

# CRS Report for Congress

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## **Navy-Marine Corps Amphibious and Maritime Prepositioning Ship Programs: Background and Oversight Issues for Congress**

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# Navy-Marine Corps Amphibious and Maritime Prepositioning Ship Programs: Background and Oversight Issues for Congress

## Summary

The Navy is proposing to maintain in coming years a Navy with 31 amphibious ships and an additional squadron of 14 Maritime Prepositioning Force (Future), or MPF(F), ships. The squadron is intended to implement a new concept called sea basing, under which forces would be staged at sea and used to conduct expeditionary operations ashore with little or no reliance on nearby land bases.

For FY2007, the Navy is requesting \$297 million in advance procurement funding for a ninth LPD-17 class amphibious ship to be procured in FY2008, and \$1,136 million in procurement funding for LHA-6, an amphibious assault ship to be procured in FY2007 using split funding in FY2007 and FY2008. Although the Navy's proposed force of 31 amphibious ships includes 10 LPD-17 class ships, the Navy is planning to end LPD-17 procurement in FY2008 with the ninth ship. Accelerating the procurement of the ninth LPD-17 class ship from FY2008 to FY2007 is an item on the Navy's FY2007 unfunded requirements list (URL) — its "wish list" of items desired but not funded in the FY2007 budget. Potential oversight issues for Congress include the amphibious-ship force-level goal, the potential affordability and cost-effectiveness of the sea basing concept, and Navy and Marine Corps coordination with other services in developing the concept.

**FY2007 Defense Authorization Bill (H.R. 5122/S. 2766). Sections 123 and 124 of H.R. 5122** would limit the procurement costs of LHA-6 and LPD-17 class ships. The **Senate Armed Services Committee**, in its report (S.Rept. 109-254 of May 9, 2006) on S. 2766, expresses concerns about the planned reduction in amphibious ships, the sea basing concept, and the MPF(F) program, and requires a report on sea basing and the MPF(F) program.

**FY2007 Defense Appropriations Bill (H.R. 5631).** The **House Appropriations Committee**, in its report (H.Rept. 109-504 of June 16, 2006), recommends approving the Navy's request for FY2007 procurement funding for a ninth LPD-17 class ship in FY2008, and the Navy's request for FY2007 procurement funding for LHA-6. The report recommends reducing the Navy's request for FY2007 funding to complete LPD-17 class ships procured in prior years. The report recommends approval of the FY2007 request for funding for the National Defense Sealift Fund (NDSF), including the requested amount for procurement of a TAKE-1 class cargo ship.

The **Senate Appropriations Committee**, in its report (S.Rept. 109-292 of July 25, 2006) on H.R. 5631, recommends approving the Navy's request for FY2007 advance procurement funding for a ninth LPD-17 class ship in FY2008, and the Navy's request for FY2007 procurement funding for LHA-6 (page 114). The report recommends disapproval of the request within the NDSF for funding to procure a TAKE-1 class cargo ship.

This report will be updated as events warrant.

## Contents

Introduction .....	1
Background .....	1
Current Amphibious and Maritime Prepositioning Ships .....	1
Amphibious Ships .....	1
Maritime Prepositioning Ships .....	4
New Navy Ship Force Structure Plan .....	7
Sea Basing Concept of Operations .....	8
The Concept in General .....	8
MPF(F) Squadron For Implementing Sea Basing .....	9
Related Transport Ships .....	12
Ship Procurement Programs .....	12
LPD-17 Program .....	12
LHD-8 .....	14
LHA(R)/LHA-6 Program .....	14
MPF Lease Buyout .....	14
Joint High Speed Vessels (JHSV's) .....	15
Sea Base-to-Shore Connector (SSC) Ships .....	15
Current Areas of Uncertainty .....	15
Oversight Issues for Congress .....	17
Amphibious Ship Force-Level Goal .....	17
Affordability and Cost-Effectiveness of Sea Basing .....	19
Coordination with Other Services on Sea Basing .....	22
Legislative Activity For FY2007 .....	23
FY2007 Defense Authorization Bill (H.R. 5122/S. 2766) .....	23
House .....	23
Senate .....	24
FY2007 Defense Appropriations Bill (H.R. 5631) .....	27
House .....	27
Senate .....	27

## List of Tables

Table 1. Estimated Procurement Cost Of MPF(F) Squadron .....	11
Table 2. FY2007-FY2011 Amphibious and MPF(F) Ship Procurement Plan ..	13

# Navy-Marine Corps Amphibious and Maritime Prepositioning Ship Programs: Background and Oversight Issues for Congress

## Introduction

The Navy is proposing to maintain in coming years a fleet of 313 ships, including 31 amphibious ships and an additional squadron of 14 Maritime Prepositioning Force (Future), or MPF(F), ships. The MPF(F) squadron is to include 3 additional new-construction amphibious ships, 9 new-construction sealift-type ships, and 2 existing, older-generation MPF ships. The Navy estimates the total procurement cost of the 12 new-construction MPF(F) ships at \$14.5 billion. The squadron is intended to implement a new operational concept called sea basing, under which forces would be staged at sea and used to conduct expeditionary operations ashore with little or no reliance on nearby land bases.

For FY2007, the Navy is requesting \$297 million in advance procurement funding for a ninth LPD-17 class amphibious ship to be procured in FY2008, and \$1,136 million in procurement funding for LHA-6, an amphibious assault ship to be procured in FY2007 using split funding in FY2007 and FY2008. Although the Navy's proposed force of 31 amphibious ships includes 10 LPD-17 class ships, the Navy is planning to end LPD-17 procurement in FY2008 with the ninth ship. Accelerating the procurement of the ninth LPD-17 class ship from FY2008 to FY2007 is an item on the Navy's FY2007 unfunded requirements list (URL) — its "wish list" of items desired but not funded in the FY2007 budget.

The issue for Congress is whether to approve, modify, or reject the Navy's FY2007-FY2011 plans for procuring amphibious and MPF(F) ships. Decisions that Congress makes on this issue could affect Navy and Marine Corps capabilities, Navy and Marine Corps funding requirements, and the shipbuilding industrial base.

## Background

### Current Amphibious and Maritime Prepositioning Ships

**Amphibious Ships.** Amphibious ships are one of four principal categories of combat ships that traditionally have helped define the size and structure of the U.S.

Navy. The other three are aircraft carriers,<sup>1</sup> surface combatants (e.g., cruisers, destroyers, frigates, and Littoral Combat Ships),<sup>2</sup> and submarines.<sup>3</sup>

The primary function of amphibious ships is to transport Marines and their equipment to distant operating areas, and enable Marines to conduct expeditionary operations ashore in those areas. Amphibious ships have berthing spaces for Marines, flight decks and hangar decks for their helicopters and vertical/short take-off and landing (VSTOL) fixed-wing aircraft, well decks for storing and launching their landing craft,<sup>4</sup> and storage space for their wheeled vehicles, their other combat equipment, and their supplies. Although amphibious ships are designed to support Marine landings against opposing military forces, they can also be used for Marine landings in so-called permissive or benign situations where there are no opposing forces.

U.S. amphibious ships are Navy ships operated by Navy crews, with the Marines as passengers. They are built to survivability standards similar to those of other U.S. Navy combat ships,<sup>5</sup> and are included in the total number of battle force ships in the Navy, which is the commonly cited figure for the total number of ships in the fleet.<sup>6</sup> Amphibious ships are procured in the Navy's shipbuilding budget, known as the Shipbuilding and Conversion, Navy (SCN) appropriation account. Designations of amphibious ship classes start with the letter L, as in amphibious landing.

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<sup>1</sup> For more on Navy aircraft carriers, see CRS Report RS20643, *Navy CVN-21 Aircraft Carrier Program: Background and Issues for Congress*, by Ronald O'Rourke, and CRS Report RL32731, *Navy Aircraft Carriers: Proposed Retirement of USS John F. Kennedy — Issues and Options for Congress*, by Ronald O'Rourke.

<sup>2</sup> For more on Navy surface combatants, see CRS Report RS21059, *Navy DDG-1000 (DD(X)) and CG(X) Programs: Background and Issues for Congress*, by Ronald O'Rourke; CRS Report RS21305, *Navy Littoral Combat Ship (LCS): Background and Issues for Congress*, by Ronald O'Rourke; and CRS Report RL32109, *Navy DDG-1000 (DD(X)), CG(X), and LCS Ship Acquisition Programs: Oversight Issues and Options for Congress*, by Ronald O'Rourke.

<sup>3</sup> For more on Navy submarines, see CRS Report RL32418, *Navy Attack Submarine Force-Level Goal and Procurement Rate: Background and Issues for Congress*, by Ronald O'Rourke, and CRS Report RS21007, *Navy Trident Submarine Conversion (SSGN) Program: Background and Issues for Congress*, by Ronald O'Rourke. The Navy also includes mine warfare ships and a variety of auxiliary and support ships.

<sup>4</sup> A well deck is a large, garage-like space in the stern of the ship. It can be flooded with water so that landing craft can leave or return to the ship. Access to the well deck is protected by a large stern gate that is somewhat like a garage door.

<sup>5</sup> To enhance their survivability in battle — their ability to absorb damage from enemy weapons — U.S. Navy ships are built with features such as extensive interior compartmentalization and increased armor protection of certain critical interior spaces.

