

F/A-18E Super Hornet from Tophatters of Strike Fighter Squadron (VFA) 14 participates in airpower demonstration over aircraft carrier USS *John C. Stennis*, Pacific Ocean, April 24, 2013 (U.S. Navy/Ignacio D. Perez)



# The Future of the Aircraft Carrier and the Carrier Air Wing

By Michael E. O'Hanlon

What is the future of the aircraft carrier for the U.S. Navy? Some would argue that the carrier is obsolete. Faced with threats ranging from China's DF-21 and DF-26 ballistic missiles with homing warheads, to the proliferation of quiet attack submarines, to the spread of nuclear weapons, as well as the very

cyber systems that not only make modern ships more efficient but also leave them vulnerable to hacking, this school of thought has predicted that the carrier will soon go the way of the battleship.

Others, including most of the existing Navy establishment, appear to hope that the carrier of tomorrow can continue virtually the same missions as carriers of the past. Indeed, the Navy still sizes the carrier fleet using similar criteria to what it employed in those earlier periods—and plans to keep doing so under

its envisioned 355-ship fleet of the future. It would appear to envision a similar role for the carrier in any future wars to what transpired, say, in Operation *Desert Storm* in 1991 and in any future high-end crisis diplomacy such as the Taiwan Strait Crisis of 1995 and 1996.

In my view, both these views are flawed. The Navy would do better to plan for fleets of 10 flat-deck aircraft carriers (and another 10 large-deck amphibious ships—its “small carriers”) rather than to aim for larger numbers. But it should more clearly prioritize, and

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accelerate, development of long-range stealthy airpower, most likely in the form of unmanned aircraft, to operate off these carriers.

The article begins with a brief summary of today's aircraft carrier fleets and air wings, and then works through the taxonomy of missions for those U.S. military assets—today and tomorrow.

## Modern American Aircraft Carriers and Air Wings

The United States has two aircraft carrier fleets today. The first is the one most think about when they hear the term—the large flat-deck carriers, of which the Navy now has 11. Each is capable of holding up to about 75 planes, together known as a carrier air wing, with capacity for catapult-assisted takeoff and tailhook-assisted landing.<sup>1</sup> There are nine carrier air wings in the force today—fewer than the number of carriers themselves, since aircraft need not have quite the same lengthy maintenance and training cycles as ships.<sup>2</sup> These aircraft typically include 44 F/A-18 Hornet or Super Hornet combat aircraft, 5 electronic warfare planes, 4 airborne control planes, 8 antisubmarine warfare aircraft, 2 transport aircraft, and 8 to 11 helicopters for purposes ranging from antisubmarine warfare to search and rescue. (Put differently, there are typically four squadrons of F/A-18 combat jets. There is typically also one squadron of helicopters, one of electronic warfare aircraft, one of airborne command and control planes, and one of antisubmarine warfare aircraft.<sup>3</sup>) Over time, the carrier fleet will include the F-35C, Osprey tilt-rotor aircraft, and eventually perhaps a future derivation of an Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) aircraft. They will replace some of the older Hornets, C-2 aircraft, and perhaps other systems as well.<sup>4</sup>

The Navy also has another 11 ships, each with about one-third the carrying capacity for planes as the flat-deck ships. The aircraft on these large-deck amphibious ships, designed primarily to move Marines around the world and provide platforms for some of their operations,

can include helicopters, Harrier jets, Ospreys, and, in the future, F-35B Lightning II jets.

The amphibious ships typically weigh 40,000 tons with length of 850 feet or so. By contrast, the flat-deck carriers with 75 aircraft to a wing weigh about 100,000 tons, with a length of roughly 1,100 feet.<sup>5</sup>

Which type of system is better—the large-deck carrier with three times the number of aircraft, or the smaller carrier with a couple dozen? It all depends on the mission. Amphibious ships, per aircraft deployed, are somewhat less expensive over a life cycle than flat-deck aircraft carriers.<sup>6</sup> They are also, however, less capable, plane for plane, so they would not constitute a less expensive or more effective way to deploy airpower for high-end combat. Considerations including survivability, fuel and ammunition storage, and maintenance capacity would favor the larger ships. The flat-deck carrier is also more effective at sustaining operations in bad sea conditions.<sup>7</sup> Affordability issues can favor one type of carrier for some conditions and another for different conditions or missions.

