The Navy’s mandate is “to be where it matters, when it matters.” As the military’s primary maritime arm, the Navy enables the United States to project military power in the maritime and air domains, a critical capability in war, crisis response, and peacetime engagement missions. Unlike land forces (or even, to a large extent, air forces), which are tethered to a set of fixed, larger-scale support bases, the Navy is able to shift its presence wherever needed so long as the world’s oceans and seas permit. In addition to the ability to project combat power rapidly anywhere in the world, the Navy’s peacetime forward presence supports missions that include securing sea lines of communication (SLOC) for the free flow of goods and services, assuring U.S. allies and friends, deterring adversaries, and providing a timely response to crises short of war. 

Three key documents inform the Navy as to the level of its day-to-day fleet requirements: the 2012 Defense Strategic Guidance (DSG); the fiscal year (FY) 2015 Global Force Management Allocation Plan (GFMAP); and the 2015 update to “A Cooperative Strategy for 21st Century Seapower.” The 2012 DSG issued by the Secretary of Defense describes 10 primary missions for the Navy and the other branches of the U.S. military. In addition, the U.S. Navy must meet forward presence requirements laid out in the FY 2015 GFMAP, which states the force presence needed around the world as determined by the combatant commanders (COCOMs) and the Secretary of Defense.

This past year, the Navy was able to avert some of the foreseen challenges caused by budget cuts as a result of legislative action; however, as Admiral Jonathan Greenert, Chief of Naval Operations (CNO), testified in his March 2015 posture statement, the Navy was “compelled to further reduce the capacity of weapons and aircraft, slow modernization, and delay upgrades to all but the most critical shore infrastructure” due to continued budget shortfalls of $11 billion.

Capacity

For the Navy, capacity is measured by the number of ships rather than the number of sailors, and not all ships are counted equally. The Navy focuses mainly on the size of its “battle force,” which is composed of ships considered to be directly related to its combat missions. Last year, the Navy attempted to change how it counted its “battle force” fleet by justifying the inclusion of hospital ships and certain smaller craft that previously had not been counted. Congress added language to the FY 2015 National Defense Authorization Act that prevented this new counting rule from going into effect. The language clarified a battle force ship as “any commissioned ship built or armed for naval combat or any naval ship designed to provide support to combatant ships and other naval operations. Such term does not include patrol coastal ships, non-commissioned combatant craft specifically designed for combat roles, or ships

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that are designated for potential mobilization.”

This subsequently prevented 12 vessels (two hospital ships and 10 forward-deployed patrol craft) from being counted in the battle force fleet. As a consequence, the battle force fleet declined from 282 as of the time the 2015 Index was published to 271 as of the time the 2016 Index was being written. This rule change accounts in part for the major fluctuation in the fleet between the 2015 and 2016 Indexes, which also changed due to normal ship commissionings and retirements that occur annually.

In 2015, the Navy increased its battle force requirement to 308 ships, two more than the previous year. This figure is derived from the 2014 Force Structure Analysis, the DSG, and the GFMAP. The additional two ships in the fleet requirement are an LPD-17 amphibious ship and a Mobile Landing Platform vessel. Congress added funding for the amphibious ship in FY 2013 and FY 2015; it had not been requested by the Navy. While this may seem excessive since the Navy did not officially request a 12th LPD-17 ship, the Navy’s amphibious fleet is currently well below the Navy and Marine Corps program of record requirement (34 hulls); therefore, the addition of an unrequested LPD-17 contributes to the Navy’s broader amphibious vessel needs. The highest ship count in the past five years was 288 in FY 2010.

The “biggest shortfall” assessed in the 2016 Index is the same as in the 2015 edition: “small surface combatants: Littoral Combat Ships, frigates, and mine countermeasures (MCM) ships.”

The main driver of this gap is the retirement of all remaining Oliver Hazard Perry-class frigates by the end of FY 2015 (September 2015). Of the larger battle force ships (including destroyers, cruisers, amphibious vessels, and aircraft carriers), the aircraft carrier fleet currently has a shortfall of one vessel (10 instead of 11), but that is considered to be a temporary condition that will be remedied in early 2016.

The carrier gap resulted from the delayed delivery of the first Ford-class carrier, which was supposed to enter the fleet as the USS Enterprise was decommissioned in 2012. The USS Gerald R. Ford is now expected to be commissioned in March 2016. Other shortfalls are due to underinvestment in the Shipbuilding and Conversion, Navy (SCN) budget to procure new hulls quickly enough to increase the size of the Navy.