<sup>6</sup> Battle force ships are ships that are readily deployable overseas and which contribute to the overseas combat capability of the Navy. They include both active duty and Naval Reserve Force combat ships as well Navy- and Military Sealift Command-operated auxiliaries — such as oilers, ammunition ships, dry cargo ships, and multiproduct resupply ships — that transport supplies from shore to Navy combat ships operating at sea.

Today's amphibious ships can be divided into two main groups — the so-called “big-deck” amphibious assault ships, designated LHA and LHD, which look like medium-sized aircraft carriers, and the smaller (but still sizeable) LSD- and LPD-type amphibious ships.<sup>7</sup> The LHAs and LHDs have large flight decks and hangar decks for embarking and operating numerous helicopters and VSTOL fixed-wing aircraft, while the LSDs and LPDs have much smaller flight decks and hangar decks for embarking and operating smaller numbers of helicopters. The LHAs and LHDs, as bigger ships, in general can embark more Marines and equipment than the LSDs and LPDs. As of the end of FY2005, the Navy included 34 amphibious ships:

- **7 Wasp (LHD-1) class ships**, commissioned between 1989 and 2001, each displacing about 40,500 tons;<sup>8</sup>
- **5 Tarawa (LHA-1) class ships**, commissioned between 1976 and 1980, each displacing about 40,000 tons;
- **12 Whidbey Island/Harpers Ferry (LSD-41/49) class ships**, commissioned between 1985 and 1998, each displacing about 16,000 tons; and
- **10 Austin (LPD-4) class ships**, commissioned between 1965 and 1971, each displacing about 17,000 tons.<sup>9</sup>

These 34 amphibious ships were notionally organized into 12 expeditionary strike groups (ESGs). Each ESG notionally includes one LHA or LHD, one LSD, and one LPD. The amphibious ships in an ESG together can embark a Marine expeditionary unit (MEU) consisting of about 2,200 Marines, their aircraft, their landing craft, their combat equipment, and about 15 days worth of supplies. Each ESG also notionally includes three surface combatants (some or all armed with Tomahawk cruise missiles), one submarine, and perhaps one or more P-3 long-range, land-based maritime patrol aircraft. ESGs are designed to be independently deployable, strike-capable naval formations, but they can also operate in conjunction

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<sup>7</sup> LHA can be translated as landing ship, helicopter-capable, assault. LHD can be translated as landing ship, helicopter-capable, well deck. LSD can be translated as landing ship, well deck. LPD can be translated as landing ship, helicopter platform, well deck. Whether noted in the designation or not, all these ships have well decks.

<sup>8</sup> For comparison, a Nimitz-class nuclear-powered aircraft carrier displaces about 100,000 tons, and a cruiser or destroyer displaces about 9,000 tons.

<sup>9</sup> The Navy also operates two Blue Ridge (LCC-19) class command ships. As their designation suggests, these ships were originally built as amphibious command ships. In recent years, they have evolved into general fleet command ships. Some listings of U.S. Navy ships include the two LCCs as amphibious ships, while others list them in a separate category of command ships, along with one other fleet command ship — the Coronado (AGF-11), which is a converted LPD.

with carrier strike groups (CSGs) to form larger naval task forces.<sup>10</sup> On average, two or three ESGs might be forward-deployed at any given time.

For many years, the fiscally constrained requirement for the amphibious fleet has been for the force collectively to be able to lift (i.e., transport) the assault echelon of 2.5 Marine Expeditionary Brigades (MEBs). A MEB is a Marine force that includes 14,500 Marines and their equipment. The 34-ship amphibious force in place as of the end of FY2005 exceeded the 2.5-MEB requirement in four regards but fell short in a fifth.<sup>11</sup>

**Maritime Prepositioning Ships.** Today's maritime prepositioning ships are large military cargo ships that are loaded with combat equipment and supplies and forward-located to sea areas that are close to potential U.S. military operating zones. They are essentially forward-located, floating warehouses. Most have a roll-on/roll-off (RO/RO) capability, which means that they are equipped with ramps that permit wheeled or tracked vehicles to quickly roll on or off the ship when the ship is at pier.

A total of 36 U.S. prepositioning ships, controlled by the Military Sealift Command (MSC), store equipment and supplies for various parts of DOD. The 16 ships used primarily for storing Marine Corps equipment and supplies are called Maritime Prepositioning Force (MPF) ships. The 10 ships used primarily for storing

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<sup>10</sup> The ESGs is a new kind of naval formation. Prior to the ESG concept, the Navy's amphibious ships were notionally organized into 12 amphibious ready groups (ARGs). Each ARG included one LHA or LHD, one LSD, and one LPD. Because ARGs lacked surface combatants, submarines, and P-3 aircraft, they were not considered suitable for independent operations in high-threat areas. The Navy has converted its ARGs into ESGs, using surface combatants transferred from carrier strike groups (CSGs). (CSGs were previously called aircraft carrier battle groups, or CVBGs.) For more on ESGs, see Jürg E. Kürsener, "The Expeditionary Strike Group (ESG) of the U.S. Navy," *Naval Forces*, No. 1, 2006: 64-68, 70-72.

<sup>11</sup> For many years, the fiscally unconstrained requirement has been for a fleet that can lift the assault echelons of 3.0 MEBs. Major General Gordon Nash, the Director of the Expeditionary Warfare Division within the Office of the Chief of Naval Operations, stated:

The 3.0 requirement remains, but in 1994 the Secretary of the Navy established that the requirement was fiscally constrained to 2.5 MEBs, and that remains our requirement today. Each brigade numbers approximately 14,500 Marines and a 2,500 personnel naval support element. Lift is based on what we call its five fingerprints: the number of troops the ships may carry, square feet of vehicle storage, cubic feet of cargo storage, number of LCAC [landing craft air cushion] landing spots, and the number of vertical takeoff-and-landing spots measured in CH-46 helicopter equivalents.

Our current amphibious fleet today meets the overall 3.0 MEB-life requirements in three of the five fingerprints and exceeds the fiscally constrained requirement of 2.5 MEBs in a fourth fingerprint. The Navy has been working hard to close this gap in the remaining shortfalls, and with the LPD-17 ["San Antonio" class amphibious transport dock] this gap will continue to close.

("Expeditionary Warfare: 'Taking The Fight To The Enemy'," *Naval Forces*, No. 5, 2005: 10. Bracketed material as published.)

equipment and supplies for the Army are called the Combat Prepositioning Force. The remaining 10 ships used primarily for storing equipment and supplies for the Air Force, Navy, and Defense Logistics Agency are called Logistics Prepositioning Ships. This report focuses on the 16 MPF ships.

The 16-ship MPF fleet is organized into three squadrons of five or six ships each. Each squadron stores enough combat equipment and supplies to equip and support a MEB for a period of 30 days. One squadron is normally forward-located in the Atlantic or Mediterranean, one is normally forward-located in the Indian Ocean at Diego Garcia, and one is normally forward-located in the Western Pacific at Guam and Saipan.<sup>12</sup>

Today's MPF ships are designed to support Marine landings at friendly ports or ports that Marines or other U.S. or friendly forces have previously seized by force. Under the basic MPF concept of operations, the MPF ships would steam into such a port, while Marines would be flown into a nearby friendly or seized airbase. The Marines would then travel to the port, help unload the MPF ships, unpack and "marry up" with their equipment and supplies, and begin conducting their operations ashore. MPF operations can be used to reinforce an initial Marine presence ashore that was created by a Marine landing against opposing forces, or to establish an initial Marine presence ashore in a permissive or benign landing environment.

The MPF concept permits a MEB-sized Marine force to be established in a distant operating area more quickly than would be possible if the MEB's equipment and supplies had to be transported all the way from the United States. Unlike prepositioning of equipment and supplies on the soil of foreign countries, maritime prepositioning in international waters does not require permanent host nation access. The MPF concept also provides a degree of intertheater operational flexibility, since an MPF squadron can be moved from one theater (e.g., the Mediterranean) to an adjoining theater (e.g., the Indian Ocean) relatively quickly if needed to respond to a contingency. DOD used the Mediterranean and Western Pacific MPF squadrons to supplement the Indian Ocean MPF squadron in the 1991 Gulf War (Operation Desert Storm) and the more recent Iraq War (Operation Iraqi Freedom).

Today's MPF ships are DOD sealift ships operated with civilian crews. They are built to survivability standards similar to those of commercial cargo ships, which are lower than those of U.S. Navy combat ships. They are not included in the total number of battle force ships in the Navy.<sup>13</sup> Today's MPF ships are designated TAKs. The "T" means the ships are operated by the MSC; the "A" means auxiliary; and the "K" means cargo.

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<sup>12</sup> The maritime prepositioning ships serving the other military services are located principally at Diego Garcia.

<sup>13</sup> In contrast to Navy auxiliaries that are counted as battle force ships because they transport supplies from land to Navy ships operating at sea, MPF ships, like most other DOD sealift ships, transport supplies from one land mass to another, primarily for the benefit of a service (in this case, the Marine Corps) other than the Navy.



The MPF fleet was established in the mid-1980s. It includes 13 ships (TAK-3000 through TAK-3012) that entered service with the MPF in 1984-1986, and three ships (TAK-3015 through TAK-3017) that were added to the MPF fleet in 2000-2003 under the MPF Enhancement, or MPF(E), program, so as to increase the storage capacity of the MPF fleet in accordance with lessons learned during the 1991 Gulf War. One MPF(E) ship was added to each squadron.

