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

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Potential for Changing 313-Ship Proposal

Could the Navy change the 313-ship proposal at some point?

The Navy in 2006 stated in general that it may change the 313-ship proposal at some point. The Navy in 2007 has suggested more specifically that it may change the planned numbers of amphibious ships, MPF(F) ships, and SSBNs.

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.[1]

Amphibious and MPF(F) Ships. The Navy's February 2007 report on the 30-year (FY2008-FY2037) 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.[2]

SSBNs. The Navy testified in March 2007 that the next class of ballistic missile submarines (SSBNs) will be fueled with a nuclear fuel core sufficient for the ships' entire expected service lives. Consequently, the Navy stated, these SSBNs will 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.[3] This suggests that the Navy, in future

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

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

[3] Navy testimony to Senate Armed Services Committee, March 29, 2007 (transcript of hearing).

presentations of the 313-ship proposal, may change the required number of SSBNs from 14 to 12.

Modified Description of Required Number of Aircraft Carriers

Has the Navy recently modified its description of the number of aircraft carriers in the 313-ship proposal?

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.[4] 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.[5]

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.[6]

Navy Shipbuilding Plans

What ships are proposed for procurement in the Navy's shipbuilding plans?

FY2008-FY2013 Shipbuilding Plan. **Table 2** shows the Navy's FY2008-FY2013 ship-procurement plan.

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

[5] 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).

[6] 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.

Table 3. Navy 30-Year (FY2008-FY2037) Shipbuilding Plan
(including FY2008-FY2013 FYDP)

FY	Ship type (see key below)											
	CVN	SC	LCS	SSN	SSGN	SSBN	EWS	CLF	MIW	MPF(F)	Supt	TOTAL
08	1	0[a]	3[b]	1			1	1				7
09		1	6[b]	1						2	1	11
10		1	6	1						3	1	12
11		2	6	1						3	1	13
12	1	1	6	2						1	1	12
13		2	5	2						2	1	12
14		1	6	2							1	10
15		2	6	2							2	12
16	1	2	5	2							1	11
17		2		2			1				1	6
18		2		2			1	1				6
19		2		2		1						5
20		2		2			1	2			2	9
21	1	2		2			1	2				8
22		2		2		1	1	2			2	10
23		1		2			2	2			3	10
24		2		2		1	1	2			2	10
25	1	3		2		1	1	2			1	11
26		3		2		1	2	2				10
27		3		2		1	1					7
28		3		2		1	1					7
29	1	3		1		1	2				1	9
30		3	1	2		1	1				1	9
31		3	2	1		1	1				1	9
32		3	3	2		1	1					10
33		3	4	1		1						9
34	1	3	6	2		1						13
35		3	6	1		1	1					12
36		3	6	2								11
37		3	6	1								10

Source: *Report to Congress on 1Annual Long-Range Plan for Construction of Naval Vessels for FY 2008*, p. 6.

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; **EWS** = expeditionary warfare (i.e., amphibious) ships; **CLF** = combat logistics force (i.e., resupply) ships; **MIW** = mine warfare ships; **MPF(F)** = Maritime Prepositioning Force (Future) ships; **Supt** = support ships.

a. Two ships procured in FY2007 using split-funding (i.e., incremental funding) in FY2007 and FY2008.

b. In March 2008, after the Navy submitted its FY2008 budget to Congress, the Navy announced a proposed plan for restructuring the LCS program that would change the numbers of LCSs in FY2007, FY2008, and FY2009 from 2, 3, and 6, respectively, to 0, 2, and 3, respectively. This proposal, if implemented, would alter the figures for the LCS program in those years. The Navy has stated that it still plans to procure a total of 55 LCSs, suggesting that if the Navy's restructuring proposal is approved, the LCSs eliminated from FY2007-FY2009 wold be added back in other years.

For additional discussion of the appropriateness of the total number of ships (313) being proposed by the Navy, see **Appendix A**.

Adequacy of Shipbuilding Plans for Maintaining 313 Ships

Do the Navy's shipbuilding plans adequately support the 313-ship proposal?

The Navy's 30-year shipbuilding plan does not include enough ships to fully support all elements of the 313-ship fleet consistently over the long run.

Total Number of Ships. The Navy projects that its 30-year (FY2008-FY2037) shipbuilding plan, if fully implemented, would be sufficient to achieve and maintain a fleet of at least 313 ships between FY2016 and FY2025, but would not be sufficient to maintain a fleet of at least 313 ships in FY2026 and subsequent years.

