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in Military and Strategic Studies

Occasional Paper Number 7, 2013

America's Pivot to the Pacific: Selective Primacy, Operational Access, and China's A2/AD Challenge

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CALGARY PAPERS IN MILITARY AND STRATEGIC STUDIES

ISSN 1911-7981 (print) ISSN 1911-799X (online)

Editor DR. JOHN FERRIS

Managing Editor: Nancy Pearson Mackie

Cover photo: China Marks 60 Years of the Chinese Navy. iStockphoto.

America's Pivot to the Pacific: Selective Primacy, Operational Access, and China's A2/AD Challenge
Occasional Paper Number 7, 2013
ISBN 978-1-55238-729-0 (print)
ISBN 978-1-55238-731-3 (online)

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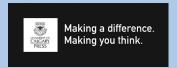
ABSTRACT: This paper assesses America's recent "pivot" or "rebalance" to the Asia-Pacific. It shows that Obama's pivot represents the beginnings of a strategic choice on "selective primacy"—a grand strategy rooted in Washington's worrisome economic and fiscal situation and designed to shape America's global engagement at a time of fiscal austerity, in which *primacy* in one theatre will be achieved through greater *selectivity* of commitments elsewhere. As a result, the US military will increasingly prioritize the air and naval services within its force structure, which provides the broader context for more operational joint concepts like Air-Sea Battle. Lastly, while triggered by economic and fiscal exigencies, I will show that such a strategic shift is primarily directed at China's rise as a regional military power, with particular emphasis on its growing antiaccess and area-denial (A2/AD) capabilities. The paper concludes with some thoughts on the future direction of Sino-American strategic competition.

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America's Pivot to the Pacific: Selective Primacy, Operational Access, and China's A2/AD Challenge

David S. McDonough¹

Introduction

In the second decade after 9/11, the United States appears to have shifted its strategic attention back to the Asia-Pacific. In November 2011, US President Barack Obama spoke to the Australian Parliament and announced his intent for the United States to "play a larger and long-term role in shaping this region and its future." This speech was only part of a wider nine-day tour of the Asia-Pacific, during which time the president proved especially forceful in his defence of American exceptionalism and veiled criticism of China. Secretary of State Hillary Clinton famously coined the term "pivot" to describe this re-orientation, which Assistant Secretary of State for East Asian and Pacific Affairs Kurt Campbell later described as "a fundamental reorientation of American priorities to a place where we all understand that the greatest dynamism, the greatest possibilities lie."

This paper assesses America's strategic pivot towards the Asia-Pacific. It argues that Obama's pivot represents the beginnings of a strategic choice on "selective primacy"-a grand strategy that combines elements of primacy and selective engagement, emerges from the country's current economic and fiscal malaise, and will likely be magnified in the years ahead. The paper then shows how this pivot, now frequently called "rebalancing" by administration officials, will impact America's military force structure; one that prioritize air and naval services over ground forces, which provides the context which provides the context for more operational joint concepts like Air-Sea Battle. Lastly, while triggered by economic and fiscal exigencies, I will show that such a strategic shift is primarily directed at China's rise as a regional military power, with blue-water naval pretensions and an existing fleet designed primarily to contest US access to and operations in the Western Pacific theatre. In so doing, the paper provides some important clues as to the future direction of Sino-American strategic competition and its broader security implications.

Obama's Pivot and the Future of US Grand Strategy

President Obama's pivot towards Asia was laid out in a series of carefully prepared statements by key members of his administration over several months, spearheaded by comments from the president and secretary of state in November 2011. It took on greater military sensibility with the Pentagon's release of its *Strategic Defense Guidance* in January 2012. This document was meant to reassess American strategic policy in advance of the spending caps mandated by the 2011 Budget Control Act (BCA), which would entail defence cuts totaling some \$450 billion over the next decade. As the guidance makes clear, America's military "will of necessity rebalance towards the Asia-Pacific region." As a result, the United States will be increasingly reliant on sea power, even as it is "no longer...sized to conduct large-scale, prolonged stability operations." Indeed, according to Secretary of Defense Leon Panetta, America will increase its "institutional weight" and enhance its "presence, power projection, and deterrence in the Asia-Pacific."

There are some early signs the administration is willing to back this announcement with some concrete action. For example, the United States will deploy 2,500 Marines on a rotational basis with prepositioned equipment at the Darwin naval base in Australia, in what is the military's "first long-term expansion...in the Pacific since the end of the Vietnam War." Christine Leah has even called this redeployment a strengthening of US extended deterrence guarantees, which has moved from "implicit declaratory assurances" to the more concrete expression of ground troops deployed on the territory of its Australian ally. Washington has also been negotiating for greater access for its warships and fighter jets at Australian air and naval facilities. Notably, the naval base at Perth is expected to have an increased capacity to handle US aircraft carriers, nuclear submarines, and other large capital ships. 10

The United States is also continuing with plans to upgrade its base facilities on Guam, turning the island into what the 2010 Quadrennial Defense Review (QDR) called a "hub for security activities in the region." To be sure, the US military has been boosting its naval and air presence on the island for the past decade, with Obama's more immediate effort largely arising from the 2006 Roadmap signed under his Republican predecessor, which called for a transfer of 8,000 US Marines, their families, and equipment from Okinawa to Guam. 12 But it is notable that, even in the current fiscal climate, Washington still intends to redeploy 4,700 Marines to the island, even as it pushes to keep intact the command element and larger expeditionary units in Okinawa and rotates the remainder to other locations in the Pacific. 13

To help reassure its allies in Northeast Asia, the administration moved to strengthen "high-level" discussions on extended deterrence with the US-Republic of Korea Extended Deterrence Policy Committee and the US-Japan Extended Deterrence Dialogue. In light of the North Korean threat, heightened by its sinking of the South Korean ship Cheonan and artillery attack on Teonpyeong Island in 2010, these nuclear consultations helped to reassure both allies and carried the possibility of being extended to include "the development of common rules of engagement for missile defense systems."14 Washington also reiterated that its security treaty guarantees to Tokyo covers the Senkaku/Diaoyu islands, following rising Sino-Japanese tensions over these disputed islands as well as maritime incidents in the East China Sea, with Hillary Clinton even implicitly warning Beijing against "any unilateral action that would seek to undermine Japanese administration."15 At the same time, the United States has overseen a process of re-engagement with South Korea. For example, Obama accepted a modest increase of the US military presence in the Peninsula, after several years of troop withdrawals under his predecessor, while also increasing the size of bilateral military exercises and signing various defence agreements with Seoul, including one permitting increased range for South Korean ballistic missiles.¹⁶

In Southeast Asia, the United States recently signed an agreement to deploy four new littoral combat ships on a rotational basis in Singapore. Washington has also sought to renew cooperation with other regional partners. For example, it signed an agreement with Indonesia in 2010 to enhance maritime security cooperation, which provides "a de facto linkage between US naval activities in greater maritime Southeast Asia and the US Pacific Command's already extensive relationship with Singapore." The US military was also given the assent by the Philippines government to use its former facilities at Clark Air Base and Subic Bay Naval Base, leading to a growing number of warships and aircraft passing through both bases in recent months. Defence cooperation also expanded in Indochina, including discussions to establish a regional disaster-relief hub and expanded naval access in Thailand and joint naval training and exercises with America's former wartime adversary Vietnam.

