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Center for Strategic and Budgetary Assessments

DEPLOYING BEYOND THEIR MEANS

AMERICA'S NAVY AND MARINE CORPS AT A TIPPING POINT

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INTRODUCTION: NAVAL FORWARD PRESENCE

Today the Navy and Marine Corps are facing a fundamental choice: maintain current levels of forward presence and risk breaking the force or reduce presence and restore readiness through adequate training, maintenance, and time at home. This choice is driven by the supply of ready naval forces being too small to meet the demand from Combatant Commanders, as adjudicated by the Secretary of Defense. To close the gap, the Department of Defense (DoD) will need to grow the fleet and force, base more ships overseas, or pay to maintain a higher operating tempo.

Global navies are a common attribute of nations with economic and security interests in multiple regions outside their own. The Spanish, Dutch, and British empires all included fleets able to protect their shipping lanes; transport troops to far flung colonies and holdings; and threaten the territories and commerce of their enemies. The United States followed suit as it became a global economic and military power during the 19th century, starting with its Navy's first deployment against Barbary pirates in 1802 and continuing through the voyage of President Theodore Roosevelt's "Great White Fleet" in 1907.

A global fleet, however, did not necessarily mean global *presence*. Through the 19th century the U.S. Navy episodically deployed overseas in response to threats or to send a message to its friends and enemies. Because of its economic interests, the United States stationed ships, Sailors, and Marines in a small number of important overseas ports, such as the South China and Yangtze River patrols in Asia. Generally, these forward forces consisted of small ships with capabilities suited to peacetime maritime security and diplomatic missions. The bulk of the Navy, and all its capital ships, remained based in the United States and only deployed when needed.¹ Samuel Huntington characterized this era as the "Continental Era" of U.S. national power.²

Near the end of the 19th century, this homeland-focused posture began to evolve as the United States consolidated control over the territory between its coasts and navalists such as Alfred

1 Peter M. Swartz, *Sea Changes: Transforming US Navy Deployment Strategy, 1775–2002* (Alexandria, VA: Center for Naval Analysis, July 31, 2002).

2 Samuel P. Huntington, "National Policy and the Transoceanic Navy," *USNI Proceedings*, May 1954.

Thayer Mahan advocated for a much more proactive posture overseas. This marked the beginning of the American “Oceanic Era” in Huntington’s framework.³ More frequent overseas deployments and the complete transition to coal-powered ships led the Navy during this era to develop a series of overseas facilities where its ships could resupply and refuel. Deployments, however, were still episodic (except in wartime) and forces based overseas remained tailored to peacetime operations.⁴

The expeditionary nature of U.S. overseas deployments changed permanently with World War II. During the war U.S. naval forces deployed worldwide to carry troops and supplies to every theater, protect Allied sea lanes, and eventually deny the use of the seas to Axis powers, particularly Japan. To sustain the effort, the Navy established a network of overseas bases, repair facilities, and refueling stations as well as processes for maintaining deployed forces overseas.

After four years of continuous overseas presence during the war, American leaders planned for some U.S. naval forces to remain deployed as a crisis response force for ground troops and civilians supporting reconstruction in Asia and Europe. These ships, Sailors, and Marines also helped restore the ability of America’s allies and former enemies to protect their seaborne commerce and coastlines. At the time, the Navy’s intent was not necessarily to maintain a global overseas presence.

FLEET SIZE AND CONTINUOUS NAVAL PRESENCE

Even as the United States brought most of its forces home and turned to domestic concerns, the Soviet Union emerged as a global geopolitical foe and, later, an existential threat. Deterring Soviet aggression against American allies added a new rationale for the United States to continuously maintain ground, air, and naval forces around the world. The Navy’s part of this effort was demonstrating it could sustain the flow of reinforcements to Europe during a conflict with the Soviet Union and punish Soviet aggression with strikes launched from aircraft carriers in the Northern Atlantic, Eastern Mediterranean, and Western Pacific. Chief of Naval Operations (CNO) James D. Watkins eventually codified this approach publically in his 1986 maritime strategy.⁵

This approach to deterrence created the need for three “hubs” of naval presence in the Mediterranean, Eastern Atlantic, and Western Pacific. Each hub was centered on a Carrier Battle Group (CVBG) consisting of an aircraft carrier (CV) and its cruiser and destroyer escorts and an Amphibious Ready Group (ARG) consisting of three to four amphibious ships and associated landing craft. U.S. nuclear attack submarines (SSNs) joined CVBGs starting in the

³ This evolution is described in much more detail in Andrew Krepinevich and Robert Work, *A New Global Defense Posture for the Second Transoceanic Era* (Washington, DC: Center for Strategic and Budgetary Assessments, 2007).

⁴ *Ibid.*, pp. 44–58.

⁵ James D. Watkins, “The Maritime Strategy,” *USNI Proceedings*, January 1982, pp. 2–16.

early 1980s to protect CVs from the growing number of quiet Soviet submarines carrying anti-ship cruise missiles (ASCM), such as the *Oscar*-class guided missile submarine (SSGN) and *Akula*-class SSNs.

In 1981, the incoming President and Secretary of the Navy proposed the nation pursue a 600-ship fleet. This overall fleet size reflected, in part, the political objective of showing American strength to the Soviet Union, but it also reflected the fleet size needed to sustain three hubs of continuous overseas presence.⁶ The 600-ship requirement marked the first time fleet size requirements were derived in large part from plans for the continuous deployment of naval forces. Previous fleet size requirements were based on factors such as the number of ships maintained by potential enemies, treaty limitations, budgets, or the number of support vessels or escorts needed for each capital ship.

The explicit intent to maintain deployed presence also highlighted the value of forward-based forces. Although forces based in the Continental United States (CONUS) and those homeported overseas conduct maintenance and training between deployments, forward forces have shorter transit times and can maintain a higher operational tempo. This enables a forward-based ship to maintain the same level of operational presence as two or more CONUS-based ships.

The United States took advantage of forward-basing during the Cold War and U.S. naval forces were eventually homeported in Japan, the Philippines, Bahrain, Spain, Greece, Italy, the United Kingdom, Iceland, and Norway, among other countries. While forward basing had been a feature of the U.S. Navy since the 19th century, a significant difference in the Cold War was that front-line capital ships and aircraft were stationed overseas rather than remaining safely ensconced in CONUS. There were both strategic and operational advantages to this. Strategically, basing warfighting forces forward reduced American response time, showing the Soviets that aggression may be promptly defeated or that punishment would be swift. Further, forward-based forces helped demonstrate American resolve to allies and partners concerned by the oceans separating them from the United States. Operationally, forward-based forces provide more forward presence, or enable the same presence to be maintained by a smaller overall fleet.

6 Rudy Abramson, "Reagan Renews Vow for 600-Ship Navy: 'Way to Prevent War Is to Be Prepared for It,' He Tells Academy Class," *Los Angeles Times*, May 23, 1985.

FIGURE 1: COLD WAR (CIRCA 1980) U.S. OVERSEAS NAVAL BASES⁷

At the end of the Cold War in the late 1980s, the U.S. Navy could have returned to its pre-war models and deployed episodically while maintaining most of the fleet at home. Instead, it sustained continuous overseas naval presence into the 1990s and beyond. Initially this posture reflected the need for stability in the face of the Soviet Union’s uneven and sometimes chaotic dissolution over several years. But the United States maintained continuous overseas naval presence even after this process completed and NATO began to expand into former Warsaw Pact nations through the 1990s. Forward naval presence had gone from being an element of a specific national strategy in World War II and the Cold War to being a fundamental avenue through which the United States exerted its power.

Maritime strategies in the 1990s codified this approach, as the 1986 strategy had done for the competition with the Soviets. In “From the Sea” and “Forward... From the Sea” the Department of the Navy described strategic concepts for using forward naval forces to respond to crises, deter aggression, and maintain freedom of the seas against an undefined set of potential state and non-state adversaries.⁸

These concepts emphasized characteristics of naval forces that make them well suited to address a less structured security environment in which multiple smaller-scale actors could impact U.S. interests, as opposed to the large monolithic threat posed by the Soviet Union.

7 Robert E. Harkavy, *Strategic Basing and the Great Powers, 1200–2000* (London: Routledge, 2007), pp. 98–101.

8 Sean O’Keefe, Frank Kelso, and Carl Mundy, *From the Sea* (Washington, DC: U.S. Department of the Navy, 1992), available at <http://www.au.af.mil/au/awc/awcgate/navy/fromsea/fromsea.txt>; and John Dalton, Jeremy Boorda, and Carl Mundy, *Forward... From the Sea* (Washington, DC: U.S. Department of the Navy, 1994), available at <http://www.dtic.mil/jv2010/navy/b014.pdf>.

For example, naval forces can operate forward for extended periods without having to secure diplomatic clearances, install expensive fixed infrastructure, or generate a potentially disruptive “footprint” on foreign soil. Further, their mobility enables them to shift from one theater to another and rapidly aggregate or disaggregate depending on the location, size, and type of operation intended.

The use of forward deployed naval forces to not only address threats, but also advance U.S. interests, was emphasized in *A Cooperative Strategy for 21st Century Seapower* in 2007. CS21, as the strategy was abbreviated, asserted, “The ability to sustain operations in international waters far from our shores constitutes a distinct advantage for the United States—a Western Hemisphere nation separated from many of its strategic interests by vast oceans.”⁹ Further, the strategy tied naval presence to protection of the global economic system, given the preponderance of U.S. military power at the time and America’s central role in global financial and commercial markets.

The newest maritime strategy, *Forward, Engaged, Ready: A Cooperative Strategy for 21st Century Seapower*, continues to highlight forward presence as a central part of the naval value proposition.¹⁰ Like previous strategies and strategic concepts, it argues that forward naval forces enable deterrence, rapid crisis response, partner training, and maritime security. Notably, the new strategy names specific competitors such as China, Russia, and Iran as reasons for maintaining forward presence in relevant regions around the world—the first time since the Cold War a naval strategy explicitly identified the need to deter and, if necessary, defeat specific potential adversaries.

