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Navy LPD-17 Flight II and LHA Amphibious Ship Programs: Background and Issues for Congress

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Committees of Congress

Summary

This report discusses two types of amphibious ships being procured for the Navy: LPD-17 Flight II class amphibious ships and LHA-type amphibious assault ships. Both types are built by Huntington Ingalls Industries/Ingalls Shipbuilding (HII/Ingalls) of Pascagoula, MS. Section 124 of the FY2021 National Defense Authorization Act (NDAA) (H.R. 6395/P.L. 116-283 of January 1, 2021) provides authority for the Navy to use a block buy contract for the procurement of three LPD-17 class ships and one LHA-type amphibious assault ship.

One issue for Congress is whether to approve, reject, or modify the Navy's FY2022 procurement funding requests for the LPD-17 Flight II and LHA programs. The Navy's proposed FY2022 budget requests $60.6 million in procurement funding to complete the procurement cost of the second LPD-17 Flight II class ship, LPD-31, and $68.6 million in procurement funding to help fund the procurement cost of the amphibious assault ship LHA-9.

Another issue for Congress concerns the Navy's force-level goals for amphibious ships and the effect these goals could have on future procurement of LPD-17 Flight II and LHA-type ships

Another issue for Congress is whether the Navy intends to use the block buy contracting authority provided by Section 124 of the FY2021 NDAA, and if not, then what, if anything, Congress should do in response.

Another issue for Congress concerns the treatment of LHA-9's procurement date in the Navy's FY2022 budget submission. The Navy's FY2021 budget submission presented the second LPD-17 Flight II class amphibious ship, LPD-31, as a ship requested for procurement in FY2021, and the next amphibious assault ship, LHA-9, as a ship projected for procurement in FY2023. Consistent with congressional action on the Navy's FY2020 and FY2021 budgets, this CRS report treats LPD-31 and LHA-9 as ships that Congress procured (i.e., authorized and provided procurement—not advance procurement—funding for) in FY2020 and FY2021, respectively. The Department of Defense's (DOD's) decision to present LPD-31 and LHA-9 in its FY2021 budget submission as ships requested for procurement in FY2021 and FY2023, respectively, even though Congress procured the ships in FY2020 and FY2021, respectively, posed an institutional issue for Congress regarding the preservation and use of Congress's power of the purse under Article 1 of the Constitution, and for maintaining Congress as a coequal branch of government relative to the executive branch. Section 126 of the FY2021 National Defense Authorization Act (NDAA) (H.R. 6395/P.L. 116-283 of January 1, 2021) states

> SEC. 126. TREATMENT IN FUTURE BUDGETS OF THE PRESIDENT OF SYSTEMS ADDED BY CONGRESS.
>
> In the event the procurement quantity for a system authorized by Congress in a National Defense Authorization Act for a fiscal year, and for which funds for such procurement quantity are appropriated by Congress in the Shipbuilding and Conversion, Navy account for such fiscal year, exceeds the procurement quantity specified in the budget of the President, as submitted to Congress under section 1105 of title 31, United States Code, for such fiscal year, such excess procurement quantity shall not be specified as a new procurement quantity in any budget of the President, as so submitted, for any fiscal year after such fiscal year.

The Navy's FY2022 budget submission, like its FY2021 budget submission, treats LHA-9 as a ship to be procured in FY2023. A question for Congress is whether this is consistent with Section 126 of the FY2021 NDAA, and if not, what, if anything, Congress should do in response.

Contents

Introduction 1
Background 1
Amphibious Ships in General 1
Roles and Missions 1
Types of Amphibious Ships 2
Amphibious Ship Force Level at End of FY2020 2
Amphibious Ship Force-Level Goal 3
Current Force-Level Goal 3
Potential New Force-Level Goal 3
Existing LSD-41/49 Class Ships 6
Amphibious Warship Industrial Base 6
LPD-17 Flight II and LHA Programs 7
LPD-17 Flight II Program 7
LHA-9 Amphibious Assault Ship 9
FY2021 Legislation 10
Authority for Block Buy Contract 10
Ship Procurement Dates 10
FY2022 Procurement Funding Request 11
Issues for Congress 11
FY2022 Procurement Funding 11
Future Amphibious Ship Force-Level Goal 12
Use of Block Buy Contract Authority 13
Treatment of LHA-9 Procurement Date in FY2022 Budget Submission 14
Potential Impact of COVID-19 Pandemic 15
Technical and Cost Risk in LPD-17 Flight II and LHA Programs 15
LPD-17 Flight II Program 15
LHA Program 16
Legislative Activity for FY2022 17
Summary of Congressional Action on FY2022 Funding Request 17
FY2022 National Defense Authorization Act (H.R. 4350/S. 2792/S. 1605/P.L. 117-81) 18
House 18
Senate 18
Enacted Version 20
FY2022 DOD Appropriations Act (H.R. 4432/S. XXXX) 21
House 21
Senate 21

Figures

Figure 1. LSD-41/49 Class Ship 7
Figure 2. LPD-17 Flight II Design 8
Figure 3. LHA-8 Amphibious Assault Ship 10

Tables

Table 1. Current and Potential New Amphibious Ship Force-Level Goals 6
Table 2. Summary of Congressional Action on FY2022 Procurement Funding Request 18

Appendixes

Appendix. Procurement Dates of LPD-31 and LHA-9 22

Contacts

Author Information..... 25

Introduction

This report provides background information and issues for Congress on two types of amphibious ships being procured for the Navy: LPD-17 Flight II class amphibious ships and LHA-type amphibious assault ships. Both types are built by Huntington Ingalls Industries/Ingalls Shipbuilding (HII/Ingalls) of Pascagoula, MS.

The Navy's LPD-17 Flight II and LHA shipbuilding programs pose multiple oversight issues for Congress. Congress's decisions on the LPD-17 Flight II and LHA programs could affect Navy capabilities and funding requirements and the shipbuilding industrial base. They could also have implications for the preservation and use of Congress's power of the purse under Article 1 of the Constitution, and for maintaining Congress as a coequal branch of government relative to the executive branch.

A separate CRS report discusses the Navy's new Light Amphibious Warship (LAW) program.[1]

Background

Amphibious Ships in General

Roles and Missions

Navy amphibious ships are operated by the Navy, with crews consisting of Navy personnel. The primary function of Navy amphibious ships is to lift (i.e., transport) embarked U.S. Marines and their equipment and supplies to distant operating areas, and enable Marines to conduct expeditionary operations ashore in those areas. Although amphibious ships are designed to support Marine landings against opposing military forces, they are also used for operations in permissive or benign situations where there are no opposing forces. Due to their large storage spaces and their ability to use helicopters and landing craft to transfer people, equipment, and supplies from ship to shore without need for port facilities,[2] amphibious ships are potentially useful for a range of combat and noncombat operations.[3]

On any given day, some of the Navy's amphibious ships, like some of the Navy's other ships, are forward-deployed to various overseas operating areas. Forward-deployed U.S. Navy amphibious ships are often organized into three-ship formations called amphibious ready groups (ARGs).[4] On

[1] CRS Report R46374, *Navy Light Amphibious Warship (LAW) Program: Background and Issues for Congress*, by Ronald O'Rourke.

[2] Amphibious ships have berthing spaces for Marines; storage space for their wheeled vehicles, their other combat equipment, and their supplies; flight decks and hangar decks for their helicopters and vertical take-off and landing (VTOL) fixed-wing aircraft; and well decks for storing and launching their landing craft. (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.)

[3] Amphibious ships and their embarked Marine forces can be used for launching and conducting humanitarian-assistance and disaster-response (HA/DR) operations; peacetime engagement and partnership-building activities, such as exercises; other nation-building operations, such as reconstruction operations; operations to train, advise, and assist foreign military forces; peace-enforcement operations; noncombatant evacuation operations (NEOs); maritime-security operations, such as anti-piracy operations; smaller-scale strike and counterterrorism operations; and larger-scale ground combat operations. Amphibious ships and their embarked Marine forces can also be used for maintaining forward-deployed naval presence for purposes of deterrence, reassurance, and maintaining regional stability.

[4] An ARG notionally includes three amphibious ships—one LHA or LHD, one LSD, and one LPD. These three

average, two or perhaps three ARGs might be forward-deployed at any given time. Amphibious ships are also sometimes forward-deployed on an individual basis to lower-threat operating areas, particularly for conducting peacetime engagement activities with foreign countries or for responding to smaller-scale or noncombat contingencies.

Types of Amphibious Ships

Current Navy 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) amphibious ships designated LPD or LSD, which are sometimes called "small-deck" amphibious ships.[5] The LHAs and LHDs have large flight decks and hangar decks for embarking and operating numerous helicopters and vertical or short takeoff and landing (V/STOL) 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 individually embark more Marines and equipment than the LSDs and LPDs.

Amphibious Ship Force Level at End of FY2020

The Navy's force of amphibious ships at the end of FY2020 included 33 ships, including 10 amphibious assault ships (2 LHAs and 8 LHDs), 11 LPD-17 Flight I ships, and 12 LSD-41/49 class ships. The LSD-41/49 class ships, which are the ships to be replaced by LPD-17 Flight II class ships, are discussed in the next section.