By renewing military ties with key Southeast Asian nations, the United States provides an important counter to Beijing's increasingly aggressive attitude towards the South China Sea, which has given rise to a growing number of maritime incidents with Southeast Asian claimants, especially Philippines and Vietnam. Many expect such incidents could soon take on a more overtly military character, given China's new naval base on Hainan Island and an

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interest in securing access through the South China Sea to the open oceans beyond.²¹ In response, at a July 2010 regional security meeting, Secretary of State Hillary Clinton even declared American interest in this dispute and stressed that any resolution should be accordance to the international law regarding exclusive economic zones and continental shelves, which implicitly favours claims by Southeast Asian nations.²² Importantly, by strengthening its position close to the strategic energy and trade routes that pass through the Malacca Straits, the United States also helps establish a linkage between the Indian and Pacific Oceans, in what Kurt Campbell has described as "the next challenge" in American strategic thinking.²³

The United States has also looked further afield to the Indian Ocean for strategic partners. Crucial in this regard is the role of India. In its effort to cultivate ties with New Delhi, the Obama administration owes a great deal to its predecessor, which laid the groundwork for a strategic partnership by signing a ten-year defence cooperation agreement and the Indo-US nuclear agreement, with the latter amounting to the de facto recognition of India as a nuclear weapons state.²⁴ President Obama has expanded this framework with a noticeable deepening of diplomatic and military engagements-in the continued high-level discussions under the Indo-US Strategic Dialogue, the greatly expanded military personnel exchanges and staff talks, and the growing number of complex bilateral and multilateral military exercises, involving ground, air, and naval forces of both countries (e.g., Malabar, Cope India, Yudh Abhyas).²⁵ Naval cooperation has been on the increase in nontraditional security domains, including anti-piracy and counter-terrorism, which has the potential to develop into more high-end missions, "such as maritime surveillance, expeditionary operations and anti-submarine warfare."26

Of course, owing to its long-standing preference for strategic autonomy, India has displayed a certain wariness over such ties, whether in its reluctance to rely on American weapon systems or refusal to sign a Logistical Support Agreement for the reciprocal use of each other's military facilities.²⁷ Yet there is also a growing convergence of interest between both countries. This is clearly seen on the issue of counter-terrorism. It is also more implicitly apparent in their respective concerns over China, with New Delhi becoming increasingly alarmed over what many see as Chinese strategic encirclement in South Asia, exemplified by China's military aid and support (including nuclear) to Pakistan, expanded military presence along the Sino-Indian border, and repeated attempts to establish security ties with other South Asian nations, irrespective of Indian concerns.²⁸ India's recent tilt to the United

States is an important way to break free of this encirclement. It also complements New Delhi's "Look East" policy, which involves naval modernization geared towards extra-regional power projection and strengthened security ties with the "China-wary nations" of the Western Pacific, such as Japan, Singapore, and Australia. ²⁹ Indeed, the Obama administration has singled out India as a "provider of security in the broader Indian Ocean region," with Secretary of Defense Leon Panetta even calling her a "linchpin" in the pivot, in what is increasingly seen as the broader Indo-Pacific region. ³⁰

Washington's effort to find new strategic partners has even led it to diplomatically engage Burma/Myanmar, at the beginning of an important process of liberalization begun by its new quasi-civilian government. Indeed, President Obama has not only eased economic sanctions and reestablished diplomatic ties with the new government but became the first sitting president to visit the country shortly after his 2012 re-election. Even at this early stage, some tentative military-to-military ties have been established between the two nations.³¹ While undoubtedly a means to strengthen democratizing forces in the country, there is also little doubt that Obama's engagement is equally about taking advantage of an opportunity to wean this former pariah state away from China's tight embrace, following the lead of similar effort by India and the Association of South East Asian Nations (ASEAN). Much depends on whether the country's tentative move towards democratization is maintained. But, if pursued, it could represent one of the most important foreign policy developments to emerge from Obama's presidency.

So far, much of the pivot complements similar logistical and support arrangements made with different Southeast Asian nations following American base closures in the Philippines in 1991-1992. It is also very much in keeping with the 2004 Global Defense Posture Review's emphasis on smaller, flexible, non-permanent "lily-pad" bases. The reasons for such a dispersed force deployment pattern are clear. Smaller on-shore footprints and access arrangements can ensure a robust American force presence in the region, without the political controversies associated with traditional base infrastructure. Christian La Miere also points to two additional benefits of adopting a naval "fleet-in-dispersal" strategy in the Western Pacific. With dispersed locations further away from the Eurasian landmass, the United States offers China some strategic space to help minimize conflict while minimizing the vulnerability of US bases to attack. 34

Yet President Obama has also not ignored diplomatic engagement. For instance, the administration signed the Treaty of Amity and Cooperation

with ASEAN in 2009, takes part annually as one of eight dialogue partners in the ASEAN Defense Ministers Meeting (ADMM+8) since 2010, and attended its first East Asian Summit in 2011. It also expanded its predecessor's bilateral engagement of China with the expansive Strategic and Economic Dialogue taking place between Washington and Beijing since 2009. These initiatives provide a means to further engage Beijing in multilateral and bilateral forums, in what former Secretary of State James Steinberg called "strategic reassurance" hough China's assertive and often uncooperative attitude, whether on climate change or in the territorial disputes with its maritime neighbours, quickly dashed some of the initial high expectations that accompanied this diplomacy. Importantly, this engagement helps to protect Washington from accusations its military presence is meant to provide a check on China's growing strategic assertiveness. 36

Obama's pivot has taken place at an opportune moment, in so far as American strategic planners can enjoy some breathing space with the end of the Iraq War and the planned exit from Afghanistan. Even then, the occurrence of another catastrophic terrorist attack on American soil could rapidly change such a calculus-even if such a worst-case scenario is unlikely, if not impossible.³⁷ Still, political leaders must contend with the American public's ever increasing expectations for "perfect" security and tendency to judge government performance based largely on counter-terrorism failures. Both Democrats and Republicans seem destined to compete to convince the "public that their party's programs are different, more comprehensive, and more likely to succeed."38 Domestic measures, closely associated with the public's expectations for homeland security, will likely prove more resistant to fundamental change.³⁹ But tactical shifts in the "global war on terrorism" (GWOT) are possible, provided that such measures retain their operational effectiveness and are seen by the public as being equally comprehensive in scope.