The evolution of naval strategy and concepts from advocating a regional fleet to a global navy to a globally present navy reflected the expanding influence and reach of the United States. However, the fleet’s size did not necessarily follow suit. The Navy reached a post-World War II peak in size during the 1980s, when the first maritime strategy to tie presence to ship count was promulgated. As will be highlighted in the next section, the fleet has been shrinking ever since—despite the fact every subsequent strategy document continued to assert the value and need for forward presence.

TODAY’S READINESS CHALLENGE

The Navy’s battle force is currently composed of about 272 ships. However, only a portion of the fleet is available for operational use at any given time. Vessels adhere to a cycle that rotates them and their crews through maintenance, training, and deployment periods. Historically,

9 *A Cooperative Strategy for 21st Century Seapower* (Washington, DC: Department of Defense, 2015), p. 21.

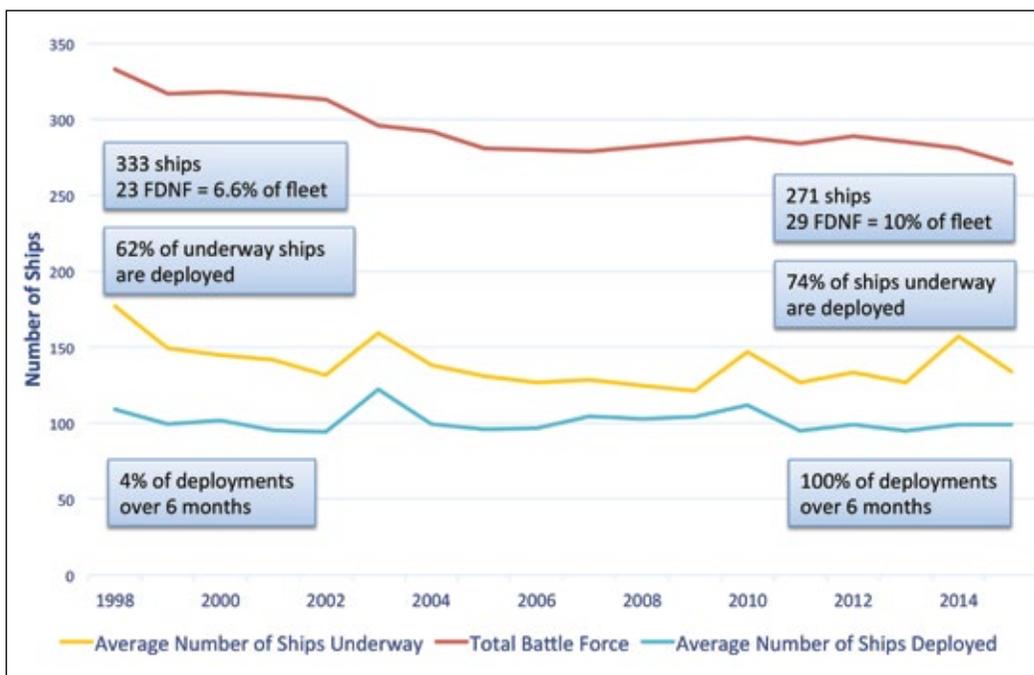
10 Joseph Dunford, Jonathan Greenert, and Paul Zunkunft, *Forward, Engaged Ready: A Cooperative Strategy for 21st Century Seapower* (Washington, DC: U.S. Department of the Navy, 2015), p. 9.

the Navy has planned for its ships to execute cycles consisting of a single 6 to 7 month deployment in a 24 to 32 month period.¹¹

The Navy and Marine Corps deploy in response to requests from regional Combatant Commanders (COCOMs) that are approved by the Secretary of Defense as part of the Global Force Management process. There is a natural tension between COCOMs, who want to maximize the number of naval assets they have to employ, and naval force planners, who must balance the requests of all the COCOMs with the need to give crews and ships time to carry out maintenance, upgrade systems, and conduct training.

The last two decades have been busy ones for the Navy. Between 1998 and 2014, the number of ships deployed overseas remained roughly constant at 100. The fleet, however, shrank by about 20 percent. As a result, each ship is working harder to maintain the same level of presence. For example, the share of underway ships that were deployed rather than training near their home ports rose from 62 percent in 1998 to a high of 86 percent in 2009 before declining to approximately 74 percent in 2015, as shown in Figure 2.

FIGURE 2: NAVY SHIPS DEPLOYED AND UNDERWAY 1998–2014¹²



¹¹ *Preserving the Navy's Forward Presence with a Smaller Fleet* (Washington, DC: Congressional Budget Office, March 2015), p. 9.

¹² Data from CSBA analysis and from Danil Whiteneck, Michael Price, Neil Jenkins, and Peter Schwartz, *The Navy at a Tipping Point: Maritime Dominance at Stake?* (Alexandria, VA: Center for Naval Analysis, 2010).

Figure 2 also shows that the percentage of time each ship spent at sea went up over the last decade, since the size of the fleet went down and the number of ships underway rose or stayed the same. For example, operating tempo (OPTEMPO), a measurement of the time a ship spends at sea, increased by eight percent throughout the fleet between 2001 and 2009 and grew by 18 percent for surface combatants.¹³

Excessive OPTEMPO affects naval readiness in a number of ways, but most significantly by reducing the time available for maintenance. And when critical tasks are deferred long enough, the consequences can be severe. In 2011 and 2012, the flagship of Expeditionary Strike Group 8, the USS *Essex*, had to severely curtail its role in one major Pacific exercise and cancel its participation in another due to mechanical problems caused by skipping maintenance to satisfy operational requirements.¹⁴ Similarly, after being ordered to respond to the 2010 Haitian earthquake just 1 month following a 7-month deployment, the amphibious landing ship USS *Bataan* suffered a double failure of its evaporators and was forced to delay rescue operations in order to take on 40,000 gallons of water from a nearby supply ship.¹⁵

The extended OPTEMPO of the last few years—combined with interrupted work at Navy shipyards caused by sequestration resulting from the Budget Control Act (BCA)—has resulted in a backlog of deferred maintenance for the nuclear aircraft carrier (CVN) fleet. The backlog culminated in late 2015 with a Persian Gulf “carrier gap” between the departure of the USS *Theodore Roosevelt* and the arrival of the USS *Harry S Truman*. A second carrier gap will occur in the Pacific in 2016 and gaps will reoccur intermittently in both theaters until 2021, when the USS *Gerald R. Ford* becomes operationally available.¹⁶ The experience of the USS *Dwight D. Eisenhower* illustrates how delaying repairs can play havoc with future requirements planning: two back-to-back deployments in 2012 and 2013 took so large a toll on the vessel’s material condition that its subsequent maintenance period lasted 23 months—a full 65 percent longer than was originally planned for.¹⁷

The “heel-to-toe” deployment schedule necessary to service today’s high presence levels has also exacerbated the impact of the BCA budget caps on surge capacity. Normally, the Navy and Marine Corps can surge three carrier strike groups (CSGs) and three amphibious ready

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- 13 Rear Admiral Joseph F. Campbell, “Readiness and Sustainment of the Navy’s Surface Fleet,” Hearing before the the of the House Armed Services Committee, Readiness Subcommittee, March 25, 2009.
- 14 Matthew M. Burke, “USS *Essex* unable to fulfill mission for 2nd time in seven months,” *Stars and Stripes*, February 1, 2012.
- 15 Bill Cook, “Unrep ships critical platforms for Haitian relief,” *Sealift*, March 2010; and “USS *Bataan* (LHD 5) Cruise Book: 2009 Deployment,” available at <http://www.navysite.de/cruisebooks/lhd5-09/index.html>.
- 16 Megan Eckstein, “Navy: Half the Carrier Fleet Tied Up In Maintenance, Other 5 Strained To Meet Demands,” *USNI News*, November 4, 2015, available at <http://news.usni.org/2015/11/04/navy-half-the-carrier-fleet-tied-up-in-maintenance-other-5-strained-to-meet-demands>.
- 17 Ryan T. Tewell, “Assessing the U.S. Aircraft Carrier Gap in the Gulf,” *The Washington Institute for Near East Policy*, October 5, 2015, available at <http://www.washingtoninstitute.org/policy-analysis/view/assessing-the-u.s.-aircraft-carrier-gap-in-the-gulf>.

groups (ARGs) forward within 60 days in the event of crisis. This is possible because groups that recently returned from deployment are maintained ready for several months through continued operations and training, and groups preparing for deployment are ready several weeks before they depart. With the above maintenance problems and less readiness funding, groups largely shutdown when they return from deployment and groups preparing to deploy are ready just in time to leave. As a result, the Navy and Marine Corps are now only able to surge one CSG and one ARG.¹⁸

The impacts of a high OPTEMPO have been felt just as severely by crews. As deployments get longer, Sailors have seen their time at home shortened. Between 2012 and 2014, the USS *John C. Stennis* was deployed for 15 of 24 months. One Sailor remarked that, “We have missed two Thanksgivings, Christmases, New Year’s and many other holidays. ...After the past two years, I have realized that I am not cut out for this work.”¹⁹

A 2014 survey of over 5,000 Sailors by Navy officers Guy Snodgrass and Ben Kohlman found that 49.8 percent of enlisted personnel and 65.5 percent of officers thought the current OPTEMPO was too high.²⁰ This can hinder the Navy’s efforts to retain talented people who may have employment options outside military service; Navy analysis estimates that longer and more frequent deployments can negatively impact reenlistment rates by between 1.3 and 1.9 percent.²¹ The Navy also determined that Sailors have a strong preference for more predictable deployment cycles and Navy leaders have repeatedly cited the extension of deployments mid-cruise as adversely impacting morale and retention.²²

To address these challenges, the Navy is implementing a new readiness cycle called the Optimized-Fleet Response Plan (O-FRP) for CVNs, guided missile destroyers (DDGs), and guided missile cruisers (CGs).²³ Figure 3 depicts the new O-FRP cycle and, for comparison, the cycle that will continue to be used by amphibious ships.

