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Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress

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Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress

Summary

In February 2008, as part of its proposed FY2009 budget, the Navy submitted to Congress the FY2009 version of its annual 30-year shipbuilding plan. The 30-year plan is intended to support the Navy's goal of achieving and maintaining a 313-ship fleet. The Navy first presented the 313-ship plan to Congress in February 2006.

Although the FY2009 30-year shipbuilding plan, if implemented, would generally be adequate to achieve and maintain a fleet of about 313 ships, it does not include enough ships to fully support certain elements of the 313-ship fleet consistently over the long run — shortfalls would occur in areas such as amphibious lift capability and the number of attack submarines. The FY2009 30-year plan, moreover, includes new assumptions about extended service lives for amphibious ships and destroyers. If these longer service lives are not achieved, it could increase the shortfall in amphibious lift capability and create a shortfall in the number of cruisers and destroyers.

The Navy this year has increased its estimate of the average annual cost to fund the 30-year plan by about 44% in real (inflation-adjusted) terms. The Navy's new estimated cost for implementing the 30-year plan is about 7% less than estimates issued by the Congressional Budget Office (CBO). The Navy downplayed CBO's estimates in 2007, referring to them in testimony as "worst-case analysis" or as an "extremely conservative" estimate.

The increase in the Navy's estimated cost for implementing the plan is so large that the Navy no longer appears to have a clearly identifiable, announced strategy for generating the funds needed to implement the 30-year plan, at least not without significantly reducing funding for other Navy programs or increasing the Navy's programmed budget in coming years by billions of dollars per year

Concerns about the Navy's prospective ability to afford the 30-year shipbuilding plan, combined with year-to-year changes in Navy shipbuilding plans and significant cost growth and other problems in building certain new Navy ships, have led to strong concerns among some Members about the status of Navy shipbuilding and the potential future size and capabilities of the fleet. As a consequence of these strong concerns, some Members in hearings this year on the Navy's proposed FY2009 budget have strongly criticized aspects of the Navy's shipbuilding plan and indicated that they are considering making changes to the plan. This report will be updated as events warrant.

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Introduction and Issue for Congress

In February 2008, as part of its proposed FY2009 budget, the Navy submitted to Congress the FY2009 version of its annual 30-year shipbuilding plan. The 30-year plan is intended to support the Navy's goal of achieving and maintaining a 313-ship fleet. The Navy first presented the 313-ship plan to Congress in February 2006.

Although the FY2009 30-year shipbuilding plan, if implemented, would generally be adequate to achieve and maintain a fleet of about 313 ships, it does not include enough ships to fully support certain elements of the 313-ship fleet consistently over the long run — shortfalls would occur in areas such as amphibious lift capability and the number of attack submarines. The FY2009 30-year plan, moreover, includes new assumptions about extended service lives for amphibious ships and destroyers. If these longer service lives are not achieved, it could increase the shortfall in amphibious lift capability and create a shortfall in the number of cruisers and destroyers.

The Navy this year has increased its estimate of the average annual cost to fund the 30-year plan by about 44% in real (inflation-adjusted) terms. The Navy's new estimated cost for implementing the 30-year plan is about 7% less than estimates issued by the Congressional Budget Office (CBO). The Navy downplayed CBO's estimates in 2007, referring to them in testimony as "worst-case analysis"[1] or as an "extremely conservative" estimate.[2]

The increase in the Navy's estimated cost for implementing the plan is so large that the Navy no longer appears to have a clearly identifiable, announced strategy for generating the funds needed to implement the 30-year plan, at least not without significantly reducing funding for other Navy programs or increasing the Navy's programmed budget in coming years by billions of dollars per year.

Concerns about the Navy's prospective ability to afford the 30-year shipbuilding plan, combined with year-to-year changes in Navy shipbuilding plans and significant cost growth and other problems in building certain new Navy ships, have led to strong concerns among some Members about the status of Navy shipbuilding and the

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[1] Source: Transcript of spoken testimony of Vice Admiral Paul Sullivan before the Seapower and Expeditionary Forces subcommittee of the House Armed Services Committee on March 20, 2007.

[2] Source: Transcript of spoken testimony of Allison Stiller before the Defense subcommittee of the House Appropriations Committee on April 25, 2007.

potential future size and capabilities of the fleet. As a consequence of these strong concerns, some Members in hearings this year on the Navy's proposed FY2009 budget have strongly criticized aspects of the Navy's shipbuilding plan and indicated that they are considering making changes to the plan.[3] Some Members in the House, for example, have indicated that they are considering the option of not procuring a third DDG-1000 class destroyer in FY20009, as the Navy has requested, and using the funding programmed for that ship to instead procure other kinds of ships for the Navy.[4]

The issue for Congress that is discussed in this report is how to respond to the Navy's proposed FY2009 shipbuilding plan. Decisions that Congress makes on this issue could significantly affect future U.S. military capabilities, Navy funding requirements, and the Navy shipbuilding industrial base.

Background

Proposed 313-Ship Fleet

Table 1 shows the composition of the Navy's planned 313-ship fleet, which the Navy first presented to Congress in February 2006, and compares the 313-ship plan to other recent Navy ship force structure proposals. The Navy has indicated that it might adjust certain elements of the 313-ship plan in coming years; for further discussion, see **Appendix A**. The Navy in 2007 also modified its description of the planned number of aircraft carriers within the 313-ship fleet; for further discussion, see **Appendix B**.

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[3] See, for example, the opening remarks of Representative Gene Taylor, the chairman of the Seapower and Expeditionary Forces subcommittee of the House Armed Services committee, at a March 14, 2008, hearing before the subcommittee on Navy shipbuilding.

[4] For additional discussion, see CRS Report RL32109, *Navy DDG-1000 Destroyer Program: Background, Oversight Issues, and Options for Congress*, by Ronald O'Rourke.

Table 1. Recent Navy Ship Force Structure Proposals

Ship type	2006 Navy proposal for 313-ship fleet	Early-2005 Navy proposal for fleet of 260-325 ships		2002-2004 Navy proposal for 375-ship Navy[a]	2001 QDR plan for 310-ship Navy
		260-ships	325-ships		
Ballistic missile submarines (SSBNs)	14	14	14	14	14
Cruise missile submarines (SSGNs)	4	4	4	4	2 or 4[b]
Attack submarines (SSNs)	48	37	41	55	55
Aircraft carriers	11/12[c]	10	11	12	12
Cruisers, destroyers, frigates	88	67	92	104	116
Littoral Combat Ships (LCSs)	55	63	82	56	0
Amphibious ships	31	17	24	37	36
MPF(F) ships[d]	12[d]	14[d]	20[d]	0[d]	0[d]
Combat logistics (resupply) ships	30	24	26	42	34
Dedicated mine warfare ships	0	0	0	26[e]	16
Other[f]	20	10	11	25	25
Total battle force ships	**313/314**	**260**	**325**	**375**	**310 or 312**

Sources: U.S. Navy data.

a. Initial composition. Composition was subsequently modified.

b. The report on the 2001 QDR did not mention a specific figure for SSGNs. The Administration's proposed FY2001 Department of Defense (DOD) budget requested funding to support the conversion of two available Trident SSBNs into SSGNs, and the retirement of two other Trident SSBNs. Congress, in marking up this request, supported a plan to convert all four available SSBNs into SSGNs.

c. 11 carriers, and eventually 12 carriers.

d. Today's 16 Maritime Prepositioning Force (MPF) ships are intended primarily to support Marine Corps operations ashore, rather than Navy combat operations, and thus are not counted as Navy battle force ships. The Navy's planned MPF (Future) ships, however, may be capable of contributing to Navy combat capabilities (for example, by supporting Navy aircraft operations). For this reason, MPF(F) ships are counted here as battle force ships.

e. The figure of 26 dedicated mine warfare ships includes 10 ships maintained in a reduced mobilization status called Mobilization Category B. Ships in this status are not readily deployable and thus do not count as battle force ships. The 375-ship proposal thus implied transferring these 10 ships to a higher readiness status.

f. Includes, among other things, command ships and support ships.