Each of the Navy's aircraft carrier fleets—the flat-deck fleet and large-deck amphibious ships—would increase under the Service's 2016 proposal, now endorsed by the Trump administration, to grow the fleet to 355 ships in coming years. It is an ambitious plan since the current fleet numbers less than 300 ships, and the previous plan aimed for 308. Some, however, would say it is not so ambitious since it would only return the fleet to a size characteristic of the Clinton years—but today's vessels, and the aircraft on them, have never been so capable and in general have also never been so large. Under this new plan, the current figures of 11 flat-deck carriers and 11 amphibious large-deck vessels would grow to 12 and 13 vessels, respectively.<sup>8</sup>

## Purposes of Aircraft Carriers in the 21<sup>st</sup> Century

Aircraft carriers are often described as ships designed to help control the sea lanes or to project power. Those concepts are valid, but a bit vague. I would

propose the following more detailed taxonomy of potential missions for the future U.S. aircraft carrier fleet:

- peacetime and crisis presence in key regions (largely for deterrence and reassurance)
- establishment of maritime air supremacy, plus littoral sea control, in key regions against less powerful foes (the Persian Gulf region)
- establishment of maritime air superiority, plus littoral sea control, if possible, against near peers (South China Sea, Baltic Sea)
- power projection ashore against less powerful foes (Iran, North Korea)
- power projection ashore against near peers (Russia, China)
- blue-water sea control (against a peer or near-peer rival).

Thinking through the capabilities of the carrier fleet against each of these possible missions helps clarify what kinds, and numbers, of carriers and air wings the United States should pursue in the future. I group the above six missions into four categories in the following discussion.

### *Peacetime Presence and Crisis*

**Response.** Historically, when conducting force sizing, the Navy has often emphasized the importance of the peacetime presence mission more than combat requirements. The goal of such operations, of course, has been to reassure allies and deter potential adversaries in those regions of greatest strategic concern to the United States, while providing at least some initial response capability should a crisis quickly escalate to open hostilities. The key regions during the Cold War included the Western Pacific, the broader Persian Gulf area, and the Mediterranean Sea, though that last area has been deemphasized during most of the post-Cold War era.

Today's aircraft carriers based in the United States—all of them except the one that is homeported in Japan and considered constantly on station—average just over 25 percent time on deployment. Thus, they typically average perhaps 20 to 22 percent of their time on station in forward waters because they have lengthy

periods of maintenance, preparation, and then sustainment (that is, being on call for rapid response) that consume most of their time and because the Navy rightly prefers to limit the duration of any given Sailor's deployment to 6 or 7 months when possible.<sup>9</sup> Additionally, there are long maintenance periods a carrier generally goes through in its lifetime, with one planned lengthy mid-life overhaul and often a couple more unanticipated (if shorter) ones. This reduces the effective fleet available at any given moment to perhaps nine on average. Thus, a fleet of 11 carriers, with 1 homeported in Japan and 2 probably offline at any moment, can effectively sustain somewhat fewer than 3 on forward station. They would include one or more in East Asia, one or more in the Persian Gulf, and occasionally one in the broader Mediterranean region or the Indian Ocean (these latter deployments often occurring when ships are in transit).<sup>10</sup>

There is considerable logic to the basic idea of peacetime presence. It shows clear American commitment and steady attention to a given region. It is less significant as a way of maintaining decisive combat power in a key area, since one carrier—whatever its many strengths—constitutes only a limited capacity. That is true not only for the obvious situation in which the United States might seek to deter a large power, but also even in cases involving smaller powers. For example, the one aircraft carrier stationed in the Mediterranean just before the outbreak of the Kosovo war in 1999 was far from enough to deter, or defeat, Serbian strongman Slobodan Milosevic.<sup>11</sup> But an aircraft carrier battle group still represents and conveys American resolve, with the implied promise of likely reinforcements should hostilities break out. In other words, its benefits are largely psychological, but nonetheless important.

America's command of the commons has been rather robust and contributed to one of the most conflict-free periods in major-power relations in recorded history. To be sure, nuclear deterrence and other factors have contributed to the general absence of war as well. But deterrence only works when states clearly

signal where their important interests lie and when they demonstrate the kinds of capabilities that can credibly provide combat superiority in a conflict. Carriers have helped enormously in these tasks. They have not prevented all wars, of course—for example, when Washington was not clear about its interests (in the prelude to the Iraqi invasion of Kuwait in 1990, for instance) or when its offshore carrier presence was not particularly relevant to the type of conflict being waged on land (many of the Middle East's civil wars and insurgencies, or those in the Balkans). But they have helped convey America's interest in the security of Taiwan, the waters of the Persian Gulf, and Northeast Asia, among other places. Again, it is difficult to disentangle the various contributors to successful deterrence. It is, however, impressive that in most cases where the United States has established strong alliances and demonstrated commitment to them through forward military deployments war has been avoided.