Pursuant to this fact, President Obama has eagerly retained GWOT's high tempo and broad scope, as evident by the covert wars and drone attacks that have only expanded under his watch.⁴⁰ He has also been quick to reaffirm that the Pacific pivot does not come at the expense of the Greater Middle East, where the United States will continue to place "a premium on U.S. and allied military presence," according to the recent strategic guidance.⁴¹ As acknowledged by US Chief of Naval Operations Admiral Jonathan Greenert, Washington "won't be taking their eye off the ball."⁴² Even with the post-Iraq War drawdown, the United States retains a residual ground presence in Kuwait and benefits from critical naval and air basing infrastructure

in the region.⁴³ Importantly, it has also reinforced the number of mine hunters in the Persian Gulf and added short-range fire support capabilities for its carrier battle groups, in what some call a defensive naval presence aimed at "protecting friendly forces and sea lanes" from the Iranian threat to the Strait of Hormuz.⁴⁴ Such a naval "hedge" in the Middle East carries an important element of risk, if the US military gets embroiled in a major conventional land war, for example.⁴⁵ But it does complement the strong American naval presence in the Asia-Pacific, especially since naval assets can be surged from one theatre to another.

Yet Obama's pivot raises questions as to its overall financial sustainability, especially when combined with implicit hedging in the Middle East. Washington remains mired in economic and financial problems, which given the rapid increase in the cost of Social Security, health care and other entitlements will likely prove more intractable in the long-term.⁴⁶ Simply put, it is uncertain whether the United States can sustain present level of global engagement. This becomes especially true in the event of sequestration, which would involve an additional \$600 billion in automatic defence cut over the next ten years. But, irrespective of these cuts, future administrations will still face the pressing need to rein in discretionary spending in order to tackle this burgeoning debt crisis. This will result in increasing budget pressure on the Department of Defense (DoD), which accounts for over half of discretionary spending and one-fifth of the total federal spending.⁴⁷ Some hard decisions will therefore be required on the choice of military procurements, capital replacements, and future direction of American grand strategy.

By providing clearly articulated set of priorities, Obama has provided a useful strategic blueprint on how to deal with any future cuts—namely, by keeping the Asia-Pacific as the foremost long-term priority. For example, Obama has already announced the withdrawal of up to 10,000 troops from Europe, which would put this presence to a post-Cold War low of 70,000. Even deeper cuts to its ground forces are certainly possible in this "strategic backwater." While a drawdown from the Middle East would be much riskier, it could also prove necessary. As the Congressional Research Service notes, "forces similar to those needed in Asia are also required" in the Mideast, including "short- and medium-range missile defense, rotational naval deployments and air attack forces, and rapid-reaction ground forces." Given America's greatly expanded natural gas and oil production, such an option has even become potentially much more feasible. US ground forces in Europe and the Mideast would likely bear the brunt of any reductions, but

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even forward-deployed air and naval assets might not emerge completely unscathed. Nevertheless, with significant basing infrastructure still in place, assets can still be surged from out-of-theatre in moments of crisis. As difficult and risky as this choice may be, the United States has to "think strategically as the world's economic and strategic center of gravity shifts inexorably toward the Pacific," to borrow the words of Deputy Secretary of State William Burns. ⁵⁰

Primacy is unlikely to be totally discarded as a grand strategy option. Military superiority simply provides too many benefits to easily forgo. Richard Betts has written persuasively on the advantage of primacy for counter-terrorism.⁵¹ If true with non-state actors, it becomes even truer when speaking of near-peer competitors. Strategic preponderance "permits the isolation of the adversary from sources of political and military support, further increasing the U.S. margin of superiority and further allowing the passage of time to work in favor of the United States."52 But with financial austerity comes the need for greater selectivity in American strategic engagements. Primacy would become less broad in scope and more selective in choosing where the full weight of US preponderance falls. As David Carment and Simon Palamar conclude, America's "continued dominance in the Pacific basin" would if necessary come "at a cost to power projection elsewhere."53 Indeed, by being more selective when it comes to preponderance, the United States would be able to "perpetuate its global primacy" and dominate "the maritime edge of Asia, in an arc from the Persian Gulf and Indian Ocean to the South China Sea and northwest Pacific."54 President Obama's pivot to the Asia-Pacific can be seen as a first step in a longer-term trend towards strategic rebalancing—one designed to ensure American strategic preponderance in the Asia-Pacific is financially sustainable, even if it comes at the expense of commitments to Europe and even the Middle East, if necessary. This means the United States has started to embrace a grand strategy of "selective primacy," combining elements of selective engagement and primacy; selectivity in terms of its willingness to retrench from less strategically vital regions, and primacy that is narrower in scope but remains focused on (and equally unyielding to) its most likely peer competitor.⁵⁵ This form of preponderance is similar to what Richard Betts has labeled "soft primacy." As he notes, primacy should be a "cushion" to be exploited "for long-term effect," which means "staying ahead of potential challengers but conserving power for when it is truly needed."56 It also represents something more than simply a "tweaking" of America's long-standing "deep engagement" in Europe, the Middle East, and Asia, in

so far as this reorientation is much more open to reducing security commitments in some regions in order to retain them in others.⁵⁷

This newfound prudence is unlikely to satisfy proponents of strategic restraint, who advocate military withdrawals from *both* Europe and Asia, withholding security guarantees to key allies, and the reliance of regional powers for "offshore balancing" of near-peer competitors.⁵⁸ Admittedly, by preferring sea power over ground forces, administration's policies do have some similarities to this strategically restrained option. But Obama's pivot is precisely about reinforcing alliances and expanding America's military presence in a salient strategic theatre—in other words, sheer preponderance rather than "bystanding" or "buck-passing."⁵⁹ Increased financial austerity could force Obama or his successors to adopt an even more restrained grand strategy, but the selectivity of this pivot is precisely meant to safeguard primacy where it matters the most. As such, there is little indication that an offshore balancing grand strategy is truly in the offing, notwithstanding occasional calls of restraint by realist scholars and right-wing libertarians alike.⁶⁰

Barring either a catastrophic terrorist attack or a crisis that reluctantly draws the Americans back to the Mid-East, the United States will likely only accelerate this strategic pivot or rebalancing towards the Asia-Pacific in the near-term. President Obama's re-election in 2012, and decision to visit Burma, Cambodia, and Thailand shortly thereafter, indicates the Pacific pivot will remain a centerpiece into his second term. With this in mind, selective primacy looks to be cemented as the dominant strategic option in the years ahead. This does not mean that no other alternative strategic option is in the offing. The Republicans could continue to advocate a stark, expansive form of primacy, much as they did in the last election. Mitt Romney's vow to reverse President Obama's defence cuts and "restore the sinews of American power" did speak to an important and influential segment of the Republican Party unlikely to disappear.