FY2009-FY2013 Shipbuilding Plan

Table 2 shows the Navy's FY2009-FY2013 ship-procurement plan. The plan includes 47 new construction ships in FY2009-FY2013 — a reduction of 13 ships, or about 22%, from the 60 new-construction ships that were planned for FY2009-

FY2013 under the Navy's proposed FY2008 budget. Most of the 13-ship reduction is due to an 11-ship reduction in the number of Littoral Combat Ships (LCSs) planned for FY2009-FY2013, which is a consequence of the Navy's 2007 restructuring of the LCS program.

Table 2. Navy FY2009-FY2013 Shipbuilding Plan

(*Ships funded in FY2007 and FY2008 shown for reference*)

	FY07	*FY08*	FY09	FY10	FY11	FY12	FY13	Total FY09-FY13
CVN-21		*1*				1		1
SSN-774	*1*	*1*	1	1	2	2	2	8
DDG-1000	*2*[a]	*0*[a]	1	1	1	1	1	5
CG(X)					1		1	2
LCS	*0*[b]	*1*	2	3	3	4	6	18
LPD-17		*1*						0
LHA(R)	*1*							0
TAKE	*1*	*0*[c]	2[c]					2
JCC(X)						1		1
TATF								0
JHSV[d]			1	1	1	1	1	5
MPF(F) TAKE								0
MPF(F) LHA(R)				1				1
MPF(F) LMSR						1		1
MPF(F) MLP				1		1	1	3
Total	*5*	*4*[c]	7	8	8	12	12	47
Subtotal: ships other than LCSs	*5*	*3*	5	5	5	8	6	29

Source: Navy FY2009 budget submission.

Key: CVN-21 = Ford (CVN-21) class nuclear-powered aircraft carrier. **SSN-774** = Virginia (SSN-774) class nuclear-powered attack submarine. **CG(X)** = CG(X) class cruiser. **DDG-1000** = Zumwalt (DDG-1000) class destroyer. CG(X) = CG(X) class cruiser. **LCS** = Littoral Combat Ship. **LPD-17** = San Antonio (LPD-17) class amphibious ship. **LHA(R)** = LHA(R) class amphibious assault ship. **TAKE** =Lewis and Clark (TAKE-1) class resupply ship. **TAKE-MPF(F)** = Modified TAKE intended for MPF(F) squadron. **MPF(F) LHR(A) (also called MPF(F) Aviation)** = Modified LHA(R) intended for MPF(F) squadron. **LMSR-MPF(F)** = Modified large, medium-speed, roll-on/roll-off (LMSR) sealift ship intended for MPF(F) squadron. **MLP-MPF(F)** = Mobile Landing Platform ship intended for MPF(F) squadron. **TATF** = oceangoing fleet tug. **JCC(X)** = Joint command and control ship. **JHSV** = Joint High-Speed Vessel transport ship.

a. Two DDG-1000s were procured in FY2007 using split-funding in FY2007 and FY2008.

b. Although two LCSs were originally funded in FY2007, the Navy canceled these ships as part of its 2007 restructuring of the LCS program.

c. Although Congress funded the procurement of one TAKE for Navy use in FY2008, the Navy is using much of this funding to complete the cost of the TAKE funded in FY2007. (The Navy is using much of the funding that Congress had provided for the FY2007 TAKE in turn to pay for cost growth on TAKEs procured in earlier years.) The Navy consequently now records zero TAKEs as procured in FY2008 (rather than one), and the total number of ships of all kinds procured in FY2008 as four (rather than five). One of the two TAKEs requested for FY2009 is the same TAKE that Congress originally funded in FY2008.

d. Ships shown are those being procured for Navy use. Additional JHSVs are being procured separately for Army use and are not shown in the Navy's shipbuilding plan.

FY2009 30-Year Shipbuilding Plan

Table 3 shows the Navy's FY2009 30-year ship-procurement plan.

Table 3. Navy FY2009 30-Year Shipbuilding Plan

(including FY2009-FY2013 FYDP)

FY	Ship type (see key below)										
	CVN	SC	LCS	SSN	SSGN	SSBN	AWS	CLF	MPF(F)	Supt	TOTAL
09		1	2	1				1	1	1	7
10		1	3	1					2	1	8
11		2	3	2						1	8
12	1	1	4	2					2	2	12
13		2	6	2					1	1	12
14		1	6	2					2	2	13
15		2	6	2					1	2	13
16	1	2	6	2			1				12
17		2	6	2			1			1	12
18		2	6	2			1	1		1	13
19		2	4	2		1				1	10
20		2		2			2	2		2	10
21	1	2		2				2			7
22		2		2		1	1	2		2	10
23		1		2			1	2		3	9
24		2		2		1	1	2		2	10
25	1	3		2		1		2		2	11
26		3		2		1	2	2			10
27		3		2		1					6
28		3		2		1	1				7
29	1	3		1		1	1	1		1	9
30		3		2		1	1			1	8
31		3		1		1		1		1	7
32		3	1	2		1	2	1		1	11
33		3		1		1		1		1	7
34	1	3	2	2			1			1	10
35		3	5	1			1			1	11
36		3	5	2			1				11
37		3	5	1							9
38	1	3	5	2			2				13

Source: *Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for FY 2009*.

Key: **FY** = Fiscal Year; **CVN** = aircraft carriers; **SC** = surface combatants (i.e., cruisers and destroyers); **LCS** = Littoral Combat Ships; **SSN** = attack submarines; **SSGN** = cruise missile submarines; **SSBN** = ballistic missile submarines; **AWS** = amphibious warfare ships; **CLF** = combat logistics force (i.e., resupply) ships; **MPF(F)** = Maritime Prepositioning Force (Future) ships; **Supt** = support ships.

Oversight Issues for Congress

Adequacy of Proposed 313-Ship Fleet

Some observers have questioned whether the Navy's planned 313-ship fleet includes sufficient numbers of certain ships. Areas of concern include planned numbers of amphibious ships and attack submarines. For additional discussion of the issue, see **Appendix C**.

Adequacy of Shipbuilding Plan for Maintaining 313 Ships

Summary. **Table 4** shows the Navy's projection of future force levels that would result from fully implementing the Navy's FY2009 30-year shipbuilding plan.

As shown in the table, the FY2009 30-year shipbuilding plan, if implemented, would generally be adequate to achieve and maintain a fleet of about 313 ships. Under the FY2009 30-year plan, the Navy is to reach a total of at least 313 ships in FY2019 — three years later than under the FY2008 30-year shipbuilding plan. A primary cause of the three-year delay is the FY2009 plan's 13-ship reduction in the total number of ships planned for procurement in FY2009-FY2013. Most of the 13-ship reduction is due to an 11-ship reduction in the number of Littoral Combat Ships (LCSs) planned for FY2009-FY2013, which is a consequence of the Navy's restructuring of the LCS program in 2007.[5]

Although the FY2009 30-year shipbuilding plan would generally be adequate to achieve and maintain a fleet of about 313 ships, it does not include enough ships to fully support certain elements of the 313-ship fleet consistently over the long run — shortfalls would occur in areas such as amphibious lift capability and the number of attack submarines. The Navy's report on the 30-year plan states: "While in the main this plan achieves the necessary raw numbers of ships and sustains the shipbuilding industrial base, there are certain time periods where the ship mix, and therefore inherent capability of the force, varies from that required as a result of funding constraints and the timing of legacy fleet service life limits."[6]

The FY2009 30-year plan includes new assumptions about extended service lives for amphibious ships and destroyers. If these longer service lives are not achieved, it could increase the shortfall in amphibious lift capability and create a shortfall in the number of cruisers and destroyers.

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[5] For more on the LCS program, see CRS Report RL33741, *Navy Littoral Combat Ship (LCS) Program: Background, Oversight Issues, and Options for Congress*, by Ronald O'Rourke.

[6] U.S. Navy, *Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for FY 2009*, p. 5.