Without significant funding increases, it appears unlikely that the Navy will reach its own capacity goals for the foreseeable future. Due to expected funding shortfalls relative to fleet goals, “the Navy projects that the fleet would experience a shortfall in small surface combatants from FY2016 through
FY2027, a shortfall in attack submarines from FY2025 through FY2036, and a shortfall in large surface combatants (i.e., cruisers and destroyers) from FY2036 through at least FY2045.89,94

In December 2014, the Congressional Budget Office (CBO) calculated that the Navy’s 306-ship fleet goal would cost $20.7 billion annually, well above the historical average of $15.7 billion per year.95 Using its own cost estimates, the CBO estimated that the Navy would be able to purchase 69 fewer ships over a 30-year period, including two fewer aircraft carriers, 17 fewer attack submarines, and six fewer amphibious ships. Although the CBO had not published its assessment of the FY 2016 shipbuilding request as of the time the 2016 Index was being written, the Navy’s FY 2016 request of $16.6 billion also falls well below the $20.7 billion level that the CBO assesses as necessary to reach fleet goals.96

As important as the total fleet size is, the Navy must also consider the number of ships that are forward deployed to meet operational demands. Not all ships in the battle force are at sea at the same time. The majority of ships are based in the continental U.S. (CONUS) to undergo routine maintenance and training, as well as to limit deployment time for sailors. However, given the COCOMs’ requirements for naval power presence in each of their regions, there is an impetus to have as many ships forward deployed as possible. Striking a balance between deploying ships to meet operational demands and keeping them in port to perform needed maintenance and provide relief to sailors is a constant challenge.

Today, the Navy has 95 ships deployed globally—just over 35 percent of the total available fleet (a 1 percent decline since last year’s assessment).97 Note that this slight decline in percentage of ships deployed to the total battle force fleet is driven partly by the more significant decline in the total fleet from the past year (as previously noted, down from 282 ships to 271 ships). The percent decrease in presence around the globe, using the forward-deployed ship count in 2014 (104) and that of 2015 (95) is therefore roughly 9 percent.98

The Navy has tried to increase forward presence by emphasizing non-rotational deployments: having a ship “home-ported” overseas or keeping the ship forward stationed.99

- **Home-ported**: The ships, crew, and their families are stationed at the port or based abroad.

- **Forward Stationed**: Only the ships will be based abroad while crews are rotated out to the ship.100

Both of these non-rotational deployment options require cooperation from friends and allies to permit the Navy’s use of their facilities as well as investment in additional facilities abroad. However, these options allow one ship to provide a greater level of presence than four ships based in CONUS and in rotational deployment since they offset the time necessary to deploy ships to distant theaters.101 A key example of the use of this practice is the Navy’s constant forward deployment of an aircraft carrier at the U.S. naval base in Yokosuka, Japan. In May 2015, the USS George Washington (CVN-73) departed this base with the USS Ronald Reagan sailing there to replace it.102 The George Washington, stationed at Yokosuka since 2008, left to undergo its midlife refueling and complex overhaul (RCOH).

The Navy maintains that it currently will be able to meet the FY 2015 GFMAP requirements and 10 missions outlined in the DSG. However, Admiral Greenert has acknowledged that budget shortfalls over the past few years, under Budget Control Act of 2011 (BCA) caps and otherwise, have “forced the Navy to accept significant risk in key mission areas, notably if the military is confronted with a technologically advanced adversary or forced to deny the objective of an opportunistic aggressor in a second region while engaged in a major contingency.”103 This statement refers to a sizing construct that enables the U.S. military to win a major contingency operation in one region of the world while holding off or deterring another adversary from creating another major engagement. Note that this sizing construct is below the one prescribed in this Index: one that would enable the U.S. military to win two major operations nearly simultaneously.

**Capability**

Scoring the U.S. Navy’s capability is not just a matter of counting the fleet. The quality of the battle force is also important in determining the strength of the Navy.

A comprehensive measure of platform capability would involve a comparison of each ship and its weapons systems relative to the military capabilities of other nations. For example, a complete measure of naval capabilities would have to assess not only how U.S. platforms would match up against an enemy’s weapons, but also whether operational concepts like
the often discussed Air-Sea Battle would be effective in a conflict. This assessment would then have to be replicated for each potential conflict. While this is a necessary exercise and one in which the military currently engages, it is beyond the scope of this Index because such details and analysis are routinely classified.

Capability can be usefully assessed based on the age of ships, the modernity of the platform, and whether or not modernization programs will maintain the fighting edge of the fleet. The Navy has several classes of ships that are nearing the end of their lifespan, and this will precipitate a consolidation of ship classes in the battle force.