Table 4 shows the Navy's projection of future force levels that would result from fully implementing the Navy's 30-year shipbuilding plan. As can be seen in the table, the Navy projects that the fleet would increase to 314 ships in FY2016, peak at 329 ships in FY2018-FY2019, and then decline to less than 313 ships in FY2026 and subsequent years, reaching a minimum of 294 ships in FY2031-FY2032.

By Specific Ship Type.

Summary. Long-term insufficiencies in the Navy's 30-year shipbuilding plan relative to the proposed 313-ship fleet include one LPD-17, four SSGNs, eight SSNs, 10 cruisers and destroyers, and the timing of some of the replacement SSBNs.

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. The Navy could keep the carrier force at 11 ships in FY2019 and subsequent years by accelerating the retirement of an existing carrier.

As mentioned earlier, 10 USC §5062 requires the Navy to maintain an aircraft carrier force of at least 11 operational ships, and the Navy for FY2008 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.

Ballistic Missile Submarines (SSBNs). The 313-ship plan calls for a total of 14 SSBNs, and the 30-year shipbuilding plan includes a total of 14 replacement SSBNs procured between FY2019 and FY2035. The 14 replacement ships, however, are not procured on a schedule that would permit a timely one-for-one replacement for some of the 14 existing SSBNs. As a result, the Navy projects that the SSBN force will drop to 13 ships in FY2027, and to 12 ships in 2030. The Navy projects that the force would remain at 12 ships through FY2037. Accelerating the procurement of some of the SSBNs to earlier years would permit the SSBN force to

remain at a steady level of 14 ships while existing ships were replaced by new ones. As discussed earlier, the Navy has suggested that the required number of SSBNs may be reduced from 14 to 12.

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	EWS	CLF	MIW	MPF(F)	Supt	TOTAL
08	11	107	4	52	4	14	32	31	14	0	17	286
09	11	109	6	53	4	14	31	30	14	0	17	289
10	11	111	9	52	4	14	31	30	14	0	17	293
11	11	113	15	52	4	14	32	30	14	0	17	302
12	11	112	21	53	4	14	33	29	14	1	18	310
13	10	106	27	54	4	14	32	29	14	2	19	311
14	10	99	33	51	4	14	31	30	14	3	18	307
15	11	93	38	51	4	14	30	30	14	8	18	311
16	11	91	44	49	4	14	30	30	14	9	18	314
17	11	92	50	49	4	14	30	30	13	10	19	322
18	11	93	55	48	4	14	30	30	13	11	20	329
19	12	93	55	49	4	14	30	30	11	11	20	329
20	12	94	55	47	4	14	30	30	10	11	21	328
21	12	95	55	47	4	14	30	30	7	11	21	326
22	12	94	55	46	4	14	30	30	6	12	21	324
23	12	94	55	46	4	14	30	30	2	12	22	321
24	12	94	55	45	4	14	30	30	1	12	22	319
25	12	93	55	44	4	14	30	30	0	12	20	314
26	12	90	55	43	2	14	30	30	0	12	20	306
27	12	90	55	42	1	13	30	30	0	12	21	306
28	12	87	55	40	0	13	30	30	0	12	21	300
29	12	85	55	40	0	13	30	30	0	12	21	298
30	12	83	55	41	0	12	30	30	0	12	21	296
31	12	80	55	43	0	12	30	30	0	12	20	294
32	12	79	55	44	0	12	30	30	0	12	20	294
33	12	79	55	46	0	12	30	30	0	12	20	296
34	12	78	55	48	0	12	30	30	0	12	20	297
35	12	79	56	49	0	12	30	30	0	12	20	300
36	12	80	56	51	0	12	30	30	0	12	20	303
37	12	79	56	52	0	12	30	30	0	12	20	303

Source: *Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for FY 2007.*

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; **EWS** = expeditionary warfare (i.e., amphibious) ships; **CLF** = combat logistics force (i.e., resupply) ships; **MIW** = mine warfare ships; **MPF(F)** = Maritime Prepositioning Force (Future) ships; **Supt** = support ships.

proposed that the United States develop its own design for this purpose. This option would generate a substantial volume of work and engage many skill areas. Uncertainty over whether and when this project might occur could make it difficult to confidently incorporate it into an integrated schedule of work for preserving the U.S. design and engineering base. Although the project would engage many skill areas, it might not engage all of them. Skills related to the design of nuclear propulsion plants, for example, might not be engaged. In addition, this project might raise concerns regarding the potential for unintended transfer of sensitive U.S. submarine technology — an issue that has been cited by the Navy in the past for not supporting the idea of designing and building diesel-electric submarines in the United States for sale to foreign buyers.[15]

- **New SSN design.** Developing a completely new SSN design as the successor to the Virginia-class design would fully support the design and engineering base for several years. The Navy in the past has estimated that the cost of this option would be roughly equivalent to the procurement cost of three SSNs. The House version of the FY2006 defense authorization bill (H.R. 1815) proposed this idea, but the idea was not supported by the Navy, in large part because of its cost, and the conference version of the bill did not mandate it.