Table 4. Navy Projection of Future Force Levels

(resulting from implementation of 30-year shipbuilding plan shown in **Table 3**)

FY	Ship type (see key below)											
	CVN	SC	LCS	SSN	SSGN	SSBN	AWS	CLF	MIW	MPF(F)	Supt	TOTAL
09	11	109	2	53	4	14	31	31	14	0	17	**286**
10	11	111	2	52	4	14	32	30	14	0	17	**287**
11	11	113	2	52	4	14	34	28	14	0	17	**289**
12	11	110	3	53	4	14	34	29	14	0	18	**290**
13	10	107	8	54	4	14	33	29	14	1	19	**293**
14	10	99	11	51	4	14	33	30	14	1	20	**287**
15	11	94	14	51	4	14	33	30	14	2	21	**288**
16	11	92	18	49	4	14	33	30	14	4	22	**291**
17	11	92	24	50	4	14	33	30	13	6	24	**301**
18	11	93	30	49	4	14	32	30	13	7	26	**309**
19	12	93	36	50	4	14	32	30	11	9	24	**315**
20	12	94	42	48	4	14	32	30	10	9	24	**319**
21	12	95	48	48	4	14	32	30	7	9	24	**323**
22	12	94	54	47	4	14	32	30	6	10	24	**327**
23	12	94	55	47	4	14	32	30	2	10	24	**324**
24	12	94	55	46	4	14	32	30	1	10	24	**322**
25	12	93	55	45	4	14	33	30	0	10	24	**320**
26	12	91	55	44	2	14	33	30	0	10	24	**315**
27	12	91	55	43	1	13	33	30	0	10	24	**312**
28	12	89	55	41	0	13	33	30	0	10	24	**307**
29	12	91	55	41	0	13	33	30	0	10	24	**309**
30	12	94	55	42	0	12	33	30	0	10	24	**312**
31	12	96	55	44	0	12	33	30	0	10	24	**316**
32	12	99	55	45	0	12	33	30	0	10	24	**320**
33	12	101	55	47	0	12	33	30	0	10	24	**324**
34	12	100	55	49	0	12	33	30	0	10	24	**325**
35	12	98	55	50	0	12	33	30	0	10	24	**324**
36	12	95	55	52	0	12	33	30	0	10	24	**323**
37	12	94	55	53	0	12	33	30	0	10	24	**323**
38	12	94	55	53	0	12	32	30	0	10	24	**322**

Source: *Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for FY 2009*.

Key: **FY** = Fiscal Year; **CVN** = aircraft carriers; **SC** = surface combatants (i.e., cruisers and destroyers); **LCS** = Littoral Combat Ships; **SSN** = attack submarines; **SSGN** = cruise missile submarines; **SSBN** = ballistic missile submarines; **AWS** = amphibious warfare ships; **CLF** = combat logistics force (i.e., resupply) ships; **MIW** = mine warfare ships; **MPF(F)** = Maritime Prepositioning Force (Future) ships; **Supt** = support ships.

Shortfalls Relative to 313-Ship Goals. The FY2009 version of the 30-year shipbuilding plan, like the FY2008 and FY2007 versions, does not include enough ships to fully support all elements of the planned 313-ship force structure over the long run. As shown in **Table 5** below, however, the total projected shortfall in the 30-year plan relative to the 313-ship force structure has been reduced from

about 39 ships two years ago to 15 ships today. The reduction in the shortfall from about 39 ships two years ago to about 26 ships one year ago was due primarily to a Navy decision to insert additional destroyers into the final years of the FY2008 plan. The reduction in the shortfall from about 26 ships a year ago to 15 ships today is due primarily to a new assumption incorporated into the FY2009 plan to extend the service lives of the Navy's 62 Arleigh Burke (DDG-51) class Aegis destroyers by five years (from 35 years to 40).

Table 5. Projected Shortfall Relative to 313-Ship Force Structure

Projected shortfall by ship type, in numbers of ships, under...	FY2007 (FY07-FY36) plan of Feb. 2006	FY2008 (FY08-FY37) plan of Feb. 2007	FY2009 (FY09-FY38) plan of Feb. 2008
Amphibious ships	1	1	0[a]
Attack submarines (SSNs)	8	8	7
Cruise missile submarines (SSGNs)	4	4	4
Ballistic missile submarines (SSBNs)	0	0	2[b]
Cruisers and destroyers	~26	~10	0
MPF(F) ships	0	0	2
Total projected shortfall	~39	~26	15

Source: CRS analysis of Navy data.

a. Although the FY2009 30-year shipbuilding plan would support a force of 32 or 33 amphibious ships, as opposed to 31 called for in the 313-ship plan, the 32- or 33-ship force would include nine LPD-17 class ships, as opposed to the 10 called for in the 313-ship plan. The Marine Corps states that fully meeting the requirement for an amphibious force capable of lifting the assault echelons of 2.0 Marine Expeditionary Brigades (MEBs) would require a 33-ship amphibious force that includes 11 LPD-17s.

b. Although the FY2009 30-year shipbuilding plan includes 12 replacement SSBNs rather than the 14 called for in the 313-ship plan, the Navy has testified that the 12 new SSBNs would be sufficient to perform the missions of today's 14-ship SSBN force because the 12 new ships would be built with life-of-the-ship nuclear fuel cores and consequently would not require mid-life refuelings. The Navy states that the need for today's SSBNs to be taken out of service for some time to receive mid-life refuelings is what drives the need for a 13th and 14th SSBN.

Amphibious Ships. Although the FY2009 30-year shipbuilding plan would support a force of 32 or 33 amphibious ships, as opposed to a total of 31 called for in the 313-ship plan, this 32- or 33-ship force would include 9 San Antonio (LPD-17)

class amphibious ships, as opposed to the 10 called for in the 313-ship plan.[7] The Navy's report on the FY2009 30-year shipbuilding plan states:

> While the mix of the 33 [amphibious] ships reflected in this plan differs slightly from the USMC requirement, it represents acceptable risk considering the amphibious ships planned for decommissioning are not scheduled for dismantling or sinking to permit mobilization at a later date if required. The decommissioning ships are being replaced with newer more capable LPD 17 and LHA 6 class ships. The Navy will maintain the 33-ship requirement for amphibious shipping through the FYDP while these new ships are integrated into the battleforce. Consequently, there will be no amphibious ship capability gaps through at least FY 2019.[8]

The Marine Corps states that lifting the assault echelons of 2.0 Marine Expeditionary Brigades (MEBs) — a requirement that reflects Marine Corps responsibilities under U.S. war plans — would require a 33-ship amphibious force that includes 11 LPD-17s.[9] **Table 6** shows the Marine Corps' calculation of the amount of amphibious lift, relative to the 2.0 MEB lift goal, resulting from the 32- or 33-ship amphibious force that is projected in the Navy's FY2009 30-year shipbuilding plan. The table presents the five different elements of amphibious lift. In the table, a figure of 1.0 in a cell would meet 100% of the 2.0 MEB lift goal for that lift element, a figure of 1.5 would exceed by 50% the 2.0 MEB lift goal for that element, and a figure of 0.75 would meet 75% of the 2.0 MEB lift goal for that element.

As can be seen in the table, the Marine Corps calculates that the projected 32- or 33-ship amphibious force would

- roughly meet the lift goal for VTOL aircraft spaces;
- exceed the lift goal for troops, space for cargo, and spaces for LCAC landing craft; and
- fall short of meeting the lift goal for space for vehicles.

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[7] Congress, as part of its action on the FY2008 defense budget, provided $50 million in advance procurement funding for a 10th LPD-17 to be procured in a fiscal year after FY2008. The FY2009 shipbuilding plan, like the FY2008 shipbuilding plan, does not include a 10th LPD-17, and calls for ending LPD-17 procurement with the ninth ship, which was procured in FY2008. A 10th LPD-17, at a cost of $1,700 million, is the number-two item on the Navy's FY2009 Unfunded Requirements List (URL) and the first item presented in the Marine Corps' FY2009 URL.

[8] U.S. Navy, *Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for FY 2009*, p. A-3.

[9] The 33-ship force that would fully meet the 2.0 MEB lift requirement includes 11 large-deck amphibious assault ships (LHAs/LHDs), 11 LPD-17s, and 11 LSD-41/49 class amphibious ships.