The 13 earlier MPF ships, which each displace between about 44,000 and 49,000 tons, are owned and operated by private companies under 25-year charters (i.e., leases) to MSC. The three more recently added MPF(E) ships, which each displace between about 50,000 and 55,000 tons, are owned by the U.S. government and are operated by private companies under contract to MSC.

Since FY1993, new-construction DOD sealift ships similar to the MPF ships have been procured not in the SCN account, but rather in the National Defense Sealift Fund (NDSF), a DOD revolving fund that is outside both the Department of the Navy budget and the procurement title of the annual DOD appropriation act. NDSF funding is used for acquiring, operating, and maintaining DOD sealift ships and certain Navy auxiliary ships.

As of the end of FY2005, the MPF fleet included the following ships:

- **5 Cpl. Louis J Hauge Jr. (TAK-3000) class ships**, which were originally built in Denmark in 1979-1980 as civilian cargo ships for Maersk Line Ltd. Their conversions into MPF ships began in 1983-1984. The ships are owned and operated by Maersk.
- **3 Sgt. Matej Kocak (TAK-3005) class ships**, which were originally built in the United States in 1981-1983 as civilian cargo ships for the Waterman Steamship Corporation. Their conversions into MPF ships began in 1982-1983. The ships are owned and operated by Waterman.
- **5 2<sup>nd</sup> Lt. John P. Bobo (TAK-3008) class ships**, which were built in the United States in 1985-1986 as new-construction ships for the MPF. They are owned and operated by American Overseas Marine.
- **1 1<sup>st</sup> Lt. Harry L. Martin (TAK-3015) class ship**, which was originally built in Germany in 1980 as a civilian cargo ship. Its conversion into an MPF ship began in 1999.
- **1 LCPL Roy M. Wheat (TAK-3016) class ship**, which was originally built in Ukraine as a Soviet auxiliary ship. It was acquired for conversion in 1997.<sup>14</sup>

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<sup>14</sup> The conversion of this ship took considerably longer than expected and was the subject of a lawsuit. For discussion, see Christopher J. Castelli, "MSC Names and Deploys MPF(E) Vessel, While Bender Pursues Lawsuit," *Inside the Navy*, Oct. 13, 2003; Christopher J. (continued...)

- **1 Gunnery Sgt. Fred W. Stockham (TAK-3017) class ship**, which was originally built in Denmark in 1980 as a commercial cargo ship. In the early 1990s, it was acquired for conversion into a kind of DOD sealift ship called a large, medium-speed, roll-on/roll-off (LMSR) ship. It was used by MSC as an LMSR under the name Soderman (TAKR-299) until 2000, when it was converted into an MPF(E) ship, and renamed the Stockham.<sup>15</sup>

## New Navy Ship Force Structure Plan

The Navy is proposing to maintain in coming years a fleet of 313 ships, including 31 amphibious ships and a 14-ship MPF(F) squadron.<sup>16</sup> The 31-ship amphibious force is to include the following:

- 9 LHD- or LHA-type large-deck amphibious assault ships;
- 10 LPD-17 class amphibious ships; and
- 12 LSD-41/49 class amphibious ships.

The 14-ship MPF(F) squadron is to include 3 additional new-construction amphibious ships, 9 new-construction sealift-type ships, and 2 existing, older-generation MPF ships. The 12 new-construction ships are as follows:

- 2 modified LHA Replacement, or LHA(R), ships equipped with Marine Expeditionary Brigade (MEB) command and control (C2) facilities;
- 1 modified LHD equipped with aviation C2 facilities;
- 3 modified Large, Medium-Speed, Roll-on/Roll-off (LMSR) sealift ships;
- 3 ships modified Lewis and Clark (TAKE-1) class cargo and ammunition resupply ships; and
- 3 Mobile Landing Platform (MLP) ships.

The 2 existing MPF ships in the squadron are now referred to as “dense pack” ships. The 14-ship MPF(F) squadron is intended to help implement a new operational concept called sea basing, which is discussed in the next section.

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<sup>14</sup> (...continued)

Castelli, “Finally, MSC Plans to Name Converted Cargo Ship This October,” *Inside the Navy*, Aug. 25, 2003; Christopher J. Castelli, “MSC: Beleaguered Cargo Vessel to Make First Deployment This Year,” *Inside the Navy*, June 2, 2003; Christopher J. Castelli, “MSC Postpones Wheat Christening, Citing Current Military Ops,” *Inside the Navy*, Feb. 17, 2003; Christopher J. Castelli, “Cargo Ship Mired in Conversion Process to Reach Fleet In 2003,” *Inside the Navy*, Jan. 6, 2003.

<sup>15</sup> Another LMSR was built as a new-construction LMSR and named the Soderman (TAKR-317).

<sup>16</sup> U.S. Department of the Navy, *Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for FY2007*. Washington, 2006. 8 pp. For additional discussion, see CRS Report RL32665, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*, by Ronald O'Rourke.

## Sea Basing Concept of Operations

**The Concept in General.** The Navy and Marine Corps are proposing to implement a new concept of operations for staging forces at sea and conducting expeditionary operations ashore with little or no reliance on nearby land bases. The concept is called enhanced networked sea basing, or sea basing for short.

Under the traditional concept of operations for conducting expeditionary operations ashore, the Navy and Marine Corps would establish a base ashore, and then use that base to conduct operations against the desired ashore objective. Under sea basing, the Navy and Marine Corps would launch, direct, and support expeditionary operations directly from a base at sea, with little or no reliance on a nearby land base.<sup>17</sup>

A key rationale for the sea basing concept is that in the future, fixed land bases ashore will become vulnerable to enemy attack from weapons such as cruise missiles or short-range ballistic missiles. Launching the operation directly from a base at sea, advocates of sea basing argue, will enhance the survivability of the attacking Navy-Marine Corps force by putting the base out of the range of shorter-range enemy weapons and targeting sensors, and by permitting the sea to be used as a medium of maneuver for evading detection and targeting by longer-range enemy weapons and sensors.

A second rationale for sea basing is that by eliminating the nearby base ashore — the logistical “middleman” — sea basing will permit the Marine Corps to initiate and maintain a higher pace of operations against the desired objective, thus enhancing the effectiveness of the operation. A third rationale for sea basing is that it could permit the Marine force, once the operation is completed, to reconstitute and redeploy — that is, get back aboard ship and be ready for conducting another operation somewhere else — more quickly than under the traditional concept of operations.

The sea base being referred to is not a single ship, but rather a collection of ships, including the MPF(F) squadron, other ships (such as an aircraft carrier strike group), and intertheater and sea base-to-shore connector ships. Under sea basing, certain functions previously carried out from the nearby base ashore, including command and control and logistics, would be transferred back to the ships at sea that collectively make up the sea base.

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<sup>17</sup> For an in-depth discussion of the sea basing concept, see *Defense Science Board Task Force on Sea Basing*, op. cit. See also Otto Kreisher, “Sea Basing,” *Air Force Magazine*, July 2004, p. 64; Scott C. Truver, “Sea Basing: More Than the Sum of Its Parts?” *Jane’s Navy International*, Mar. 2004, pp. 16-18, 20-21; Art Corbett and Vince Goulding, “Sea Basing: What’s New?” *U.S. Naval Institute Proceedings*, Nov. 2002, pp. 34-39.

The Defense Science Board (DSB) in August 2003 issued a report on sea basing which concluded that “sea basing represents *a critical future joint military capability* for the United States.”<sup>18</sup>

In August 2005, the Joint Chiefs of Staff unanimously approved a Joint Integrating Concept (JIC) document for sea basing.<sup>19</sup> Approval of the JIC gives seabasing DOD recognition as a key future U.S. military capability, and creates a more formal requirement for seabasing to be implemented in a way that satisfies joint requirements rather than those of the Navy and Marine Corps alone. The seabasing concept must still complete DOD’s Joint Capabilities Integration and Development System (JCIDS) process and obtain acquisition milestone approvals.<sup>20</sup>

**MPF(F) Squadron For Implementing Sea Basing.** In June 2005, the Navy submitted a report to Congress on the MPF(F) program<sup>21</sup> that was required by the conference report (H.Rept. 108-622 of July 20, 2005) on the FY2005 defense appropriations bill (H.R. 4613/P.L. 108-287 of August 5, 2004).<sup>22</sup> The Navy report outlined the 14-ship MPF(F) squadron.

The report states that operational requirements for an MPF(F) squadron include, among other things, an ability to employ two Marine battalions from the sea base — one by surface transportation and the other by air transportation (i.e., “vertically”) — in a period of 8 to 10 hours.

The report states that the composition of the 14-ship MPF(F) squadron “will take advantage of existing product lines where possible minimizing new ship design requirements and overall production risk for our shipbuilding industry. Additionally, this new squadron may offer considerable force structure flexibility, as ships assigned

<sup>18</sup> *Defense Science Board Task Force on Sea Basing*, op.cit., p. xi. Italics as in the original. Similar statements are made in two cover memos included at the front of the report, and on p. 87. For press reports about this study, see John T. Bennett, “Marine Corps Commandant, DSB Describe Visions of Seabasing Concept,” *Inside the Pentagon*, Oct. 30, 2004; Jason Ma, “DSB Study, Conference Examine Seabasing Needs and Challenges,” *Inside the Navy*, Oct. 27, 2003; Jason Sherman, “Pentagon Group Details Sea Base Concept,” *Defense News*, Oct. 27, 2003.