Nevertheless, a future Republican administration—or Democrat, for that matter—will have to figure a way to pay for such a defence spending increase, without either additional revenue or adding to the debt, both of which have become increasingly unpalatable for political leaders of both parties. Even then, Washington would still need to deal with an increasingly worrisome long-term fiscal outlook, which no amount of "efficiencies" in the defence budget is likely to mitigate.⁶¹ As the Congressional Budget Office outlined, only a substantial increase in revenues and decrease in discretionary spending, including on defence, seem likely to narrowly avert what amounts to a

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fiscal train wreck.⁶² For this reason, it would be surprising indeed if additional spending cuts were not soon on the horizon. Respected commentators, including Andrew Krepinevich at the Centre for Strategic and Budgetary Assessments and former vice-chairman of the Joint Staff Hoss Cartright, acknowledge that major additional defence cuts were highly likely, even if sequestration does not take effect.⁶³

US Force Structure, Maritime Strategy, and Air-Sea Battle

Obama's pivot builds on the strategic policies of his predecessors. The Clinton administration maintained American alliance commitments and force presence in the Pacific. President George W. Bush oversaw a gradual strengthening of this presence. As a result, the United States currently has seven of its eleven aircraft carriers and 60 percent of its nuclear attack submarines (SSNs) in the Pacific, alongside eight of its fourteen ballistic missile submarines (SSBNs), with two-thirds of all SSBN deterrence patrols taking place in that theatre. He has the pivot can be construed as "an expansion rather than a transformation of U.S. policy." Yet it also takes place at a time of greater fiscal austerity and strategic insolvency. President Obama only reaffirmed this underlying financial rationale when he said any "budget reductions will not come at the expense of that critical region." With selectivity now driven by economic and fiscal concerns, Obama's pivot has a potentially transformational character that will likely only grow if present trends continue.

Despite diplomatic effort ostensibly for strategic reassurance, selective primacy is primarily meant to ensure American strategic preponderance is sustained in the Pacific, making it implicitly directed at the country's closet near-peer competitor. But this grand strategy is equally about matching appropriate means to reach that end. In turn, Obama has shown a willingness to countenance not only modesty in grand strategic ends but also greater selectivity in military means. It is certainly no accident that the US pivot has so far been primarily about cementing partnerships with regional allies and expanding access arrangements for US air and naval forces. Simply put, with the troop drawdowns from Iraq and Afghanistan, the United States appears to have settled on a force structure that prioritizes the US Air Force (USAF) and United States Navy (USN).

Selective primacy lends itself to a force structure in which such capitalintensive services take precedence in the defence budget. Both the USN and USAF will face increasing financial difficulty in the pursuit of their respective fleet-replacement plans, just as air and naval power becomes especially relevant in buttressing the American position in the Asia-Pacific. After all, in this quintessentially maritime theatre of operations, "US involvement in large-scale land warfare anywhere in East Asia other than Korea is especially improbable." Instead, the central challenge is posed by China's growing capacity to contest (if not command) the maritime and aerospace domains of the Western Pacific—from the "first island chain" that stretches from Japan's Ryukyu Islands to Taiwan and the Philippines, which encompasses the Yellow, East, and South China Seas, and potentially into the "second island chain" that goes from Japan's eastern coast to Guam, Palau and then surrounding the Philippines Sea (see Figure 1). To maintain its "command of the commons," the United States needs to focus on its air and naval assets rather than ground forces—with the important exception being the continued presence of forward-deployed US Marines, which in any event would rely heavily on maritime sealift to reinforce America's military presence on the Korean Peninsula.⁶⁹



Figure 1: The First and Second Island Chain

Source: United States, Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China*, 2011 (Office of the Secretary of Defense, May 2011), 23.

The USN has perhaps the highest chance of emerging with its force structure and core capabilities relatively intact, even with recent cuts to DOD's base budget totaling roughly \$487 billion from FY2012 to FY2021.⁷⁰ As noted in its 30-year ship-building plan for 2013, the navy expects to deploy a fleet of roughly 300 vessels through to 2042, even if this number is expected to only be reached by 2017-2018 and will fluctuate thereafter, depending on the number of ships procured versus those decommissioned in a particular year.⁷¹ To be sure, this number is still smaller than the navy's preferred force structure, from the 313 ships in its 2005 Force Structure Assessment to the 328 ships in last year's ship-building plan.⁷² It is also smaller than the 346-ship fleet recommended by the Quadrennial Defense Review Independent Panel in 2010, which some analysts see as being necessary for the United States to retain sea control over the Western Pacific.⁷³ Indeed, even the current plan seems to implicitly have the goal of 310-316 vessels, though with expectations of a 300-ship fleet inventory—a discrepancy Ronald O'Rourke suggests may be due to a forthcoming Force Structure Assessment.⁷⁴ But this inventory would still be an increase from the current fleet size, which sits at 282 ships as of March 2012. Importantly, it keeps eleven aircraft carriers in operation until 2040. Compared to the previous year's report, it also buttresses the number of guided-missile destroyer and SSNs-with relatively stable large surface combatant totals over the next three decades, peaking at 90 ships in 2027, and attack submarine inventories shrinking only modestly from today's 55 to a low of 43 at the end of the 2020s before rising once again.⁷⁵

Meanwhile, the USAF appears to have acquiesced to modest force reductions, including the retiring of nearly 300 aircraft and the elimination of several squadrons over the next five years alone. They will emerge as a "smaller but superb force," one that relies on "multi-role platforms over those with more narrowly focused capabilities." Despite cost overruns and near-term production delays, the F-35 Lightning II will continue to serve as its principal aircraft acquisition, not least due to the fact that alternative variants are earmarked for the USN and US Marines. As such, there is little in the way of an alternative, even if total procurement numbers may drop from the USAF's projected 1,800. Importantly, the USAF also appears intent on protecting another key project—a nuclear-capable, optionally-manned, long-range strike bomber, which at an expected per unit cost of \$550 million is meant to be affordable and procured in significant numbers. In the words of David Deptula, this bomber will be "the most advanced UAV in history, carrying with it profound implications for U.S. power-projection capabilities." It also corresponds to the USAF's long-term interest in deploying a

family of advanced unmanned systems, which have important advantages in terms of capability and cost—thereby representing a potential panacea in these times of fiscal austerity.⁷⁹