One of the Navy's LHDs—*Bonhomme Richard* (LHD-6)—was extensively damaged by a fire in July 2020. It was decommissioned on April 15, 2021, and will be scrapped.[6] Excluding LHD-6,

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amphibious ships 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. ARGs can operate in conjunction with carrier strike groups (CSGs) to form larger naval task forces; ARGs can also be broken up into individual ships that are sent to separate operating areas.

[5] U.S. Navy amphibious ships have designations starting with the letter L, as in amphibious *landing*. LHA can be translated as landing ship, helicopter-capable, assault; LHD can be translated as landing ship, helicopter-capable, well deck; LPD can be translated as landing ship, helicopter platform, well deck; and LSD can be translated as landing ship, well deck. Whether noted in the designation or not, almost all these ships have well decks. The exceptions are LHAs 6 and 7, which do not have well decks and instead have expanded aviation support capabilities. For an explanation of well decks, see footnote 2.

[6] The four-day (some sources say five-day) fire on LHD-6 began on July 12, 2020, while the ship was at pier in San Diego. At the time of the fire, the ship was 22 years old and had thus expended about 50% of its expected service life of 40 to 45 years. Following the fire, the Navy spent months assessing condition of the ship and examining options for repairing it and returning it to service in some capacity. On November 30, 2020, the Navy announced that due to the estimated cost and time to repair the ship and return it to service, the Navy had decided to decommission the ship and scrap it. The Navy stated that about 60% of the ship was ruined and would need to be rebuilt or replaced. Repairing the ship and returning it to service as an LHD, the Navy estimated, would cost between $2.5 billion and $3.2 billion and take about five to seven years to complete. (By then, portions of the ship would be 27 to 29 years old.) By comparison, the Navy said, a new replacement LHA-type ship would cost an estimated $4.1 billion to procure and take about six years to build. (The Navy's estimated repair cost for LHD-6 equates to about 61% to 78% of the Navy's estimated procurement cost for a replacement LHA. A new-built LHA would have a full 40- to 45-year expected service life.) Repairing LHD-6 and reconfiguring it for use as either a hospital ship or a tender (i.e., a ship used to repair, maintain, or otherwise support other Navy ships), the Navy estimated, would cost more than $1 billion, and also take five to seven years to complete. The Navy stated that designing and building a new hospital ship or tender would cost less than repairing LHD-6 and converting it into a hospital ship or tender. The Navy estimated that decommissioning the ship, salvaging usable parts of it for use on other Navy ships (which began in September 2020), towing the ship to its scrapping site, and scrapping the ship would cost about $30 million. (See Megan Eckstein, "UPDATED: Navy Will

the Navy's force of amphibious ships at the end of FY2020 included 32 ships, including 9 LHA/LHD-type amphibious assault ships.

Amphibious Ship Force-Level Goal

Current Force-Level Goal

The Navy's current force-level goal, released in December 2016, calls for achieving and maintaining a 355-ship fleet that includes 38 amphibious ships—12 LHA/LHD-type ships, 13 LPD-17 Flight I class ships, and 13 LPD-17 Flight II class ships (12+13+13).[7]

Potential New Force-Level Goal

Overview

The Navy and DOD since 2019 have been working to develop a new force-level goal to replace the Navy's current 355-ship force-level goal. This new force-level goal is expected to introduce a once-in-a-generation change in fleet architecture, meaning basic the types of ships that make up the Navy and how these ships are used in combination with one another to perform Navy missions. This new fleet architecture is expected to be more distributed than the fleet architecture reflected in the 355-ship goal or previous Navy force-level goals. In particular, the new fleet architecture is expected to feature

- a smaller proportion of larger ships (such as large-deck aircraft carriers, cruisers, destroyers, large amphibious ships, and large resupply ships);
- a larger proportion of smaller ships (such as frigates, corvettes, smaller amphibious ships, smaller resupply ships, and perhaps smaller aircraft carriers); and
- a new third tier of surface vessels about as large as corvettes or large patrol craft that will be either lightly manned, optionally manned, or unmanned, as well as large unmanned underwater vehicles (UUVs).

Navy and DOD leaders believe that shifting to a more distributed fleet architecture is

- **operationally necessary**, to respond effectively to the improving maritime anti-access/area-denial (A2/AD) capabilities of other countries, particularly China;[8]

Scrap USS Bonhomme Richard," USNI News, November 30, 2020; Geoff Ziezulewicz, "Navy Will Scrap Fire-Ravaged Bonhomme Richard," *Navy Times*, November 20, 2020; Nancy A. Youssef, "Navy Will Decommission Ship Damaged in Five-Day Blaze," *Wall Street Journal*, November 30, 2020; Andrew Dyer, "Ravaged by Fire, USS Bonhomme Richard Bound for Scrapyard, Navy Says," *San Diego Union-Tribune*, November 30, 2020.)

[7] For more on the Navy's 355-ship force-level goal, see CRS Report RL32665, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*, by Ronald O'Rourke. For a more detailed review of the 38-ship force structure requirements, see Appendix A of archived CRS Report RL34476, *Navy LPD-17 Amphibious Ship Procurement: Background, Issues, and Options for Congress*, by Ronald O'Rourke.

[8] See, for example, David B. Larter, "With China Gunning for Aircraft Carriers, US Navy Says It Must Change How It Fights," *Defense News*, December 6, 2019; Arthur H. Barber, "Redesign the Fleet," *U.S. Naval Institute Proceedings*, January 2019. Some observers have long urged the Navy to shift to a more distributed fleet architecture, on the grounds that the Navy's current architecture—which concentrates much of the fleet's capability into a relatively limited number of individually larger and more expensive surface ships—is increasingly vulnerable to attack by the improving A2/AD capabilities (particularly anti-ship missiles and their supporting detection and targeting systems) of potential

- **technically feasible** as a result of advances in technologies for UVs and for networking widely distributed maritime forces that include significant numbers of UVs; and
- **affordable**—no more expensive, and possibly less expensive, than the current fleet architecture, so as to fit within expected future Navy budgets.[9]

Operational Rationale

To improve their ability to perform various missions in coming years, including a potential mission of countering Chinese forces in a possible conflict in the Western Pacific, the Navy and Marine Corps want to implement a new operational concept called Distributed Maritime Operations (DMO).[10] DMO calls for U.S. naval forces (meaning the Navy and Marine Corps)[11] to operate at sea in a less concentrated, more distributed manner, so as to complicate an adversary's task of detecting, identifying, tracking, and targeting U.S. naval forces, while still being able to bring lethal force to bear against adversary forces. To support the implementation of DMO, the Navy wants to shift to the new and more distributed fleet architecture outlined above.

In parallel with DMO, and with an eye toward potential conflict scenarios in the Western Pacific against Chinese forces, the Marine Corps has developed two supporting operational concepts, called Littoral Operations in a Contested Environment (LOCE) and Expeditionary Advanced Base Operations (EABO). Under the EABO concept, the Marine Corps envisions, among other things, having reinforced-platoon-sized Marine Corps units maneuver around the theater, moving from island to island, to fire anti-ship cruise missiles (ASCMs) and perform other missions so as to contribute, alongside Navy and other U.S. military forces, to U.S. operations to counter and deny sea control to Chinese forces.

More specifically, the Marine Corps states that the EABO concept includes, among other things, establishing and operating "multiple platoon-reinforced-size expeditionary advance base sites that

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adversaries, particularly China. Shifting to a more distributed architecture, these observers have argued, would

- complicate an adversary's targeting challenge by presenting the adversary with a larger number of Navy units to detect, identify, and track;
- reduce the loss in aggregate Navy capability that would result from the destruction of an individual Navy platform;
- give U.S. leaders the option of deploying USVs and UUVs in wartime to sea locations that would be tactically advantageous but too risky for manned ships; and
- increase the modularity and reconfigurability of the fleet for adapting to changing mission needs.

For more on China's maritime A2/AD capabilities, see CRS Report RL33153, *China Naval Modernization: Implications for U.S. Navy Capabilities—Background and Issues for Congress*, by Ronald O'Rourke.

[9] For additional discussion, see CRS Report RL32665, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*, by Ronald O'Rourke.

[10] For additional discussion, see CRS Report RL32665, *Navy Force Structure and Shipbuilding Plans: 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.