This year, the Navy will retire its entire fleet of Oliver Hazard Perry-class guided missile frigates. The Perry-class is to be replaced by the new Littoral Combat Ship (LCS), but some naval analysts have suggested that the LCS lacks the firepower of the frigate. In 2015, the Navy modified its LCS program to add more firepower to future hulls, and it will be referring to these upgunned LCSs as frigates beginning in FY 2019. This modification resulted from a restructuring of the LCS program initiated in 2014 by Secretary of Defense Chuck Hagel. The upgrades that the Navy says will give this future block of LCS/frigates capabilities closer to those of the Perry-class frigates include “[o]ver-the-horizon surface to surface missile and additional weapon systems and combat system upgrades” and “increased survivability [through] incorporating additional self-defense capabilities and increased hardening of vital systems and vital spaces.”

On March 31, 2015, the final Tarawa-class amphibious ship, the USS Peleliu, was decommissioned. The Austin-class amphibious ships will be retiring soon as well. In the 2020s, the last Avenger-class mine countermeasures ships and Los Angeles-class attack submarines will also go out of service.

The Navy is attempting to put the Ticonderoga-class cruiser fleet into temporary layup status in order to extend this class’s fleet service time into the 2030s, even though these ships average 24.2 years out of an expected 35-year service life. In early 2015, for the second year in a row (after Congress pushed back on the 2014 attempt), the Navy proposed a plan to put some of these cruisers in temporary layup status. The proposal issued in the Navy’s FY 2016 budget request would mean that “two cruisers would enter in a modernization cycle each year, [and] no cruisers will remain in layup for more than four years with no more than six cruisers out of service at one time,” according to Rear Admiral William Lescher, Deputy Assistant Secretary of the Navy for Budget. Driven by budget shortfalls, this plan is an attempt (as was the previous year’s) to keep 11 of the 22 commissioned cruisers in service at all times through 2034. There is currently no program to replace the Ticonderoga-class cruisers; a program initiated in FY 2001, called “CG(X),” was to yield a replacement cruiser vessel, but it was canceled in FY 2011 after it was deemed too expensive.

Similarly, the Navy’s two current LSD classes of amphibious ships, Whidbey Island and Harpers Ferry, are receiving extensions to remain in service until about 2038.

Many of the other ships that the Navy sails are also legacy platforms. Of the 18 classes of ships in the Navy, only seven are currently in production. For example, 72 percent of the Navy’s attack submarines are Los Angeles-class submarines, an older platform that is being replaced with a more modern and capable Virginia-class. This will shift as the Navy continues to purchase more ships.

The procurement of ships is a critical aspect of meeting Navy capacity requirements, maintaining ship capabilities, and maintaining the industrial capacity to build any warships. The Navy plans to procure 48 ships between FY 2016 and FY 2020, including 14 battle force ships in FY 2016 alone. The procurement of 10 Arleigh Burke-class DDGs (two per year) and 10 Virginia-class SSNs (two per year) and funding for the final nine LCS (three per year in FY 2016–FY 2018) along with the upgunned frigate (FF) variants will also be prioritized and executed in accordance with the 2016 budget. Current procurement plans also call for securing the first LX(R), the amphibious ship replacement for the LSD; a 12th LPD (landing platform/dock); four Fleet oilers; and four Fleet salvage ships.

Modernization programs supplement procurement plans and are intended to replace current platforms as they reach the end of their planned service lives, build up forces to meet capacity requirements, and introduce new technologies to the operating forces. Ship modernization programs as they currently stand are problematic because they do not “keep pace to deal with high-end adversary weapons systems by 2020.” The CBO reported in 2015 that to reach its procurement goals, the Navy would need to increase spending on shipbuilding by one-third over what it has spent per year during the past
30 years.\textsuperscript{117} It is worth noting that this assessment was for the Navy’s goal of a 306-ship Navy, which is lower than the previous determination of 313 ships and lower than the current requirement of 308; it is also well below this \textit{Index}’s prescribed fleet size of 346 ships.

Because ships take such a long time to build and only a few shipyards are capable of building them, and because shipbuilding programs require carefully orchestrated, long-lead-time planning to account for sequencing in the shipyards, supply chain and workforce management, and multi-year funding, the Navy publishes a 30-year plan as its top-level document that captures objectives by class and sequencing of replacements as older ships reach the end of their service lives.\textsuperscript{118} According to the current 30-year plan, the Navy will reach its 308-ship requirement by FY 2022.\textsuperscript{119}

However, the 30-year shipbuilding plan is not limited to programs of record and assumes procurement programs that have yet to materialize. For that reason, it is often considered optimistic. For example, the goal of 308 ships stated in the Navy’s most recent 30-year plan includes an objective for 12 \textit{Ohio}-class replacement submarines, the SSBN(X), which will require an average of $17.2 billion a year in shipbuilding costs from 2020–2035.\textsuperscript{120} This is something that the Navy will have difficulty maintaining as it struggles to sustain, overhaul, modernize, and eventually retire the remainder of its legacy SSBN fleet.