18 Megan Eckstein, “CNO Greenert: Navy Could Fix Readiness Shortfall by 2020 if Sequestration is Avoided,” *USNI News*, March 10, 2015, available at <http://news.usni.org/2015/03/10/cno-greenert-navy-could-fix-readiness-shortfall-by-2020-if-sequestration-is-avoided>; Jonathan W. Greenert, Testimony before the Senate Committee on Appropriations, Subcommittee on Defense on FY 2016 Department of the Navy Posture, March 4, 2015.

19 Sam Fellman, “8-Month Deployments Become the ‘New Norm’,” *Navy Times*, December 2, 2013.

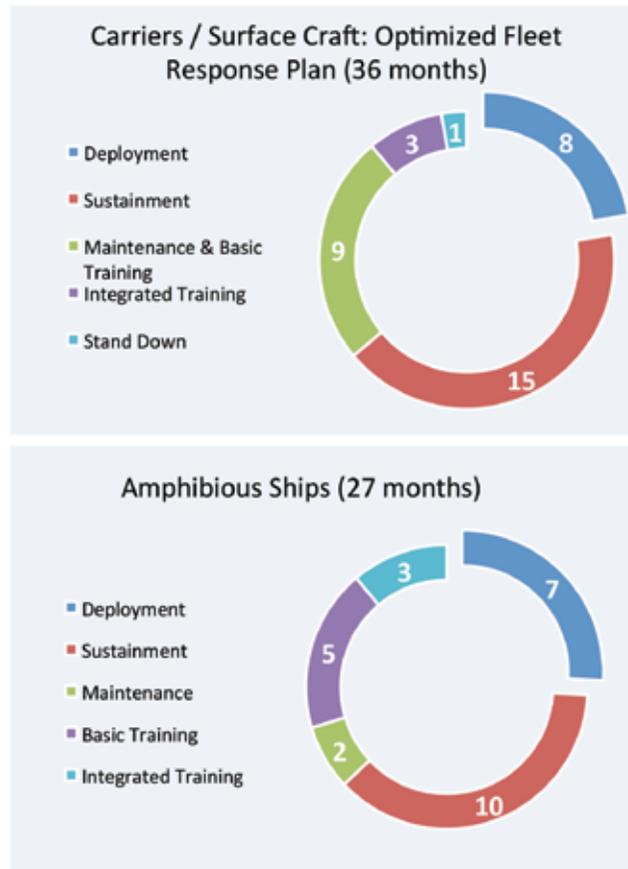
20 “2014 Survey Report,” *2014 Navy Retention Study*, September 1, 2014, p. 23, available at <http://www.dodretention.org/>.

21 *Preserving the Navy’s Forward Presence with a Smaller Fleet*, p. 11.

22 David Larter, “CNO Warns Budget Cuts Will Hurt Morale, Readiness,” *Navy Times*, January 28, 2015.

23 The previous FRP cycle included a single 7-month deployment in a 32-month cycle.

FIGURE 3: O-FRP AND AMPHIBIOUS SHIP READINESS CYCLES



The goal of O-FRP is to bring predictability to the readiness cycle and limit deployments to a maximum period of 8 months. In addition, O-FRP seeks to align the deployment cycles of carriers and the large surface combatants that make up their battle groups so that the combined carrier battle group (CVG) can form for training earlier in the pre-deployment work-up period. A key component of O-FRP is a 15-month sustainment period following a deployment. During sustainment, ships, aircraft, and their crews are intended to maintain their combat certifications and remain ready to deploy as part of a possible surge force.²⁴

Initially the O-FRP is only being applied to carriers and large surface combatants. Amphibious ships, small surface combatants such as Littoral Combat Ships (LCS), and submarines have different readiness cycles. The Navy intends to expand the O-FRP model to amphibious ships

²⁴ Megan Eckstein, "Admirals: Fleet Readiness Plan Could Leave Carrier Gaps, Overwhelm Shipyards," *USNI News*, September 9, 2016, available at <http://news.usni.org/2015/09/09/admirals-fleet-readiness-plan-could-leave-carrier-gaps-overwhelm-shipyards>; and Bill Gortney, "Predictability and Adaptability: West 2014," Power Point Presentation, United States Fleet Forces, February 12, 2014, available at <http://www.afcea.org/events/west/14/documents/WEST2014PresentationFinalGortney.pdf>.

in the next several years, but other classes of ships and Marines will prepare for, conduct, and recover from deployment on different schedules.

THE LOOMING PRESENCE CRISIS

The central force structure challenge facing the Navy and Marine Corps today is that demand for naval forces exceeds the supply they can sustainably deliver. Both services have been maintaining a higher level of presence than they typically plan for by extending deployments, deploying more than once per readiness cycle, and basing more ships overseas. The impacts of this approach are degraded material condition and reduced morale and, counterintuitively, reduced presence or gaps when ships and crews are unable to deploy on time.

The O-FRP, when implemented, will better enable some naval forces to complete training and maintenance between deployments. However, it will also reduce the presence they can deliver overseas because it shifts from today's 8-month (or more) deployment in a 32-month cycle for carriers and surface combatants to a single 8-month deployment in a 36-month cycle. This means each ship goes from spending about 25 percent of its time deployed to about 22 percent of its time deployed. Sustaining today's presence as O-FRP is implemented, and potentially expanded to amphibious ships, will require that ships deploy for longer than 8 months or deploy a second time during their 15-month sustainment period. This would begin to put the fleet back into the situation it faces today.

A shrinking fleet

Another factor reducing the supply of deployable forces is the shrinking fleet. As shown in Figure 2, the Navy's battle force (ships able to conduct or directly support combat operations) drew down from 333 ships in 1998 to 271 ships in 2015. This resulted from a combination of construction rates that fell by about half in the early 2000s and a high rate of retirements to reduce costs for manning and modernizing older frigates and CGs. The fleet is anticipated to grow slowly over the next several years as retirements taper off and increased construction starting in the late 2000s begins to deliver hulls to the fleet.

It is unlikely, however, that the Navy will be able to significantly grow the fleet. Its current shipbuilding plan requires \$5 to \$7 billion more per year than the historical average over the last 30 years. The Navy may be compelled to revise this plan to meet fiscal constraints. Over the next three decades, the Congressional Budget Office (CBO) calculated that the Navy's FY2016 shipbuilding plan will require over \$552 billion (in constant 2015 dollars) worth of ship purchases. If the plan is executed as written, the average cost of new-ship construction will be approximately \$18.4 billion per year. The plan would be 32 percent more expensive than the Navy's historical average annual shipbuilding budgets.²⁵

25 *An Analysis of the Navy's Fiscal Year 2016 Shipbuilding Plan* (Washington, DC: Congressional Budget Office, October 2015), p. 3.

In order to assess the Navy's capacity to sustain forward presence under different levels of shipbuilding funding, this study examines the Navy's FY2016 \$18.4 billion shipbuilding plan and three alternative plans averaging \$13 billion, \$11.5 billion, and \$10 billion per year. Under the current shipbuilding plan, the Navy expects the battle fleet to reach a high of 321 ships in 2028 before declining to 305 ships by 2045. All three of the alternative plans would result in a fleet of fewer than 300 ships. Notably, none of the shipbuilding plans (including the Navy's own plan) would enable the Navy to sustain the global presence it maintains today.

Figure 4 illustrates the cost of the Navy's proposed plan compared to the alternative plans and Table 1 describes the battle force inventory associated with each plan.

FIGURE 4: NAVY AND ALTERNATIVE SHIPBUILDING PLANS

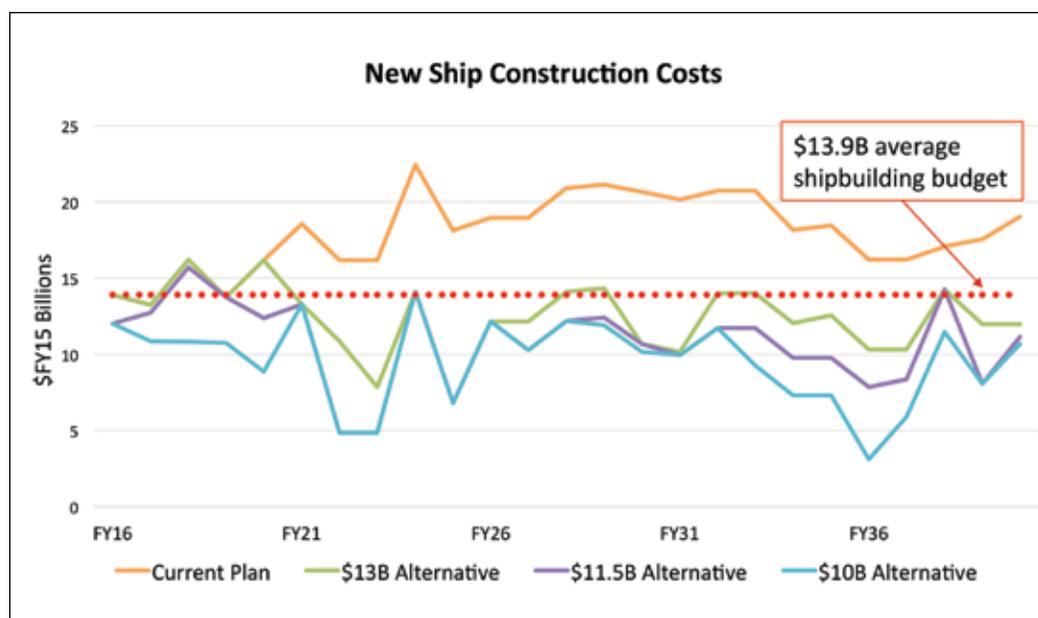


TABLE 1: BATTLE FORCE INVENTORY ASSOCIATED WITH EACH SHIPBUILDING PLAN

	Current Plan			\$13 Billion Alternative			\$11.5 Billion Alternative			\$10 Billion Alternative		
	2020	2030	2040	2020	2030	2040	2020	2030	2040	2020	2030	2040
Carriers	11	11	10	11	11	10	11	11	10	11	11	9
Large Surface Combatants	95	95	85	95	85	59	95	82	56	95	80	50
Attack Submarines	51	42	47	51	37	33	51	35	31	51	32	28
Amphibious Ships	33	36	33	33	36	31	33	36	28	33	33	24
Small Surface Combatants	33	52	56	33	27	28	33	25	23	32	23	20
Total Battle Force	304	312	302	304	274	224	304	267	210	303	257	191

The impact of forward basing

Figure 2 shows the Navy grew the number and percentage of ships based overseas in the Forward Deployed Naval Force (FDFNF) to increase forward presence. Today FDFNF ships, aircraft, Sailors, and Marines provide about one quarter of overseas naval presence and the Navy plans to expand its FDFNF contingent to a third of forward presence in 2024.²⁶ In the U.S. Pacific Command area of responsibility (AOR), much of Seventh Fleet’s requirements are met by forces homeported or operating in Japan, Guam, and Singapore. Sixth Fleet, supporting U.S. European Command, includes four FDFNF DDGs based in Rota, Spain.²⁷ And in U.S. Central Command, 10 Patrol Coastal (PC) and four Mine Countermeasures (MCM) ships are homeported in Bahrain.²⁸

Forward-based forces are able to provide more presence than those based in CONUS for several reasons:

- They either do not have to transit to and from their operating areas or have a much shorter transit time than their CONUS-based counterparts.
- They do not undergo deep maintenance periods such as overhauls. When an overhaul is due, the ship or aircraft is swapped out with a new platform. The crew generally swaps out as well and remains forward with the new ship.
- They do not conduct extensive retraining between operational periods. Because they operate so often, forward based ship and aircraft crews are often able to maintain a higher level of proficiency than their CONUS-based counterparts.