This quick review of the role of aircraft carriers in American national security policy underscores the importance of perception, more than of demonstrated combat capability or war-winning overmatch, in how the fleet is routinely operated. If that is the case, we should simultaneously conclude two things. First, carriers have likely been quite helpful for deterrence and reassurance. But second, just when and where and how often they must deploy to achieve a given effect is less clear.

Does aircraft carrier presence really need to be continuous in places where the United States also has an established land presence? Are there cases where land-based airpower or other assets could relieve strain on the carrier force? Are there locations where the lesser but still impressive combat capabilities represented by a flat-deck amphibious ship would be adequate, and a large-deck carrier could visit only occasionally, if at all? To be sure, amphibious ships are themselves already typically quite busy as key parts of Marine Expeditionary Units (MEUs), but normal MEU deployments can be rethought in some cases, too.<sup>12</sup>

My own view is that the opportunity to base more land-based tactical fighter aircraft in Gulf Cooperation Council countries—say, one to two squadrons each in Kuwait, the United Arab Emirates, and/or Oman—should be explored as a way to allow occasional gapping of carrier coverage in the broader Persian Gulf region. In addition, the types of presence missions conducted in the South China Sea do not generally involve any heightened risk of imminent conflict and thus can be carried out by even smaller vessels than large-deck amphibious ships. (Indeed, Coast Guard vessels might suffice, and send a useful message of firm but quiet resolve to Beijing.) Surging carriers infrequently near North Korea may be more useful than frequently having just one carrier there.<sup>13</sup> The list goes on. For the presence mission, there is just as strong a case to reduce each of the carrier fleets by one or two ships as to grow them, in fact.<sup>14</sup>

***Power Projection Against a Lesser, Regional Foe.*** Consider two of my categories that focus on regional operations against lesser (but still dangerous) foes. This set of challenges relates most of all to the Persian Gulf region and the waters of Northeast Asia near the Korean Peninsula.

Carriers could be needed to help establish air superiority in coastal regions. They could also be needed to contribute to ground-attack operations.

For air superiority against a regional foe typically possessing 300 to 600 aircraft, many of them likely obsolete or unserviceable, 4 to 6 U.S. carriers would likely suffice. That would provide something approaching quantitative parity with enemy forces, combined with huge qualitative superiority, and a certain hedge against attrition.

For ground-attack, Operation *Desert Storm* provides a useful frame of reference. In that war, there were some 700 key Iraqi strategic targets, presenting a total of about 3,000 aimpoints, that were attacked. These included command and control locations, radar sites, and the like.<sup>15</sup> There might be twice as many aimpoints against Iran or North Korea.<sup>16</sup> (These figures stand in contrast to the



Aviation Ordnanceman works with shipmates to upload ordnance to F/A-18 Super Hornet on flight deck aboard USS *Harry S. Truman*, Mediterranean Sea, May 3, 2018 (U.S. Navy/Thomas Gooley)

total of 40,000 strikes against ground targets during the entirety of the war—which included almost 25,000 against Iraqi ground forces and multiple strikes against many fixed aimpoints.<sup>17</sup>) Perhaps 20 to 50 percent of these target sets would be within the potential reach of the carrier fleet, which could attack many of them within a few weeks. But the carrier fleet would likely have help. Indeed, for providing strike capabilities against ground and coastal targets, it could have lots of help—even more than with the littoral air superiority mission. Not only nearby land-based fighter aircraft but also long-range bomber capabilities (and cruise missiles on other ships and submarines) could contribute. Thus, even in a scenario in which land bases in the region had been overrun or otherwise rendered unavailable due to an initial enemy attack, or in which regional political problems precluded access to other countries’ bases for combat operations, a carrier

armada of four to six flat-deck ships could probably achieve whatever ground-attack role the regional combatant commander required of it.