<sup>19</sup> Christopher J. Castelli, “Joint Chiefs Endorse Pentagon’s Proposed Seabasing Concept,” *Inside the Navy*, September 19, 2005. See also David W. Munns, “Forward Progress,” *Seapower*, September 2005: 14-16, 18.

<sup>20</sup> Jason Ma, “Navy Weighted U.S. Shipbuilding Capabilities When Crafting MPF(F) Plan,” *Inside the Navy*, September 19, 2005.

<sup>21</sup> U.S., Department of Defense Department of the Navy, *Report to Congress, Maritime Prepositioning Force, Future, MPF(F)*, Washington, 2005, 8 pp. (Prepared by Program Executive Officer, Ships, Washington DC 20376, June 2005.) A 20-page appendix to the report provides supporting budget details. Letters of transmission to Congress accompanying the report are dated June 6, 2005.

<sup>22</sup> The requirement for the report on the MPF(F) program is on page 360 of H.Rept. 108-622. For details, see the “Legislative Activity” section of this CRS report.

to perform the MPF(F) role might be used to augment or support ESG operations and perform other dual roles.”<sup>23</sup>

Industrial-base considerations reportedly played a role of some kind in the selection of the newly planned 14-ship squadron. An earlier press report suggested that the Navy rejected an alternative proposed combination of LHD/LHA(R)-type ships and modified San Antonio (LPD-17) class amphibious ships at least in part because all these ships are built by Northrop Grumman, leaving no role in the program for General Dynamics (GD).<sup>24</sup> In a later press report, DOD officials distanced themselves from the idea that the new squadron was selected to guarantee each firm a role in the program, and argued that the 14-ship squadron was selected to minimize development risk and cost, and because the earlier design for the MPF(F) ship was so large that it could not be built in a U.S. yard, or at least not in enough U.S. yards to permit competition between shipbuilding firms.<sup>25</sup>

Whatever the exact role of industrial-base considerations, the new 14-ship squadron will give both Northrop and GD a role in the program. Northrop would build the modified amphibious assault ships, and GD, which is currently building TAKEs for Navy use, would build the modified TAKEs. The two firms would compete for the LMSRs, which they have both built in the past, and could also compete, potentially with other U.S. shipbuilding firms, for the MLPs.<sup>26</sup>

The report states that the MPF(F) squadron will be able to, among other things:

- accommodate the 2015 version of a Marine Expeditionary Brigade (MEB) consisting of three Marine battalions — two surface battalions and one vertical battalion;
- preposition the 2015 MEB at sea in the desired forward operating area within 10 to 14 days;
- permit that force to arrive and assemble itself at the sea base in 24 to 72 hours;
- employ the vertical battalion and one of the surface battalions in 8 to 10 hours;
- provide accommodations and maintenance capability for vehicles and aircraft;
- sustain the forces ashore from the sea base;

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<sup>23</sup> *Report to Congress, Maritime Prepositioning Force, Future, MPF(F)*, op cit, p. 6.

<sup>24</sup> Jason Ma, “Navy Aims To Balance Industrial Base Needs In New Seabasing Plan,” *Inside the Navy*, May 2, 2005.

<sup>25</sup> Jason Ma, “Navy Weighed U.S. Shipbuilding Capabilities When Crafting MPF(F) Plan,” *Inside the Navy*, September 19, 2005.

<sup>26</sup> *Ibid.*

- provide medical support, including resuscitative surgery;
- accommodate and operate surface connectors;
- provide MEB-level C2 capability; and
- operate in sea conditions up to Sea State 3 (a moderate sea with waves of 3 feet to 5 feet).

An August 1, 2005, press report stated that the Marine Corps, in a July 28, 2005, presentation to a conference of industry officials, explained that the planned 14-ship MPF(F) squadron would have an estimated combined procurement cost of about \$14.5 billion, as detailed in **Table 1**.

**Table 1. Estimated Procurement Cost Of MPF(F) Squadron**  
(billions of dollars)

Ship type	Qty	Unit procurement cost	Total procurement cost
Modified LHA(R)	2	\$2.35	\$4.7
Modified LHD	1	2.2	2.2
Modified LMSR	3	0.98	2.94
Modified TAKE	3	0.63	1.89
MLP	3	0.92	2.76
Existing MPF	2	0 <sup>a</sup>	0
<b>TOTAL</b>	<b>14</b>		<b>\$14.49</b>

**Source:** *Inside the Navy*, August 1, 2005.

a. These two ships already exist.

The press report stated:

The amphibious ships in the future MPF squadron would be built without their full complement of combat systems, said Magnus. The ships would have systems for self-defense, flight operations, communications with other elements of the squadron as well as command and control, he told *Inside the Navy* in a brief interview. But missing from the ships would be “basic point missile defense” systems, anti-surface ship weapons and undersea warfare systems, he added.

Carrier strike groups or expeditionary strike groups that deploy with MPF squadrons could provide protection, or the MPF ships would stay in safer waters at least 25 miles offshore, he said.

“These ships are going to stay in the protected commons of the sea,” he said.

The LMSR designs would be different too, enabling forces to arrive and prepare for operations while at sea, instead of at a port, Magnus said. But additional work remains in developing an automated cargo handling system for the interior, he noted. Commercial cargo handlers already use such systems, and

the Office of Naval Research is developing a selective retrieval machine, which could be tested within the next year, he said.

The future MPF squadron also will carry about 12,000 Marines, including 800 humvees and 106 Expeditionary Fighting Vehicles. During the first day of an operation, about 4,000 Marines would go ashore, followed by another 4,000 over the next few days, he said. The rest would remain on the ships to perform command and control, intelligence, maintenance and logistics duties, he added.<sup>27</sup>

**Related Transport Ships.** In addition to the MPF(F) squadron ships, the Navy plans to procure some number of Joint High Speed Vessels (JHSV's) for high-speed intra-theater transport of Marine Corps and Army forces and equipment, and sea base-to-shore connector (SSC) ships for transporting personnel and equipment from the sea base to the shore area of operations. The JHSV is to be a 35- to 45-knot, shallow-draft, intratheater transport ship similar to the leased commercial high-speed ferries that DOD has used experimentally in recent years. The SSCs would replace the Navy's current LCAC air-cushioned landing craft.

## Ship Procurement Programs

**Table 2** shows the Navy's plan for procuring amphibious and MPF(F) ships in FY2007-FY2011.

**LPD-17 Program.** As a replacement for 11 aging LPDs and other amphibious ships that have already been decommissioned, the Navy is currently procuring new San Antonio (LPD-17) class amphibious ships. The ships are built primarily at Northrop Grumman's Avondale shipyard near New Orleans, LA.<sup>28</sup>

A total procurement of 12 LPD-17s was originally planned. A force of 36 amphibious ships that included 12 LPD-17s would have met the longstanding 2.5-MEB lift requirement for the amphibious fleet in all respects. The Navy's proposed 31-ship amphibious fleet includes a total of 10 LPD-17s. In spite of this 10-ship goal, the FY2007-FY2011 FYDP reduces planned procurement of LPD-17s to a total of nine ships.

Eight LPD-17s have been procured through FY2006. Last year's budget projected that the ninth would be procured in FY2007. As shown in **Table 2**, this year's budget defers the ninth ship to FY2008. The Navy's FY2007 budget requests \$297 million in advance procurement funding for the ninth ship.

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<sup>27</sup> Jason Ma, "Future MPF Squadron For Seabasing Expected To Cost \$14.5 Billion," *Inside the Navy*, Aug. 1, 2005. See also Christopher P. Cavas, "New U.S. Navy Sea Base Plan Includes Assault Ships," *DefenseNews.com*, July 14 2005; Christopher P. Cavas, "Big Changes For Sea Base," *Navy Times*, Aug. 1, 2005; and Geoff Fein, "Fleet of 14 MPF(F) Ships Provides Lower Cost/Schedule Risk, Navy Says," *Defense Daily*, July 12, 2005.

<sup>28</sup> LPD-17-related work is also done at Northrop's Ingalls shipyard at Pascagoula, MS, and at a third Northrop facility at Gulfport, MS. The Avondale, Ingalls, and Gulfport facilities together make up Northrop Grumman Ship Systems (NGSS).

**Table 2. FY2007-FY2011 Amphibious and MPF(F) Ship Procurement Plan**

(Ships fully funded in FY2006 shown for reference)

	FY07	FY08	FY09	FY10	FY11
<i>For the 31-ship amphibious force</i>					
<b>LPD-17</b>		1			
<b>LHA(R)</b>	1			1	
<i>For the 14-ship MPF(F) squadron</i>					
<b>LHA(R)-MPF(F)</b>					1
<b>TAKE-MPF(F)</b>			1	1	1
<b>LMSR-MPF(F)</b>				1	1
<b>MLP-MPF(F)</b>			1		1

**Sources:** Department of the Navy, *Highlights of the Department of the Navy FY 2007 Budget*, Chart 15 (p. 5-3), and *Draft Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for FY 2007*.

**Key:**

LPD-17 San Antonio (LPD-17) class amphibious ship  
 LHA(R) LHA(R) class amphibious assault ship. Also known as the LHA-6 class.  
 LHA(R)-MPF(F) Modified LHA(R) intended for MPF(F) squadron  
 TAKE-MPF(F) Modified Lewis and Clark (TAKE-1) class resupply ship 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

Accelerating the procurement of the ninth ship from FY2008 back to FY2007 is the fourth of 16 items, and the top shipbuilding item, on the Navy's FY2007 unfunded requirements list (URL) — its "wish list" of items desired but not included in the FY2007 budget. The URL states that accelerating the ship's procurement to FY2007 would require \$1,285 million in additional FY2007 funding.