In contrast, both the US Army and Marines, which enjoyed an infusion of resources stemming from the Iraq and Afghan Wars, have only limited utility under a grand strategy focused on the maritime environment from the Persian Gulf to the Western Pacific. The United States simply has little interest in repeating the large, costly ground wars of the first decade after 9/11. Then Secretary of Defense Robert Gates was even blunter: "any future defense secretary who advises the president to again send a big American land army into Asia or into the Middle East or Africa should 'have his head examined.""80 As a result, US ground forces will shrink by a total 92,000 troops over the next five years; essentially a reversal of the troop increases of recent years. The Army will be reduced from 562,000 to 490,000, while the Marines will shrink from roughly 202,000 to 182,000 troops.81 However, the US Marine Corps also has an important maritime element—as a "middleweight" expeditionary force, it should be capable of "coming from the sea with integrated aviation and logistics capability."82 Indeed, Secretary of the Navy Ray Mabus has reiterated that the Corps will finally be returning to their traditional amphibious roots, which will help ensure their continued relevance in the Asia-Pacific region.⁸³ It also provides an additional rationale for the service to retain key capabilities and platforms in the face of possible future defence cuts.

Of course, this does not mean that the USN and USAF are necessarily immune to further reductions. Both services had to settle for procurement caps for the F-22 Raptor and the Zumwalt-class destroyer, respectively. Further spending limits could further delay full-rate production of the F-35 fighter beyond 2017, and perhaps result in a more limited production run, while expectations for a new low-cost bomber could prove overly optimistic.84 Even the existing naval ship-building plan could face significant challenges-if ships are unable to be fully operational for their entire service life or if certain vessels prove to be unexpectedly costly. As one critic explains, the military could find itself locked into the reduced funding of the near-term period into the 2020-30s, when a growing number of large ships will need to be retired. 85 Indeed, under a "focused economy of force" scenario, a recent report envisions a series of even deeper cuts if sequestration comes into effect, including the restructuring of the F-35 program, which would shrink the total number of aircraft procured and eliminate the Marine Corps's short takeoff, vertical landing (STOVL) B variant; a further reduction in destroyers,

amphibious ships, and other major surface combatants, which would prove difficult to offset in later years; the wholesale elimination of littoral warships; and further reductions of Army and Marine Corps personnel to 430,000 and 150,000, respectively. 86

Yet this does not mean that Obama has underfunded the proposed pivot towards the Asia-Pacific, or that it will prove short-lived in the face of continued deficit reductions. As noted earlier, the pivot should be seen as an initial shift in America's "overall strategic capabilities and commitments" — a first-order strategic adjustment in which strategic primacy is balanced by effort to achieve greater selectivity in both means and ends. Even with additional budgetary pressure, the United States could still choose to prioritize capital-intensive over the manpower-intensive services, in the hope that shortfalls in the latter could be more easily reversed if circumstances so warranted. After all, if "built-in expansibility" is retained, US Army and Marine Corps manpower levels can be regenerated relatively quickly, at least compared to the USN/USAF's decades-long procurement process to rebuild their respective fleets. ⁸⁸

In addition, Washington could choose to make do with a reduced fleet of warships and aircraft by repositioning naval and air assets away from less strategically salient locales. This possibility was recently highlighted by US Secretary of Defense Leon Panetta, who says that American naval assets will achieve a "60/40 split" between the Pacific and Atlantic by 2020, in which "six aircraft carriers...a majority of our cruisers, destroyers, Littoral Combat Ships, and submarines" will be in the Pacific. ⁸⁹ With today's 50/50 split between both oceans, this change will likely taking place as a result of targeted attrition, "with the weight falling in the Atlantic region." This might not entail an expansion of the US Pacific Fleet, especially if USN ship numbers slightly declines in the years ahead. But it does mean much of the core strength of the US Pacific Fleet, particularly the forward deployed US 7th Fleet, could be safely retained.

In fact, such repositioning is also implied by Obama's gradual relaxation on the need to simultaneously prevail in two major regional wars. Emerging from the 1993 Bottom-Up Review, this "two-war" requirement represented a durable (if under-funded) force-sizing standard over successive defence reviews—including even Obama's 2010 QDR. 91 It was only officially retracted in the 2012 strategic guidance, which describes a capacity to undertake a "large-scale operation" in one theatre, while being able to deny the objectives on an adversary in another, in what amounts to a one/one-half war requirement. 92 The large-scale operation is likely in reference to contingencies in the

Western Pacific, whether a maritime operation in the Taiwan Straits or South China Sea or a combined-arms operation in Korea. Denial requirements are in turn likely aimed at the Middle East, where the threat is no longer conventional "territorial invasion" by Saddam Hussein's Iraq but rather the threat of "irregular warfare and terrorism" from Iran.⁹³

This one/one-half war requirement was reiterated in the USN's 30-year force-sizing plans, which requires the capacity for "a large-scale naval campaign in one region while denying the objectives of—or imposing unacceptable costs on—an opportunistic aggressor in a second region." By focusing on these two regions, the USN also begins to resemble what a Centre for Naval Analyses report described as a two-hub navy, in which high-end combat forces in these two theatres embodied by the US 7th and 5th Fleets "would be supported over independent operations...elsewhere" and "surge capacity" in the continental United States would be reduced. However, if continued fiscal austerity limits its envisioned force structure, the USN's plans to undertake large-scale operations in only one theatre would presage an even more unbalanced fleet posture—what could eventually become a one-hub navy.