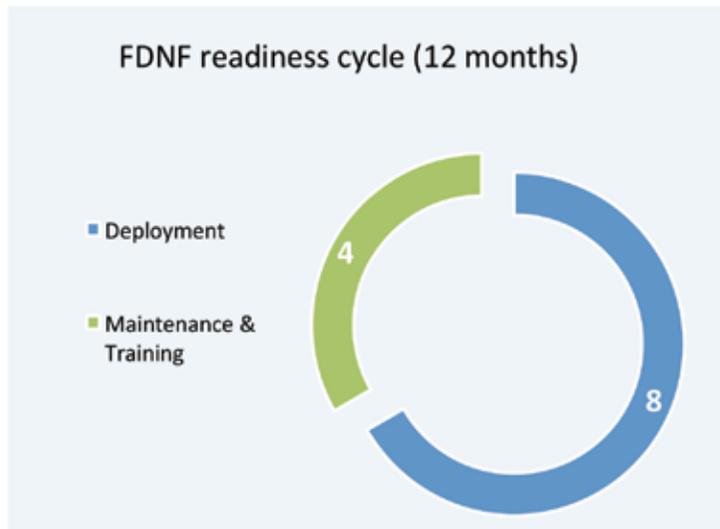
As a result of these factors, FDFNF forces execute a different rotational readiness cycle than CONUS-based forces. The FDFNF cycle is depicted in Figure 5. While FDFNF forces are often described as being fully deployed (i.e., each unit provides a “1.0” presence), they are only operationally available about two-thirds of the time. This is much more than CONUS-based forces, but not the same as having a fully operational unit available for tasking all the time. The calculations in this report will assume a FDFNF ship is “present” only 67 percent of the time, to ensure these forces can conduct the maintenance and training needed between operational periods.

²⁶ *Preserving the Navy’s Forward Presence With a Smaller Fleet*, p. 19.

²⁷ Megan Eckstein, “Navy Creates New Ballistic Missile and Air Defense Task Force for Europe,” *USNI News*, July 27, 2015, available at <http://news.usni.org/2015/07/27/navy-creates-new-ballistic-missile-defense-air-defense-task-force-for-europe>.

²⁸ Of note, PCs are not counted as part of the Navy battle force. See “Document: Mabus Notification to Congress on New Navy ‘Battle Force’ Tally,” *USNI News*, March 11, 2014, available at <http://news.usni.org/2014/03/11/document-mabus-notification-congress-new-navy-battle-force-tally>.

FIGURE 5: FDNF READINESS CYCLE



Ships crewed by civilian mariners of the Maritime Sealift Command (MSC) provide greater presence than CONUS-based or FDNF ships. This is because their crews rotate out to their ships while the ship itself remains overseas. MSC ships also conduct voyage repairs and sometimes overhauls overseas. The Navy has increased the use of MSC ships in operational roles overseas to mitigate shortfalls in combatant ship presence, particularly Combat Logistics Force (CLF) ships, Expeditionary Personnel Transports (EPT), Expeditionary Support Bases (ESB), and Expeditionary Transfer Docks (ESD).²⁹

Assessing the future shortfall

The presence possible with the Navy's current shipbuilding plan can be assessed by calculating the number of ships that can remain forward deployed using the Navy's planned readiness cycles (including O-FRP) and accounting for its planned combination of CONUS-based and FDNF forces.

Figure 6 illustrates the ability of the Navy's shipbuilding plan and potential alternative plans to deliver today's deployed presence into the future. The left side of Figure 6 depicts the approximate overseas presence the Navy maintains today, albeit with occasional gaps as described above. It does not include ship types that have an indirect role in day-to-day military operations, such as survey vessels, Maritime Prepositioned Forces, and salvage ships. It does include MSC ships that are directly relevant to maintaining presence or answering COCOM demands, such as EPTs, ESBs, and ESDs.

²⁹ These ships were previously called Joint High Speed Vessels (JHSV), Afloat Forward Staging Bases (AFSB) and Mobile Landing Platforms (MLP), respectively.

FIGURE 6: ABILITY OF SHIPBUILDING PLANS TO SUPPORT TODAY'S OVERSEAS PRESENCE

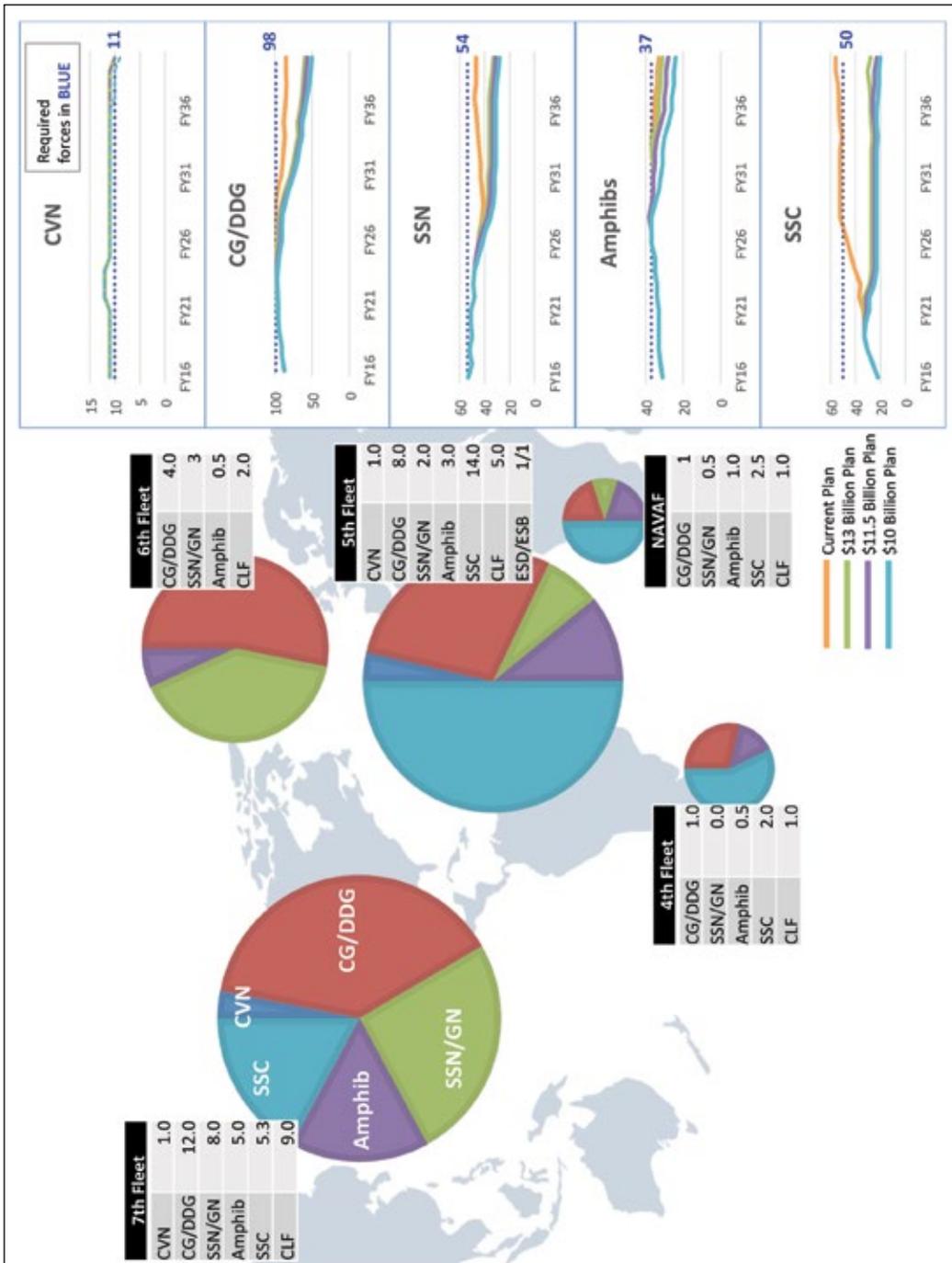


Figure 6 reflects the current focus of naval force deployments on maintaining constant presence of CSGs and ARGs in Fifth and Seventh Fleets. Today, a CSG notionally consists of a nuclear aircraft carrier (CVN), one CG, and four DDGs. An ARG consists of three amphibious ships that together embark a Marine Expeditionary Unit (MEU). A MEU is a combined arms force of between 2,200 and 2,500 Marines built around an infantry battalion landing team (BLT) and including a medium-lift helicopter squadron, fighters, armor, and artillery.³⁰

The right side of Figure 6 shows with a dotted line the number of ships needed to maintain today's presence level for various ship types. It also illustrates the inventory of each type of ship over time provided by the Navy's current shipbuilding plan and the less-expensive alternative plans. The required number exceeds the inventory provided by the Navy's current shipbuilding plan in large surface combatants (CG/DDG), SSNs, and amphibious warfare ships. All three of the alternate shipbuilding plans would fall short of the inventory needed to meet current presence requirements.