The first LPD-17, which was procured in FY1996, encountered a roughly two-year delay in design and construction. It was presented to the Navy for acceptance in late June 2005. A Navy inspection of the ship conducted June 27-July 1, 2005, found numerous construction deficiencies.<sup>29</sup> These deficiencies were addressed and the ship was commissioned into service on January 14, 2006.

Since the start of the LPD-17 program, the estimated unit procurement cost of the follow-on ships in the program has grown from roughly \$750 million to about \$1.2 billion to \$1.35 billion — an increase of roughly 60% to 80%.

<sup>29</sup> Associated Press, "Shipbuilder: Navy Will Accept New Vessel," *NavyTimes.com*, July 21, 2005; Christopher J. Castelli, "Naval Inspection Report Finds Numerous Problems With LPD-17," *Inside the Navy*, July 18, 2005; Dale Eisman and Jack Dorsey, "Problems On New Ship A Bad Sign, Analyst Warns," *Norfolk Virginian-Pilot*, July 14, 2005; Nathan Hodge, "Navy Inspectors Flag 'Poor Construction' On LPD-17," *Defense Daily*, July 14, 2005. A copy of the Navy's inspection report, dated July 5, 2005, is posted online at [http://www.coltoncompany.com/comment/lpd17insurv.htm]



**LHD-8.** To replace one of its five aging LHAs, the Navy in FY2002 procured LHD-8 — an eighth Wasp-class ship<sup>30</sup> — at a total budgeted cost of about \$2.06 billion. At the direction of the FY2000 and FY2001 defense appropriation bills, the ship was incrementally funded in the SCN account, with the final funding increment being provided in FY2006. The ship is being built by Northrop Grumman’s Ingalls shipyard at Pascagoula, MS, the builder of all previous LHAs and LHDs, and is scheduled to enter service in October 2007.

**LHA(R)/LHA-6 Program.** As a successor to the Wasp-class design, the Navy wants to procure a new class of amphibious assault ships called the LHA Replacement (LHA[R]) or LHA-6 class. The FY2007-FY2011 FYDP calls for procuring the first such ship (LHA-6) in FY2007, a second (LHA-7) in FY2010, and a third (LHA-8) in FY2011. As shown in **Table 2**, LHA-8 is to be a modified version intended for the MPF(F) squadron. These ships would almost certainly be built primarily at Northrop Grumman’s Ingalls shipyard.

The total estimated cost of LHA-6 is \$2,759 million. The ship received \$149 million in advance procurement funding in FY2005 and \$148 million in additional advance procurement funding in FY2006. The FY2007 budget requests \$1,136 million in procurement funding for the ship. The remaining \$1,326 million in procurement funding for the ship is to be requested for FY2008. The ship, in other words, is being split-funded across FY2007 and FY2008. Split funding is a form of incremental funding.

The LHA(R) design has changed over time. The Navy originally looked at a “dual tram line” design displacing 69,000 tons. That design had an estimated procurement cost of roughly \$5.1 billion, which was deemed unaffordable. The Navy then examined a “plug-plus” design — a 50,000-ton design based on a longer and wider version of the basic Wasp-class hull. This design would have cost roughly \$3.8 billion, which was also deemed unaffordable. The Navy announced in 2004 that it was dropping the plug-plus design in favor of a less expensive 45,000-ton design based on the current Wasp class hull. This is the design now proposed for procurement.<sup>31</sup>

The LHA(R) design is to have enhanced aviation features compared to the basic Wasp-class design, but would lack a well deck, making it the first amphibious ship in decades built without a well deck. The sacrifice of the well deck appears to be, in part at least, a consequence of building enhanced aviation features and other improvements into the design while staying within the envelope of the Wasp-class hull.

**MPF Lease Buyout.** The FY2006 budget requested \$749.8 million in the National Defense Sealift Fund (NDSF) to buy out (i.e., exercise the purchase options

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<sup>30</sup> LHD-8 will differ from the earlier LHDs in terms of propulsion plant and other respects.

<sup>31</sup> Source for ship size and cost data: Navy briefing slide entitled “LHA 6 Requirements vs. Cost — tradeoff history,” as published in *Aerospace Daily & Defense Report*, February 3, 2006, p. 7. The slide was part of a presentation given by a Navy official at the Surface Navy Association annual symposium on January 12, 2006.

on ) the leases on the 13 older MPF ships. Buying out the leases means DOD would purchase the 13 ships from the private companies that currently lease them to DOD. DOD estimated in 2005 that buying out the leases on the 13 ships would save about \$840 million in payments between FY2006 and FY2020 (when the last of the 13 ships is to be phased out of service). Since five of these 13 ships (the TAK-3000 class ships) were built in a foreign country (Denmark), DOD requested legislative authority to spend NDSF funds to purchase these five ships.<sup>32</sup> The owners of some of these 13 ships reportedly believed that the Navy underestimated the market value of their ships, and that buying out the leases on them would cost at least \$500 million more than the Navy has budgeted.<sup>33</sup> Congress for FY2006 provided \$264.2 million in NDSF funding for lease buyout — a reduction of \$485.6 million from the requested amount.

The Navy's proposed FY2007 budget requests \$35.1 million in the NDSF to buy out the lease of one MPF ship.

**Joint High Speed Vessels (JHSVs).** The Navy wants to procure the first JHSV in FY2008. The Navy's FY2007 budget requests \$14.2 million for concept studies and contract development design work for the JHSV.

**Sea Base-to-Shore Connector (SSC) Ships.** The Navy also plans to procure some number of sea base-to-shore connector (SSC) ships for transporting personnel and equipment from the sea base to the shore area of operations. SSCs would replace the Navy's current LCAC air-cushioned landing craft. The FY2007-FY2011 FYDP calls for procuring the lead SSC ship in FY2010, another in FY2010, and another four in FY2011.

## Current Areas of Uncertainty

Some elements of the Navy's plans for amphibious and maritime prepositioning ships remain uncertain, including the following:

- **Total number of LHA(R)s.** The total number of LHA(R)s that the Navy plans to procure is not clear. A March 2005 Navy report to Congress on potential future Navy force levels showed a total of eight LHA(R)s and LHD(X)s. The LHD(X)s would appear to be a new kind of amphibious assault ship that the Navy plans to procure following completion of LHA(R) procurement. The report did not divide the total of eight ships into specific numbers of LHA(R)s and LHD(X)s.
- **Design of MLP ships.** The Navy's June 2005 report on the MPF(F) introduces the MLP as a new ship concept but provides few details

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<sup>32</sup> Christopher J. Castelli, "Pentagon Seeks Authority on Carl Vinson, LHA(R), Prepositioning Ships," *Inside the Navy*, May 2, 2005; Geoff Fein, "Navy Underestimated Cost to Buyout Leases on MSC Ships, Source Says," *Defense Daily*, May 10, 2005.

<sup>33</sup> Geoff Fein, "Navy Underestimated Cost to Buyout Leases on MSC Ships, Source Says," *Defense Daily*, May 10, 2005.

on the design of the ship. The ship is conceived as a floating pier, and might be broadly similar to the Blue Marlin, the commercial heavy-lift ship that transported the U.S. Aegis destroyer Cole back to the United States after it was damaged by a terrorist boat-bomb attack in 2000.<sup>34</sup> One Navy official reportedly has said the ship might resemble a modified tanker with ballasting that would permit it to lower and raise itself.<sup>35</sup> Another press report stated that the ship might be modified from a commercial design and have a speed of 20 knots and a length of 244 meters.<sup>36</sup> A January 2006 Navy briefing slide shows a vessel with a light-ship (i.e., empty) displacement of 28,423 metric tons, a large flight deck for helicopters or vertical takeoff or landing (VTOL) fixed-wing aircraft, space for 1,300 troops, and a speed of 20 knots.<sup>37</sup>

- **Design, unit cost, and number of sea base-to-shore connector (SSC) ships.** The Navy is drafting an ICD for these ships, which would replace the Navy's current LCAC air-cushioned landing craft. The Navy expects the ICD to be approved in May 2006, and an AOA to be conducted during FY2006.<sup>38</sup> Another potential sea base-to-shore connector ship is the Joint High Speed Vessel (JHSV). DOD's Joint Requirements Oversight Council (JROC) approved the ICD for the JHSV in early November 2005, and an AOA for the ship is to be completed before the end of the year. The design of the JHSV, and its relationship to other sea base-to-shore connectors, however, is unclear.<sup>39</sup>

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<sup>34</sup> Jason Ma, "Future MPF Squadron For Seabasing Expected To Cost \$14.5 Billion," *Inside the Navy*, August 1, 2005; Jason Ma, "Navy Plans To Use Active Production Lines For Some Seabasing Ships," *Inside the Navy*, August 29, 2005.

<sup>35</sup> Jason Ma, "Navy Plans To Use Active Production Lines For Some Seabasing Ships," *Inside the Navy*, August 29, 2005.

<sup>36</sup> Andrew Koch, "US Navy Explores Joint High-Speed Cargo Ship," *Jane's Defence Weekly*, August 10, 2005.