Table 6. Projected Amount of Amphibious Lift
(Relative to 2.0 MEB lift requirement, Resulting From Amphibious Force Supported By FY2009 Navy 30-Year Shipbuilding Plan)

	2008	2009	2010	2015	2020	2025	2030	2035
Troops	1.46	1.35	1.38	1.45	1.42	1.35	1.49	1.59
Vehicle (sq. ft.)	0.77	0.75	0.80	0.90	0.88	0.93	1.05	1.17
Cargo (cu. ft.)	2.02	1.90	1.92	2.07	2.04	1.95	2.28	2.49
VTOL aircraft	1.02	0.93	0.94	1.07	1.06	0.97	1.18	1.31
LCACs	1.81	1.75	1.79	1.79	1.75	1.77	1.65	1.50

Source: U.S. Marine Corps data provided to CRS, March 11, 2008. Calculations are based on 15 operational ships per MEB. A figure of 1.0 in a cell would meet 100% of the 2.0 MEB lift goal for that lift element; a figure of 1.5 would exceed by 50% the goal for that element; and a figure of 0.75 would meet 75% of the goal for that element.

If the Navy cannot extend the service lives of amphibious ships as much as assumed in the FY2009 30-year shipbuilding plan, then the amount of amphibious lift capability in future years could be less than that shown in **Table 6**.

Attack Submarines (SSNs). Although the 313-ship plan calls for a total of 48 SSNs, the 30-year shipbuilding plan does not include enough SSNs to maintain a force of 48 boats consistently over the long run. The Navy projects that the SSN force will drop below 48 boats in 2022, reach a minimum of 41 boats (14.6% less than the required figure of 48) in FY2028 and FY2029, and remain below 48 boats through 2033. The Navy has completed a study on various options for mitigating the projected SSN shortfall. One of these options is to procure one or more additional SSNs in the period FY2008-FY2011. The issue is discussed in more detail in another CRS report.[10]

Converted Trident Submarines (SSGNs). Although the 313-ship plan calls for four SSGNs, the FY2009 30-year shipbuilding plan includes no replacements for the four current SSGNs, which the Navy projects will reach retirement age and leave service in FY2026-FY2028. The Navy's report on the 30-year shipbuilding plan states:

> Plans for recapitalization [i.e., replacement] of the OHIO class submarines that have been converted to SSGN have been deferred until their warfighting utility can be assessed. Should their replacement be required, it will be necessary to integrate their procurement with other ship and submarine recapitalization efforts planned for the post-FY 2020 period.[11]

Ballistic Missile Submarines (SSBNs). Although the FY2009 30-year shipbuilding plan includes 12 replacement SSBNs rather than the 14 called for in the

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[10] CRS Report RL32418, *Navy Attack Submarine Force-Level Goal and Procurement Rate: Background and Issues for Congress*, by Ronald O'Rourke.

[11] U.S. Navy, *Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for FY 2009*, p. 8.

313-ship plan, the Navy has testified that the 12 new SSBNs would be sufficient to perform the missions of today's 14-ship SSBN force because the 12 new ships would be built with life-of-the-ship nuclear fuel cores and consequently would not require mid-life refuelings. The Navy states that the need for today's SSBNs to be taken out of service for some time to receive mid-life refuelings is what drives the need for a 13th and 14th SSBN.

Cruisers and Destroyers. Although the FY2009 30-year plan assumes a 5-year service life extension for the Navy's 62 DDG-51s, a Navy official was quoted after the FY2009 30-year plan was released as stating that the Navy had not yet officially approved the idea of extending the service lives of those ships.[12] One potential oversight issue for Congress is why the 30-year plan assumed a 5-year service life extension for the DDG-51s if the Navy had not yet officially approved the idea. If the Navy approves the idea, a second potential oversight issue for Congress is whether the Navy will actually be able to extend the service lives of the DDG-51s and operate them in a cost-effective manner for 40 years, given the wear and tear that might accrue on the ships in coming years, as well as the DDG-51 design's space, weight, and electrical-power capacities. If a five-year service life extension for the DDG-51s proves infeasible or not cost-effective, a shortfall in cruisers and destroyers similar to that shown in the FY2008 column in **Table 5** might reappear.

MPF(F) Ships. The projected two-ship shortfall in MPF(F) ships is due to a decision to drop two Lewis and Clark (TAKE-1) class dry cargo ships from the shipbuilding plan. These two ships were previously planned for procurement in FY2010 and FY2011. Navy officials have stated the two ships were removed from the plan pending the completion of a study on the MPF(F) concept of operations, and that the two ships might be put back into the shipbuilding plan next year, following the completion of this study.[13]

Aircraft Carriers. As mentioned earlier, the Navy projects that the carrier force will drop from the current figure of 11 ships to 10 ships for a 33-month period between the scheduled retirement of the carrier Enterprise (CVN-65) in November 2012 and scheduled the entry into service of its replacement, the carrier Gerald R. Ford (CVN-78), in September 2015. The Navy projects that the force will increase to 12 carriers starting in FY2019, when CVN-79 is commissioned.

10 USC §5062 requires the Navy to maintain an aircraft carrier force of at least 11 operational ships. As it did for FY2008, the Navy for FY2009 is requesting a legislative waiver from Congress that would permit the Navy to reduce the carrier force to 10 operational ships for the 33-month between the retirement of the Enterprise and the entry into service of the Ford.

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[12] Zachary M. Peterson, "Destroyer Extension Part of 313-Ship Plan," *NavyTimes.com*, February 11, 2008.

[13] See, for example, U.S. Navy, *Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for FY 2009*, p. 9.

Affordability and Executibility of Shipbuilding Plan

Overview. One of the most significant features in the FY2009 30-year shipbuilding plan, compared to the FY2008 30-year plan, is an apparent increase of roughly 44% in real (inflation-adjusted) terms in the Navy's estimated average annual cost to implement the 30-year plan. This roughly 44% real increase is not due to significant changes in the composition of the 30-year plan, because the types and quantities of ships to be procured under FY2009 30-year plan are generally the same as those in the FY2008 30-year plan.[14]

In 2007, the Congressional Budget Office (CBO) estimated that last year's version of the 30-year plan would cost roughly 35% more per year to implement than the Navy was estimating. The Navy in 2007 downplayed CBO's higher cost estimate, referring to it in testimony as "worst-case analysis"[15] or as an "extremely conservative" estimate.[16] The Navy's estimated cost for the FY2009 30-year plan, however, is about 7% less than CBO's estimates for the cost of the plan.

In 2006 and 2007, the Navy had a clearly identifiable strategy for achieving the shipbuilding budget that the Navy then estimated would be needed to implement the 30-year shipbuilding plan. CRS and CBO discussed in reports and testimony in 2006 and 2007 how the Navy's strategy for executing the shipbuilding plan depended on a series of five assumptions concerning the future size and composition of the Navy's budget and the costs of future Navy ships. As noted by both CRS and CBO in 2006 and 2007, all five of these assumptions could be viewed as risk items for the plan, because there were grounds for questioning whether each of them would be borne out. (For additional discussion, see **Appendix D**.)

The new increase in the Navy's estimated cost for implementing the 30-year plan is so large that the Navy no longer appears to have a clearly identifiable, announced strategy for generating the funds needed to implement the 30-year plan, at least not without significantly reducing funding for other Navy programs or increasing the Navy's programmed budget in coming years by billions of dollars per year.

June 2008 CBO Report. A June 2008 CBO report on the Navy's FY2009 30-year shipbuilding plan states that CBO's analysis indicates the following:

> — Executing the Navy's most recent 30-year shipbuilding plan would cost an average of about $27 billion a year (in [FY]2009 dollars), or more than double the $12.6 billion a year that the Navy has spent, on average, since [FY]2003....

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[14] The FY2009-FY2038 plan includes 296 ships, or about 1.7% more than the 291 ships in the FY2008-FY2037 plan. The types of ships procured under the two plans are essentially the same, and the total numbers of each type being procured are in most cases similar.