The requirements on the right side of Figure 6 take into account the applicable deployment cycle, transit time, and whether a ship is forward-based. For example, the Navy's CONUS-based destroyers are shifting to the O-FRP model of a single 8-month deployment every 36 months and will spend about 15-percent of their deployment sailing to and from their operational area. Thus, at any given time, a single CONUS-based destroyer can generate an overseas presence of 0.19. For FDNF forces, there is no "transit tax" and each ship is operationally available about 67 percent of the time. Therefore, a constant destroyer presence of 1.0 could be generated by any of the following:

1. 2 FDNF destroyers
2. 1 FDNF destroyer and 2 CONUS-based destroyers
3. 5 U.S.-based destroyers

Figure 6 makes clear the dilemma the Navy will soon find itself in regarding forward presence. Under even its own shipbuilding plan, the Navy will have to reduce its overseas deployments if it is to reduce the stress on the force and restore its intended level of readiness. The challenge only becomes worse under more fiscally constrained shipbuilding plans.

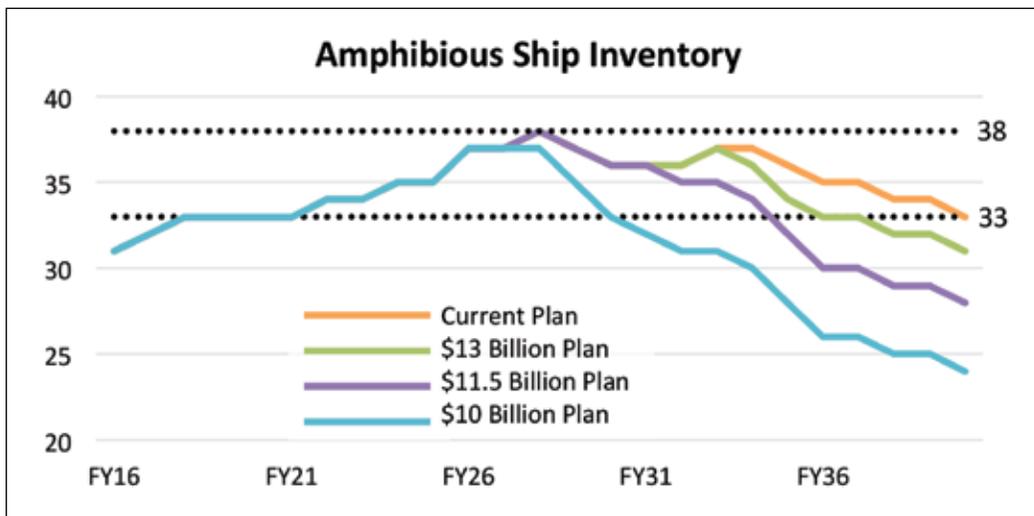
³⁰ Department of the Navy, Chief of Naval Operations, *Policy for Baseline Composition and Basic Mission Capabilities for Major Afloat Navy and Naval Groups*, OPNAVINST 3501.316B (Washington, DC: U.S. Navy, October 21, 2010), available at <http://doni.documentservices.dla.mil/Directives/03000%20Naval%20Operations%20and%20Readiness/03-500%20Training%20and%20Readiness%20Services/3501.316B.pdf>.

U.S. Marine Corps capacity limitations

The U.S. Marine Corps today stands at a crossroads. The large-scale ground deployments it sustained for most of the last decade are at an end and the service declared its intention to return to its roots with a renewed focus on amphibious operations. At the same time, the Corps continues to fill a broad range of global commitments, many of which are more like the Marines' historical role as colonial constabulary than the landings at Iwo Jima or Incheon.

For large-scale combat operations, the Marine Corps is designed to fight as a Marine Expeditionary Brigade (MEB), a combined arms task force of roughly 17,000 Marines built around a Regimental Landing Team. Marine planners have calculated that a MEB assault echelon would require 17 amphibious ships, creating an overall requirement for 38 amphibious ships when the 10–15 percent of ships in long-term maintenance is taken into account. Given the Navy's fiscal constraints, the Corps has accepted the greater amount of risk that would come by placing the MEB on a smaller force, thereby bringing the needed amphibious shipping down to 30 ships and the overall amphibious ship requirement to 33 (accounting again for operational availability).³¹ Figure 7 illustrates the ability of the Navy's current shipbuilding plan and potential alternative plans to deliver these requirements.

FIGURE 7: NAVY AMPHIBIOUS SHIP REQUIREMENTS AND PROJECTED INVENTORY



31 Maren Leed, *Amphibious Shipping Shortfalls: Risks and Opportunities to Bridge the Gap* (Washington, DC: Center for Strategic and International Studies, September 2014); and Ronald O'Rourke, *Navy L(X)R Amphibious Ship Program: Background and Issues for Congress* (Washington, DC: Congressional Research Service, September 22, 2015), pp. 3–4.

The Marine Corps' steady state forward presence is provided by a mix of forces embarked on ships, based at forward stations and assigned to rotational deployments ashore. The largest concentration of Marine forces is in Japan: over 20,000 Marines are located on Okinawa and a further 3,500 Marines are based at Iwakuni.³² They are composed of a mix of permanently stationed forward units and units that rotate to Okinawa for 6-month tours as part of the Unit Deployment Program (UDP). UDPs have been supplemented by the Marine Rotational Force-Darwin, a combat arms contingent stationed in Darwin, Australia that stood up in 2012 and has expanded from a force of several hundred to over 2,000.³³

The Marine Corps provides the bulk of its expeditionary combat power with seven MEUs. Three MEUs are generally at sea at any given time with two of them present in the Fifth and Seventh Fleet AORs.³⁴ The 31st MEU is permanently stationed in Okinawa and embarks aboard amphibious ships drawn from the FDNF fleet in Japan. The 31st MEU is supplemented by afloat MEUs drawn from Marine units based on the west coast to ensure there is a constant MEU presence in the Pacific.

In order to provide additional response capacity, the Marine Corps has created a new force structure element in the Crisis Response Special Purpose Marine Air-Ground Task Force (SPMAGTF-CR). SPMAGTF-CRs are "a self-commanded and -controlled, self-deploying and highly mobile maritime crisis response force [postured] to respond to a broad range of military operations."³⁵ They provide combatant commanders with a limited contingency response capability in the absence of a much larger and more robust MEU. Most importantly, SPMAGTF-CR's are intended to deploy by air and are not embarked on ships. The lack of organic amphibious shipping reduces the SPMAGTF-CR's utility by imposing restrictions on its size, mobility, and ability to sustain itself. However, by partially emancipating the SPMAGTF-CR from naval support, the Marine Corps can generate additional presence without imposing extra demands on the amphibious fleet. There are currently two standing SPMAGTF-CRs: one assigned to U.S. Africa Command and one to U.S. Central Command.³⁶

The Corps' ability to sustain a forward presence is chiefly limited by its overall manpower, which is shrinking as a result of the BCA's reduction in military budgets. The Marines are in the process of drawing down from a high of 202,000 to reach a force of 182,000 by 2017. Senior Marine leaders have warned that further budgetary pressures may force the Corps to go

32 U.S. Marine Corps, "Current Operations Brief," Power Point Presentation, April 25, 2014.

33 Nathan A. Fleischaker, "MRF-D at 2 Years," *Marine Corps Gazette*, March 2015.

34 Dakota Wood, *The U.S. Marine Corps: Fleet Marine Forces for the 21st Century* (Washington, DC: Center for Strategic and Budgetary Assessments, 2008), p. 16.

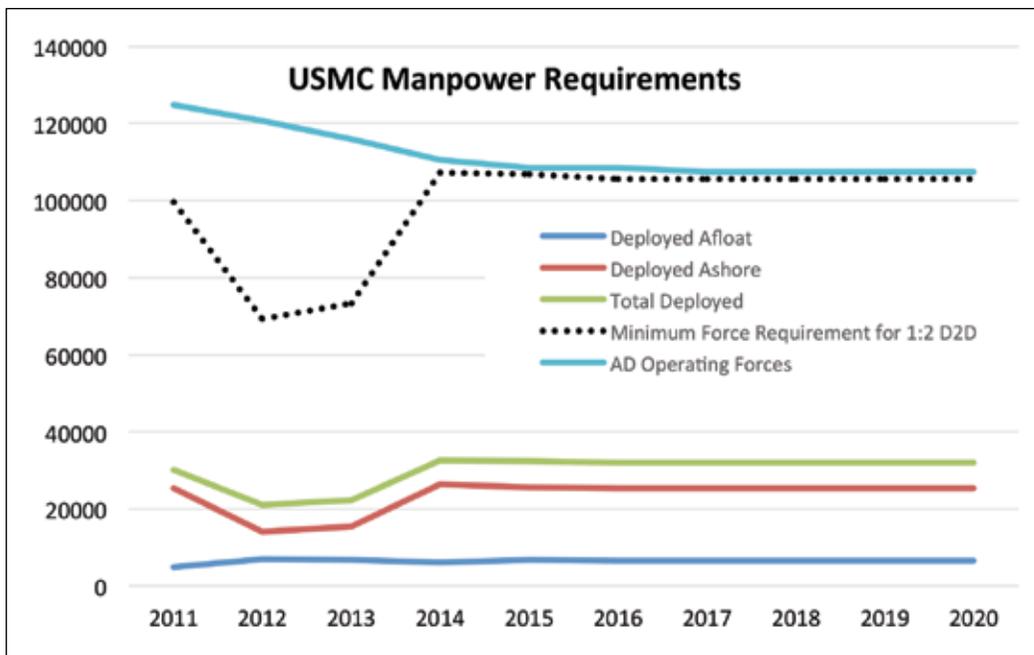
35 Murielle Delaporte, "SPMAGTF-Crisis Response," *Leatherneck*, April 2014.