<sup>37</sup> Navy briefing slide entitled "MPF(F) Squadron," as published in *Aerospace Daily & Defense Report*, February 3, 2006, p. 6. The slide was part of a presentation given by a Navy official at the Surface Navy Association annual symposium on January 12, 2006. For more on the MLP, see Matt Hilburn, "The 'Floating Beach,'" *Seapower*, June 2006: 20-21, 23.

<sup>38</sup> Jason Ma, "Officials Drafting Requirements For MPF(F), Seabasing Connectors," *Inside the Navy*, January 16, 2006; Christopher J. Castelli, "Navy Issues Announcement For New Seabasing Connector Program," *Inside the Navy*, November 28, 2005; Jason Ma, "NAVSEA Seeks Studies On Future 'Sea Base To Shore Connector'," *Inside the Navy*, October 10, 2005; Jason Ma, "LCAC Follow-On To Perform Seabasing Missions and Other Tasks," *Inside the Navy*, August 29, 2005.

<sup>39</sup> Christopher J. Castelli, "Joint High Speed Vessel Program Sparks Consensus and Debate," *Inside the Navy*, July 10, 2006, and Christopher J. Castelli, "Reviewing the Joint High Speed Vessel's Capabilities, By the Numbers," *Inside the Navy*, July 10, 2006.

- **Potential For Further Changes To Meet Joint Requirements.**  
Another uncertainty concerns how the seabasing concept might be further altered, if at all, to meet the operational needs of other parts of DOD, such as the Air Force and the Special Operations Command.

## Oversight Issues for Congress

Navy plans for amphibious and maritime prepositioning raises several potential oversight issues for Congress.

### Amphibious Ship Force-Level Goal

One potential oversight issue for Congress concerns the Navy's amphibious-ship force-level goals. Past Navy plans have called for an amphibious fleet of:

- 36 ships, including
- 12 LHA-LHD-type large-deck ships and
- 12 LPD-17s,
- and a total lift capacity of 2.5 MEB assault echelons.

As mentioned earlier, the Navy's new 313-ship plan calls for a smaller amphibious force with a total of:

- 31 amphibious ships, including
- 9 LHA/LHD-type ships and
- 9 LPD-17s.

Subsequent to the submission of the 313-ship plan, the Navy and Marine Corps have testified that the Marine Corps requires a minimum of:

- 30 *operationally available* amphibious ships (i.e., ships that are not in maintenance), including
- 10 LHA/LHD-type large-deck ships
- at least 9 LPD-17s, and
- a total lift capacity of 2 MEB assault echelons.

Since 10% to 15% of the amphibious fleet might be in maintenance at any given point, having a minimum of 30 operationally available amphibious ships at any given point might require a total of inventory 33 to 35 ships.

On March 30, 2006, the Navy and Marine Corps testified:

The current Defense Department force-sizing construct requires the capability to respond to two major “swiftly defeat the efforts” events — each of which could require a minimum of 15 capable amphibious ships. One of these crises may further necessitate the use of a Marine Expeditionary Force, thus requiring a total of 30 operationally available amphibious ships. The Marine Corps aviation combat element requires ten large-deck amphibious ships to support a Marine Expeditionary Force. Today's 35 amphibious ships can surge the required 30 operationally available warships and provide the peacetime rotation base for Marine Expeditionary Units in up to three regions. As a Navy and

Marine Corps Team, we are striving to maintain the capability to project two Marine Expeditionary Brigades assault echelons in support of the Combatant Commander.<sup>40</sup>

The previous day, the Marine Corps testified on its future requirements, including its requirements for maritime lift and naval surface fires, which the Marine Corps stated were as follows:

In order to support Joint Forcible Entry Operations (JFEO), the Marine Corps shipbuilding requirement is two amphibious MEB Assault Echelons (AE) plus two Maritime Preposition Force (Future) (MPF(F)) MEBs (or equivalent as indicated below).

- 30 operationally available amphibious ships, of which 10 must be operationally available big-deck aviation-capable ships to support two MEB AE.

- Note: operationally available — minimum amount of ships required to conduct the mission. Planning factors will account for ship maintenance cycles.

- Minimum of 9 LPD-17s within the LPD program to mitigate risk incurred by limiting each MEB AE to 15 amphibious ships.

- Both Discrete and Volumetric analysis have been conducted to load the “2015 MEB AE” on amphibious ships. 17 ships (five LHD, five LPD-17, five LSD-41, two LSD-49) are required, however, the Marine Corps has accepted risk with a 7% reduction in MEB equipment by self limiting to 15 ships per MEB AE.

- Limiting the LPD-17 production line to 9 ships places the Marine Corps at grave/significant risk by further decrementing the MEB equipment for the assault echelon.

- 2 MPF(F) MEB squadrons or one MPF(F) squadron plus two legacy Maritime Preposition Ship (MPS) squadrons.

- MPF(F) squadron will consist of 14 ships with two types using proven amphibious hull designs: one LHD, two LHA(R), three T-AKE, three LMSR, three Mobile Landing Platform ships, and two legacy “dense-pack” maritime prepositioning ships.

- We are not ready to commit MPF(F) to forcible entry in the assault echelon without further experimentation in the following areas:

- Civilians (Merchant Marines) manning MPF(F) and associated legal implications.

- Survivability, preposition loading, and continued on-load / off-load experiments, etc.

- Naval Surface Fire Support (NSFS) that meets the Marine Corps requirement of “24/7,” all weather, long range naval surface fires in support of amphibious operations from the sea with continuous striking power and volume of fires out

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<sup>40</sup> Statement of The Honorable Dr. Delores M. Etter, Assistant Secretary of the Navy (Research, Development and Acquisition), *et al*, Before the Projection Forces Subcommittee of the House Armed Services Committee on FY2007 Navy Ship Construction Programs, March 30, 2006, p. 6. See also Statement of LTGEN Emerson N. Gardner, Deputy Commandant for Programs and Resources, and LTGEN James N. Mattis, Deputy Commandant for Combat Development and Integration, Before the Seapower Subcommittee of the Senate Armed Services Committee on Future Requirements, March 29, 2006, p. 4.

to a range of 63 nautical miles (Threshold) to 110 nautical miles (Objective) from ships at sea.

— LHA/LHD recapitalization plan.

— Recapitalization plan for LSD line to bridge from last LPD to first LSD replacement (must account for LHA(R) design of not having a well deck).<sup>41</sup>

Potential oversight questions for Congress include the following:

- What are the potential operational risks or implications of having:
  - 31 rather than 33 to 35 (or 36) amphibious ships?
  - 9 rather than 10 (or 12) LHA/LHD-type large-deck amphibious ships?
  - 9 rather than 10 or (or 12) LPD-17s?
  - a total of lift capacity of 2 rather than 2.5 MEB assault echelons?
- Although the Marine Corps has described the NSFS capability it needs in qualitative terms, how much of this capability does it need in quantitative terms?
- Does the Navy have an adequate plan for recapitalizing (i.e., replacing) its LHA/LHD-type large-deck amphibious ships?
- Does the Navy have an adequate plan for bridging from procurement of the last LPD-17 to procurement of the replacements for today's LSD-41/49s?

## Affordability and Cost-Effectiveness of Sea Basing

The Navy, in conjunction with the Marine Corps, examined plans for procuring one, two, or three MPF(F) squadrons. Many observers believed that the option of three MPF(F) squadrons was unlikely to be chosen due to affordability considerations, and that the Navy was therefore likely to choose either one or two squadrons. The Navy's reported choice to plan for one squadron makes the sea basing concept roughly half as expensive to implement as would have been the case had the Navy decided to plan for two.

One issue in assessing the cost of the sea basing concept concerns the accuracy of the Navy's procurement cost estimates for the new-construction sea basing ships (see **Table 1**). If these estimates turn out to be too low, the sea basing concept would be more difficult to afford. Navy ship construction costs in recent years have risen more quickly than some anticipated. Several recent Navy ships procured in recent years have turned out to be more expensive to build than the Navy originally

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<sup>41</sup> Statement of LTGEN Emerson N. Gardner, Deputy Commandant for Programs and Resources, and LTGEN James N. Mattis, Deputy Commandant for Combat Development and Integration, Before the Seapower Subcommittee of the Senate Armed Services Committee on Future Requirements, March 29, 2006, pp. 6-7. (Indenting levels as in the original.)

projected,<sup>42</sup> and some analysts believe the Navy is currently underestimating the procurement cost of proposed ships.<sup>43</sup>

In addition, as previously discussed, fully implementing the sea basing concept will involve procuring connector ships as well as research and development work to develop supporting sea basing technologies. The costs of these development and procurement efforts are currently unclear, making it difficult to assess the potential overall affordability of the sea basing concept.