[11] Although the term *naval* is often used to refer specifically to the Navy, it more properly refers to both the Navy and Marine Corps, because both the Navy and Marine Corps are naval services. Even though the Marine Corps sometimes operates for extended periods as a land fighting force (as it has done in recent years, for example, in Afghanistan and Iraq), and is often thought of as the country's second land army, it nevertheless is, by law, a naval service. 10 U.S.C. §8001(a)(3) states, "The term 'member of the naval service' means a person appointed or enlisted in, or inducted or conscripted into, the Navy or the Marine Corps." DON officials sometimes refer to the two services as the Navy-Marine Corps team. For additional discussion, see CRS In Focus IF10484, *Defense Primer: Department of the Navy*, by Ronald O'Rourke.

can host and enable a variety of missions such as long-range anti-ship fires, forward arming and refueling of aircraft, intelligence, surveillance, and reconnaissance of key maritime terrain, and air-defense and early warning,"[12] The use of Marine Corps units to contribute to U.S. sea-denial operations against an opposing navy by shooting ASCMs would represent a new mission for the Marine Corps.[13]

December 9, 2020, Shipbuilding Document

On December 9, 2020, the Trump Administration released a long-range Navy shipbuilding document that called for a Navy with a more distributed fleet architecture, including 382 to 446 manned ships and 143 to 242 large unmanned surface and underwater vehicles (UVs). Within the total of 382 to 446 manned ships, the document called for an amphibious fleet of 61 to 67 amphibious ships, including 9 to 10 LHA/LHD-type ships and a combined total of 52 to 57 LPD-type ships and LAWs.

The December 9, 2020, document did not break down the above figure of 52 to 57 amphibious ships into separate figures for LPD-type ships and LAWs. As discussed in the CRS report on the LAW program, the Navy has envisaged procuring a notional total of 28 to 30 LAWs. Subtracting out 28 to 30 LAWs would leave a potential total of 22 to 29 LPD-17 class ships, including 13 LPD-17 Flight I ships procured in earlier years, and 9 to 16 LPD-17 Flight II class ships.

The December 9, 2020, document also calls for a future Navy with 0 to 6 light aircraft carriers (CVLs). The design for such carriers, if any are procured, might be based on the LHA design.[14]

June 17, 2021, Shipbuilding Document

On June 17, 2021, the Biden Administration released a long-range Navy shipbuilding document that calls for a Navy with a more distributed fleet architecture, including 321 to 372 manned ships and 77 to 140 large unmanned surface and underwater UVs. Within the total of 321 to 372 manned ships, the document calls for an amphibious fleet of 48 to 63 amphibious ships, including 8 to 9 LHA/LHD-type ships, 16 to 19 LPD-type ships, and 24 to 35 LAWs. The document stated: "New capability concepts like a light aircraft carrier continue to be studied and analyzed to fully illuminate their potential to execute key mission elements in a more distributed manner and to inform the best mix of a future force."[15]

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[12] Emailed statement from Marine Corps as quoted in Shawn Snow, "New Marine Littoral Regiment, Designed to Fight in Contested Maritime Environment, Coming to Hawaii," *Marine Times*, May 14, 2020.

[13] For press articles discussing these envisioned operations, see, for example, Justin Katz, "Marines' New Warfighting Concept Focuses on Small, Agile Forces with an Eye on China," *Breaking Defense*, December 1, 2021; Megan Eckstein, "CMC Berger Outlines How Marines Could Fight Submarines in the Future," *USNI News*, December 8, 2020; David Axe, "Meet Your New Island-Hopping, Missile-Slinging U.S. Marine Corps," *Forbes*, May 14, 2020; Shawn Snow, "New Marine Littoral Regiment, Designed to Fight in Contested Maritime Environment, Coming to Hawaii," *Marine Times*, May 14, 2020; William Cole (Honolulu Star-Advertiser), "The Marine Corps Is Forming a First-of-its-Kind Regiment in Hawaii," *Military.com*, May 12, 2020; Joseph Trevithick, "Marines To Radically Remodel Force, Cutting Tanks, Howitzers In Favor Of Drones, Missiles," *The Drive*, March 23, 2020; Chris "Ox" Harmer, "Marine Boss's Audacious Plan To Transform The Corps By Giving Up Big Amphibious Ships," *The Drive*, September 5, 2019.

[14] For additional discussion, see CRS Report RS20643, *Navy Ford (CVN-78) Class Aircraft Carrier Program: Background and Issues for Congress*, by Ronald O'Rourke.

[15] U.S. Navy, *Report to Congress on the Annual Long-Range Plan for Construction of Naval Vessels for Fiscal Year 2022*, June 2021, p. 4.

Current Goal Compared with December 9, 2020, and June 17, 2021, Documents

Table 1 compares the 355-ship force-level goal for amphibious ships to the emerging force-level goals for amphibious ships in the December 9, 2020, long-range Navy shipbuilding document; the June 17, 2021, long-range Navy shipbuilding document; and remarks made at a conference by the Chief of Naval Operations on February 18, 2022.

Table 1. Current and Potential New Amphibious Ship Force-Level Goals

Ship type	355-ship goal	Emerging force-level goal in Trump Administration December 9, 2020, document	Emerging force-level goal in Biden Administration June 17, 2021, document	February, 18, 2022, remarks by Chief of Naval Operations
Large-deck (LHA/LHD)	12	9 to 10	8 to 9	9
LPD-type	26	n/a	16 to 19	19 or 20
Subtotal larger ships (LHA/LHD-type and LPD-type)	***38***	***n/a***	***24 to 28***	***28 or 29***
Light Amphibious Warships (LAWs)	0	n/a	24 to 35	30 (or more)
LPD-type and LAWs combined	26	52 to 57	40 to 54	49 or 50 (or more)
TOTAL	**38**	**61 to 67**	**48 to 63**	**58 or 59 (or more)**

Sources: Table prepared by CRS based on U.S. Navy data and (for final column) Sam LaGrone and Mallory Shelbourne, "CNO Gilday: 'We Need a Naval Force of Over 500 Ships,'" *USNI News*, February 18, 2022; Justin Katz, "CNO Lays Out Future Fleet He Wants: 500 ships, 12 Carriers, 150 Unmanned Vessels," *Breaking Defense*, February 18, 2022; Richard R. Burgess, "CNO Is 'Sighted on a Bigger, More Capable Navy,'" *Seapower*, February 22, 2022. The *Breaking Defense* article of February 18, 2022, article reported the figure for LAW as 20 to 30.

Note: n/a means not available.

Existing LSD-41/49 Class Ships

The Navy's 12 aging Whidbey Island/Harpers Ferry (LSD-41/49) class ships (**Figure 1**) were procured between FY1981 and FY1993 and entered service between 1985 and 1998.[16] The LSD-41/49 class includes 12 ships because the class was built at a time when the Navy was planning a 36-ship (12+12+12) amphibious force. LD-41/49 class ships have an expected service life of 40 years; the first ship will reach that age in 2025. The Navy's FY2020 30-year shipbuilding plan projected that the 12 ships would retire between FY2026 and FY2038.

Amphibious Warship Industrial Base

Huntington Ingalls Industries/Ingalls Shipbuilding (HII/Ingalls) of Pascagoula, MS, is the Navy's current builder of both LPDs and LHA-type ships, although other U.S. shipyards could also build amphibious ships.[17] The amphibious warship industrial base also includes many supplier firms in

[16] The class was initially known as the Whidbey Island (LSD-41) class. The final four ships in the class, beginning with *Harpers Ferry* (LSD-49), were built to a modified version of the original LSD-41 design, prompting the name of the class to be changed to the Harpers Ferry/Whidbey Island (LSD-41/49) class. Some sources refer to these 12 ships as two separate classes.

[17] Amphibious ships could also be built by U.S. shipyards such as HII/Newport News Shipbuilding (HII/NNS) of Newport News, VA; General Dynamics/National Steel and Shipbuilding Company (GD/NASSCO) of San Diego, CA;

numerous U.S. states that provide materials and components for Navy amphibious ships. HII states that the supplier base for its LHA production line, for example, includes 457 companies in 39 states.[18]

Figure 1. LSD-41/49 Class Ship

Source: Cropped version of U.S. Navy photo dated July 13, 2013, showing the *Pearl Harbor* (LSD-52).

LPD-17 Flight II and LHA Programs

LPD-17 Flight II Program

Program Origin and Name

The Navy decided in 2014 that the LSD-41/49 replacement ships would be built to a variant of the design of the Navy's San Antonio (LPD-17) class amphibious ships. (A total of 13 LPD-17 class ships [LPDs 17 through 29] were procured between FY1996 and FY2017.) Reflecting that decision, the Navy announced on April 10, 2018, that the replacement ships would be known as the LPD-17 Flight II class ships.[19] By implication, the Navy's original LPD-17 design became the LPD-17 Flight I design. The first LPD-17 Flight II class ship is designated LPD-30. Subsequent LPD-17 Flight II class ships are to be designated LPD-31, LPD-32, and so on.

Whether the LPD-17 Flight II class ships constitute their own shipbuilding program or an extension of the original LPD-17 shipbuilding program might be a matter of perspective. As a matter of convenience, this CRS report refers to the Flight II class shipbuilding effort as a separate program. Years from now, LPD-17 Flight I and Flight II class ships might come to be

and (for LPDs at least) General Dynamics/Bath Iron Works (GD/BIW) of Bath, ME. The Navy over the years has from time to time conducted competitions among shipyards for contracts to build amphibious ships.

[18] Source: HII statement as quoted in Frank Wolfe, "Navy Budget Plan Delays Buy of Amphibious Ships," *Defense Daily*, March 15, 2019.