[15] Source: Transcript of spoken testimony of Vice Admiral Paul Sullivan before the Seapower and Expeditionary Forces subcommittee of the House Armed Services Committee on March 20, 2007.

[16] Source: Transcript of spoken testimony of Allison Stiller before the Defense subcommittee of the House Appropriations Committee on April 25, 2007.

> Since CBO testified on this topic on March 14, [2008], the Navy provided additional information that led CBO to increase its estimate of the annual cost of the shipbuilding plan from $25 billion to $27 billion.
>
> — After releasing its [report on the FY2009 30-year shipbuilding plan], the Navy discovered a calculation error that caused the costs initially reported in the [FY]2009 plan to be about 10 percent higher than the Navy now expects them to be. After correcting for that error, the Navy's estimate of the costs of implementing its 30-year shipbuilding plan is about 10 percent less than the estimates that CBO has prepared during the past three years.
>
> — The Navy's [FY]2009 budget request appears to depart from all of the budgetary assumptions used to develop the service's [FY]2007 and [FY]2008 shipbuilding plans.
>
> — CBO's estimates of the costs of the Navy's shipbuilding program through the period covered by the [FY]2009-[FY]2013 Future Years Defense Program are about 30 percent higher than the Navy's estimates. In particular, CBO estimates that the DDG-1000 guided-missile destroyer and the CG(X) future cruiser would probably cost significantly more than the Navy currently estimates.
>
> — For the [FY]2009-[FY]2020 period — described as the "near term" in the Navy's plan — CBO estimates that new-ship construction alone would cost about 13 percent more than the Navy indicates.
>
> — For the period beyond [FY]2020 — described as the "far term" in the Navy's plan — CBO estimates that costs would be about 8 percent greater than the Navy projects.[17]

Table 7, which is taken from CBO's June 2008 report, summarizes Navy and CBO estimates of the cost to implement the 30-year shipbuilding plan.

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[17] Source: Cover letter to Congressional Budget Office, *Resource Implications of the Navy's Fiscal Year 2009 Shipbuilding Plan*, Washington, 2008. (June 9, 2008) The cover letter, dated June 9, 2008, is from Peter Orszag, Director, CBO, and is addressed to Representative Gene Taylor, the Chairman of the Seapower and Expeditionary Forces subcommittee of the House Armed Services Committee, with copies to Representative Roscoe Bartlett, the Ranking Member of the subcommittee, and Representatives Ike Skelton and Duncan Hunter, the Chairman and Ranking Member, respectively, of the House Armed Services Committee.

Table 7. Average Annual Shipbuilding Costs

(from June 2008 CBO report; figures in billions of constant FY2009 dollars)

	New-ship construction		New-ship construction (including SSBNs), plus:	
	Excluding SSBNs	**Including SSBNs**	**Nuclear refuelings**	**Nuclear refuelings, LCS mission modules, and surface combat-ant modernization**
Actual Navy spending, FY03-FY08	11.1	11.1	12.4	12.6
Average annual cost as estimated by:				
Navy	20.4	23.2[a]	24.4[b]	25.2[b]
CBO	22.4	25.0	26.2	26.9
CBO's estimate of the cost to fully fund the Navy's 313-ship fleet[c]				
	22.5	25.5	26.7	27.4
Memorandum: Navy's estimate average annual cost in 2006 and 2007				
	n.a.	16.1	17.2[b]	18.0[b]

Source: Table 3 from Congressional Budget Office, Resource Implications of the Navy's Fiscal Year 2009 Shipbuilding Plan, Washington, 2008. (June 9, 2008) p. 14.

a. The Navy's estimate for new-ship construction plus the Navy's cost target for SSBNs under the FY2007 and FY2008 shipbuilding plans.

b. The Navy's estimate for new-ship construction and cost target for SSBNs plus CBO's estimates for the additional costs.

c. CBO's estimates of the costs to buy all of the attack submarines, guided-missile submarines, ballistic missile submarines, logistics ships, and amphibious ships needed to maintain a 313-ship fleet.

FY2009 Legislative Activity

For legislative activity on selected individual Navy shipbuilding, conversion, and modernization programs, see:

- CRS Report RS20643 on the CVN-78 aircraft carrier program;
- CRS Report RL32109 on the DDG-1000 destroyer program;
- CRS Report RL34179 on the CG(X) cruiser program;
- CRS Report RL33741 on the Littoral Combat Ship (LCS) program;
- CRS Report RL22595 on the Aegis cruiser and destroyer modernization program;
- CRS Report RL34476 on the LPD-17 amphibious ship program;
- CRS Report RL32418 on the Virginia (SSN-774) class attack submarine program; and
- CRS Report RS21007 on the Trident SSGN submarine conversion program.

FY2009 Defense Authorization Bill (H.R. 5658/S. 3001)

House. The House Armed Services Committee, in its report (H.Rept. 110-652 of May 16, 2008) on H.R. 5658, included comments on aircraft carrier force structure (page 81), attack submarine force structure requirements (pages 81-82), and service life extensions for existing attack submarines (page 82), and stated that:

> The committee remains concerned with the totality of the Navy shipbuilding plan. The committee is not confident that the current mix of planned ship procurement is the most effective way to balance the need for quantity versus capability across the spectrum of naval requirements. Considering likely budget constraints for shipbuilding procurement, it is evident that the long-range plan is unaffordable.
>
> The committee is also concerned with short-term affordability. The key to efficient shipbuilding is stability in programs and commonality between programs. With stability, the shipbuilder can reasonably invest in infrastructure improvements for increased efficiency. Commonality allows savings in order quantity across programs as well as life-cycle savings in maintenance and repair parts. The goal of a 313-ship fleet will never be achieved until very difficult decisions are made concerning quantity, capability, affordability, and stability.
>
> The committee remains committed to building a capable naval force in sufficient quantity to protect the nation's interests. This force must consist of major combatant vessels with multiple warfighting capabilities. It must also include ships with specific roles and missions, from operations in the littoral regions, to the projection of power ashore from a sea-base. The balance of capabilities within this force and the affordability of sustaining this force is the key task before both the Navy and Congress throughout the foreseeable future.
>
> The committee disagrees with the submitted Future Years Defense Plan and budget request for: canceling the Amphibious Landing Ship-Dock (LPD 17) program at 9 ships; canceling the procurement of the 13th and 14th Dry Cargo Ammunition Ships (T-AKE); not requesting funding to increase the build rate of Virginia class deliver a coherent strategy for Littoral Combat Ship acquisition.
>
> The committee authorizes a reallocation of funding in the Shipbuilding and Conversion, Navy account and the National Defense Sealift Fund. The committee recommends: full funding for the 10th ship of the LPD 17 class; an increase in advance procurement funding for the Virginia class submarine program, necessary for the procurement of 2 ships in fiscal year 2010; advance procurement for the final 2 ships of the T-AKE class; and advance procurement for the construction of DDG 51 class destroyers or DDG 1000 class destroyers. The committee notes that due to the overall delay in the DDG 1000 destroyer program, the Navy would be unable to execute the full funding request in fiscal year 2009 for the third ship of the planned seven ship class. Additionally, the committee is concerned with potential significant cost overruns in the DDG 1000 program and considers it prudent to pause the program until technological challenges are completely understood.
>
> The committee authorizes these programs without prejudice to any specific program. The committee also understands the Navy is strongly considering re-starting the DDG 51 class destroyer upgraded with an improved radar system

to fill an urgent need in ballistic missile defense. The committee would only support that decision if the industrial base for surface combatant construction is not affected. The committee expects the Secretary of Defense, subject to the availability of appropriations, to enter into advance procurement and advance construction contracts for the construction of surface combatants balanced between the two current surface combatant shipyards, taking into account workforce challenges still in effect on the Gulf Coast due to the lingering economic effects of Hurricane Katrina.

The committee expects the budget submission for fiscal year 2010 to contain a funding request for the 11th ship of the LPD 17 class, a two-one-two build strategy (two ships in 2010, one ship in 2011, and two ships in 2012 and following years) for the Virginia class submarine program, the balance of full funding for the 13th T-AKE, and a comprehensive decision on the acquisition plan for surface combatants including the plan for the Littoral Combat Ship class.