The 2003 DSB report stated that “The funding challenges presented by the [efforts needed to implement sea basing] are significant.”<sup>44</sup> Robert Work, a naval analyst at the Center for Strategic and Budgetary Assessments (CSBA),<sup>45</sup> has characterized sea basing as “a rich man’s approach to solving the [access denial] problem.”<sup>46</sup> A November 2004 Congressional Budget Office (CBO) report on the Navy’s amphibious and maritime prepositioning ship forces expressed concerns about the Navy’s prospective ability to expressed concerns about the Navy’s potential ability to afford desired numbers of both MPF(F) ships and ships for the regular amphibious force.<sup>47</sup>

Although sea basing offers potential advantages in terms of eliminating vulnerable intermediate land bases, enabling higher-paced operations ashore, and permitting more rapid reconstitution and redeployment of the expeditionary force, uncertainty regarding the total potential cost to implement sea basing makes it difficult to assess its potential cost-effectiveness compared to alternative concepts for conducting future expeditionary operations ashore or compared to programs for meeting other, unrelated defense priorities. Potential alternative concepts for conducting future expeditionary operations include making improvements to today’s capabilities for conducting amphibious operations and making improvements to Army capabilities for inserting airborne forces.<sup>48</sup>

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<sup>42</sup> See, for example, Government Accountability Office, *Defense Acquisitions[:] Improved Management Practices Could Help Minimize Cost Growth in Navy Shipbuilding Programs*. (GAO-05-183, February 2005)

<sup>43</sup> See, for example, *CBO Testimony: Statement of J. Michael Gilmore, Assistant Director, and Eric J. Labs, Principal Analyst, [on] Potential Costs of the Navy’s 2006 Shipbuilding Plan before the Subcommittee on Projection Forces, Committee on Armed Services, U.S. House of Representatives, March 30, 2006*.

<sup>44</sup> *Defense Science Board Task Force on Sea Basing*, op. cit., p. 85.

<sup>45</sup> CSBA is an independent organization that conducts research and writes reports on military issues.

<sup>46</sup> As quoted in Otto Kreisher, “Sea Basing,” *Air Force Magazine*, July 2004. Material in brackets as in the article.

<sup>47</sup> U.S. Congressional Budget Office, *The Future of the Navy’s Amphibious and Maritime Prepositioning Force*, Nov. 2004, pp. xiii-xv. See also Aarti Shah, “Unclear Seabasing Concept, High Costs Worry Military Officials,” *Inside the Navy*, Feb. 14, 2005.

<sup>48</sup> See also John P. Patch, “Sea Basing: Chasing the Dream,” *U.S. Naval Institute Proceedings*, May 2005: 38-43.

Skeptics of the Navy's plan for implementing the sea basing concept could argue that the capability to be provided by the MPF(F) squadron is more than what is needed for the Navy's contribution to the global war on terrorism (GWOT), and of uncertain relevance to U.S. participation in a conflict with China in the Taiwan Strait area.<sup>49</sup> Navy and Marine Corps officials argue in return that seabasing is relevant to a spectrum of potential future operations, ranging from humanitarian and disaster-relief operations to stability operations and major combat operations (MCOs). In support of this argument, they note the recent use of U.S. naval forces in providing disaster relief following the December 2004 tsunami in the Indian Ocean and Hurricane Katrina along the U.S. Gulf Coast.<sup>50</sup>

Potential oversight and policy questions for Congress include the following:

- If the procurement costs of the new-construction ships in the proposed MPF(F) squadron turn out to be higher than the Navy estimates, how might this affect the affordability of the sea basing concept?
- When does DOD intend to present to Congress an estimate of the potential total cost to fully implement all aspects of the sea basing concept? How does the current absence of such an estimate affect Congress's ability to assess the potential affordability of sea basing or its potential cost effectiveness compared to potential alternatives for conducting future expeditionary operations ashore or compared to programs for meeting other defense priorities?
- What is the potential applicability of the capability to be provided by the MPF(F) squadron to the GWOT or to other potential conflict or non-conflict scenarios?
- Would an ability to employ one surface Marine battalion and one vertical Marine battalion from a sea base in a period of 8 to 10 hours be worth the cost to field this capability? What are the potential costs and merits of alternatives to sea basing for conducting future expeditionary operations ashore? How do land bases and sea bases compare in terms of vulnerability to attack and cost to defend against potential attacks of various kinds?

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<sup>49</sup> For more discussion of these two issues, see CRS Report RS22373, *Navy Role in Global War on Terrorism (GWOT) — 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.

<sup>50</sup> See, for example, Geoff Fein, "Relief Efforts In Gulf Demonstrate Sea Basing Capability, CNO Says," *Inside the Navy*, October 7, 2005; Nathan Hodge, "Marine Corps Commandant Stumps For 'Sea Basing' Capability," *Defense Daily*, August 19, 2005; John Liang, "Hagee: Seabasing Can Contribute To More Than Just Combat Ops," *Inside the Navy*, August 15, 2005.



- What other defense programs might need to be reduced to finance the implementation of sea basing?
- What are the potential operational risks of not implementing sea basing?

## Coordination with Other Services on Sea Basing

Regarding interservice coordination in the development of sea basing, one potential issue concerns a new transport aircraft called the Joint Heavy Lift aircraft. As a part of the process for making seabasing a joint capability rather than simply a Navy-Marine Corps one, the MPF(F) squadron is also to be capable of staging and deploying ashore an Army combat brigade team of about 6,000 soldiers with heavy armor. Such an operation could involve flying the Joint Heavy Lift aircraft from the MPF(F) ships. The Army is leading the effort to develop this aircraft, and is currently examining potential options for it, including a quad tiltrotor configuration. Such an aircraft, however, could take up a lot of deck space on an MPF(F) ship, complicating operations.<sup>51</sup>

With regard to interservice coordination on sea basing in general, an October 2005 press article stated:

Cultural differences between the services are one of the stumbling blocks holding up development of the U.S. Navy's new Sea Basing concept, a former officer told a group of industry representatives here last week.

Greg Cook, a U.S. Air Force colonel who retired in August after working to develop Sea Basing plans and concepts for the Joint Chiefs of Staff, said the "roles-and-missions debate" centered on how different services and commands viewed the idea of a squadron of large ships gathered as an operating base about 100 miles off an enemy shore.

"If the Army operates from the sea, isn't that what the Marines do?" Cook asked an audience gathered here Oct. 26 to discuss future naval planning. "If the Air Force operates from the sea, isn't that what the Navy does?"

Cook said the services view the Sea Basing concept in light of their own traditional missions. The Army looks at the idea as allowing for faster and greater strategic access via the high-speed, shallow-draft connectors to transfer troops, vehicles and gear between the ships and shore.

The Air Force doesn't see the concept as supporting its core competencies and is concerned about costs, said Cook, a former pilot for that service's Air Mobility Command.

"The Air Force is not that excited" about the idea, he said.

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<sup>51</sup> Jason Ma, "Admiral: Integrating Army Logistics In Sea Base Presents Challenges," *Inside the Navy*, November 21, 2005.

The Navy, he said, looks at Sea Basing as “a foundation of strategic access and power projection,” but the Marine Corps is looking at it simply as a faster means to deliver a Marine Expeditionary Brigade to the fight.

Special Operations Command sees it as a “high-speed mothership for rapid access,” while joint commanders have a wider view, regarding it as a mobile base that provides options and flexibility that increases global presence and provides strategic access.

“These things have to be worked out,” Cook said. The question of who should operate the ships is another issue, he said.<sup>52</sup>

Potential oversight questions for Congress include the following:

- To what degree, if any, does the Navy-Marine Corps concept for sea basing conflict with emerging Army or Air Force concepts of operation for conducting future expeditionary operations? Are the Navy and Marine Corps taking potential Army, Air Force, and Special Operations Command requirements sufficiently into account in developing the sea basing concept?
- How might the Army’s new plan for reorganizing itself into modular, brigade-sized entities called units of action (UAs)<sup>53</sup> affect, or be affected by, the sea basing concept? How might the Army’s plans for procuring its own next-generation sealift ships affect, or be affected by, the sea basing concept?

## Legislative Activity For FY2007

### FY2007 Defense Authorization Bill (H.R. 5122/S. 2766)

**House.** Section 123 of H.R. 5122 would limit the procurement cost of each LHA(R) class ship to \$2,813.6 million, plus adjustments for inflation and other factors. Section 124 would establish individual procurement cost limits for eight LPD-17 class ships (LPD-18 through LPD-25), plus adjustments for inflation and other factors. The House Armed Services Committee, in its report (H.Rept. 109-452 of May 5, 2006) on H.R. 5122, recommends approving the Navy’s request for \$297 million in advance procurement funding for a ninth LPD-17 class ship and \$1,136 million in procurement funding for LHA-6. The report also recommends \$101.9 million in the NDSF to buy out the leases of two existing MPF ships — an increase of one ship and \$66.8 million over the requested amount. The report states:

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<sup>52</sup> Christopher P. Cavas, “‘Cultural Differences’ Slow USN Sea Basing Progress,” *DefenseNews.com*, October 31, 2005.

<sup>53</sup> For more on this plan, see CRS Report RL32476, *U.S. Army’s Modular Redesign: Issues for Congress*, by Andrew Feickert.

The budget request contained \$35.1 million in the National Defense Sealift Fund to exercise the purchase options on 1 of the 10 remaining maritime prepositioning ships on long-term lease.

The committee is aware of the continuing need for these ships beyond the original 25-year-term and the lifecycle cost savings garnered by exercising the purchase options. The committee recommends exercising the purchase option on all of the 10 remaining maritime prepositioning ships, as soon as possible.