[19] Megan Eckstein, "Navy Designates Upcoming LX(R) Amphibs as San Antonio-Class LPD Flight II," *USNI News*, April 11, 2018. Within a program to build a class of Navy ships, the term *flight* refers to a group of ships within the class that are built to a particular version of the class design. The LPD-17 Fight II program was previously known as the LX(R) program and before that as the LSD(X) program.

known collectively as either the LPD-17 class, the LPD-17/30 class, or the LPD-17 and LPD-30 classes.

On October 10, 2019, the Navy announced that LPD-30, the first LPD-17 Flight II class ship, will be named Harrisburg, for the city of Harrisburg, PA.[20] As a consequence, LPD-17 Flight II, if treated as a separate class, would be referred to as Harrisburg (LPD-30) class ships.

Design

Compared to the LPD-17 Flight I design, the LPD-17 Flight II design (**Figure 2**) is somewhat less expensive to procure, and in some ways less capable—a reflection of how the Flight II design was developed to meet Navy and Marine Corps operational requirements while staying within a unit procurement cost target that had been established for the program.[21] In many other respects, however, the LPD-17 Flight II design is similar in appearance and capabilities to the LPD-17 Flight I design. Of the 13 LPD-17 Flight I ships, the final two (LPDs 28 and 29) incorporate some design changes that make them transitional ships between the Flight I design and the Flight II design.

Figure 2. LPD-17 Flight II Design

Artist's rendering

Source: Cropped version of Huntington Ingalls Industries rendering accessed March 2, 2021, at https://newsroom.huntingtoningalls.com/file?fid=5c9a85ca2cfac22774673031.

[20] Secretary of the Navy Public Affairs, "SECNAV Names Future Amphibious Transport Dock Ship in Honor of the city of Harrisburg, Pennsylvania," *Navy News Service*, October 10, 2019.

[21] The Navy's unit procurement cost targets for the LPD-17 Flight II program were $1,643 million in constant FY2014 dollars for the lead ship, and an average of $1,400 million in constant FY2014 dollars for ships 2 through 11. (Source: Navy briefing on LX(R) program to CRS and CBO, March 23, 2015.) The cost target for the lead ship was greater than the cost target for the subsequent ships primarily because the procurement cost of the lead ship incorporates much or all of the detail design and nonrecurring engineering (DD/NRE) costs for the program. Incorporating much or all of the DD/NRE costs of for a shipbuilding program into the procurement cost of the lead ship in the program is a traditional Navy shipbuilding budgeting practice.

Procurement Quantity

Under the Navy's current 38-ship amphibious force-level goal, the Navy would procure a total of 13 LPD-17 Flight II class ships.

Procurement Schedule

The first LPD-17 Flight II class ship, LPD-30, was procured in FY2018. The Navy's FY2021 budget submission presented the second LPD-17 Flight II class amphibious ship, LPD-31, as a ship requested for procurement in FY2021. Consistent with congressional action on the Navy's FY2020 budget, this CRS report treats LPD-31 as a ship that Congress procured (i.e., authorized and provided procurement—not advance procurement—funding for) in FY2020. (For additional discussion, see the **Appendix**.) Under the Navy's FY2021 budget submission, the third and fourth LPD-17 Flight II class ships (i.e., LPDs 32 and 33) were programmed for procurement in FY2023 and FY2025. The December 9, 2020, long-range navy shipbuilding document submitted by the Trump Administration similarly showed the third and fourth LPD-17 Flight II class ships as programmed for procurement in FY2023 and FY2025.

Procurement Cost

The Navy's FY2021 budget submission estimated the procurement costs of LPDs 30, 31, 32, and 33 as $1,819.6 million, $2,029.9 million, $1,847.6 million, and $1,864.7 million, respectively (i.e., about $1.8 billion, $2,0 billion, $1.8 billion, and $1.9 billion, respectively). As discussed below, Section 124 of P.L. 116-283 provides authority for the Navy to use a block buy contract for the procurement of three LPD-17 class ships and one LHA-type amphibious assault ship. Using block buy contracting could reduce the unit procurement costs of LPD-17 Flight II class ships.[22]

LHA-9 Amphibious Assault Ship

LHA-type amphibious assault ships are procured once every few years. LHA-8 (**Figure 3**) was procured in FY2017. The Navy's FY2021 budget submission estimated the procurement cost of LHA-9, if procured in FY2023, at $3,873.5 million (i.e., about $3.9 billion).

The Navy's FY2020 budget submission projected the procurement of the next amphibious assault ship, LHA-9, for FY2024. Some in Congress were interested in accelerating the procurement of LHA-9 from FY2024 to an earlier year, such as FY2020 or FY2021, in part to achieve better production learning curve benefits in shifting from production of LHA-8 to LHA-9 and thereby reduce LHA-9's procurement cost in real (i.e., inflation-adjusted) terms.

The Navy's FY2022 budget submission, like its FY2021 budget submission, presents LHA-9 as a ship projected for procurement in FY2023.[23] Consistent with congressional action on the Navy's FY2020 and FY2021 budgets, this CRS report treats LHA-9 as a ship that Congress procured

[22] For more on block buy contracting, see CRS Report R41909, *Multiyear Procurement (MYP) and Block Buy Contracting in Defense Acquisition: Background and Issues for Congress*, by Ronald O'Rourke. See also Megan Eckstein, "Ingalls Eyeing LPD Cost Reductions, Capability Increases As Future Fleet Design Evolves," *USNI News*, January 21, 2021.

[23] The Navy's FY2022 budget submission does not show an LHA as having been procured in FY2020 or FY2021, and refers to LHA-9 as an "FY23 ship." (*Department of Defense, Fiscal Year (FY) 2022 Budget Estimates, Navy, Justification Book Volume 1 of 1, Shipbuilding and Conversion, Navy*, May 2021, p. 271 [PDF page 291 of 390].)

(i.e., authorized and provided procurement—not advance procurement—funding for) in FY2021. (For additional discussion, see **Appendix**.)

FY2021 Legislation

Authority for Block Buy Contract

Section 124 of P.L. 116-283 permits the Navy to enter into a block buy contract in FY2021 for the procurement of three LPD-17 class ships and one LHA-type amphibious assault ship. Such a contract would be the first block buy contract to cover the procurement of ships from two separate ship classes. Using block buy contracting could reduce the unit procurement costs of LPD-17 Flight II and LHA-type ships and affect Congress's flexibility for making changes to Navy shipbuilding programs in response to potential changes in strategic or budgetary circumstances during the period covered by the block buy contract.[24]

Figure 3. LHA-8 Amphibious Assault Ship

Artist's rendering

Source: Rendering accompanying Tyler Rogoway, "The Next America Class Amphibious Assault Ship Will Almost Be In a Class of its Own," *The Drive*, April 17, 2018. A note on the photo credits the photo to HII.

Ship Procurement Dates

The Department of Defense's (DOD's) decision to present LPD-31 and LHA-9 in its FY2021 budget submission as ships requested for procurement in FY2021 and FY2023, respectively, even though Congress procured the two ships in FY2020 and FY2021, respectively, posed an institutional issue for Congress regarding the preservation and use of Congress's power of the

[24] For more on block buy contracting, see CRS Report R41909, *Multiyear Procurement (MYP) and Block Buy Contracting in Defense Acquisition: Background and Issues for Congress*, by Ronald O'Rourke. See also Megan Eckstein, "Ingalls Eyeing LPD Cost Reductions, Capability Increases As Future Fleet Design Evolves," *USNI News*, January 21, 2021.

purse under Article 1 of the Constitution, and for maintaining Congress as a coequal branch of government relative to the executive branch. Section 126 of the FY2021 National Defense Authorization Act (NDAA) (H.R. 6395/P.L. 116-283 of January 1, 2021) states

> SEC. 126. TREATMENT IN FUTURE BUDGETS OF THE PRESIDENT OF SYSTEMS ADDED BY CONGRESS.
>
> In the event the procurement quantity for a system authorized by Congress in a National Defense Authorization Act for a fiscal year, and for which funds for such procurement quantity are appropriated by Congress in the Shipbuilding and Conversion, Navy account for such fiscal year, exceeds the procurement quantity specified in the budget of the President, as submitted to Congress under section 1105 of title 31, United States Code, for such fiscal year, such excess procurement quantity shall not be specified as a new procurement quantity in any budget of the President, as so submitted, for any fiscal year after such fiscal year.

Regarding the original Senate version of this provision, the Senate Armed Services Committee's report (S.Rept. 116-236 of June 24, 2020) on the FY2021 National Defense Authorization Act (S. 4049) states

> **Treatment of weapon systems added by Congress in future President's budget requests (sec. 126)**
>
> The committee recommends a provision that would preclude the inclusion in future annual budget requests of a procurement quantity of a system previously authorized and appropriated by the Congress that was greater than the quantity of such system requested in the President's budget request.
>
> The committee is concerned that by presenting CVN–81 as a ship that was procured in fiscal year 2020 (instead of as a ship that was procured in fiscal year 2019), LPD–31 as a ship requested for procurement in fiscal year 2021 (instead of as a ship that was procured in fiscal year 2020), and LHA–9 as a ship projected for procurement in fiscal year 2023 (instead of as a ship that was procured in fiscal year 2020), the Department of Defense, in its fiscal year 2021 budget submission, is disregarding or mischaracterizing the actions of Congress regarding the procurement dates of these three ships. (Page 11)

FY2022 Procurement Funding Request

The Navy's proposed FY2022 budget requests $60.6 million in procurement funding to complete the procurement cost of the second LPD-17 Flight II class ship, LPD-31, and $68.6 million in procurement funding to help fund the procurement cost of the amphibious assault ship LHA-9.