The committee expects the Navy to solve the capacity and capability issues of the surface combatant, amphibious warfare, and submarine combatant forces before beginning multiple new starts in programs to field the maritime prepositioning force (future) (MPF(F)). The committee is supportive of the requirement to constitute a seabase with a flotilla of vessels from which both combatant and non-combatant operations ashore could be launched. However, the committee is not convinced the seabase should be composed of non-combatant vessels such as the planned MPF aviation ship (MPF LHA) and the MPF landing platform ship (MPF MLP). The committee directs the Secretary of the Navy, along with the Chief of Naval Operations and the Commandant of the Marine Corps, to report to the congressional defense committees within 60 days after the date of enactment of this Act, on the size and composition of the naval amphibious force necessary (without the MPF LHA and MPF MLP vessels) to conduct operations from a seabase, with a force comprising two marine expeditionary brigades (MEB). (Pages 82-83)

Senate. The Senate Armed Services Committee, in its report (S.Rept. 110-335 of May 12, 2008) on S. 3001, included report language on certain individual Navy shipbuilding and modernization programs (see pages 76-80).

Appendix A. Potential For Changing 313-Ship Proposal

In General

A May 2006 Navy planning document stated that the

> Navy will continue to refine capability and capacity requirements in POM-08 [the Program Objective Memorandum for the FY2008 budget] by reviewing the force mix against emerging and evolving threats. [The] Navy will conduct an analytic review and analysis of potential alternative capacity and capability mixes that will support Joint Force requirements and enable stable shipbuilding and procurement accounts.[18]

An April 2008 press report stated that:

> Chief of Naval Operations Adm. Gary Roughead has ordered internal reviews into the Navy's long-term basing requirements and strategies, as well as needs for personnel, ships and aircraft, a Navy spokesman said.
>
> The reviews, which probably will not be made public, will produce an "internal working document" that will help Roughead and other top Navy commanders plan into the coming decades, Navy spokesman Cmdr. Jeff Davis said. The findings probably will be incorporated into future quadrennial defense reviews, shipbuilding plans and budget requests, Davis said.
>
> Roughead mentioned his review of the Navy's basing requirements and strategy — what he called a "force rating" and Davis called a "strategic lay-down" — in response to questions from a House panel in March....
>
> Davis described the four other reviews Roughead requested when he took over:
>
> * Force structure, including the numbers of aircraft and ships.
>
> * The life span of those aircraft and ships.
>
> * The Navy's personnel requirements, including end strength and skill sets.
>
> * Infrastructure requirements, including details about the physical state of the Navy's bases.[19]

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[18] U.S. Department of the Navy, *Navy Strategic Plan In Support of Program Objective Memorandum 08*, May 2006, p. 11.

[19] Philip Ewing, "CNO Orders Far-Reaching Base, Force Reviews," *NavyTimes.com*, April 21, 2008.

Amphibious and MPF(F) Ships

The Navy's February 2007 report on the FY2008 30-year shipbuilding plan stated:

> Future combat operations may require us to revisit many of the decisions reflected in this report, including those associated with amphibious lift. As the Navy embarks on production of the Maritime Prepositioning Force in this FYDP, the Navy will continue to analyze the utility of these ships in terms of their contribution to, and ability to substitute for, the assault echelon forces in the Navy's future battle-force inventory. The current force represents the best balance between these forces available today. However, changing world events and resulting operational risk associated with the various force structure elements that make up these two components of overall lift will be analyzed to ensure the Navy is not taking excessive risk in lift capability and capacity. While there needs to be a balance between expeditionary and prepositioning ships for meeting the overall lift requirement, future reports may adjust the level of support in one or both of these solutions. Any adjustments made in these capabilities will have to be accommodated in light of the resources available and could require the Navy to commit additional funding to this effort in order to support the overall balance of our shipbuilding program.[20]

The Navy's February 2008 report on the FY2009 30-year shipbuilding plan stated that the Department of the Navy "is reviewing options to increase assault echelon amphibious lift to 33 ships to meet USMC requirements."[21] The report also states:

> The Commandant of the Marine Corps has determined that a minimum of 33 amphibious ships is necessary to support their assault echelon lift requirements; specifically, he has requested a force of 11 aviation capable amphibious ships, 11 LPDs and 11 LSDs. The Chief of Naval Operations supports the Commandant's determination.[22]

SSBNs

The Navy has testified in 2007 and 208 that its next-generation ballistic missile submarines (SSBNs) are to be fueled with a nuclear fuel core sufficient for the ships' entire expected service lives. Consequently, the Navy has testified, these SSBNs, in contrast to today's SSBNs, would not need a mid-life nuclear refueling. As a result, the Navy testified, the Navy in the future may be able to meet its requirements for SSBN deployments with a force of 12 SSBNs rather than 14.[23] This testimony

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[20] U.S. Navy, *Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for FY 2008*, p. 5.

[21] U.S. Navy, *Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for FY 2009*, p. 5.

[22] U.S. Navy, *Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for FY 2009*, p. A-3.

[23] Source: Transcripts of Navy testimony to Senate Armed Services Committee, March 29, (continued...)

suggests that the Navy might at some point change the required number of SSBNs in the 313-ship plan from 14 to 12. The Navy's February 2008 report on the FY2009 shipbuilding plan continues to state that the 313-ship force-structure includes 14 SSBNs, but the FY2009 30-year shipbuilding plan includes 12 SSBNs rather than 14.

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[23] (...continued)
2007, and to Seapower and Expeditionary Forces subcommittee of House Armed Services Committee, March 14, 2008.

Appendix B. Modified Description of Required Number of Aircraft Carriers

In late-March 2007, the Navy modified its description of the number of aircraft carriers in the 313-ship proposal. From February 2006 through early March 2007, the Navy described the 313-ship proposal as one centered on, among other things, 11 aircraft carriers.[24] In late March 2007, the Navy modified its description of the 313-ship proposal to one centered on, among other things, 11, and eventually 12, aircraft carriers, the modification being the addition of the phrase "and eventually 12."[25]

The Navy's modification of its description of the number of aircraft carriers in the 313-ship proposal occurred about a week after the decommissioning of the aircraft carrier John F. Kennedy (CV-67), which occurred on March 23, 2007. The decommissioning of the Kennedy reduced the Navy's carrier force from 12 ships to 11. The Navy had proposed decommissioning the Kennedy in its FY2006 and FY2007 budgets, and opponents of the Kennedy's retirement had resisted the proposal. If the Navy, prior to the Kennedy's decommissioning, had described the 313-ship fleet as one centered on, among other things, 11, and eventually 12, aircraft carriers, opponents of the Kennedy's decommissioning might have cited the "eventually 12" part as evidence that the Navy really requires 12 carriers, not just 11.[26]

The Navy's February 2008 report on the FY2009 30-year shipbuilding plan states that the 313-ship plan includes 11 carriers and does not include a reference to "eventually 12" carriers, but the long-range force projection in the report continues to show a total of 12 carriers in FY2019 and subsequent years.

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[24] See, for example, Navy testimony before the House Armed Services Committee on March 1, 2007 (transcript of hearing).

[25] See, for example, Navy testimony before the Defense subcommittee of the Senate Appropriations Committee on March 28, 2007, and before the Senate Armed Services Committee on March 29, 2007 (transcripts of hearings).

[26] For additional discussion of the debate over the Kennedy's retirement, see CRS Report RL32731, *Navy Aircraft Carriers: Retirement of USS John F. Kennedy — Issues and Options for Congress*, by Ronald O'Rourke.