The service is planning to acquire the first SSBN(X) in FY 2021, with advanced procurement funding starting in FY 2017.\textsuperscript{121} The Government Accountability Office (GAO) reported that total program acquisition costs will be about $95.8 billion.\textsuperscript{122} According to the Congressional Research Service, “The Navy in January 2015 estimated the average procurement cost of boats 2 through 12 in the \textit{Ohio} replacement program at about $5.2 billion each in FY2010 dollars.”\textsuperscript{123} Based on the historical average, the Navy will have to spend more than a third of its shipbuilding budget on one SSBN(X) hull each year that it procures one.\textsuperscript{124} This \textit{Index} therefore relies on budget and programmatic data from programs of record to determine the state of Navy modernization.

The most glaring problem with the Navy’s current modernization program has to do with how many ships it plans to purchase. While the Navy has stated its intent to purchase additional attack submarines, the current \textit{Virginia}-class program of record is slated to produce a total of 30 submarines—well short of the 48 attack submarines the Navy requires. At this current rate, assuming that the \textit{Seawolf}-class has been retired, there will be an 18-attack submarine shortfall in the Navy’s 308-ship requirement. The Navy has stated that it will attempt to lengthen deployments and possibly perform service life extensions on some of the existing attack submarines to account for this shortfall.\textsuperscript{125} Similarly, the Navy plans to replace the 14 aging \textit{Ohio}-class SSBN with 12 SSBN(X).\textsuperscript{126} The shortfall in small surface combatants is similarly alarming.

The \textit{Avenger}-class MCM and \textit{Oliver Hazard Perry}-class frigate are being retired, which means that the Littoral Combat Ship will assume the entire small surface combatant fleet requirement. As discussed above, the LCS and its follow-on, which will be called a frigate, are intended to make up this shortfall with a procurement of 52 total projected LCS/frigates.

Timing for the small surface combatants will be another issue. While the LCS/frigate procurement has been scheduled, ship delivery will not be rapid enough to fill small surface combatant requirements entirely.

Of the seven classes of ships the Navy is building, some have been relatively successful, whereas others are more problematic. Both the \textit{Virginia}-class submarines and \textit{Arleigh Burke}-class destroyers have a steady production rate and are being considered for upgrades to improve their respective capabilities. The newer \textit{Arleigh Burke}-class Flight III design would be able to support a new and larger Air and Missile Defense Radar (AMDR). The Navy is also considering extending the \textit{Virginia} class’s hull to provide space for additional missiles or torpedoes. The \textit{San Antonio}-class LPD-17 program, as mentioned earlier, received funding for one additional hull (which the Navy requested be procured in FY 2016) but is not likely to continue beyond 12 ships of this class.\textsuperscript{127}

On the other hand, the \textit{Ford}-class aircraft carrier, \textit{America}-class amphibious ship, \textit{Zumwalt}-class (DDG-1000) destroyer, and Littoral Combat Ship have had varying degrees of difficulty in cost overruns. The \textit{Zumwalt} class was essentially relegated to an experimental order, having been reduced from a projected fleet of 32 hulls to just three. The delivery of CVN-78, the first of the new \textit{Gerald R. Ford} class of aircraft carriers, was delayed by a year, causing a shortfall in the number of aircraft carriers (down to 10) in the U.S. fleet. Both the \textit{America}-class...
amphibious ship and the Littoral Combat Ship also face delays and adjustments of requirements. The America class will produce only two ships of the current design, and the survivability and strike requirements for the LCS are being questioned. All four programs have experienced cost growth, with the Zumwalt-class, Ford-class, and America-class ships incurring cost breaches. It should be noted that the LCS program was able to reduce overall costs in 2015, as it was reported that the cost per hull has been reduced by a third since the first hull in class was built.\textsuperscript{128}

Despite these difficulties, the Navy regards its fleet as capable of handling today’s threats, albeit with increased risk.