Issues for Congress

FY2022 Procurement Funding

One issue for Congress is whether to approve, reject, or modify the Navy's FY2022 procurement funding requests for the LPD-17 Flight II and LHA programs.

In considering this issue, Congress may consider, among other things, whether to provide any FY2022 procurement and/or advance procurement (AP) funding for LPD-32 and LPD-33 (i.e., the third and fourth LPD-17 Flight II class ships). As part of its action on the Navy's proposed FY2021 budget, Congress provided $1 million in AP funding for each of these two ships.

Congress may also consider, among other things, how much of LHA-9's estimated total procurement cost of about $3.9 billion to provide in FY2022. As part of its action on the Navy's

proposed FY2021 budget, Congress provided $500 million in procurement funding for the ship. Under the Navy's FY2022 budget submission, a relatively small portion ($68.6 million) of the remainder of the ship's estimated procurement cost would be provided in FY2022, while most of the remainder of the ship's estimated procurement cost would be provided in FY2023 and FY2024.

Future Amphibious Ship Force-Level Goal

Another issue for Congress concerns the future amphibious ship force-level goal, which could affect future procurement quantities for LHA-type ships, LPD-17 Flight II class ships, and LAWs. In connection with this issue, one potential oversight question for Congress concerns the difference between the emerging force-level goal for amphibious ships in the Biden Administration's June 17, 2021, long-range Navy shipbuilding document and the emerging force-level goal for amphibious ships in the Trump Administration's December 9, 2020, long-range Navy shipbuilding document. Using the figures shown in **Table 1**, the Trump Administration's emerging force-level goal for amphibious ships includes about 6%-27% more amphibious ships in total than the Biden Administration's emerging force-level goal for amphibious ships. A potential oversight question is to what degree this difference between the two emerging force-level goals is due to differences between the two Administrations regarding one or more of the following factors:

- U.S. national security strategy and U.S. national defense strategy;
- projections of future capabilities of potential adversaries such as China and Russia;
- consequent requirements, from the two factors above, for day-to-day forward-deployed Navy capacity and capability and Navy warfighting capacity and capability;
- assumptions about the capabilities of future U.S. Navy manned and unmanned ships;
- Navy homeporting arrangements and operational cycles;
- projections about future Navy budgets, including future Navy shipbuilding budgets; and
- the degree of operational risk deemed acceptable regarding the ability of the Navy to successfully perform its various day-to-day and warfighting missions.

A January 18, 2022, press report stated:

> A study on amphibious warship requirements that will help inform upcoming budgets is looking less likely to yield the results the U.S. Marine Corps wants....
>
> "We have an amphibious force structure study that's ongoing that will evaluate what our requirement and the way forward for amphibs will be," [Navy program manager] Capt. Cedric McNeal said. "That study is planned to complete towards the end of the March time frame, and that study will inform where we go with future procurements and acquisition strategies to ensure we buy those remaining platforms in the most affordable and smartest way possible."
>
> Lt. Gen. Karsten Heckl, the deputy commandant of the Marine Corps for combat development and integration, said in a keynote speech at the conference that the Pentagon is focused on a "resource-informed requirement" for amphibs rather than the actual operational requirement for the ships. That, he added, concerns him the study's results won't fully spell out what the Navy and Marine Corps need.

> "Timely global response and day-to-day peer competition requires ... no less—or threshold, in requirements speak—than 31 amphibious ships," he said, which would produce three amphibious ready groups/Marine expeditionary units ready for tasking at any given time.
>
> Gen. Eric Smith, who held Heckl's job before becoming the assistant commandant of the Marine Corps in the fall, told lawmakers last summer that dropping to 28 ships—the low end of the Marines' requirement—could lead to a "risk in arrival times" during mission response.
>
> But, Heckl said, the current study is not looking at the requirement through the lens of what the services need to meet their missions, but instead looking through the lens of affordability—something lawmakers have repeatedly admonished the Navy for doing in recent years as the service struggles to articulate what it needs to deter or defeat China and Russia.
>
> "A requirement is a requirement, pure and simple. And I've told my staff this: A resource-informed requirement is a budget submission, not a requirement. The requirement is the requirement, and the last time I checked, my job, the Marine Corps' job, is to kill our nation's adversaries and break all their stuff—that's the requirement. So when I hear people use terms like a resource-informed requirement, alarm bells go off, which is what is happening with amphibs right now, quite frankly," Heckl said when asked by Defense News about the ongoing amphib study.
>
> "We're being engaged by [congressional] staffers and by representatives, by senators on what the Navy needs," Heckl added. "The amphib study is still ongoing, we've out-briefed to the secretary of the Navy, so I'm not going to get out over my skis on this thing and get myself fired two months into the job. ... But do I think money is the limiter? Absolutely, my personal [opinion], yes. When people are using terms like resource-informed requirement, that's money."...
>
> The only document the Biden administration has released with its own shipbuilding goals calls for a wide range for the overall fleet size—321-372 manned ships—and an amphibious ship fleet size of 24-28. The 28-ship fleet is what Smith said could jeopardize mission response time.
>
> Between the FY20 [Navy 30-year shipbuilding plan] plan, the lack of clarity in the nearly three years since and the Navy's disinterest in last year's opportunity to execute a multiyear amphibious ship deal, industry is left to wonder if the future holds less work.[25]

Use of Block Buy Contract Authority

Another issue for Congress is whether the Navy intends to use the block buy contracting authority provided by Section 124 of the FY2021 NDAA, and if not, then what, if anything, Congress should do in response. In considering this issue, Congress may consider, among other things, how using a block buy contract might affect the procurement costs and funding profiles of the LPD-17 Flight II and LHA-type ships being procured, and how it might affect Congress's flexibility for making changes to Navy shipbuilding programs in response to potential changes in strategic or budgetary circumstances during the period covered by the block buy contract.

[25] Megan Eckstein, "Amphib Ship Requirements Study Could Spell Bad News for Marines, Industry," *Defense News*, January 18, 2022. See also Rich Abott, "Navy Amphib Force Structure Study Expected Finished In March," *Defense Daily*, January 20, 2022. For an opinion piece on the issue of the future amphibious ship force-level goal, see Loren Thompson, "Despite Force Redesign, The Marine Corps Says It Still Needs Its Big Amphibious Warships. In Fact, It Needs Over 30." *Forbes*, February 4, 2022.

At a June 22, 2021, hearing before the Senate Armed Services Committee on the Department of the Navy's proposed FY2022 budget, General David Berger, the Commandant of the Marine Corps, stated that using the block buy authority would reduce the combined cost of the four ships by $722 million.[26] At a June 17, 2021, hearing before the Seapower and Projection Forces subcommittee of the House Armed Services Committee on seapower programs in the Department of the Navy's proposed FY2022 budget, Frederick J. Stefany, Acting Assistant Secretary of the Navy for Research, Development and Acquisition (ASN RDA) (i.e., the Navy's acting acquisition executive), stated that this would equate to a reduction of 7.1%.[27] At a June 8, 2021, hearing before the Seapower subcommittee of the Senate Armed Services Committee on Navy and Marine Corps investment programs, the Department of Navy witnesses were asked about the Navy's intentions regarding the block buy contracting authority granted by Section 124. Stefany replied that

> to update you on that authority that your—your committee provided last year, the Section 124 Authority, we have finished negotiating with HII Ingalls to document a … contract structure that could be put in place to implement the four-ship procurement that you're referring to, that—that we just finished that up about a week ago.
>
> And, so we had a—a handshake agreement [with HII Ingalls] on what that would look like if we were to actually enact it into a contract and we packaged that up and we're sending it to the department[28] leadership for—for a decision. But what—and—and get that in place before the authority that expires at the end of this year, that you provided us.
>
> But—in—I'll just let you know the initial indications we're getting from the department is that they would like to defer this decision so that they can make an overall, as they do their overall [FY]'23 budget review this summer and fall, of the overall force structure, work with Admiral Kilby and General Smith on the right mix of ships of the future, the commitment of four ships at once, they would like to make—defer that commitment until they are able to make that force-structure assessment.
>
> So, right now, indicators are that we are not gonna be able to execute that, but it's not a done deal. It's going through the process within the department for a final decision sir.[29]

Treatment of LHA-9 Procurement Date in FY2022 Budget Submission

Another issue for Congress concerns the treatment of LHA-9's procurement date in the Navy's FY2022 budget submission. As noted earlier, the Navy's FY2022 budget submission, like its FY2021 budget submission, treats LHA-9 as a ship to be procured in FY2023. A question for Congress is whether this is consistent with Section 126 of the FY2021 NDAA, and if not, what, if anything, Congress should do in response. In considering this issue, Congress may consider the impact this issue might have regarding the preservation and use of Congress's power of the purse

[26] Richard R. Burgess, "Senators Hammer $1 Billion Loss, Industrial Instability with Navy's Planned 2022 Shipbuilding," *Seapower*, June 22, 2021.