Appendix C. Adequacy of Planned 313-Ship Fleet

Specific Ship Categories

Amphibious Ships. Some observers have questioned whether the Navy's proposed total of 31 amphibious ships within the 313-ship fleet will be sufficient. The Marine Corps has stated that a total of 33, including 11 San Antonio (LPD-17) class ships, would be needed to meet the Marine Corps' requirement for having a force capable of lifting the assault echelons of 2.0 Marine Expeditionary Brigades (MEBs). The issue is discussed in more detail in another CRS report.[27]

Attack Submarines. Some observers have questioned whether the Navy's proposed total of 48 attack submarines within the 313-ship plan will be sufficient, and have suggested that a total of 55 or more would be more appropriate, particularly in light of requests for forward-deployed attack submarines from U.S. regional military commanders, and the modernization of China's naval forces, including its submarine force. The issue is discussed in more detail other CRS reports.[28]

Aircraft Carriers. Some observers have questioned whether the Navy's proposed total of 11 aircraft carriers through FY2018 will be sufficient, particularly in light of past Navy plans that have called for 12 carriers, the Navy's testimony in 2007 that the 313-ship proposal includes a requirement for an eventual total of 12 carriers, and Navy plans to increase the carrier force back to 12 ships in 2019 and maintain it at that level thereafter. The latter two points, they argue, suggest that the Navy would actually prefer to have 12 carriers between now and FY2019, rather than 11.

Observers have expressed concern that the current carrier force of 11 ships will temporarily decline further, to 10 ships, during the 33-month period between the scheduled retirement of the carrier Enterprise (CVN-65) in November 2012 and scheduled the entry into service of its replacement, the carrier Gerald R. Ford (CVN-78), in September 2015. Even if an 11-carrier force is adequate, these observers argue, a 10-carrier force might not be, even if only for a 33-month period.

10 USC §5062 requires the Navy to maintain an aircraft carrier force of at least 11 operational ships. The Navy for FY2009 is requesting a legislative waiver from Congress that would permit the Navy to reduce the carrier force to 10 operational ships for the 33-month between the retirement of the Enterprise and the entry into service of the Ford. The Navy made the same request as part of its FY2008 budget submission; Congress did not act on the request in FY2008.

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[27] CRS Report RL32513, *Navy-Marine Corps Amphibious and Maritime Prepositioning Ship Programs: Background and Oversight Issues for Congress*, by Ronald O'Rourke.

[28] CRS Report RL32418, *Navy Attack Submarine Force-Level Goal and Procurement Rate: Background and Issues for Congress*, by Ronald O'Rourke; and CRS Report RL33153, *China Naval Modernization: Implications for U.S. Navy Capabilities — Background and Issues for Congress*, by Ronald O'Rourke.

Overall Number of Ships

Some observers have questioned whether the overall planned total of 313 ships would be adequate, particularly in light of Navy plans in recent decades for larger total numbers of ships.

One possible method for assessing the appropriateness of the total number of ships being proposed by the Navy is to compare that number to historical figures for total fleet size. Historical figures for total fleet size, however, might not be a reliable yardstick for assessing the appropriateness of the Navy's proposed 313-ship fleet, particularly if the historical figures are more than a few years old, because the missions to be performed by the Navy, the mix of ships that make up the Navy, and the technologies that are available to Navy ships for performing missions all change over time.

The Navy, for example, reached a late-Cold War peak of 568 battle force ships at the end of FY1987,[29] and as of June 5, 2008, had declined to a total of 280 battle force ships. The FY1987 fleet, however, was intended to meet a set of mission requirements that focused on countering Soviet naval forces at sea during a potential multi-theater NATO-Warsaw Pact conflict, while the June 2008 fleet is intended to meet a considerably different set of mission requirements centered on influencing events ashore by countering both land- and sea-based military forces of potential regional threats other than Russia, including non-state terrorist organizations. In addition, the Navy of FY1987 differed substantially from the June 2008 fleet in areas such as profusion of precision-guided air-delivered weapons, numbers of Tomahawk-capable ships, and sophistication of C4ISR systems.[30]

In coming years, Navy missions may shift again, to include, as a possible example, a greater emphasis on being able to counter improved Chinese maritime military capabilities.[31] In addition, the capabilities of Navy ships will likely have changed further by that time due to developments such as more comprehensive

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[29] Some publications, such as those of the American Shipbuilding Association, have stated that the Navy reached a peak of 594 ships at the end of FY1987. This figure, however, is the total number of active ships in the fleet, which is not the same as the total number of battle force ships. The battle force ships figure is the number used in government discussions of the size of the Navy. In recent years, the total number of active ships has been larger than the total number of battle force ships. For example, the Naval Historical Center states that as of November 16, 2001, the Navy included a total of 337 active ships, while the Navy states that as of November 19, 2001, the Navy included a total of 317 battle force ships. Comparing the total number of active ships in one year to the total number of battle force ships in another year is thus an apple-to-oranges comparison that in this case overstates the decline since FY1987 in the number of ships in the Navy. As a general rule to avoid potential statistical distortions, comparisons of the number of ships in the Navy over time should use, whenever possible, a single counting method.

[30] C4ISR stands for command and control, communications, computers, intelligence, surveillance, and reconnaissance.

[31] For a discussion, see CRS Report RL33153, *China Naval Modernization: Implications for U.S. Navy Capabilities — Background and Issues for Congress*, by Ronald O'Rourke.

implementation of networking technology and increased use of ship-based unmanned vehicles.

The 568-ship fleet of FY1987 may or may not have been capable of performing its stated missions; the 280-ship fleet of June 2008 may or nor may not have been capable of performing its stated missions; and a fleet years from now with a certain number of ships may or may not be capable of performing its stated missions. Given changes over time in mission requirements, ship mixes, and technologies, however, these three issues are to a substantial degree independent of one another.

For similar reasons, trends over time in the total number of ships in the Navy are not necessarily a reliable indicator of the direction of change in the fleet's ability to perform its stated missions. An increasing number of ships in the fleet might not necessarily mean that the fleet's ability to perform its stated missions is increasing, because the fleet's mission requirements might be increasing more rapidly than ship numbers and average ship capability. Similarly, a decreasing number of ships in the fleet might not necessarily mean that the fleet's ability to perform stated missions is decreasing, because the fleet's mission requirements might be declining more rapidly than numbers of ships, or because average ship capability and the percentage of time that ships are in deployed locations might be increasing quickly enough to more than offset reductions in total ship numbers.

Previous Navy force structure plans, such as those shown in **Table 1**, might provide some insight into the potential adequacy of a proposed new force-structure plan, but changes over time in mission requirements, technologies available to ships for performing missions, and other force-planning factors suggest that some caution should be applied in using past force structure plans for this purpose, particularly if those past force structure plans are more than a few years old. The Reagan-era plan for a 600-ship Navy, for example, was designed for a Cold War set of missions focusing on countering Soviet naval forces at sea, which is not an appropriate basis for planning the Navy today.[32]

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[32] Navy force structure plans that predate those shown in **Table 1** include the Reagan-era 600-ship plan of the 1980s, the Base Force fleet of more than 400 ships planned during the final two years of the George H. W. Bush Administration, the 346-ship fleet from the Clinton Administration's 1993 Bottom-Up Review (or BUR, sometimes also called Base Force II), and the 310-ship fleet of the Clinton Administration's 1997 QDR. The table below summarizes some key features of these plans.

Features of Recent Navy Force Structure Plans

Plan	600-ship	Base Force	1993 BUR	1997 QDR
Total ships	~600	~450/416[a]	346	~305/310[b]
Attack submarines	100	80/~55[c]	45-55	50/55[d]
Aircraft carriers	15[e]	12	11+1[f]	11+1[f]
Surface combatants	242/228[g]	~150	~124	116
Amphibious ships	~75[h]	51[i]	36[i]	36[i]

Source: Prepared by CRS based on DOD and U.S. Navy data.

a. Commonly referred to as 450-ship plan, but called for decreasing to 416 ships by end of

(continued...)

Appendix D. Affordability of Navy 30-Year Plan in 2006-2007

In 2006 and 2007, the Navy's position was that for its shipbuilding plan to be affordable and executable, five things needed to happen:

- The Navy's overall budget needed to remain more or less flat (not decline) in real (inflation-adjusted) terms.
- Navy Operation and Maintenance (O&M) spending needed to remain flat (not grow) in real terms.
- Navy Military Personnel (MilPer) spending needed to remain flat (not grow) in real terms.
- Navy research and development (R&D) spending needed to decrease from recent levels and remain at the decreased level over the long run.
- Navy ships needed to be built at the Navy's currently estimated prices.