In major recent wars, which have been fought largely in the broader Persian Gulf region, the Navy has typically wound up deploying five to seven aircraft carriers at peak strength.<sup>18</sup> Not coincidentally, major post-Cold War defense planning documents starting with the Base Force and the 1993 Bottom-Up Review commonly assumed that five to six carriers would be needed in any future conflicts of similar character. Whether five to seven carriers were always truly needed for conflicts in which the United States generally also had access to land bases is debatable. Whether *more* than five to seven might be needed in a region lacking land bases is another important question. Indeed, over the years, some studies have found that up to nine aircraft carrier battle groups might be needed

against an Iraq-like foe in the absence of reliable bases on land—at least for a spell.<sup>19</sup> (Studies have also found that, in many Cold War periods, the United States did not really have anything close to a half-dozen carriers available for a regional contingency—or a “1/2 war,” as conflicts against smaller foes were often called back in that era.<sup>20</sup>)

Averaged across scenarios, a carrier fleet of 10 flat-deck ships (and another 10 smaller carriers, the amphibious large-decks) would seem adequate to the task of dealing with regional foes like Iran and North Korea. Such a Navy could even likely support up to two regional conflicts at once, as U.S. war plans and broader defense policy still require. If necessary, one operation could probably be handled with three to four aircraft carriers, since ample land bases for tactical airpower would likely be available. (In a worst case, virtually all of the available fleet might



Sailors and Marines participate in flight deck washdown aboard USS *Iwo Jima*, May 7, 2018 (U.S. Navy/Dominick A. Cremeans)

need to be surged to one place until bases on land could be reestablished.)

Some ongoing improvements to the carrier air wing could be useful for regional conflicts, too, including the F-35C stealthy aircraft and longer range ground-attack variants of a UCLASS. However, the case for a different mix of aircraft in the carrier wing is most vivid when considering possible conflict against a near-peer rival.

*Scenarios and Missions Against a Near-Peer Foe.* Against a country like Russia or China, the challenges of projecting naval power are, naturally, far greater. Those countries have advanced submarine forces, resilient reconnaissance-strike complexes that are difficult to bring down, and potent antiship missiles of various types. Of course, they also have nuclear weapons. Conflict against either

is considerably less likely than against the likes of North Korea or Iran, and as such it is not necessary to think in terms of two simultaneous operations. But robust deterrence does require war-winning combat capability against one at a time, today and into the indefinite future.

For scenarios involving either of those countries, there are more profound distinctions between the air superiority mission and ground-attack mission. Establishing air superiority, if even feasible, is most achievable if the carriers are relatively close to the airspace they are defending. Otherwise, huge amounts of time would be lost in transit, and rapid reaction against any kind of enemy surge attack might not occur in sufficiently prompt fashion.

On the other hand, attacking targets on the territories of either potential

foe, or ships operating near their coasts, would shift the calculus substantially. For those missions, longer range aircraft are much better. They allow the carriers to remain at greater distance, enhancing their survivability and that of their surface-combatant escorts. Such capabilities could be hugely helpful even if military balances had evolved to the point where the close-in air superiority mission were no longer as feasible as it had once been.

Consider one specific example: an operation involving elements of a Chinese naval blockade against Taiwan, perhaps after Beijing determined that Taipei had taken some steps leaning too far in the direction of declaring independence. China might conclude that a naval blockade could be “leaky” but still be quite potent. It would not need to stop all ship voyages into and out of Taiwan; it would simply

need to deter enough ships from risking the journey that Taiwan's economy would suffer badly. The goal would likely be to squeeze the island economically to a point of capitulation.<sup>21</sup>

The centerpiece of the approach would probably have China's submarine fleet introduce a significant risk factor into all maritime voyages into and out of Taiwan—occasionally sinking a cargo ship with submarines or with mines it laid in Taiwan's harbors.<sup>22</sup> Over the last 20 years, China's fleet of modern attack submarines has grown from roughly 2 to 40.<sup>23</sup> China's precision-strike capabilities have improved to the point where it could conceivably use a preemptive missile and air attack against Taiwanese airfields and ports and associated infrastructure to hobble Taiwan's ability to strike back.<sup>24</sup>

To break the blockade, under current thinking, the basic concept of operations for the United States and Taiwan would probably be to deploy enough forces to the Western Pacific to set up a protected shipping lane east of Taiwan. To carry out that mission, the United States, together with Taiwan, would need to establish air superiority throughout a large part of the region. The United States and Taiwan, and perhaps Japan and other allies as well, would also need to protect ships against Chinese submarine attack and cope with the threat of mines near Taiwan's ports.