[27] Megan Eckstein, "Marines Explain Vision for Fewer Traditional Amphibious Warships," *Defense News*, June 21, 2021.

[28] This is a reference to the Department of the Navy or the Department of Defense.

[29] Transcript of hearing as posted by CQ.com. The passage as printed here includes some minor typographical corrections done by CRS for readability. See also Megan Eckstein, "Deal to Buy Four Amphibious Warships Losing Steam, as Navy Takes Another Look at Future Force Needs," *Defense News*, June 8, 2021; Mallory Shelbourne, "Navy Reaches 'Handshake' Deal on Four-Ship Amphib Buy, Pentagon Wants New Navy Force Structure Assessment," *USNI News*, June 8, 2021.

under Article 1 of the Constitution, and for maintaining Congress as a coequal branch of government relative to the executive branch.

Potential Impact of COVID-19 Pandemic

Another issue for Congress concerns the potential impact of the COVID-19 pandemic on the execution of U.S. military shipbuilding programs, including the LPD-17 Flight II and LHA programs. For additional discussion of this issue, see CRS Report RL32665, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*, by Ronald O'Rourke.

Technical and Cost Risk in LPD-17 Flight II and LHA Programs

Another potential issue for Congress is technical and cost risk in the LPD-17 Flight II and LHA programs.

LPD-17 Flight II Program

Regarding technical and cost risk in the LPD-17 Flight II program, a June 2021 Government Accountability Office (GAO) report—the 2021 edition of GAO's annual report surveying DOD major acquisition programs—states the following about the LPD-17 Flight II program:

> **Current Status**
>
> In March 2020, the first Flight II ship construction began on LPD 30. The Navy purchased LPD 31 in April 2020 and plans for construction to start in 2022.
>
> According to the program, the Flight II design is approximately 80 percent complete and includes roughly 200 changes from the Flight I design. The Navy is implementing these changes across three ships, including adding some planned Flight II enhancements to LPD 28 and 29, the last two Flight I ships. For example, LPD 28 includes a new mast design and LPD 29 will be the first LPD ship to include the Navy's new Enterprise Air Surveillance Radar (EASR). Program officials characterized Flight II design changes as more similar to the types of changes expected on a follow-on ship rather than a lead ship. However, risks remain in this approach. For example, EASR is still in testing, so any delays in completing or integrating it could affect LPD 29, the last Flight I ship, which, according to the program office, is approximately 49 percent complete as of February 2021.
>
> Program officials said COVID-19 had some effect on the program although they have yet to develop formal estimates of related cost or schedule changes. Program officials said the number of people working on LPD 30 construction is about half of that planned due to COVID-19-related labor shortages. Consequently, the program expects there may be delays to LPD 30.
>
> **Program Office Comments**
>
> We provided a draft of this assessment to the program office for review and comment. The program office provided technical comments, which we incorporated where appropriate. The program office reported that Flight II will provide increased capability, including improved command and control capabilities, over the ships being replaced. It also stated that the shipbuilder is currently building three LPD 17 ships: LPD 28, LPD 29, and LPD 30.[30]

[30] Government Accountability Office, *Weapon Systems Annual Assessment[:] Updated Program Oversight Approach Needed*, GAO-21-22, p. 194.

LHA Program

Regarding technical risk in the LHA program, a January 2022 report from DOD's Director, Operational Test and Evaluation (DOT&E)—DOT&E's annual report for FY2021—stated the following:

> **Test Adequacy**
>
> The Navy and Marine Corps conducted an operational assessment of the LHA 8 ship design between October 20 and November 19, 2020 in accordance with DOT&E-approved test plans. During the three, 3-day events, subject matter experts in operations and maintenance reviewed the LHA 8 design to identify risks that could affect operational effectiveness and suitability. The operational assessment also informed operational testers on the required FOT&E [Follow-on Operational Test and Evaluation] scope and design.
>
> The Navy does not yet have a well-defined LFT&E [Live Fire Test and Evaluation] plan required to evaluate the survivability of the LHA 8 to air delivered or underwater kinetic threats.
>
> **Performance**
>
> **Effectiveness**
>
> Not enough data are yet available to provide a preliminary assessment of the LHA 8 operational effectiveness due to the ship's stage of development. Operational assessment of the LHA 8 design indicated that the well deck adds needed capability to launch and recover surface connectors, but several design features could negatively affect operational effectiveness of the LHA Flight 1 ships. Additional details are summarized in the classified DOT&E LHA 6 Flight 1 Operational Assessment report published in September 2021.
>
> **Suitability**
>
> Not enough data are yet available to provide a preliminary assessment of the LHA 8 operational suitability due to the ship's stage of development. The LHA 8 operational assessment could not measure reliability, maintainability, or availability of LHA 8. Final assessment of LHA 8 operational suitability will be published after the completion of the LHA 8 FOT&E.
>
> **Survivability**
>
> The Navy has initiated the vulnerability modeling of the LHA Flight 1 design, but no relevant data are yet available to assess ship survivability either against kinetic or cyber threats.
>
> **Recommendations**
>
> The Navy should:
>
> 1. Validate the sufficiency of modified ship-space following operational assessment to support Marine Corps Tier-2 equipment.
>
> 2. Conduct land-based operational testing of the LHA 8 combat system to ensure the system is mature enough for at-sea operational test of the platform, and test EASR's electronic protection capability.
>
> 3. Continue to fund the maintenance availability for the current Self-Defense Test Ship (e.g., Paul F. Foster) to ensure its readiness to support LHA 8 combat system testing.
>
> 4. Continue to fund the procurement and installation of the necessary LHA 8 combat system elements on Self-Defense Test Ship.
>
> 5. Develop FOT&E test plans informed by the LHA 8 operational assessment.

6. Evaluate all recommendations in the DOT&E Operational Assessment report published in September 2021.

7. Develop an adequate LFT&E strategy to assess ship survivability of the LHA 6 Flight 1 ships, including the survivability of the ship to lethal, underwater threat-induced shock effects.[31]

The June 2021 GAO report stated the following about the LHA program:

Current Status

From January 2020 to August 2020, LHA 8 construction progress increased from 5 percent to almost 19 percent complete. LHA 9 is expected to save costs by using the same design as LHA 8. As a result of receiving advanced procurement funding in 2019, the program office stated that it plans to accelerate the contract award of LHA 9 from fiscal year 2024 to late fiscal year 2021.

The Navy is continuing to mitigate risks from the integration of the Enterprise Air Surveillance Radar (EASR), a new rotating radar system for LHA 8 based on the preexisting Air and Missile Defense Radar program. The Navy has completed a design change to adjust the mast and antennas on top of the ship to avoid interference from EASR, according to program officials. However, the program will be limited to laboratory testing the change until EASR is delivered for installation in 2021.

The program is attempting to avoid repeating quality issues, such as issues with the ship's main reduction gears that resulted in delays to LHA 7 delivery. Program officials stated that these quality issues increase schedule risk for LHA 8 but stated that there are currently no delays. Program officials stated that they added contract incentives for better quality control management of the ship's construction, in part to address the quality issues with the ship's main reduction gears, such as poor welds. Program officials also told us the shipbuilder built more covered facilities to protect all equipment, including the gears, from weather.

Program Office Comments

We provided a draft of this assessment to the program office for review and comment. The program office provided technical comments, which we incorporated where appropriate. The program office stated that as of January 15, 2021, LHA 8 is roughly 28 percent complete. It also stated that the Navy has continued to work with the contractor to mitigate technical risks to the design changes and address quality issues, and has finalized the new arrangement of the mast and antennas with the contractor.[32]

Legislative Activity for FY2022

Summary of Congressional Action on FY2022 Funding Request

Table 2 summarizes congressional action on the Navy's FY2022 procurement and advance procurement (AP) funding request for the LPD-17 Flight II and LHA-9 programs.

[31] Department of Defense, Director, Operational Test & Evaluation, *FY2021 Annual Report*, January 2022, p. 158.

[32] Government Accountability Office, *Weapon Systems Annual Assessment[:] Updated Program Oversight Approach Needed*, GAO-21-22, p. 193.

Table 2. Summary of Congressional Action on FY2022 Procurement Funding Request

Millions of dollars, rounded to nearest tenth

	FY2022 Request	FY2022 Authorization			FY2022 Appropriation		
		HASC	SASC	Enacted	HAC	SAC	Conf.
LPD-17 Flight II procurement	60.6	60.6	60.6	60.6	60.6	60.6	
LPD-17 Flight II advance procurement (AP)	0	0	250.0	250.0	0	250.0	
LHA procurement	68.6	1,268.6	418.6	168.6	68.6	68.6	

Source: Table prepared by CRS based on Navy's FY2022 budget submission, committee and conference reports, and explanatory statements on FY2022 National Defense Authorization Act and FY2022 DOD Appropriations Act.