36 Joseph Dunford, Statement before the Senate Armed Services Committee, March 10, 2015, p. 7.

as low as 174,000, at which point the Corps may be required to shed global commitments or confront an unsustainably high deployment-to-dwell (D2D) ratio.³⁷

As of February 2015, there were roughly 32,400 Marines deployed worldwide: 6,800 embarked at sea with underway MEUs and 25,600 ashore participating in rotational missions, overseas exercises, and contingency response, including operations in Iraq.³⁸ With few exceptions, these deployed Marines were drawn from the active component Marine operating forces. At over 108,000 strong, the operating forces comprise 61 percent of the Marine Corps and provide the bulk of the manpower for forward operations.

FIGURE 8: MARINE CORPS OPERATIONAL FORCE STRENGTH AND DEPLOYED PRESENCE REQUIREMENTS



The Corps asserts that the lowest acceptable D2D ratio for the operating forces is 1:2, or 14 months in garrison for every 7 months a Marine is deployed. Ratios below 1:2 are considered particularly harmful because of the resulting strain on Marines and their families and the disruption that is caused to regular training cycles.³⁹ With no changes to the current forward posture, the size of the operating forces must be around 100,000 in order to support

³⁷ Deployment-to-dwell refers to the ratio of time away on deployment to time at home. See Derrick Perkins, "Corps' 2016 budget temporarily halts drawdown," *Marine Corps Times*, February 3, 2015.

³⁸ U.S. Marine Corps, "Current Operations Brief: 30 Jan–5 Feb 2015," Power Point Presentation, February 5, 2015.

³⁹ Dunford, Statement Before the Senate Armed Services Committee, p. 25.

the Corps' global requirements while still maintaining a 1:2 D2D ratio. The relationship between operating force size and demands for deployed Marines is illustrated in Figure 8.

If the Corps' OPTEMPO were to suddenly rise because of a manpower-intensive contingency, the D2D ratio could be expected to fall to critically low levels. Even with a total active force of 184,000, some high-demand units such as infantry battalions, MV-22 Osprey squadrons, and KC-130 tanker squadrons are currently experiencing D2D ratios of less than 1:2.⁴⁰

Although 1:2 is considered an adequate D2D ratio in the short-term, it falls short of the ideal ratio of 1:3. Non-deployed Marines still face a myriad of demanding tasks in garrison, including participation in training exercises that may take them away from their homes for days at a time. In addition, for more technical equipment such as aircraft, a 1:2 ratio may cut short the amount of time available to the Corps to conduct depot maintenance following a deployment.⁴¹

In order to meet today's operational requirements while maintaining the ideal D2D ratio of 1:3, the Corps would need to increase the size of its operating forces to roughly 120,000 and the overall size of the force to 200,000.⁴² Given that the Corps is struggling to maintain a total active strength of just 182,000, the operational pressure the force is currently under raises serious questions about the long-term sustainability of the Marine Corps' current rotational requirements.

REDUCING PRESENCE MAY NOT BE AN OPTION

The DoD will eventually need to reconcile the mismatch between the supply of naval forces and the demands placed upon them. This could mean reducing the amount of overseas presence, as is being done with CVNs in the Middle East. Figure 9 depicts the presence levels that could be sustained with the \$13 billion alternative shipbuilding plan the Navy could be compelled to adopt due to shipbuilding budgets remaining around their historical norm.

Under these fiscal constraints, FDNF forces provide nearly all the deployed presence for the applicable ship types in the regions where they are based. For example, in Seventh Fleet all the CVN, CG/DDG, SSN and amphibious ship presence is provided by FDNF forces. Note that the presence listed in the left side of the chart is associated with the lowest force structure level of the \$13 billion shipbuilding plan on the right side of the figure. Therefore, when the \$13 billion

40 Megan Eckstein, "Gen. Paxton: Some Marine Units Operating at Less Than 1:2 Deployment-to-Dwell Ratio," *USNI News*, March 27, 2015, available at <http://news.usni.org/2015/03/27/gen-paxton-some-marine-units-operating-at-less-than-12-deployment-to-dwell-ratio>.

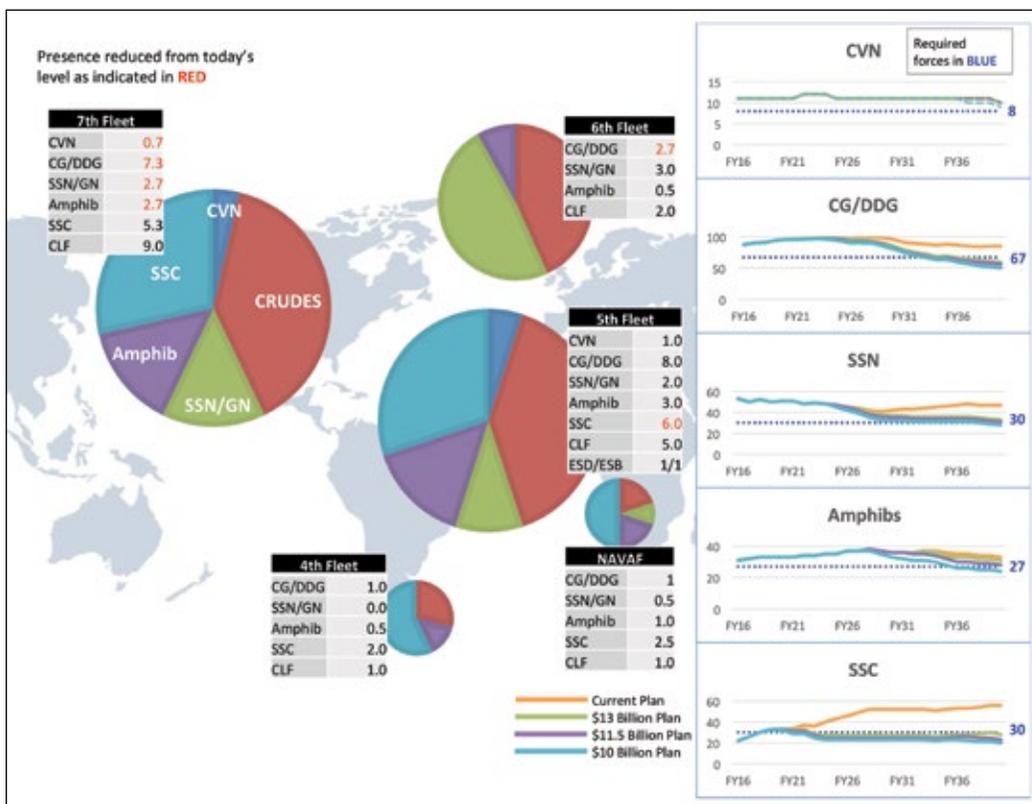
41 Ibid.

42 With a D2D ratio of 1:3, a single Marine can generate a deployed presence of 0.25. In order to sustain a deployed force of 30,000, the Marine Corps will need to maintain a 120,000-strong operating force. Assuming the operating forces continue to make up roughly 60% of the total active force, the overall size of the Corps will need to be 200,000.

plan sustains a higher number of ships than required (the dotted blue line), presence could be greater.

While this deployment model maintains one CVN in Fifth Fleet, in Seventh Fleet there will be no augmenting CVN when the FDNF CVN is in maintenance. Also the SSN presence in the Pacific shrinks from 8 to 5.5. Given the growing size of China's submarine fleet and the proliferation of Anti-Access/Area Denial (A2/AD) technology in the region, reduced CVN and SSN presence would decrease the Navy's ability to conduct sea denial or deep strike and potentially its capacity to contain Chinese undersea and airborne power projection.

FIGURE 9: PRESENCE SUSTAINED BY \$13 BILLION SHIPBUILDING PLAN



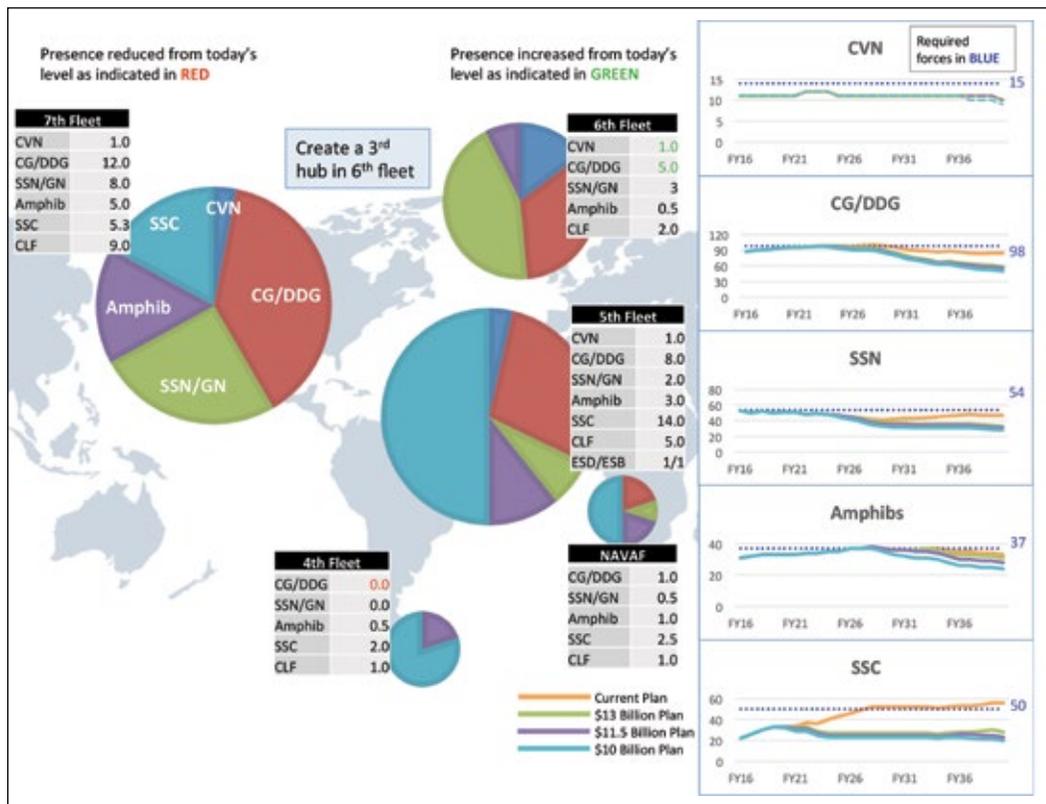
DoD may not want to accept declining overseas presence given increasing geopolitical challenges and the importance of naval forces to deterrence and crisis response. In fact, it may want to increase presence around Europe and Africa to counter instability around the Eastern and Southern Mediterranean; Russian “hybrid” attacks and aggression; and continued violence by the Islamic State. Figure 10 shows the impact on force structure requirements of restoring the Navy's European “hub” which adds a CVN and “shotgun” air defense ship to the existing Sixth Fleet.