The air superiority mission has become much harder given Chinese modernization, combined with the realities of geography and the limited options for basing U.S. aircraft in the region. Fortunately, modern U.S. stealthy or fifth-generation aircraft are still far superior to Chinese planes. Unfortunately, China now has close to 1,000 fourth-generation fighters of rough comparability to U.S. aircraft such as the F-15 and F-16. A RAND simulation estimates that it might take 6 or 7 U.S. fighter wings (each with some 72 planes)—based on Okinawa, in other parts of Japan, on Guam, and on carriers, and supported by aerial refueling tankers—to do the job. The United States could lose a number of aircraft in this process, perhaps even dozens; China could lose dozens, or even hundreds.

Both sides would of course be sorely tempted to attack the adversary's runways, as well as refueling and rearming supplies for the aircraft.<sup>25</sup> Chinese capabilities in these areas are now such that any Chinese attack against military facilities in a place like Okinawa would likely shut down runways for at least some stretch of time, and destroy aircraft, ordnance, and fuel stocks that had not been properly secured in underground areas and/or hardened shelters.<sup>26</sup> China might very well be able to threaten U.S. aircraft carriers, too. The closer they were to Chinese shores, the higher the likelihood that sensor-shooter links could be maintained long enough to guide a cruise or ballistic missile to target. Chinese submarines could target not only cargo ships but also Navy vessels, including carriers. The United States and any allies would use their own antisubmarine warfare assets operating off land bases and carriers to hunt down Chinese submarines.

The typical Chinese attack submarine might succeed in getting off several shots against valuable, and vulnerable, surface ships before meeting its own demise.<sup>27</sup> A recent major RAND study on the U.S.-China military balance concurred with this broad result, especially in cases where Chinese submarines could be cued by sensors to a general area where a target like a U.S. aircraft carrier might operate.<sup>28</sup> China might hope that a quick strike that sank a major U.S. ship and killed hundreds of Americans (or even thousands, in the event of a carrier sinking) would cause Washington to waver in its future commitment to the defense of Taiwan. Thus, the carrier fleet in particular would be important to protect, more so than other military or commercial assets. Yet if the United States made protection of the carrier its preeminent concern, those carriers could be pushed so far out to sea as to be much less useful as platforms launching aircraft for air superiority or antisubmarine warfare operations.

Of course, there would be huge additional uncertainties in this kind of scenario, starting with fundamental doubt as to whether Chinese and

American space-based reconnaissance and communications systems could survive in the face of antisatellite and cyber attacks. If the United States, in conjunction with Taiwan and perhaps Japan, concluded that conventional operations were not going their way, they might elect to undertake a systematic campaign of bombing targets in southeast China contributing to the military campaign, such as missile-launching bases, radar and surface-to-air missile sites, and submarine ports (whether or not China had already attacked bases in Okinawa directly). Then there is the risk of nuclear escalation, whether inadvertent or intentional.<sup>29</sup> Even though U.S. nuclear forces far exceed those of the People's Liberation Army, China might conclude that its disproportionate interests in the Taiwan issue in particular would warrant nuclear brinkmanship.

Where does this leave things? I believe the United States does need to prepare for the direct defense of assets of threatened friends and allies (such as Taiwan, or Japan's Senkaku Islands, or eastern farming towns in Latvia or Estonia). However, in the actual event of hostilities, the United States would also want other options—asymmetric ones, what B.H. Liddell Hart might call an indirect approach, that played to its own strengths. Rather than forcibly reopen sea and air lanes into Taiwan, or promptly taking back that notional Baltic farming village, the United States and allies might wish to apply military power at times and places of their own choosing, where the correlation of forces and geography were more favorable. There would be downsides to such an approach; the threatened ally might not be immediately protected. But deterrence—the real goal here—would likely be reinforced because indirect defense may be a more credible, and believable, response than direct defense in some cases.

Thinking in these terms leads naturally to my final mission area for the future carrier fleet—sea control. I think of it as not only a defensive mission to protect western shipping but also an offensive opportunity against the assets of possible adversaries.

### *Sea Control and the Indirect*

**Approach.** Being a maritime nation with allies all around the world, the United States has a special interest in securing blue-water sea lanes as well as the airspace above the oceans. This is particularly true in a globalized world.<sup>30</sup> Fortunately, this is a task the United States remains very good at—and far ahead of China or Russia, even if those two powers could pose limited risks to blue waters with their respective submarine forces.

The sea control mission goes well beyond the simple idea of sustaining free access for all to the global commons in peacetime. There are wartime scenarios where it could also be of great importance, as well.