Notes: HASC is House Armed Services Committee; **SASC** is Senate Armed Services Committee; **HAC** is House Appropriations Committee; **SAC** is Senate Appropriations Committee; **Conf.** is conference agreement.

FY2022 National Defense Authorization Act (H.R. 4350/S. 2792/S. 1605/P.L. 117-81)

House

The House Armed Services Committee, in its report (H.Rept. 117-118 of September 10, 2021) on H.R. 4350, recommended the funding levels shown in the HASC column of **Table 2**. The recommended increase of $1,200.0 million for the LHA program is for "One additional ship." (Page 374)

Section 121 of H.R. 4350 as reported by the committee states

> SEC. 121. EXTENSION OF PROCUREMENT AUTHORITY FOR CERTAIN AMPHIBIOUS SHIPBUILDING PROGRAMS.
>
> Section 124(a)(1) of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) is amended by striking ''fiscal year 2021'' and inserting ''fiscal years 2021 and 2022''.

As discussed earlier, Section 124 of P.L. 116-283 permits the Navy to enter into a block buy contract in FY2021 for the procurement of three LPD-17 class ships and one LHA-type amphibious assault ship. Section 121 of H.R. 4350 as reported by the committee would permit the Navy to enter into such a contract in FY2021 or FY2022.

Senate

The Senate Armed Services Committee, in its report S.Rept. 117-39 of September 22 [legislative day, September 21], 2021), recommended the funding levels shown in the SASC column of **Table 2**. The recommended increase of $250.0 million for LPD-17 advance procurement (AP) is for "Program increase." The recommended increase of $350.0 million for LHA procurement is for "Program increase." (Page 403)

Section 134 of S. 2792 as reported by the committee states

> SEC. 134. EXTENSION OF PROCUREMENT AUTHORITIES FOR CERTAIN AMPHIBIOUS SHIPBUILDING PROGRAMS.

> Section 124(a)(1) of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) is amended by striking ''fiscal year 2021'' and inserting ''fiscal years 2021 and 2022''.

As discussed earlier, Section 124 of P.L. 116-283 permits the Navy to enter into a block buy contract in FY2021 for the procurement of three LPD-17 class ships and one LHA-type amphibious assault ship. Section 134 of S. 2792 as reported by the committee would permit the Navy to enter into such a contract in FY2021 or FY2022.

S.Rept. 117-39 states

> **LPD Flight II advance procurement**
>
> The budget request included no funding in line number 16 of Shipbuilding and Conversion, Navy (SCN) for LPD Flight II advance procurement.
>
> The committee notes that additional funding could be used to maximize the benefit of amphibious multi-ship procurement authorities or procure long lead time material for LPD–32.
>
> Therefore, the committee recommends an increase of $250.0 million in line number 16 of SCN.
>
> **LHA replacement**
>
> The budget request included $68.6 million in line number 19 of Shipbuilding and Conversion, Navy (SCN) for the LHA replacement amphibious assault ship.
>
> The committee notes that efficiencies could be gained by accelerating the construction of LHA–9, including steadier workflow with an improved learning curve, more predictable delivery contracts for material and equipment suppliers, and a more effective continuous improvement schedule.
>
> Therefore, the committee recommends an increase of $350.0 million in line number 19 of SCN for the LHA replacement. (Page 16)

S.Rept. 117-39 also states

> **Amphibious ship acquisition strategy**
>
> The committee believes that a block buy, multi-ship, or multiyear procurement approach for LPD–17 Flight II-class amphibious transport ships and LHA 10 would provide substantial cost savings as well as needed stability and predictability for the shipbuilder and its vendor base.
>
> The committee notes section 124 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) authorized multi-ship procurement authority for amphibious ships, which the Navy estimated would save 8 to 12 percent, or roughly $1.0 billion, for the multi-ship procurement of these four ships as compared to four separate ship procurement contracts. The committee also notes that the Navy estimates that $4.0 billion will be saved using a block buy acquisition strategy for the procurement of CVN–80 and CVN–81.
>
> While the committee supports the execution of the section 124 authority as soon as possible and prefers this course of action, the committee directs the Secretary of the Navy to submit a report to the congressional defense committees, not later than October 1, 2021, on the merits of pursuing a block buy, multi-ship, or multiyear procurement acquisition strategy for LPD–17 Flight II-class ships and LHA–10.
>
> This report shall include a business case analysis comparing the cost and schedule of single ship contracts with a multiple ship contract for the following groupings: (1) LPD–32, LPD–33, and LHA–10; (2) LPD–32, LPD–33, LPD–34, and LHA–10; and (3) Any other

groupings identified by the Secretary. This report shall also include a description of other key considerations that the Secretary deems appropriate.

If the business case analysis shows that pursuing a block buy, multi-ship, or multiyear procurement strategy for LPD–17 Flight II–class ships and LHA–10 has merit, the committee strongly encourages the Secretary to include such a proposal in the Navy's budget request for fiscal year 2023. (Page 24)

S.Rept. 117-39 also states

San Antonio-class lethality and survivability upgrades

The committee understands the Navy and Marine Corps are reviewing lethality and survivability upgrades for San Antonio-class amphibious ships to support Expeditionary Advanced Base Operations and Distributed Maritime Operations.

The committee directs the Secretary of the Navy to submit, not later than February 1, 2022, a report to the congressional defense committees that describes courses of action to upgrade the sensors, weapons, and combat systems on current and future San Antonio-class ships.

This report shall, at a minimum, evaluate the cost, schedule, and operational benefits of:

(1) Upgrading the SPY–6(V)2 Enterprise Air Surveillance Radar (EASR) rotating radar to the SPY–6(V)3 fixed-face EASR to better support: (a) air traffic control; (b) air and missile defense-in-depth for forces operating at sea; (c) air and missile defense for forces operating ashore within radar range; and (d) other offensive and defensive engagements;

(2) Integrating at least a 16-cell Mark–41 Vertical Launch System (VLS); and

(3) Integrating the EASR and Mark–41 VLS options identified in (1) and (2) with versions of the Tomahawk Weapon Control System, Ship Self-Defense System, Cooperative Engagement Capability including the variant currently fielded on San Antonio-class ships, and Aegis Combat System.

Based on the courses of action evaluated, the Secretary shall identify the optimal approach in terms of cost, schedule, and operational benefits for upgrading the sensors, weapons, and combat system on current and future San Antonio-class ships. (Pages 21-22)

Enacted Version

The joint explanatory statement for S. 1605/P.L. 117-81 of December 27, 2021, recommends the funding levels shown in the Enacted column of **Table 2**. The recommended increase of $250.0 million for LPD-17 Flight II advance procurement (AP) funding is for "Program increase." The recommended increase of $100.0 million for LHA procurement funding is for "Program increase." (PDF page 457 of 670)

Section 121 of S. 1605/P.L. 117-81 states

SEC. 121. EXTENSION OF PROCUREMENT AUTHORITY FOR CERTAIN AMPHIBIOUS SHIPBUILDING PROGRAMS.

Section 124(a)(1) of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283) is amended by striking ''fiscal year 2021'' and inserting ''fiscal years 2021 and 2022''.

FY2022 DOD Appropriations Act (H.R. 4432/S. XXXX)

House

The House Appropriations Committee, in its report (H.Rept. 117-88 of July 15, 2021) on H.R. 4432, recommended the funding levels shown in the HAC column of **Table 2**. H.Rept. 117-88 states

> AMPHIBIOUS SHIPS
>
> The Committee understands that the Navy has not yet entered into a contract for the procurement of three San Antonio-class amphibious ships and one America-class amphibious ship as authorized by Section 124 of the National Defense Authorization Act for Fiscal Year 2021. The Committee encourages the Secretary of the Navy to expeditiously enter into such a contract in order to take advantage of cost savings provided by contracting for more than one ship at a time. The Committee directs the Secretary of the Navy to submit a report to the congressional defense committees not later than 60 days after the enactment of this Act which outlines the Navy's acquisition plan for these amphibious ships. (Page 187)

Senate

The Senate Appropriations Committee, in the explanatory statement it released on October 18, 2021, for the FY2022 DOD Appropriations Act (S. XXXX), recommends the funding levels shown in the SAC column of **Table 2**. The recommended increase of $250.0 million for LPD-17 Flight II advance procurement (AP) is for "Program increase: Advance procurement for LPD 32." (PDF page 106 of 253)

In S. XXXX as reported by the committee, the paragraph that makes appropriations for the Shipbuilding and Conversion, Navy (SCN) appropriation account (i.e., the Navy's shipbuilding budget) includes this provision:

> ... *Provided furt*her, That prior to entering into a contract for more than one amphibious ship, the Secretary of Defense shall provide to the congressional defense committees the future years defense program which displays the funding programmed for all shipbuilding programs currently or anticipated to be under a multiyear contract, block buy contract, or other contract involving economic order quantity.

