the mission modules appear immature as well. To address this issue, the Committee directs the Navy to submit, not later than February 1, 2006, a report on the development and procurement plan for LCS mission modules, including a description of the development status of each subsystem. (p. 146)