The Navy’s long-range strike capability derives from its ability to launch various missiles and combat aircraft. Of the two, naval aircraft are much more expensive and difficult to modernize as a class. Not long ago, the Navy operated several models of strike aircraft that included the F-14 Tomcat, A-6 Intruder, A-4 Skyhawk, and F/A-18 Hornet.\textsuperscript{129} Over the past 20 years, this variety has been winnowed to a single model: the F/A-18. While the F/A-18 A-D variants were first introduced in 1983 and already have undergone service life extensions, the Navy flies a significant number of F/A-18 E/F Super Hornets that are not only newer, but also considered to be extremely capable. The Navy is implementing efforts to extend the life of some of the older variants but plans to have a mix of the F-35C and F/A-18 E/F Super Hornets.

The F-35C is the Navy’s largest aviation modernization program. It is a fifth-generation fighter (all F/A-18 variants are considered fourth-generation) that will have greater stealth capabilities and state-of-the-art electronic systems, allowing it to communicate with multiple other platforms. The Navy plans to purchase 260 F-35Cs (along with 80 F-35Bs for the Marine Corps, discussed in the section on that service)\textsuperscript{130} to replace a current inventory of 455 F/A-18 A–Ds.\textsuperscript{131} The F-35 is supposed to be a more capable aircraft relative to the F/A-18, but at 260 aircraft, it will not be enough to make up for the Hornets the Navy will need to replace.

In addition, like the other F-35 variants, the F-35C faces development problems. The system has been grounded because of engine problems, and software development issues have threatened further delay. The aircraft also has grown more expensive through the development process.

The F-35C is expected to reach initial operating capability (IOC) by FY 2018 or FY 2019. This is later than the initial expectation of IOC by FY 2015. Admiral Greenert stated in 2015 that this delay, combined with unforeseen higher operational tempo on the existing fighter fleet caused by strikes against ISIS, is leading to a possible fighter shortfall of 36 aircraft.\textsuperscript{132} This shortfall in turn has led the Navy to consider extending the service lives of its legacy F/A-18 C/D Hornet aircraft.

The Navy’s other aircraft programs, EA-18G and E-2D, have been relatively successful. The EA-18G program, which had completed its planned procurement of 135 aircraft in FY 2014, added 15 aircraft in FY 2015 out of 22 it had sought through that fiscal year’s “unfunded priorities” list.\textsuperscript{133} The Navy included 12 F/A-18F Super Hornets in its FY 2016 list of unfunded priorities that the service explained could be “built...to be converted to EA-18G Growler electronic attack aircraft if necessary.”\textsuperscript{134} DOD has also established an “Electronic Warfare (EW) Executive Committee” that is currently assessing, among other issues, the potential necessity of future Growlers.\textsuperscript{135} However, the FY 2016 Navy budget request did not seek additional Growlers.\textsuperscript{136} The E-2D program is on a steady procurement schedule, with the Navy having successfully procured its requested level of five aircraft each in FY 2014 and FY 2015.

\textbf{Readiness}

Although the Navy can still deploy forces in accordance with GFMAP requirements, various factors indicate a decline in readiness over the past year. Admiral Michelle Howard, Vice Chief of Naval Operations, reported that “Navy readiness is at its lowest point in many years,” which can be attributed chiefly to budget reductions.\textsuperscript{137} Admiral Greenert acknowledged that continued cuts under BCA limits “compelled us to reduce both afloat and ashore operations, which created ship and aircraft maintenance and training backlogs.”\textsuperscript{138} As a result, unit deployments were also extended, exacting a cost not only on the service life of the ship, but also on the resiliency of the sailors assigned to the vessel.\textsuperscript{139}

To support readiness, the Navy synchronizes maintenance and modernization with the fleet training required to achieve GFMAP objectives utilizing the Fleet Response Plan (FRP). This force generation plan has been used by the Navy effectively since its implementation in 2007, but “continued employment of our contingency response units...has
limited their availability to complete required maintenance and training,\textsuperscript{140} negatively affecting overall readiness.

The GAO published a report in May 2015 that identified readiness challenges that forward-stationed ships are facing due to budget shortfalls. The GAO specifically found that:

[C]asualty reports—incidents of degraded or out-of-service equipment—have doubled over the past five years and that the material condition of overseas-homeported ships has decreased slightly faster than that of U.S.-homeported ships.... GAO also found that the high pace of operations the Navy uses for overseas-homeported ships limits dedicated training and maintenance periods, which has resulted in difficulty keeping crews fully trained and ships maintained.\textsuperscript{141}

The GAO also commented generally on the gap between demand for naval presence with a diminishing supply of ships: “To meet the increasing demands of combatant commanders for forward presence in recent years, the Navy has extended deployments; increased operational tempo; and shortened, eliminated, or deferred training and maintenance.”\textsuperscript{142}

The effects of these degradations in training and maintenance, the report argues, could include the failure of ships to reach their intended service lives in the future.