Appendix. Procurement Dates of LPD-31 and LHA-9

This appendix presents background information regarding the procurement dates of LPD-31 and LHA-9. In reviewing the bullet points presented below, it can be noted that procurement funding is funding for a ship that is either being procured in that fiscal year or has been procured in a prior fiscal year, while advance procurement (AP) funding is funding for a ship that is to be procured in a future fiscal year.[33]

An institutional issue for Congress in FY2021 concerned the treatment in the Navy's proposed FY2021 budget of the procurement dates of LPD-31 and LHA-9. The Navy's FY2021 budget submission presented LPD-31 as a ship requested for procurement in FY2021 and LHA-9 as a ship projected for procurement in FY2023. Consistent with congressional action on the Navy's FY2020 and FY2021 budgets regarding the procurement of LPD-31 and LHA-9, this CRS report treats LPD-31 and LHA-9 as ships that Congress procured (i.e., authorized and provided procurement funding for) in FY2020 and FY2021, respectively. Potential oversight issues for Congress included the following:

- By presenting LPD-31 as a ship requested for procurement in FY2021 (instead of a ship that was procured in FY2020) and LHA-9 as a ship projected for procurement in FY2023 (instead of a ship that was procured in FY2021), was DOD, in its FY2021 budget submission, disregarding or mischaracterizing the actions of Congress regarding the procurement dates of these three ships? If so:
    - Was DOD doing this to inflate the apparent number of ships requested for procurement in FY2021 and the apparent number of ships included in the five-year (FY2021-FY2025) shipbuilding plan?
    - Could this establish a precedent for DOD or other parts of the executive branch in the future to disregard or mischaracterize the actions of Congress regarding the procurement or program-initiation dates for other Navy ships, other Navy programs, other DOD programs, or other federal programs? If so, what implications might that have for the preservation and use of Congress's power of the purse under Article 1 of the Constitution, and for maintaining Congress as a coequal branch of government relative to the executive branch?

The Navy's FY2022 budget submission, like its FY2021 budget submission, treats LHA-9 as a ship to be procured in FY2023. A question for Congress is whether this is consistent with Section 126 of the FY2021 NDAA, and if not, what, if anything, Congress should do in response.

LPD-31—an LPD-17 Flight II Class Amphibious Ship

The Navy's FY2021 budget submission presented LPD-31, an LPD-17 Flight II class amphibious ship, as a ship requested for procurement in FY2021. This CRS report treats LPD-31 as a ship that Congress procured (i.e., authorized and provided procurement funding for) in FY2020, consistent with the following congressional action on the Navy's FY2020 budget regarding the procurement of LPD-31:

[33] For additional discussion, see CRS Report RL31404, *Defense Procurement: Full Funding Policy—Background, Issues, and Options for Congress*, by Ronald O'Rourke and Stephen Daggett.

- The House Armed Services Committee's report (H.Rept. 116-120 of June 19, 2019) on H.R. 2500, the FY2020 National Defense Authorization Act, recommended authorizing the procurement of an LPD-17 Flight II class ship in FY2020, showing a quantity increase of one ship above the Navy's request and recommending procurement (not just AP) funding for the program.[34]
- The Senate Armed Services Committee's report (S.Rept. 116-48 of June 11, 2019) on S. 1790, the FY2020 National Defense Authorization Act, recommended authorizing the procurement of an LPD-17 Flight II class ship in FY2020, showing a quantity increase of one ship above the Navy's request and recommending procurement (rather than AP) funding for the program.[35]
- The conference report (H.Rept. 116-333 of December 9, 2019) on S. 1790/P.L. 116-92 of December 20, 2019, the FY2020 National Defense Authorization Act, authorized the procurement of an LPD-17 Flight II class ship in FY2020, showing a quantity increase of one ship above the Navy's request and recommending procurement (rather than AP) funding for the program.[36] Section 129 of S. 1790/P.L. 116-92 authorizes the Navy to enter into a contract, beginning in FY2020, for the procurement of LPD-31, and to use incremental funding to fund the contract.
- The Senate Appropriations Committee's report (S.Rept. 116-103 of September 12, 2019) on S. 2474, the FY2020 DOD Appropriations Act, recommended funding for the procurement of an LPD-17 Flight II class ship in FY2020, showing a quantity increase of one ship above the Navy's request and recommending procurement (rather than AP) funding for the program.[37]
- The final version of the FY2020 DOD Appropriations Act (Division A of H.R. 1158/P.L. 116-93 of December 20, 2019) provided procurement (not AP) funding for an LPD-17 Flight II class ship. The paragraph in this act that appropriated funding for the Navy's shipbuilding account, including this ship, includes a provision stating "*Provided further*, That an appropriation made under the heading 'Shipbuilding and Conversion, Navy' provided for the purpose of 'Program increase—advance procurement for fiscal year 2020 LPD Flight II and/or multiyear procurement economic order quantity' shall be considered to be for the purpose of 'Program increase—advance procurement of LPD–31'." This provision relates to funding appropriated in the FY2019 DOD Appropriations Act (Division A of H.R. 6157/P.L. 115-245 of September 28, 2018) for the procurement of an LPD-17 Flight II class ship in FY2020, as originally characterized in the explanatory statement accompanying that act.[38]

LHA-9 Amphibious Assault Ship

The Navy's FY2022 budget submission, like its FY2021 budget submission, presents the amphibious assault ship LHA-9 as a ship projected for procurement in FY2023. This CRS report treats LHA-9 as a ship that Congress procured (i.e., authorized and provided procurement funding

[34] H.Rept. 116-120, p. 379, line 012.

[35] S.Rept. 116-48, p. 433, line 12. See also pp. 23-24 for associated report language.

[36] H.Rept. 116-333, p. 1566, line 012. See also p. 1144 for associated report language.

[37] S.Rept. 116-103, p. 118, line 12. See also p. 122 for associated report language.

[38] See PDF page 176 of 559, line 12, of the explanatory statement for H.R. 6157/P.L. 115-245.

for) in FY2021, consistent with the following congressional action on the Navy's FY2020 and FY2021 budgets regarding the procurement of LHA-9:

- The Senate Armed Services Committee's report (S.Rept. 116-48 of June 11, 2019) on S. 1790, the FY2020 National Defense Authorization Act, recommended authorizing the procurement of LHA-9 in FY2020, showing a quantity increase of one ship above the Navy's request and recommending procurement (rather than AP) funding for the program.[39]
- The conference report (H.Rept. 116-333 of December 9, 2019) on S. 1790/P.L. 116-92 of December 20, 2019, the FY2020 National Defense Authorization Act, authorized the procurement of LHA-9 in FY2020, showing a quantity increase of one ship above the Navy's request and recommending procurement (rather than AP) funding for the program.[40] Section 127 of S. 1790/P.L. 116-92 authorizes the Navy to enter into a contract for the procurement of LHA-9 and to use incremental funding provided during the period FY2019-FY2025 to fund the contract.
- The Senate Appropriations Committee's report (S.Rept. 116-103 of September 12, 2019) on S. 2474, the FY2020 DOD Appropriations Act, recommended funding for the procurement of an LHA amphibious assault ship in FY2020, showing a quantity increase of one ship above the Navy's request and recommending procurement (rather than AP) funding for the program.[41]
- The final version of the FY2020 DOD Appropriations Act (Division A of H.R. 1158/P.L. 116-93 of December 20, 2019) provided procurement (not AP) funding for an LHA amphibious assault ship. The explanatory statement for Division A of H.R. 1158/P.L. 116-93 stated that the funding was for LHA-9.[42]
- The procurement (not AP) funding provided for LHA-9 in the FY2020 DOD Appropriations Act (see previous bullet point) was subsequently reprogrammed to provide support for counter-drug activities of the Department of Homeland Security (DHS) along the U.S. southern border.[43] The final version of the FY2021 DOD Appropriations Act (Division C of H.R. 133/P.L. 116-260 of December 27, 2020, the Consolidated Appropriations Act, 2021), however, once again provided procurement (not AP) funding for an LHA amphibious assault ship. The explanatory statement for Division C of H.R. 133/P.L. 116-260 stated that the funding is for "Program increase—LHA 9."[44] As a result of the FY2021 procurement (not AP) funding for LHA-9, the ship once again has an authorization (provided in the FY2020 National Defense Authorization Act), authority for using incremental funding in procuring it (provided by Section 127 of the FY2020 National Defense Authorization Act), and procurement (not AP) funding (provided in the FY2021 DOD Appropriations Act).

[39] S.Rept. 116-48, p. 433, line 15.

[40] H.Rept. 116-333, p. 1566, line 015.

[41] S.Rept. 116-103, p. 118, line 15.

[42] Explanatory statement for Division A of H.R. 1158, PDF page 175 of 414, line 15.

[43] Reprograming action (Form DD 1415) FY 20-01 RA, February 13, 2020, page 3 of 5.

[44] Explanatory statement for Division C of H.R. 133/P.L. 116-260, PDF page 204 of 469, line 17.

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