If Xi Jinping commands an attack on Taiwan, why not take away his dependable sources of oil and his ability to trade by sea with foreign partners, rather than put tens of thousands of Americans in close proximity to the Chinese coast with a direct defense operation? If Vladimir Putin fabricates a pretext to “protect” native Russian speakers in a Baltic state with little green men, do we really need to launch Operation *Desert Storm* on steroids in response? Why not take measures that would strangle Russia’s economy, especially now that Western European countries have built up enough alternative sources of energy (through integrated natural gas pipelines and the like) that they could survive any resulting Russian cutoff in their hydrocarbon supplies?

By combining sanctions with the selective application of long-range strike power in parts of the global commons, the United States and its allies can make it entirely unrewarding for Russia or China to carry out aggression against exposed U.S. allies. Provided that we have escalation dominance in such domains, as I believe we do (though more could be done to ensure that, especially in economic realms), this kind of approach could play to Western strengths while also limiting the risks of escalation, since the kinds of military actions I propose would involve relatively few casualties and take place at some distance from adversaries’ territories.

Even if China increasingly succeeds with time in making its own littoral regions, including the South China Sea, more difficult and potentially dangerous for American ships, the Indian Ocean basin is a different matter. Ambushes near the Straits of Malacca, or alternatively the Strait of Hormuz at the other end of a notional journey by an oil tanker from the Persian Gulf to China, could constrict China’s access to oil. Attacks might also take place in the southern South China Sea, far from Chinese bases. These could involve a combination of bomber, submarine, and carrier-based aircraft, even if no regional states like Singapore or Thailand or the Philippines ultimately wanted to offer America access to bases on their territories. Russian trade could be challenged in ocean waters near the Baltic and Mediterranean seas, as well as the Sea of Okhotsk. In neither case would a blockade, coupled with strong and sweeping sanctions, have to be airtight to be strategically effective over time.

Indeed, such blockades as well as associated sanctions would hurt the West. But such pain is preferable to huge and enormously costly military operations that carry considerable uncertainty about their likely outcomes—not to mention a real risk of nuclear escalation. Moreover, the West needs to bear in mind its inherent advantages. North Atlantic Treaty Organization nations plus Japan, South Korea, and Australia together represent more than half of the world’s gross domestic product and by far the world’s largest markets. Factories in China and oil and gas producers in Russia need us more than we need them, especially given the world’s new sources of energy and the multiple manufacturing centers that could, if need be, replace much of what China and Russia now do for the world economy.

For these kinds of operations, long-range strike capability is highly desirable. The purpose of carriers, and assets like bombers, in these sorts of missions, is less to establish air superiority than to project strike power. Moreover, a thorough bombing campaign against thousands or tens of thousands of land targets is less relevant than an ability to

have intelligence-driven strikes against a relatively modest number of the right kinds of larger assets, most of all ships. Numbers matter, but capabilities matter even more in such situations. In some such situations, long-range bombers may be the preferred tool. In others, however, carriers may be useful. They can also be helpful in protecting sea lanes to Europe, Japan, Australia, South Korea, and the Middle East in the event of hostilities against another great power.

### **Conclusion**

In this article, I outlined a nuanced case for the future aircraft carrier force and its associated air wings. The carrier is not becoming obsolete, but its optimal usages in peacetime and especially in war against near-peer competitors are changing.

To be sure, some traditional carrier priorities would remain relevant even with such a revised strategic concept for the United States, which would still want enough carriers for peacetime presence and crisis response, as well as various types of kinetic operations against regional adversaries.

Some of the means and methods by which these operations were conducted could change. Large-deck amphibious ships could substitute more often for flat-deck carriers in some presence operations. More Air Force airpower could be stationed in the Persian Gulf region, alleviating the pressure for the carrier force always to maintain coverage there. Greater use of unpredictable presence operations could sometimes be favored over continuous time on station.

Most of all, the United States needs to rethink how it might fight a near-peer rival so as to enhance deterrence—and figure out what that means for the carrier fleet and carrier wing. No allies should be abandoned in this process, and no strategy of offshore balancing should be adopted. American military assets should also largely remain forward deployed for purposes of deterrence, assurance, and warfighting capability, too. But direct and prompt defense of all allied territory may not be the best, and should not be the only, option for future combat scenarios

against Russia or China. More indirect, asymmetric approaches should figure centrally in warfighting concepts. Thus, a carrier force with 10 flat-deck vessels (and another 10 large-deck amphibious ship carriers) and a carrier air wing with a dozen or two long-range and stealthy UCLASS-derived unmanned systems, rather than a strike force dominated exclusively by F-18 and F-35 manned jets, may make the most sense.