Admiral Greenert has indicated that over the past few years, although the Navy has been able to deploy one Amphibious Ready Group (ARG) and one Carrier Strike Group (CSG) at all times (even under periods of unforeseen budget reductions such as those caused by the BCA), this has resulted in reductions in the readiness of non-deployed forces.\textsuperscript{143} Specifically, the Navy has a goal of being able to surge three ARGs and three CSGs, but maintenance and training delays have reduced this capability. Furthermore, Greenert acknowledged at a hearing in March 2015 that budget challenges have forced the Navy to lengthen deployments to provide the same amount of global presence.\textsuperscript{144}

While specific readiness figures are scarce, this Index assumes that FY 2015 readiness levels are somewhat lower than those of the previous year, meaning that they are still below where they should be. However, there is not enough information to quantify the change in readiness from last year to this one beyond the Navy’s own statements about still meeting baseline mission requirements.

Of note, while the Navy is still able to forward deploy a third of its fleet, the total fleet reduction has caused a subsequent reduction in global presence (from 104 to 95 as reported by CNO Greenert). It is worth noting again that the Navy’s own readiness assessments are based on the ability to execute a strategy that assumes a force sizing construct that is smaller than the one prescribed by this Index.

The 2015 Index reported on the Navy’s readiness status as follows:

In May 2013, only a third of the Navy was fully mission-capable. Historically, 50 percent of the fleet has been certified for major combat operations due to maintenance requirements.

The Navy has stated that despite this maintenance shortfall, it can still “support the FY2014 GFMAP,” but it is doing so by deferring yard maintenance to keep ships at sea instead of in the shipyards, extending the length of deployments, and counting days spent in transit through an area of responsibility (which a ship sometimes must do to get to an assigned AOR) as credit toward GCC/GFMAP requirements. However, the impact that will be felt is in the Navy’s surge capacity. In addition to the two carrier strike groups and two amphibious ready groups that are fully mission-capable, the Navy will have one extra carrier and amphibious ready group that are fully mission-capable and available to deploy quickly as a surge capacity. According to the Navy, this is “one-third of the normal surge capacity.”\textsuperscript{145}

The Navy did not officially issue an update to the status discussed in the previous paragraphs. However, Admiral Greenert did state that, “Since 2013, many CSGs, ARGs, and destroyers have been on deployment for 8-10 months or longer. This comes at a cost to the resiliency of our people, sustainability of our equipment, and service lives of our ships.”\textsuperscript{146}

The need to stretch deployments and defer maintenance is likely caused in part by the reduced number of ships deployed while the Navy’s presence requirement has not been reduced.\textsuperscript{147}
Scoring the U.S. Navy

Capacity Score: Marginal

The Navy is unusual relative to the other services in that its capacity requirements must meet two separate objectives. First, during peacetime, the Navy must maintain a forward presence around the world. This ongoing peacetime requirement to be present around the world is the driving force behind ship count requirements: a set total number to ensure that the required number of ships is actually available to provide the necessary global presence.

On the other hand, the Navy also must be able to fight and win wars. In this case, the expectation is to be able to fight and win two simultaneous or nearly simultaneously MRCs. When thinking about naval combat power in this way, the defining metric is not necessarily a total ship count, but rather the carrier strike groups, amphibious ships, and submarines deemed necessary to win both the naval component of a war and the larger war effort by means of strike missions inland or cutting off the enemy’s maritime access to sources of supply.

An accurate assessment of Navy capacity takes into account both sets of requirements and scores to the larger requirement.

It should be noted that the scoring in this Index includes the Navy’s fleet of ballistic missile and fast attack submarines to the extent that they contribute to the overall size of the battle fleet and with general comment on the status of their respective modernization programs. Because of their unique characteristics and the missions they perform, their detailed readiness rates and actual use in peacetime and planned use in war are classified. Nevertheless, the various references consulted are fairly consistent in the numbers recommended for the overall fleet and in the Navy’s shipbuilding plan.

The role of SSBNs (fleet ballistic missile submarines) as one leg (arguably the most survivable component) of America’s nuclear triad capability is well-known; perhaps less well-known are the day-to-day tasks undertaken by the SSN (attack submarines) force, which can include collection, surveillance, and support to the special operations community and whose operations often take place apart from the operations of the surface Navy.