Yet, even as it persistently pushed for more resources, the USN has also recognized possible limits to its global capacity relatively early on.96 In the mid-2000s, for example, it proposed the creation of the "1000-ship navy," later renamed the Global Maritime Partnership (GMP), which would involve a "fleet-in-being" of allied navies, coast guards, commercial shippers, and other departments and agencies to help safeguard the maritime commons. As Chief of Naval Operations Admiral Mike Mullen acknowledges, the USN cannot "by itself, preserve the freedom and security of the entire maritime domain."97 While helping to maintain "sea-based globalization" and "good order at sea," 98 GMP is also driven by US interest in securing the maritime approaches to North America, all the while doing so far from its shores as preferred by the USN.99 According to the 2005 National Strategy for Maritime Security, by achieving global maritime domain awareness, the United States would be better able to identify "threats as early and as distant from our shores as possible" and therefore ensure the "layered security" of the American homeland. 100 Yet, as Chris Rahman also concludes, the GMP is "symptomatic of America's declining ability to protect the international system it notionally leads."101

The 2007 tri-service Maritime Strategy, Cooperative Strategy for 21st Century Seapower, reinforced the importance of GMP and the maritime commons. Some criticized the new strategy for its strong "postmodern

elements" and failure to mention required force structures or possible adversaries.¹⁰² Nevertheless, it explicitly stated the need for "a powerful fleet" capable of "selectively controlling the seas, projecting power ashore, and protecting friendly forces and civilian populations from attack," which would be "continuously postured in the Western Pacific and the Arabian-Gulf/Indian Ocean." Indeed, pursuant to this strategy, the administration seems to envision safeguarding the navy's capacity to be positioned in these strategically salient theatres. The GMP can also be used to supplement such selectivity, in which "episodic US naval deployments" elsewhere can be used as "catalysts for allies and partners to provide day-to-day maritime security and building partner maritime capacity."104 In Naval Operations Concept 2010, the USN also goes into greater detail on possible challenges to its capacity for sea control and power projection, with an emphasis on asymmetrical strategies designed challenge American access to the maritime domain. 105 The latter refers to the anti-access and area-denial (A2/AD) threat, which can include either anti-access missile attacks on forward land bases to deny the US military's access to a particular theatre or area-denial measures to contest and prevent America's "freedom of action" in a delimited area.¹⁰⁶

US defence planners have also not been idle at the prospect of operating in such an access-constrained environment. In 2009, the heads of the USN and USAF General Norton Schwartz and Admiral Gary Roughead signed a classified memorandum to develop the "Air-Sea Battle Concept"—an operational concept that focuses on "networked, integrated, attack-in-depth to disrupt, destroy and defeat" A2/AD networks. Given the effort by USN's China Integration Team to apply air-sea battle lessons to a conflict with China, much of its urgency seems to stem from developments in the Western Pacific. Some of Obama's officials have even obliquely alluded to the China-centric nature of this concept, noting that "Air Sea Battle is to China what the [USN's] maritime strategy [of the 1980s] was to the Soviet Union." Even the name harkens back to the Air-Land Battle Concept developed by the US Army and USAF in response to the Soviet's conventional challenge in the late Cold War. 110

Air-Sea Battle is meant to guide the USN, USAF, and Marine Corps in their effort "to organize, train and equip the current and future force," by achieving "highly integrated and tightly coordinated operations across warfighting domains" and providing the "combatant commanders the capabilities needed to gain and maintain access as part of their plans." Crucial to the concept is the notion of "Networked, Integrated Attack-in-Depth"—an

offensive approach that recommends attacking an adversary's systems "wherever needed" and offensive operations to "deceive or deny adversary battle networks" and "neutralize...weapon delivery platforms." As such, Air-Sea Battle concept envisions deep strikes into an adversary's territory to destroy both cruise and ballistic missile launchers and enabling systems, such as radars, command and control nodes, and other "soft targets."

Given its classified nature, it is difficult to judge whether Air-Sea Battle model can be considered a success. It is at least telling that the USAF recently initiated a supporting study on "Effective Warfighting in Contested Environments," which looks at near-term, cost-effective ways—material, tactics, and training—for the Air Force to operate in a more contested airspace. Capabilities being explored include airborne directed-energy weapons, cyberwarfare attacks to cripple an adversary's air defence network, and upgraded unmanned vehicles capable of surviving high-threat environments.¹¹³ Also, the Air-Sea Battle Office was stood up in November 2011 with representatives of all four services, even as USN and USAF teams worked with their Army and Marine colleagues to implement 200 initiatives designed to achieve the pre-integration envisioned by this concept.¹¹⁴ This cross-service concern over A2/AD threats is evident in DoD's Joint Operational Access Concept (JOAC), a draft of which was released in January 2012. JOAC makes clear that "cross-domain synergy" across the services is required to ensure operational access in a contested environment, with Air-Sea Battle reflecting a supporting concept within the broader JOAC rubric. 115 Importantly, JOAC contains much of the same flavor of the offensively-oriented Air-Sea Battle, in so far as it recommends joint forces to "penetrate into the depth of an enemy's antiaccess-area-denial defenses."116

Anti-Access, Area-Denial, and China's Naval Challenge

The A2/AD challenge, first formulated by Andrew Krepinevich for the Office of Net Assessment in 1992, has been incorporated in a succession of US strategic policy statements beginning in 1997. This trend has persisted to the present, with both Obama's 2010 QDR and the 2012 strategic guidance pointing to the need for power projection into access-constrained environments. The administration has also openly reaffirmed what was once only implicit—that the central states of concern were Iran and China. Iran remains primarily a short- and medium-term consideration, largely owing to the possibility of US-led military action to forestall its nuclear weapons ambitions. Iran contrast, China represents an advanced, full-spectrum A2/AD challenge to American sea control over a wide swath of the Western Pacific—one that the

US military likely sees as the most formidable challenge to its strategic primacy and maritime superiority since the fall of the Soviet Union.

The People's Liberation Army (PLA) generally avoids using A2/AD when discussing what Mao Zedong called "active defense," whereby offensive tactics and operations take place under an overall defensive strategy. But according to Cortez Cooper, elements of "counter-intervention" can be gleaned from PLA's most authoritative text, *The Science of Military Strategy*, which emphasizes the importance of attacking an enemy's "center of gravity." It can also be found in joint campaign doctrines, such as the Joint Anti-Air Raid Campaign and Joint Firepower Campaign, both of which describe attacking an adversary's forward deployed airbases and aircraft carriers. ¹²¹ The most comprehensive statement of what amounts to A2/AD is perhaps offered in what the PLA calls "active strategic counterattacks on exterior lines," which envisions long-range strikes against an adversary's weak points going as far as the "waters between the first and second island chains." ¹²²

Pursuant to that fact, the PLA's Navy (PLAN) has been moving away from its "near-coast defense" strategy since the 1980s, when civilian and military leaders—particularly Deng Xiaoping and Admiral Liu Huaqing—began propagating "offshore defense" or "near-seas active defense" to help justify maritime operations within and slightly beyond the first island chain. More recent concepts have even focused on operations into the mid seas and beyond. The PLA's Air Force (PLAAF) has also proven eager to depart from its traditional task of defending national territory, as shown by its emphasis on prompt "combat in depth" and "offensive action as a component of air defense" in the 1990s. While doctrinal development has been hampered by its traditionally close ties to the Army, the PLAAF is now seen as a "strategic service," with the responsibility for "offensive counter-air operations" capable of suppressing "adversary strikes capabilities at their source." 125