- **Accelerated start of next SSBN design.** Given the ages of the Navy's 14 current SSBNs, work on a replacement SSBN design would normally not need to start for several years. The start of this project, however, could be accelerated to FY2008. The project could then be carried out as a steady-state effort over several years, rather than as a more-concentrated effort starting several years from now. This option could provide a significant amount of submarine design and engineering work for several years, and could engage all submarine design and engineering skills. The total cost of this effort would be comparable to that of the previous option of designing a new SSN, but this option would accelerate a cost that the Navy already plans to incur, whereas the option for designing a new SSN would be an additional cost.

The Navy has acknowledged the need to devise a strategy to preserve the submarine design and engineering base, and asked the RAND Corporation to study the issue. The RAND report states that, based on RAND's analysis,

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[15] An additional issue that some observers believe might be behind Navy resistance to the idea of designing and building diesel-electric submarines in the United States for sale to foreign buyers, but which these observers believe the Navy is unwilling to state publicly, is a purported fear among Navy officials that the establishment of a U.S. production line for such boats would lead to political pressure for the Navy to accept the procurement of such boats for its own use, perhaps in lieu of nuclear-powered submarines. The Navy argues that non-nuclear-powered submarines are not well suited for U.S. submarine operations, which typically involve long, stealthy transits to the operating area, long submerged periods in the operating area, and long, stealthy transits back to home port.

we reach the following recommendations:

— Seriously consider starting the design of the next submarine class by 2009, to run 20 years, taking into account the substantial advantages and disadvantages involved.

If the 20-year-design alternative survives further evaluation, the issue of a gap in submarine design is resolved, and no further actions need be taken. If that alternative is judged too risky, we recommend the following:

— Thoroughly and critically evaluate the degree to which options such as the spiral development of the Virginia class or design without construction will be able to substitute for new-submarine design in allowing design professionals to retain their skills.

If options to sustain design personnel in excess of demand are judged on balance to offer clear advantages over letting the workforce erode, then the Navy should take the following actions:

— Request sufficient funding to sustain excess design workforces at the shipyards large enough to permit substantial savings in time and money later.

— Taking into account trends affecting the evolution of critical skills, continue efforts to determine which shipyard skills need action to preserve them within the sustained design core.

— Conduct a comprehensive analysis of vendors to the shipyards to determine which require intervention to preserve critical skills.

— Invest $30 million to $35 million annually in the NSWC's Carderock Division submarine design workforce in excess of reimbursable demand to sustain skills that might otherwise be lost.[16]

Cruisers and Destroyers. The 30-year shipbuilding plan calls for procuring an average of about 1.5 DDG-1000s/CG(X)s over the next 17 years. The light-ship displacement of the DDG-1000 (about 12,435 tons) is about 79% greater than that of the DDG-51 Flight IIA design (about 6,950 tons). If shipyard construction work for these two ship classes is roughly proportional to their light-ship displacements, and if the CG(X) is about the same size as the DDG-1000, then procuring an average of 1.5 DDG-1000s/CG(X)s per year might provide an amount of shipyard work equivalent to procuring about 2.7 DDG-51s per year. Splitting this work evenly between the two yards that build larger surface combatants — General Dynamics's Bath Iron Works (GD/BIW) of Bath, ME, and the Ingalls shipyard of Pascagoula, MS, that forms parts of Northrop Grumman Ship Systems (NGSS) — might thus provide each yard with the work equivalent of about 1.35 DDG-51s per year.

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[16] John F. Schank, et al, *Sustaining U.S. Submarine Design Capabilities*, RAND, Santa Monica (CA), 2007. pp. xxvii-xxviii. (Prepublication copy posted on the Internet by RAND, accessed on May 9, 2007, at [http://www.rand.org/pubs/monographs/2007/RAND_MG608.pdf].)