The Navy said that the first four things were needed for the Navy to be able to increase the shipbuilding budget from an average in FY2002-FY2007 of about $9.6 billion per year in FY2008 dollars to a long-term average of about $15.4 billion per year in FY2008 dollars — an increase of about 60% in real terms.[33] The fifth thing on the list, the Navy said, was needed if all the ships in the shipbuilding plan were to be affordable within an average annual shipbuilding budget of $15.4 billion in FY2008 dollars.

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[32] (...continued)
FY1999.
b. Original total of about 305 ships was increased to about 310 due to increase in number of attack submarines to 55 from 50.
c. Plan originally included 80 attack submarines, but this was later reduced to about 55.
d. Plan originally included 50 attack submarines but this was later increased to 55.
e. Plus one additional aircraft carrier in the service life extension program (SLEP).
f. Eleven active carriers plus one operational reserve carrier.
g. Plan originally included 242 surface combatants but this was later reduced to 228.
h. Number needed to lift assault echelons of one Marine Expeditionary Force (MEF) plus one Marine Expeditionary Brigade (MEB).
i. Number needed to lift assault echelons of 2.5 MEBs. Note how number needed to meet this goal changed from Base Force plan to the BUR plan — a result of new, larger amphibious ship designs.

[33] Source: CBO telephone conversation with CRS, May 31, 2006. See also Statement of J. Michael Gilmore, Assistant Director, and Eric J. Labs, Principal Analyst, [On] Potential Costs of the Navy's 2006 Shipbuilding Plan, [Testimony] before the Subcommittee on Projection Forces Committee on Armed Services U.S. House of Representatives, March 30, 2006.

Some observers in 2006 and 2007 questioned whether all five of the above things would happen, arguing the following:

- The need in coming years to fund an increase in Army and Marine end strength could, within an overall DOD budget that remains more or less flat in real terms, require funding to be transferred from the Air Force and Navy budgets to the Army and Marine Corps budgets, which could, for a time at least, lead to a real decline in the Air Force and Navy budgets.

- DOD in the past has not been fully successful in meeting its goals for controlling O&M costs.

- The Navy does not have full control over its MilPer costs — they can be affected, for example, by decisions that Congress makes on pay and benefits.

- While the Navy may be able to decrease R&D spending in coming years as a number of new systems shift from development to procurement, it may be difficult for the Navy to keep R&D spending at that reduced level over the long run, because the Navy at some point will likely want to start development of other new systems.

- Several Navy shipbuilding programs have experienced significant cost growth in recent years, and CBO estimates that Navy ships will cost substantially more to build than the Navy estimates.

If one or more of the five required things listed above did not happen, it was argued in 2006 and 2007, it might become difficult or impossible to execute the Navy's shipbuilding plans. The risk of the plan becoming unexecutable, it was argued, might become particularly acute starting in FY2011-FY2013, when the Navy planned to increase procurement rates for cruisers and destroyers and for submarines.

Appendix E. Size of the Navy and Navy Shipbuilding Rate

Size of the Navy

Table 8 shows the size of the Navy in terms of total number of ships since FY1948; the numbers shown in the table reflect changes over time in the rules specifying which ships count toward the total. Differing counting rules result in differing totals, and for certain years, figures reflecting more than one set of counting rules are available. Figures in the table for FY1978 and subsequent years reflect the battle force ships counting method, which is the set of counting rules established in the early 1980s for public policy discussions of the size of the Navy.

As shown in the table, the total number of battle force ships in the Navy reached a late-Cold War peak of 568 at the end of FY1987 and began declining thereafter.[34] The Navy fell below 300 battle force ships in August 2003 and included 280 battle force ships as of June 5, 2008.

As discussed in **Appendix C**, historical figures for total fleet size might not be a reliable yardstick for assessing the appropriateness of the Navy's proposed 313-ship fleet, particularly if the historical figures are more than a few years old, because the missions to be performed by the Navy, the mix of ships that make up the Navy, and the technologies that are available to Navy ships for performing missions all change over time. For similar reasons, trends over time in the total number of ships in the Navy are not necessarily a reliable indicator of the direction of change in the fleet's ability to perform its stated missions. An increasing number of ships in the fleet might not necessarily mean that the fleet's ability to perform its stated missions is increasing, because the fleet's mission requirements might be increasing more rapidly than ship numbers and average ship capability. Similarly, a decreasing number of ships in the fleet might not necessarily mean that the fleet's ability to perform stated missions is decreasing, because the fleet's mission requirements might be declining more rapidly than numbers of ships, or because average ship capability and the percentage of time that ships are in deployed locations might be increasing quickly enough to more than offset reductions in total ship numbers.

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[34] Some publications have stated that the Navy reached a peak of 594 ships at the end of FY1987. This figure, however, is the total number of active ships in the fleet, which is not the same as the total number of battle force ships. The battle force ships figure is the number used in government discussions of the size of the Navy. In recent years, the total number of active ships has been larger than the total number of battle force ships. For example, the Naval Historical Center states that as of November 16, 2001, the Navy included a total of 337 active ships, while the Navy states that as of November 19, 2001, the Navy included a total of 317 battle force ships. Comparing the total number of active ships in one year to the total number of battle force ships in another year is thus an apple-to-oranges comparison that in this case overstates the decline since FY1987 in the number of ships in the Navy. As a general rule to avoid potential statistical distortions, comparisons of the number of ships in the Navy over time should use, whenever possible, a single counting method.

Table 8. Total Number of Ships in the Navy Since FY1948

FY[a]	Number	FY[a]	Number	FY[a]	Number
1948	737	1969	926	1990	547
1949	690	1970	769	1991	526
1950	634	1971	702	1992	466
1951	980	1972	654	1993	435
1952	1,097	1973	584	1994	391
1953	1,122	1974	512	1995	373
1954	1,113	1975	496	1996	356
1955	1,030	1976	476	1997	354
1956	973	1977	464	1998	333
1957	967	1978	468	1999	317
1958	890	1979	471	2000	318
1959	860	1980	477	2001	316
1960	812	1981	490	2002	313
1961	897	1982	513	2003	297
1962	959	1983	514	2004	291
1963	916	1984	524	2005	282
1964	917	1985	541	2006	281
1965	936	1986	556	2007	279
1966	947	1987	568	2008	
1967	973	1988	565	2009	
1968	976	1989	566	2010	

Source: Compiled by CRS using U.S. Navy data. Numbers shown reflect changes over time in the rules specifying which ships count toward the total. Figures for FY1978 and subsequent years reflect the battle force ships counting method, which is the set of counting rules established in the early 1980s for public policy discussions of the size of the Navy.

a. Data for earlier years may be for the end of the calendar year (or for some other point during the year), rather than for the end of the fiscal year.

Shipbuilding Rate

Table 9 shows past (FY1982-FY2008) and projected (FY2009-FY2013) rates of Navy ship procurement.

Table 9. Battle Force Ships Procured or Projected, FY1982-FY2013

(Procured FY1982-FY2008; *projected FY2009-FY2013*)

82	**83**	**84**	**85**	**86**	**87**	**88**	**89**	**90**	**91**	**92**	**93**	**94**	**95**	**96**	**97**
17	14	16	19	20	17	15	19	15	11	11	7	4	4	5	4
98	**99**	**00**	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**13**
5	5	6	6	6	5	7	8	4[a]	5[a]	4	*7*	*8*	*8*	*12*	*12*

Source: CRS compilation based on examination of defense authorization and appropriation committee and conference reports for each fiscal year. The table excludes non-battle force ships that do not count toward the 313-ship goal, such as certain sealift and prepositioning ships operated by the Military Sealift Command and oceanographic ships operated by agencies such as the National Oceanic and Atmospheric Administration (NOAA).

a. The totals shown for FY2006 and FY2007 have been adjusted downward to reflect the Navy's decision to cancel two LCSs funded in FY2006 and another two LCSs funded in FY2007.