Two-MRC Requirement. The primary elements of naval combat power during a major regional contingency operation derive from carrier strike groups (which include squadrons of strike aircraft and support ships) and amphibious assault capacity. Since the Navy is constantly deployed around the globe during peacetime, many of its fleet requirements are beyond the scope of the two-MRC construct. However, it is important to observe the historical context of naval deployments during a major theater war.

13 Deployable Carrier Strike Groups. The average number of aircraft carriers deployed in the Korean War, Vietnam War, Persian Gulf War, and Operation Iraqi Freedom was between five and six. This correlates with the figures recommended in the 1993 Bottom-Up Review (BUR) and subsequent government force-sizing documents, each of which recommended at least 11 aircraft carriers. Assuming that 11 aircraft carriers are needed to engage simultaneously in two MRCs, and assuming that the Navy ideally should have a 20 percent strategic reserve in order to avoid having to commit 100 percent of its carrier groups and account for scheduled maintenance, the Navy should have 13 carrier strike groups.

The aircraft carrier is the centerpiece of a carrier strike group, composed of one guided-missile cruiser, two guided-missile destroyers, one attack submarine, and a supply ship in addition to the carrier itself. Therefore, based on the requirement for 13 aircraft carriers, the following numbers of ships are necessary for 13 deployable carrier strike groups:

- 13 aircraft carriers,
- 13 cruisers,
- 26 destroyers, and
- 13 attack submarines.

13 Carrier Air Wings. Each carrier deployed for combat operations was equipped with a carrier air wing, meaning that five to six air wings were necessary for each of those major contingencies. The strategic documents differ slightly in this regard because each document suggests one less carrier air wing than the number of aircraft carriers.

A carrier air wing usually includes four strike fighter squadrons. Twelve aircraft typically comprise one Navy strike fighter squadron, so at least 48 strike fighter craft are required for each carrier air wing. To support 13 carrier air wings, the Navy therefore needs a minimum of 624 strike fighter aircraft.
50 Amphibious Ships. The 1993 BUR recommended a fleet of 45 large amphibious vessels to support the operations of 2.5 Marine Expeditionary Brigades (MEBs). Since then, the Marine Corps has expressed a need to be able to perform two MEB-level operations simultaneously, with a resulting fleet of 38 amphibious vessels required. The 1996 and 2001 QDRs each recommended 12 “amphibious ready groups” (ARGs). One ARG typically includes one amphibious assault ship (LHA/LHD); one amphibious transport dock ship (LPD); and one dock landing ship (LSD). Therefore, the 12-ARG recommendation equates to 36 amphibious vessels. The number of amphibious vessels required in combat operations has declined since the Korean War, where 34 amphibious vessels were used; 26 were deployed in Vietnam, 21 in the Persian Gulf War, and only seven in Operation Iraqi Freedom (which did not require as large a sea-based expeditionary force). The Persian Gulf War is the most pertinent example for today, because similar vessels were used, and modern requirements for an MEB most closely resemble this engagement.

While the Marine Corps has consistently advocated a fleet of 38 amphibious vessels to execute its two-MEB strategy, it is more prudent to field a fleet of at least 42 such vessels based on the Persian Gulf engagement. Similarly, if the USMC is to have a strategic reserve of 20 percent, the ideal number of amphibious ships would be 50.

Total Ship Requirement. The bulk of the Navy’s battle force ships are not directly tied to a carrier strike group. Some surface vessels and attack submarines are deployed independently, which is often why their requirements exceed those of a carrier strike group. The same can be said of the ballistic missile submarine (nuclear missiles) and guided missile submarine (conventional cruise missiles), which operate independently of an aircraft carrier.

This Index uses the benchmark set by previous government reports, mainly the 1993 BUR, which was one of the most comprehensive reviews of military requirements. Similar Navy fleet size requirements have been echoed in follow-on reports.

The numerical values used in the score column refer to the five-grade scale explained earlier in this section, where 1 is “very weak” and 5 is “very strong.” Taking the full Navy requirement of 346 ships as the benchmark, the Navy’s current battle forces fleet capacity of 271 ships retains a score of “marginal,”
as was the case in the 2015 Index. However, as mentioned above, the fleet size has significantly declined from the previous Index assessment and continues to trend downward. Given the CBO’s assessment that the Navy will continue to underfund its shipbuilding programs, and in view of the impending need for a ballistic missile submarine replacement that could cost nearly half of the current shipbuilding budget per hull, the Navy’s capacity score could fall to “weak” in the near future.