These considerations are especially compelling if the Trump defense buildup, for reasons of fiscal austerity, proves less generous than the Navy now hopes. Rather than emphasize pursuit of a 355-ship fleet, the Navy should think more about new capabilities and new concepts of operations for the fleet it has now, starting with the aircraft carrier force. JFQ

## Notes

<sup>1</sup> U.S. Navy, "United States Navy Fact File: Aircraft Carriers—CVN," Washington, DC, 2017, available at <[www.navy.mil/navydata/fact\\_display.asp?cid=4200&tid=200&ct=4](http://www.navy.mil/navydata/fact_display.asp?cid=4200&tid=200&ct=4)>.

<sup>2</sup> Meghann Myers, "Navy to Disband a Carrier Air Wing in 2017," *Navy Times*, February 9, 2016, available at <[www.navytimes.com/news/your-navy/2016/02/09/navy-to-disband-a-carrier-air-wing-in-fiscal-2017](http://www.navytimes.com/news/your-navy/2016/02/09/navy-to-disband-a-carrier-air-wing-in-fiscal-2017)>.

<sup>3</sup> Sam LaGrone, "The Basics: Inside the Carrier Air Wing," *U.S. Naval Institute News*, April 28, 2016, available at <<https://news.usni.org/2016/04/28/the-basics-inside-the-carrier-air-wings>>; U.S. Navy, "The Carrier Air Wing," Washington, DC, 2009, available at <[www.navy.mil/navydata/ships/carriers/powerhouse/airwing.asp](http://www.navy.mil/navydata/ships/carriers/powerhouse/airwing.asp)>.

<sup>4</sup> "U.S. Navy Details Future Carrier Air Wing," *Military.com*, August 12, 2015, available at <[www.military.com/dod-buzz/2015/08/12/us-navy-details-future-carrier-air-wing](http://www.military.com/dod-buzz/2015/08/12/us-navy-details-future-carrier-air-wing)>.

<sup>5</sup> U.S. Navy, "United States Navy Fact File: Amphibious Assault Ships—LHD/LHA(R)," Washington, DC, 2017, available at <[www.navy.mil/navydata/fact\\_display.asp?cid=4200&tid=400&ct=4](http://www.navy.mil/navydata/fact_display.asp?cid=4200&tid=400&ct=4)>.

<sup>6</sup> For example, see *The U.S. Military's Force Structure: A Primer* (Washington, DC: Congressional Budget Office, 2016), 131, available at <[www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/51535-fsprimer.pdf](http://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/51535-fsprimer.pdf)>.

<sup>7</sup> Seth Cropsey, Bryan G. McGrath, and Timothy A. Walton, *Sharpening the Spear: The Carrier, the Joint Force, and High-End Conflict* (Washington, DC: Hudson Institute,

2015), 86–87, available at <<https://s3.amazonaws.com/media.hudson.org/files/publications/201510SharpeningtheSpearTheCarriertheJointForceandHighEndConflict.pdf>>.

<sup>8</sup> Ronald O'Rourke, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*, RL32665 (Washington, DC: Congressional Research Service, December 2017), 3–8, 125, available at <<https://fas.org/sgp/crs/weapons/RL32665.pdf>>.

<sup>9</sup> Eric Labs, "Preserving the Navy's Forward Presence with a Smaller Fleet," Congressional Budget Office, Washington, DC, March 2015, 9, available at <[www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/49989-forwardpresence-2.pdf](http://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/49989-forwardpresence-2.pdf)>.

<sup>10</sup> Cropsey, McGrath, and Walton, 93–94.

<sup>11</sup> See, for example, Ivo H. Daalder and Michael E. O'Hanlon, *Winning Ugly: NATO's War to Save Kosovo* (Washington, DC: Brookings Institution, 2000), 103–181.

<sup>12</sup> For another study that raises these kinds of questions, but admittedly comes to somewhat different answers than I do here, see Mark Gunzinger et al., *Force Planning for the Era of Great Power Competition* (Washington, DC: Center for Strategic and Budgetary Assessments, 2017), 48, available at <<http://csbaonline.org/research/publications/force-planning-for-the-era-of-great-power-competition>>.

<sup>13</sup> In 2017, the United States surged three aircraft carriers at once near the Korean Peninsula; more commonly in modern times, a typical crisis response or signaling operation has involved an average of 1.5 carriers. See Barry M. Blechman and Stephen S. Kaplan, *Force Without War: U.S. Armed Forces as a Political Instrument* (Washington, DC: Brookings Institution, 1978), 10–13.