For its anti-access mission, the PLA has created an impressive "strike-reconnaissance complex," composed largely of conventionally-armed ballistic and cruise missiles, much of which remains in the hands of the PLA's Second Artillery Corps. 126 With this arsenal, Beijing can potentially prevent the United States from operating out of forward bases from Okinawa to Guam and curtail its access to the Taiwan Straits, whether by coercive demonstration shots near the adjacent waters of naval bases like at Yokosuka, more direct attacks at home-ported carriers, runways, or unsheltered aircraft at air bases in Kadena or Guam, or by hitting logistical or command and control nodes to inflict operational paralysis. 127 Beijing's capacity for counter-intervention is underpinned by what the 2010 DoD report to Congress calls "the most active"

land-based ballistic and cruise missile program in the world."¹²⁸ Others point out that China is not only "developing and testing several types of cruise and ballistic missiles, but also forming new missile units, converting some previously established units to new types of missiles, and training officers... so that they will be ready to operate the new missiles."¹²⁹

Much attention has rightly focused on Beijing's arsenal of between 1000-1200 mobile DF-11 and DF-15 short-range ballistic missiles (SRBMs) opposite Taiwan, in what Mark Stokes and Ian Easton call the "largest and most lethal SRBM force in the world." These SRBMs have ranges between 300 to 600 kilometers, though the PLA is reportedly developing a longer-range version (the DF-16) that can hit targets further afield. In addition, China's new solid-fueled, road-mobile DF-21 medium-range ballistic missiles (MRBM), which can be conventionally-armed and has a range of over 1,750 kilometers, are capable of targeting Japan in its entirety. The PLA already deploys an estimated 75-100 DF-21 MRBMs, with future variants potentially being able to reach as far as Guam. In any event, China already has the capability to target Anderson Air Force Base on the island with its existing arsenal of 15-20 DF-3 and DF-4 intermediate-range ballistic missile (IRBMs), which has ranges of 3,000 and 5,500 kilometers, respectively.

Of course, China's IRBMs traditionally carry a nuclear payload, which would induce some unwanted escalatory pressure if they were ever conventionally armed. Moreover, these legacy systems are due to retire without a comparable IRBM replacement. Yet Beijing has moved to strengthen its arsenal of land-attack cruise missiles (LACMs). For instance, DoD estimates a Chinese arsenal of 200-500 DH-10 second-generation LACMs with a range of between 1,500-2000 kilometers. These LACMs have the accuracy to strike aircraft shelters and command-and-control facilities, and can hold at risk targets as far away as Japan and the Philippines (if not for the moment Guam). 134 Perhaps as a substitute for its legacy IRBMs, China also unveiled the new long-range H-6K bomber that can be armed with six air-launched cruise missile (ALCMs). At present, DoD predicts the bomber will be armed with a new (albeit unspecified) long-range ALCM. 135 This could be a newer version of the DH-10 LACM, which will reportedly have both anti-ship and air-launched versions soon available—the ALCM version in particular is expected to be armed with "conventional high explosives" for stand-off strikes against "U.S. bases on Guam."136

China also acquired the capacity to contest US freedom of action in this maritime domain, which is especially strong along its littoral region and within the "near seas." But, when it comes to AD operations, it is the PLAN-supported by the air-to-air and air-to-ship capabilities of the PLAAF and PLAN Air Force (PLANAF)—that takes centre stage. China's navy has benefited from two decades of annual, double-digit increases in defence spending, now estimated at \$120-180 billion.¹³⁷ However, rather than competing directly with the American fleet, the PLAN has instead opted to use its more robust fleet presence and capacity for limited offensive action to possibly contest America's command of the maritime domain. One analyst calls this approach a "fleet-in-being" strategy, while Chinese strategists refer to the "assassin's mace," in which asymmetrical capabilities are "used with surprise to attack a vital weakness of the enemy that helps precipitate his rapid defeat."138 As PLAN Rear Admiral Huang Jiang states, AD operations might not result in command of the seas but it will ensure command remains in a "contested state, belonging to neither side." Even then, some of the improvements in China's surface fleet point to the possibility that A2/AD systems might be "the precursor to a more capable, lasting Chinese presence in Asian waters."139

China has arguably placed the greatest emphasis on its fleet of submarines. In recent years, the PLAN commissioned a growing number of advanced diesel-electric submarines (SSKs), with high points being 2004-2006 with the addition of 17 vessels and 2011-2012 when 9 SSKs were added. These new models also demonstrate significant qualitative improvements over aging Ming- and Romeo-class subs. For example, the 12 Kilo-class SSKs acquired from Russia are reportedly as quiet as improved versions of the Los Angeles-class SSNs and come armed with wire-guided, wake-homing torpedoes, and potentially supercavitating ones as well. Moreover, eight of these subs belong to the especially formidable Project 636M variant, which operates the sophisticated Klub weapon-control system for the SS-N-27B Sizzler anti-ship cruise missile (ASCM). A supersonic, sea-skimming, 200 kilometer-range ASCM, the Sizzler could potentially "defeat the U.S. Aegis air and missile defense system that is central to the defense of [US] carrier strike groups." 142

The PLAN also ramped up its indigenous production of diesel-electric SSKs, with 13 Song-class SSKs roughly comparable to a mid-1980s Western diesel submarine, at least eight upgraded Yuan-class SSK described as either "a Kilo with Chinese characteristics" or a "Song with Russian characteristics," and a new Qing-class SSK that is one-third larger than the Yuan, though whether the Qing "is the lead ship of a new class, or a one-of-a-kind submarine built for testing purposes" is unknown. Moreover, DoD suspects the Yuan benefits from air-independent power [AIP] systems, which

can enhance the diesel submarine's operational range and survivability against ${\rm ASW.^{145}}$

To achieve a more balanced undersea fleet, the PLAN has also made significant progress on second-generation nuclear-powered SSNs—two Shang-class SSNs have been launched, and there are reports of an unnamed third-generation SSNs being constructed, with up to five to be added in coming years. Like the Song and Yuan, these SSNs will likely be armed with the subsonic YJ-62 ASCM with a 300-kilometer range, though DoD also expects all submarines will eventually be armed with a new longer-range ASCM. China has also moved to reinvigorate its sea-based deterrent with the launch of the Jin-class SSBN, Many expect a defensive bastion approach in its deployment pattern, likely to be formed in waters where "the PLA would undertake anti-access tactics and operations." With its new naval base on Hainan Island, the South China Sea is a strong contender as a possible location for a SSBN bastion, which provides an additional context for Beijing recent turn to a more aggressive approach in dealing with its expansive sovereignty claims there. Island.