**Capability Score: Weak**

The overall capability score for the Navy is “weak.” This was consistent across all four components of the capability score: “Age of Equipment,” “Capability of Equipment,” “Size of Modernization Program,” and “Health of Modernization Programs.” Given the number of programs, ship classes, and types of aircraft involved, the details that informed the capability assessment are more easily presented in in a tabular format as shown in the Appendix.

This Index does not include an assessment of future programs such as the Ohio-Class Replacement SSBN(X); Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS); and LX(R) because these are not yet categorized by the government as MDAPs.

**Readiness Score: Marginal**

The Navy’s current readiness score has dropped from “strong” in the 2015 Index to “marginal.” This assessment combines two major elements of naval readiness: the ability to consistently provide the required levels of presence around the globe and surge capacity. As elaborated below, the Navy’s ability to maintain required presence in key regions is “strong,” but its ability to surge to meet combat requirements ranges from “weak” to “very weak” depending on how one defines the requirement. In both cases—presence and surge—the Navy is sacrificing long-term readiness to meet current demand.

The Navy reported that it continues to meet GFMAP goals but at the cost of future readiness. The GAO reported in May 2015 that “to meet the increasing demands of combatant commanders for forward presence in recent years, the Navy has extended deployments; increased operational tempos; and shortened, eliminated, or deferred training and maintenance.” Furthermore, as the Navy seeks to provide the same amount of forward presence with a smaller fleet through overseas home-porting, the GAO has found that “this additional time is available primarily because training and maintenance periods are shorter than those provided for ships homeported in the United States.”

While forward-deployed ships do not fully represent the total fleet, the Navy has indicated in other ways that its readiness could be compromised in the near future. Admiral Howard testified in March 2015 that “we continue our efforts to rebuild the workforce in our public depots—both shipyards and aviation readiness centers—and reduce the number of lost operational days, but it will take years to dig out of a readiness hole.” She explained that the Bipartisan Budget Act of 2013 had alleviated some of the Navy’s funding concerns wrought by the Budget Control Act of 2011 but that the Navy has “not yet recovered from the readiness impact of over a decade of combat operations.”

While no precise information is provided for the exact levels of current readiness, the Navy has been able to make up previous readiness shortfalls that resulted from sequester in FY 2013. In FY 2013, 66 percent of the Navy was not assessed to be full-mission capable, compared to a 50 percent average. The previous 16 percent gap will not affect immediate deployments, but it will reduce the Navy’s ability to surge in response to a major conflict. As stated by the Navy, the FY 2014 funding allowed some of this gap to be closed.

While it has been reported that congressional support for increases over sequestered funding levels through the BCA and subsequent authorizations and appropriations in FY 2013 and FY 2014 has helped to stabilize readiness, the Navy, as Admiral Howard noted, has “not yet recovered from the readiness impact of over a decade of combat operations.” Furthermore, the USN reports that “it will require several years to fully recover the capability to rapidly respond to COCOM requirements for a major contingency.”

Therefore, the Navy’s readiness as it pertains to providing global presence is rated as “strong.”

Another element of naval readiness is the ability to surge forces to respond to a major contingency. As discussed above, the Navy’s goal is the ability to surge three CSGs and three ARGs for a contingency
operation, three times the level it is currently capable of deploying. Admiral Greenert stated in 2015 that “we might be able to recover from the accumulated backlogs by 2018 for our [CSGs] and by 2020 for our [ARGs]” to deploy three of each, but only if there is stable funding and no major contingency occurs over that time frame. Therefore, the Navy is operating at a third of its own prescribed ability to surge to meet a regional contingency operation. This yields a surge capacity score of “weak.”

Since the Index of U.S. Military Strength uses the two-MRC construct as its benchmark level of necessary military force, the Navy would actually need to be able to surge forces to a level higher than three each of CSGs and ARGs. However, doubling the Navy’s surge capacity requirement to account for this is an oversimplification, as not enough public information exists to assess how much surge capacity the Navy would require to engage in a second contingency. Therefore, this Index notes that the Navy must be able to surge remaining forces if the U.S. finds itself responding to a second MRC but does not attempt to determine or count this additional level in its scoring.

**Overall U.S. Navy Score: Marginal**

The Navy’s overall score for the 2016 Index is “marginal,” the same as the previous year. This was derived by aggregating the scores for capacity (“marginal”); capability (“weak”); and readiness (“marginal”). However, given the continued decline in the Navy’s fleet size without a coinciding reduction in presence requirements, Navy officials’ increasingly dire assessment of readiness challenges, and few signs of funding increases to correct these trends, the Navy’s score could degrade to “weak” in the near future if it does not reverse course.

### U.S. Military Power: Navy

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