The committee recommends \$101.9 million in the National Defense Sealift Fund to exercise the purchase option on 2 of the 10 remaining maritime prepositioning ships on long-term lease, an increase of \$66.8 million. (Pages 290-291)

**Senate.** The Senate Armed Services Committee, in its report (S.Rept. 109-254 of May 9, 2006) on S. 2766, recommends \$1,582 million in procurement funding for a ninth LPD-17 — an increase of \$1,285 million over the requested amount — so as to accelerate the procurement of this ship from FY2008 to FY2007. The report recommends approving the Navy's request for \$1,136 million in procurement funding for LHA-6, and also recommends \$175 million in unrequested advance procurement funding for LHA-7. Regarding the ninth LPD-17, the report states:

The budget request included \$297.5 million in Shipbuilding and Conversion, Navy (SCN) for LPD-25 advance procurement. The committee recommends an increase of \$1,285.0 million in SCN for procurement of the LPD-17 class ship, designated as LPD-25. This would allow the Secretary of the Navy to enter into a contract for LPD-25 in fiscal year 2007, rather than fiscal year 2008 under the current Navy plan.

The budget request for fiscal year 2006 included LPD-25 procurement for fiscal year 2007 as the ninth ship of a twelve ship program. The budget request for fiscal year 2007 truncated the LPD-17 class to nine ships and delayed LPD-25 procurement to fiscal year 2008. The committee is aware that procurement of LPD-25 in fiscal year 2007 will save \$113.1 million in LPD-25 procurement cost by avoiding construction delays, escalation impacts, and loss of learning. Further, procurement of LPD-25 in 2007 will result in delivering this vital warfighting capability to the fleet at the earliest schedule possible, helping to reduce existing Marine Corps lift capability shortfalls. Additional funding for the LPD-25 has been included on the Chief of Naval Operations' unfunded priorities list.

The committee is concerned that the Secretary of the Navy's report to Congress on the long-range plan for construction of naval vessels calls for a reduction of six Expeditionary Warfare ships. This reduced expeditionary force size, which also reduces the LPD-17 class to nine ships, does not meet the Navy's established 2.5 Marine Expeditionary Brigade (MEB) lift requirement. In testimony before the Seapower Subcommittee of the Committee on Armed Services in March 2006, the Marine Corps stated that, "Limiting the LPD-17 production line to 9 ships places the Marine Corps at grave/significant risk by further decrementing the MEB equipment for the assault echelon." As the Navy continues to evolve future lift requirements and evaluates capabilities that will comprise the expeditionary strike and sea basing forces, the committee strongly encourages the Navy to include funds for LPD-26 in the fiscal year 2008 budget

request as the most cost effective near-term means to satisfy projected lift requirements. (Pages 72-73)

Regarding LHA-7, the report states:

The committee recommends an increase of \$175.0 million in Shipbuilding and Conversion, Navy (SCN) for advance procurement of the second ship of the LHA replacement (LHA(R)) class, designated LHA-7. This would allow the Secretary of the Navy to enter into a contract for LHA-7 advance procurement in fiscal year 2007, rather than fiscal year 2009 under the current plan.

The Secretary of the Navy's fiscal year 2007 report on the long-range plan for the construction of naval vessels identifies a requirement to procure the LHA replacement ships at a stable rate of one ship every 3 years, commencing in 2007. In testimony before the Committee on Armed Services, the Secretary of the Navy emphasized his number one priority is to stabilize the shipbuilding program to achieve the program's critical affordability objectives. The committee understands that material cost increases and excess inflation have been notable factors in cost growth of prior year ship programs. Conversely, savings of approximately 15 percent have historically been achieved through the economic order quantity procurement of material for multiple ships of a class.

The Navy plans to procure significant material for LHA-6 in fiscal year 2007, and further plans advance procurement for LHA-7 in fiscal year 2009. In view of the significant potential material cost savings provided by combining material procurement for LHA-7 with LHA-6, the committee recommends an increase of \$175.0 million in SCN for LHA-7. (Page 73)

Regarding the MPF(F) program for implementing the sea basing concept, the report states:

The Navy's long-range plan for future force structure includes \$14.5 billion for the development and construction of Maritime Prepositioning Force (Future) (MPF(F)) ships and related enabling technologies in support of sea basing. The budget request included \$127.7 million in PE 63236N and PE 48042N for the purpose of developing concepts of operation and enabling technologies for the Sea Base. The first MPF(F) ships are planned for procurement in fiscal year 2009, with the Sea Base initial operating capability in 2016.

The Senate report accompanying S. 1042 (S.Rept. 109-69) of the National Defense Authorization Act for Fiscal Year 2006 identified concerns regarding whether the future concept of sea basing is technically feasible and fiscally prudent. The committee understands that sea basing fundamentally comprises a range of capabilities stretching across prepositioning, sealift, expeditionary force, and aircraft carrier operations all of which are employed by the fleet today when called to put forces ashore. The future Sea Base envisioned by the Navy would include MPF(F) squadrons capable of supporting brigade-size assault forces, with automated warehousing and selective offload capability, heavy seas ship-to-ship cargo transfer capability, mobile landing platforms, and ship-to-shore connectors. Further, the MPF(F) squadron could sustain the force ashore for extended periods without reliance on access to other nations' ports or bases.

The large investment required by the MPF(F) sea basing capabilities requires careful assessment regarding the concept of operations for the MPF(F) squadrons. Specific access-denial scenarios, which would dictate employing the MPF(F) ships, need to be understood against the backdrop of the full spectrum of inter-service and inter-agency alternatives for establishing a point of departure for ground forces. To the extent that MPF(F) ships are maintained in a ready status, similar to their prepositioning counterparts, the timeline for deploying the MPF(F) ships and the crewing concept for their operations become important factors in scenario planning for the Sea Base. Similarly, an understanding of capstone requirements for probability of raid annihilation and other force defense requirements for the Sea Base is critical, since the MPF(F) ships will potentially embark a brigade-size force, yet they lack the self-defense features of expeditionary warships.

Technical challenges confronting the development of the critical enabling technologies for sea basing need to be assessed, and the risks need to be sufficiently understood to be able to warrant near-term decisions regarding further investment in MPF(F) ship procurement. The committee believes it is important to ensure that these technologies can reliably support the movement of supplies and equipment in heavy seas, at a rate that will sustain a ground force engaged in combat, before large investments are made in MPF(F) ships.

The Navy faces significant financial challenges as it proceeds to build the 313-ship fleet defined by the future force structure plan. In weighing the investment in MPF(F) capability, the committee needs to have clear insight to the full benefit the Navy intends to derive from this concept, an appreciation that the sea basing mission is not better achieved by other measures, and full confidence that the development efforts in question are achievable in the timeframe planned and budgeted. Accordingly, the committee directs the Secretary of the Navy to submit a report to the congressional defense committees with the fiscal year 2008 budget request, addressing: (1) the Sea Base concept of operations for the MPF(F) ships, including timelines that detail force deployment and underway operations in defense planning scenarios; (2) Sea Base capstone requirements that address defense of the MPF(F) ships against swarming boats, diesel submarine threats, or high density anti-ship cruise missile raids; (3) MPF(F) key performance parameters; (4) MPF(F) crewing concepts, and assessment of related cost and operational considerations; (5) refined ship cost estimates and total program costs, including development and procurement for connectors and other capabilities required by the Sea Base; (6) the management plan, including consideration for assignment as a Major Defense Acquisition Program, for overseeing end-to-end development and integration of this joint system-of-systems; and (7) a program roadmap that outlines the development, test, and integration plan for the enabling technologies with the MPF(F) platforms. (Pages 113-115)

Regarding the sea basing concept, the report also states:

The budget request included \$90.0 million in PE 62236N, for applied research on warfighter sustainment technologies. The committee recommends a decrease of \$7.0 million in PE 62236N to limit the number of demonstrators developed under the sea basing concept until it is better defined and has established transition paths to acquisition programs. (Page 171)

**FY2007 Defense Appropriations Bill (H.R. 5631)**

**House.** The House Appropriations Committee, in its report (H.Rept. 109-504 of June 16, 2006), recommends approving the Navy's request for FY2007 advance procurement funding for a ninth LPD-17 class ship in FY2008, and the Navy's request for FY2007 procurement funding for LHA-6 (page 141). The report recommends reducing by \$43.4 million the Navy's request for FY2007 procurement funding to complete LPD-17 class ships procured in prior years (page 140). The report recommends approval of the FY2007 request for funding for the National Defense Sealift Fund (NDSF), including the requested amount for procurement of a TAKE-1 class cargo ship. The report states:

The Committee is aware of the serious currency fluctuation losses that have occurred on the T-AKE main propulsion diesel engine contract. These losses have continued to accrue over several years even though the vendor's performance has met Navy expectations. The Committee directs the Navy to review this situation and submit a plan for addressing it to the congressional defense committees not later than February 1, 2007. (Page 299)

**Senate.** The Senate Appropriations Committee, in its report (S.Rept. 109-292 of July 25, 2006) on H.R. 5631, recommends approving the Navy's request for FY2007 advance procurement funding for a ninth LPD-17 class ship in FY2008, and the Navy's request for FY2007 procurement funding for LHA-6 (page 114). The report recommends disapproval of the request within the NDSF for funding to procure a TAKE-1 class cargo ship. The report states:

The Committee remains concerned about the construction status of T-AKE Class ships. While construction of the fiscal year 2003 appropriated ship commenced in February of this year, the Navy has yet to commence construction on the five previously appropriated ships. In fact, over \$2,400,000,000 of funds previously appropriated for construction of these ships remained unexpended as of April 2006. Thus, the Committee views the fiscal year 2007 budget request for the 10th ship of the class as funding ahead of need. The Committee, therefore, recommends withholding funding for an additional T-AKE until further progress is made on those ships previously appropriated. (Page 221)