<sup>14</sup> James Steinberg and Michael E. O'Hanlon, *Strategic Reassurance and Resolve: U.S.-China Relations in the 21<sup>st</sup> Century* (Princeton: Princeton University Press, 2014), 192–200; and Michael E. O'Hanlon, *The \$650 Billion Bargain: The Case for Modest Growth in America's Defense Budget* (Washington, DC: Brookings Institution, 2016), 50–60.

<sup>15</sup> Christopher Bowie et al., *The New Calculus: Analyzing Airpower's Changing Role in Joint Theater Campaigns* (Santa Monica, CA: RAND, 1993), 45–56.

<sup>16</sup> Michael R. Moeller, *U.S. Bomber Force: Sized to Sustain an Asymmetric Advantage for America* (Arlington, VA: Mitchell Institute for Aerospace Studies, 2015), 13, available at <[http://docs.wixstatic.com/ugd/a2dd91\\_252420b7d1d04ae59b818e72c416af16.pdf](http://docs.wixstatic.com/ugd/a2dd91_252420b7d1d04ae59b818e72c416af16.pdf)>.

<sup>17</sup> Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey Summary Report* (Washington, DC: Government Printing Office, 1993), 65.

<sup>18</sup> See *The U.S. Military's Force Structure*, 53.

<sup>19</sup> See, for example, William W. Kaufmann and John D. Steinbruner, *Decisions for Defense: Prospects for a New Order* (Washington, DC:

Brookings Institution, 1991), 44, 62; and Michael E. O'Hanlon, *Defense Planning for the Late 1990s: Beyond the Desert Storm Framework* (Washington, DC: Brookings Institution, 1995), 53.

<sup>20</sup> Robert P. Haffa, Jr., *The Half War: Planning U.S. Rapid Deployment Forces to Meet a Limited Contingency, 1960–1983* (Boulder, CO: Westview Press, 1984), 205–240.

<sup>21</sup> Mark A. Stokes, "Employment of National-Level PLA Assets in a Contingency: A Cross-Strait Conflict as Case Study," in *The People's Liberation Army and Contingency Planning in China*, ed. Andrew Scobell et al. (Washington, DC: NDU Press, 2015), 135–146.

<sup>22</sup> For a discussion of Chinese writings that seem to take a similar tack, see Roger Cliff et al., *Entering the Dragon's Lair: Chinese Antiaccess Strategies and Their Implications for the United States* (Santa Monica, CA: RAND, 2007), 66–73. Among other naval force modernizations, China now has about 20 attack submarines in its fleet, and it is also expected to acquire ocean reconnaissance satellites (early versions of which it already reportedly possesses) as well as communications systems capable of reaching deployed forces in the field in the next 5 to 10 years. See *Annual Report to Congress: Military Power of the People's Republic of China, 2008* (Washington, DC: Office of the Secretary of Defense, 2008), 4, 27; and Michael McDevitt, "The Strategic and Operational Context Driving PLA Navy Building," in *Right-Sizing the People's Liberation Army: Exploring the Contours of China's Military*, ed. Roy Kamphausen and Andrew Scobell (Carlisle Barracks, PA: Strategic Studies Institute, 2007), 499.

<sup>23</sup> Eric Heginbotham et al., *The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996–2017* (Santa Monica, CA: RAND, 2015), 185.

<sup>24</sup> See, for example, David A. Shlapak et al., *A Question of Balance: Political Context and Military Aspects of the China-Taiwan Dispute* (Santa Monica, CA: RAND, 2009), 31–90.

<sup>25</sup> Heginbotham et al., 75–88.

<sup>26</sup> Roger Cliff et al., *Shaking the Heavens and Splitting the Earth: Chinese Air Force Employment Concepts in the 21<sup>st</sup> Century* (Santa Monica, CA: RAND, 2011), xxiii, 209–215.

<sup>27</sup> Wayne P. Hughes, Jr., *Fleet Tactics and Coastal Combat*, 2<sup>nd</sup> ed. (Annapolis, MD: Naval Institute Press, 2000), 172–173.

<sup>28</sup> Heginbotham et al., 184–199.

<sup>29</sup> On China and nuclear escalation, see Caitlin Talmadge, "Would China Go Nuclear? Assessing the Risk of Chinese Nuclear Escalation in a Conventional War with the United States," *International Security* 41, no. 4 (Spring 2017), 50–92.

<sup>30</sup> See, for example, James Stavridis, *Sea Power: The History and Geopolitics of the World's Oceans* (New York: Penguin, 2017), 316–321.