Adding a third hub will increase force structure requirements, particularly for carriers, and highlights the need for the Navy to consider new approaches to sustain or increase forward presence, such as:

1. Increase further the portion of the fleet that is forward-based.
2. Change the Navy’s readiness cycles to increase OPTEMPO.
3. Grow the fleet through additional shipbuilding.

These options will be assessed in the next section.

FIGURE 10: THE “THREE-HUB” NAVY

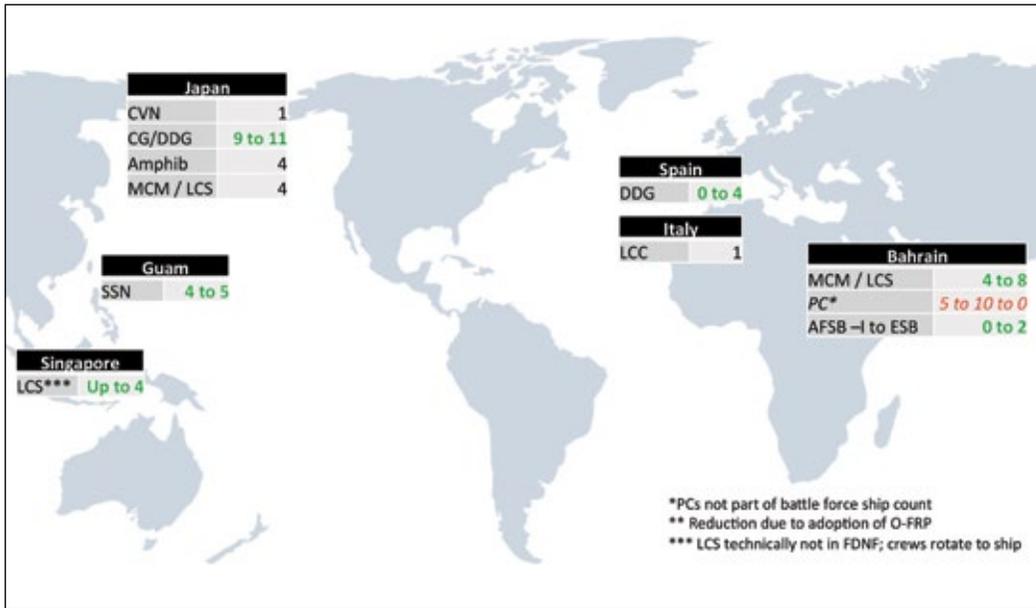


INCREASED FORWARD BASING

The Navy is already significantly increasing forward basing, as noted above, to sustain its overseas presence with a shrinking fleet. Figure 11 depicts the locations of FDNF ships and changes from 2000 and planned through 2024. Figure 11 only includes ships with full or partial permanent military crews. Therefore, the Command Ship *Mt. Whitney*, AFSBs, and ESBs are included, but other MSC ships are not.

Although FDNF forces provide a convenient means of expanding presence with fewer ships, they do impose some additional costs. The U.S. Government Accountability Office (GAO) found that operational and personnel expenses for ships stationed overseas are about 15 percent higher than for ships stateside.⁴³ The high operational tempo experienced by FDNF ships often results in the sidelining of important crew training, resulting in expired certifications and reduced proficiency. GAO also determined that the material condition of overseas ships is worse than those based in the U.S. and that important maintenance is often delayed until the conclusion of a tour at a forward station.⁴⁴

FIGURE 11: CHANGES IN FORWARD BASING SINCE 2000 AND PLANNED THROUGH 2024



A variation on increasing FDNF the Navy has implemented over the last several years is to increase the number of MSC ships used in military operations, rather than simply in

43 *Sustainable Plan and Comprehensive Assessment Needed to Mitigate Long-Term Risks to Ships Assigned to Overseas Homeports* (Washington, DC: U.S. Government Accountability Office, 2015), p. 16.

44 *Ibid.*, pp. 25–26.

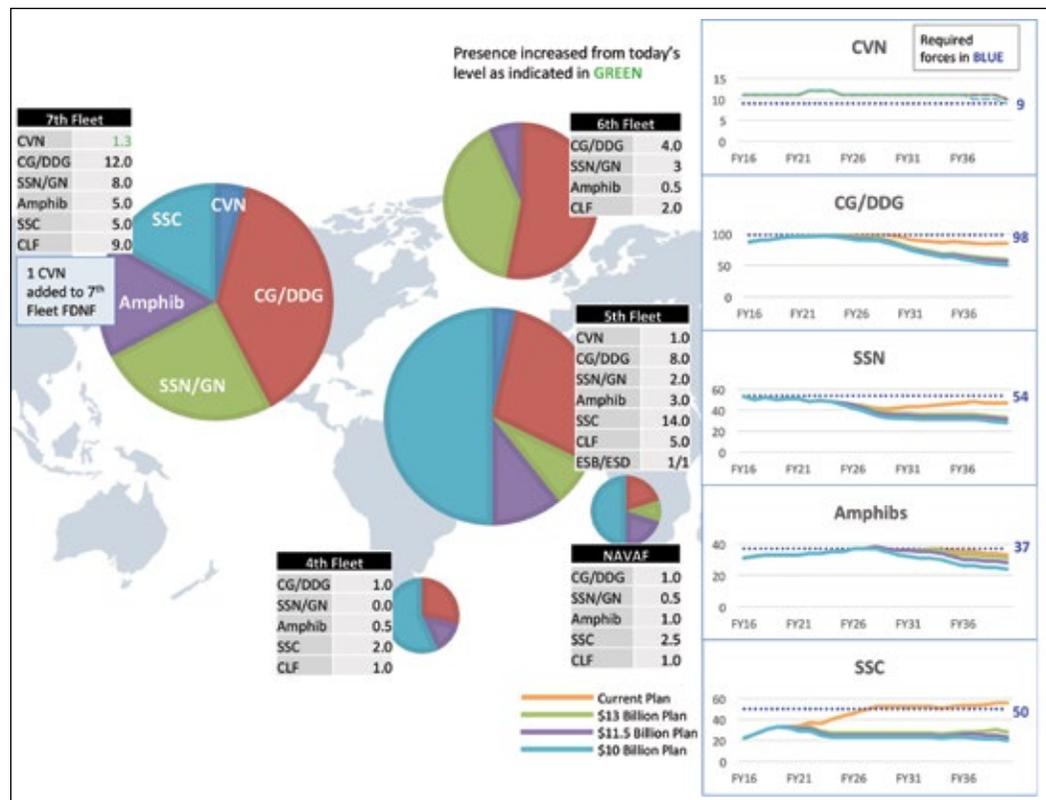
non-combatant roles. MSC operates logistics, repair, and support ships the Navy uses. It now also operates the AFSB *Ponce* in the Persian Gulf, and will be operating ESDs, ESBs, and EPFs around the world. These ships, as their names imply, are part of the expeditionary force. MSC ships are manned by rotational crews and remain forward almost continuously; they therefore provide almost 1.0 presence per ship. They are limited, however, in that they are operated by civilian crews with military detachments and are built to commercial standards. This would constrain their operations to relatively permissive environments.

The following section will assess some illustrative options for growing overseas presence through increased forward basing.

Today's presence with an additional FDNF CVN

This deployment model adds a second carrier to the FDNF force in the Seventh Fleet AOR while maintaining today's presence levels. With two carriers stationed forward, the requirement for one CSG on-station year-round in the Pacific can be met completely by forces based in theater. As a consequence, the requirement for carriers is reduced from 11 to 9. Figure 12 depicts the impact of this option on overall presence requirements.

FIGURE 12: TWO FDNF CVNS IN THE PACIFIC

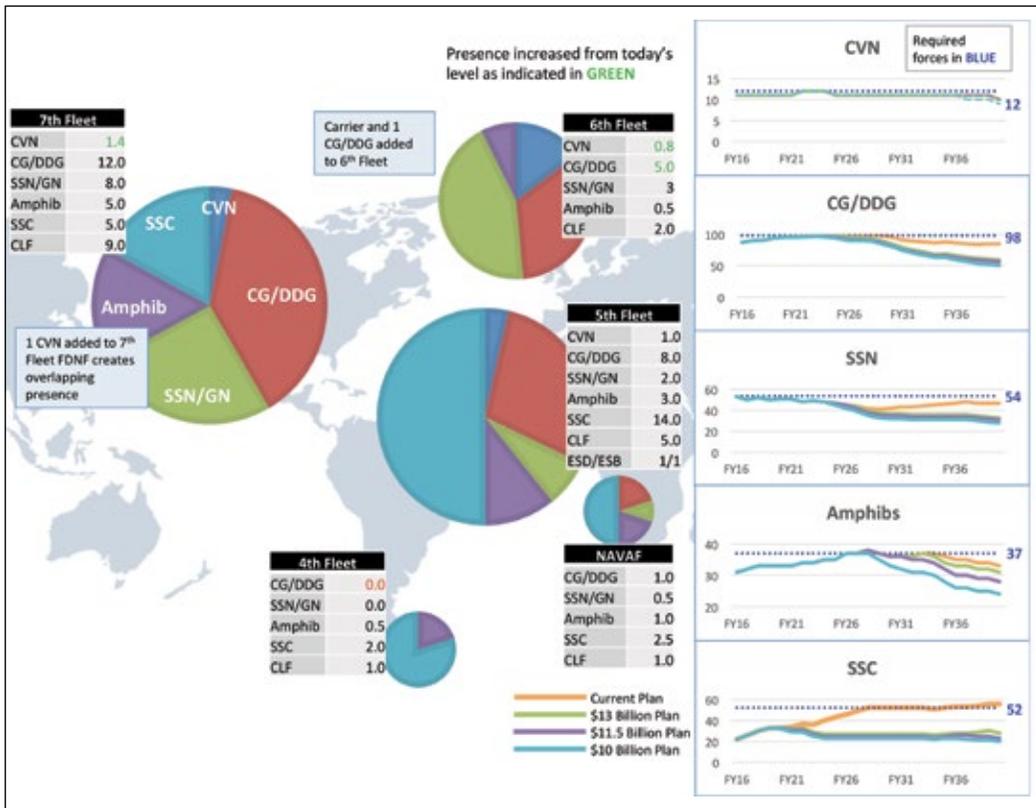


Three-hub presence with an additional FDNF CVN

An additional forward-based CVN could be used to increase presence rather than reducing requirements. This model expands European presence to address a revanchist Russia and instability in North Africa and the Levant by establishing a third CVN-based hub in Europe and adding a second FDNF CVN to the Seventh Fleet AOR. While basing a second CVN in the Pacific would seem to only benefit Seventh Fleet, the result is rotational CVNs from the West Coast of CONUS would be able to focus entirely on Fifth Fleet requirements, while CVNs from the CONUS East Coast could support the new European hub. All Seventh Fleet CSG requirements will be met by FDNF CVNs.

Figure 13 depicts this deployment model. The resulting European CVN presence is about 0.8, meaning there would be occasional gaps in presence. These gaps could be coordinated with Fifth Fleet operations so the CVN there may be able to “swing” and support Sixth Fleet contingencies. Further, CONUS-based surface forces could arrive in Europe within 2 weeks to respond to a significant crisis there—which is much faster than the CONUS response to Fifth or Seventh Fleet AORs.

FIGURE 13: “THREE-HUB” DEPLOYMENT MODEL WITH 2 FDNF CVNS IN SEVENTH FLEET

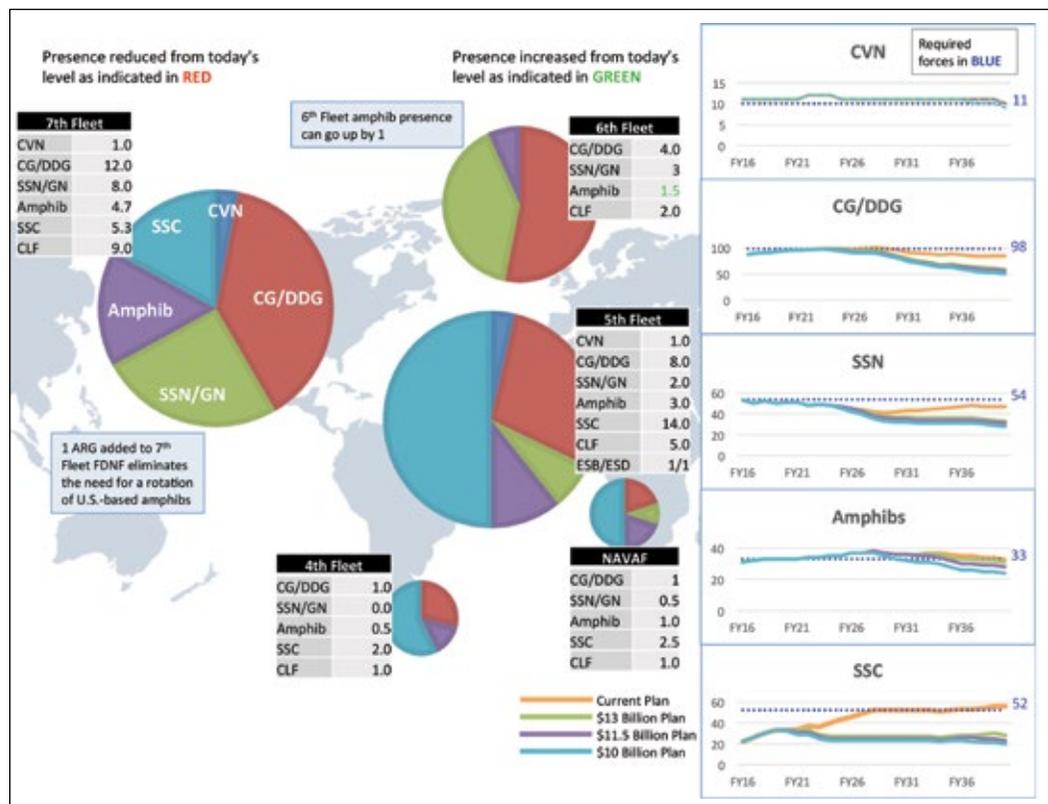


Enhanced European presence with an additional FDNF ARG

Possibly the most pressing force structure shortfall is in amphibious ships, where demand is almost double the supply. To alleviate some of the shortfall, the Navy could forward base an additional three-ship ARG. While it would be beneficial in every theater, the Seventh Fleet AOR offers numerous locations at which a second FDNF ARG could be based and potentially has the greatest demand given its maritime access and long distances.

The deployment model illustrated in Figure 14 analyzes the impact of adding a second ARG of three ships to the FDNF forces in the Seventh Fleet AOR. The effect is similar to the models described above for CVN basing. ARGs based on the West Coast of CONUS can support Fifth Fleet requirements, while East Coast ARGs can deploy to Europe or Africa. The Seventh Fleet demand is met by FDNF amphibious ships.

FIGURE 14: ADDITIONAL FDNF ARG IN SEVENTH FLEET AOR W/ INCREASED EUROPEAN PRESENCE



NEW READINESS CYCLES

The O-FRP and other Navy readiness cycles are designed to provide sustainable deployed presence over the long term. They reflect lessons learned from the execution of other readiness cycles, including the current Fleet Response Plan and the Inter-Deployment Training Cycle (IDTC) of the late 1990s. As shown in Figure 2 and described above, both readiness cycles fell short of delivering the presence demanded by commanders, particularly as the fleet shrank. Ships spent an increasing percentage of their underway time deployed, reducing training and proficiency time. The Navy compensated in part by basing more ships overseas.

To increase forward presence a new readiness cycle must increase the force's OPTEMPO. This could be done by adopting a cycle like that of the FDNF, in which forces conduct shorter maintenance and training periods more frequently. This would increase the amount of presence that delivered by each ship. As GAO noted, however, this model requires additional funding to maintain the force's proficiency and material condition as well as compensate Sailors for the higher OPTEMPO. The model also must still accommodate periodic overhauls, when ships today are exchanged with a CONUS-based ship that has just completed an overhaul. These costs would to some degree offset the benefit of increasing presence by raising OPTEMPO.

Another way to increase OPTEMPO would be to expand the use of rotational crews. This readiness model is used today by MSC ships, LCS, nuclear ballistic missile submarines (SSBN), and nuclear guided missile submarines (SSGN). It increases the amount of presence from each ship by increasing its OPTEMPO to the maximum possible by the ship, rather than being limited by the duration the crew can deploy. Crews train ashore while the other crew is at sea and the ship is maintained during brief refits between deployments in which the crews swap out. This model has the significant downside that it requires hiring two crews' worth of personnel; construction of realistic training facilities for crews to use in their off-ship period; and higher levels of maintenance and operations as in the FDNF model.

A significant long-term disadvantage of increasing OPTEMPO is that it would potentially decrease the service life of ships. For example, *Virginia*-class SSNs have reactor cores intended to last the life of the ship, which is notionally 33 years. If the ship operates more frequently or longer, the reactor may run out of useful fuel before the hull reaches the end of its service life. A similar dynamic would take place with CVNs, although they can be refueled, albeit at the cost of \$2–3 billion. Non-nuclear ships also have service life estimates that would be reached more quickly if used consistently at a higher OPTEMPO.

ADDITIONAL SHIPBUILDING

One major disadvantage of growing presence by increasing forward basing or OPTEMPO is these approaches increase presence at the expense of surge capacity. As noted above, surge capacity is already reduced by two-thirds due to fiscal constraints. Sending more ships forward without growing the fleet will further reduce the capacity of follow-on forces to reinforce those present overseas in wartime. U.S. war plans assume the availability of surge forces for large-scale contingencies.

The ability to send multiple waves or rotations of forces to respond to a contingency is a significant advantage of the U.S. military, as evidenced by the decade-long efforts in Iraq and Afghanistan. To maintain this advantage, the most effective way to sustain today's presence would be to increase the size of the fleet. The fiscal challenges standing in the way of an increase to the Navy's shipbuilding plan are detailed above, but unless DoD and the nation is willing to accept reduced presence, this may be the best approach to sustain or increase today's levels of overseas presence.

CONCLUSION

In 1902, President Theodore Roosevelt famously declared to Congress that, "A good navy is not a provocation to war. It is the surest guarantee of peace."⁴⁵ A century later, President Roosevelt's message still rings true; U.S. seapower today plays a role in responding to contingencies, assuring U.S. allies of our continued commitment to their security, and deterring potential adversaries from undermining the global order. U.S. naval forces can often create a positive impact merely by showing up and providing foreign statesmen with a visible reminder of America's maritime superiority.

Unfortunately, the benefits provided by a robust naval presence are also threatening the long-term health of the Navy. The high OPTEMPO of the last decade has resulted in deferred maintenance, reduced readiness, and demoralized crews. The Navy has an ambitious plan to expand the size and capability of the fleet with its shipbuilding plan and return to a sustainable operational pace with O-FRP. Unfortunately, these plans may result in reduced presence in the near term and in the long term would require shipbuilding to be funded at a level that may not be supported by the Administration and Congress.

The DoD and national leaders must decide to either reduce overseas presence or act to build up the fleet; base more of it overseas; or increase its readiness and OPTEMPO. Making this choice will require a reassessment of America's maritime strategy and an honest appraisal of the readiness, posture, and risk of further deploying the Navy and Marine Corps beyond their means.

45 Charles Kupfer, *Indomitable Will: Turning Defeat into Victory from Pearl Harbor to Midway* (London: Continuum International Publishing Group, 2012), p. 13.

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