These advanced submarines have a capacity to attack and potentially disable either US aircraft carriers or the Aegis ships around them, using either wake-homing torpedoes or subsonic/supersonic ASCMs. 149 Indeed, all of China's submarines, including the Romeos and Mings, can also be armed with a variety of sea mines for blockades and offensive mining operations. 150 Yet, due to their short-range ASCMs, even the SSNs and newer SSKs would be vulnerable to American hunter-killer SSNs and other ASW assets. For this reason, many suspect the development of a land-based anti-ship ballistic missile (ASBM) with a range of up to 1,500, a fact finally confirmed by Chinese authorities in 2011.¹⁵¹ Modeled after the DF-21 MRBM, the ASBM will be armed with a maneuvering reentry vehicle (MARV) that uses an infrared, radar or laser terminal guidance system and reenters at hypersonic speed, thereby making it difficult for the US Aegis ballistic missile defences (BMDs) to intercept.¹⁵² China is also studying the potential for a boost-glide (rather than ballistic) trajectory to help ensure BMD penetration, with the ancillary benefit of extending the range of the ASBM by up to one-third. 153 While perhaps inspired by America's MARVed Pershing II missiles of the 1980s, the ASBM's capacity to disable or destroy American vessels within China's near seas and perhaps well into the second island chain would offer a capability no other country currently possesses. 154

Undoubtedly, China is foremost concerned with achieving AD within its near seas. At the very least, this would help protect its potential SSBN bas-

tions, which due to the littoral's shallow waters would make detection more difficult. ¹⁵⁵ But the PLA also has strong interest in maximizing the geographic reach of its AD capabilities. Indeed, given the range of the ASBM, it appears likely that China has an "energetic strategy of engaging and defeating the adversary directly within the theatre" ¹⁵⁶—a more expansive AD envelope that provides a useful defence-in-depth complement to A2 operations meant to prevent the US military's access to the theatre in the first place. Such an ambitious AD approach can also be inferred from both the PLAN's possible incorporation of AIP technology in its Yuans and decision to build a fleet of SSNs, which have a much greater operational range than diesel-electric submarines.

Some observers also point to the PLAN's more conventional efforts to build a blue-water fleet, ostensibly meant to protect the "trade- and energy-choked SLOCs [sea lines of communications] of the Indian Ocean." ¹⁵⁷ Indeed, China recently unveiled its first aircraft carrier in 2011—a 60,000-tonne, Soviet-era Kuznetsov-class carrier renamed *Liaoning*, capable of holding an air wing of 30 or more aircraft and significantly upgraded with new weapon systems, including the Dragon Eye phased-array radar and a new point-defence system. As noted in a recent study, the *Liaoning* is "more than a training ship and rather a modestly capable warship," and will likely be joined by additional indigenously-built carriers of similar displacement and type (short takeoff but arrested recovery) in the near future. ¹⁵⁸

The *Liaoning* also benefits from a growing fleet of major surface combatants, including four Sovremenny-class destroyers acquired from Russia and armed with the highly effective supersonic SS-N-22 Sunburn ASCM; two Luhu-class and one Luhai-class missile destroyers, discontinued in the 1990s; four guided missile destroyers (two Louzhou and two Luyang I) commissioned in the mid-2000s; and most recently, as many as eight advanced Luyang II-class guided missile destroyers, with additional hulls being constructed or launched.¹⁵⁹ As noted by O'Rourke, by sequentially launching different classes of destroyers, China appears to be incrementally testing destroyer technology before settling on serial production.¹⁶⁰ This appears to have commenced with the accelerated production of the Luyang II destroyer. But recent reports indicate the simultaneous construction of several even more advanced destroyers, the Luyang III, which reveals a newfound confidence in China's modular shipbuilding techniques and would result in an impressive expansion of the PLAN surface fleet.¹⁶¹

The PLAN has also opted to undertake sequential launching of different frigate types over the years, with four classes being commissioned in the last

two decades alone, including fourteen Jiangwei I and Jiangwei II frigates, discontinued in the early 2000s; the short-lived Jiangkai I-class, of which only two frigates were launched; and upwards of 16-19 Jiangkai II guided-missile frigates many suspect have (and perhaps still is) undergoing serial production. To complement these vessels, China has reportedly also launched a new type of unnamed corvette or light frigate in 2012, with construction now taking place across different shipyards in China. 162

Many of these new surface combatants incorporate "advanced design concepts such as stealthy superstructures, vertical-launch air-defense systems...long-range ASCMs, and phased array radars." Compared to the PLAN's earlier ships, the PLAN's new major surface combatants are larger and have better endurance for sustained operations at sea. Indeed, the Luyang II benefits from an Aegis-type missile guidance system, complete with a multi-dimensional phased-array radar and eight six-cell vertical launch systems (VLS) able to hold 48 surface-to-air missiles (SAMs) with a range of 90 kilometers. Both the Louzhou and Jiangkei are similarly well-equipped, the former capable of holding 48 VLS-based SAMs with ranges of 120 kilometers and the latter 32 VLS-based SAMs with an 80 kilometer range. If recent reports prove correct, the 6,000-tonne Luyang III will be the PLAN's most advanced warship, with larger phased array radar and a modified VLS-system capable of holding 64 missiles.

The PLAN's new major surface combatants should not be seen as a departure from its A2/AD strategy. After all, by providing a formidable area-air defence (AAD) capability, these vessels offer an important element of fleet protection for surface combatants operating far from shore—and given the utility of air-based platforms for ASW, its submarine force as well. 166 Yet these surface ships are not limited to enabling A2/AD, but also come with advanced ASCMs that complement the PLAN's ASCM-armed SSNs and SSKs. For example, the Luyang II is armed with a subsonic ASCM that enjoys a greater range than the Sovremenny's Sunburn missile (280 versus 230 kilometers). 167 Indeed, Vitaliy Pradun has noted the extent to which advanced ASCMs have pervaded both the PLAN and PLANAF/PLAAF, including in "four out of its five destroyer classes, two out of three frigate classes, five out of seven attack submarine classes, and just about every aircraft in its inventory."168 It is also clearly evident with China's rapid production of a fleet of at least 60 Hubei-class fast attack catamarans, which can be armed with up to eight YJ-83 ASCMs to provide a relatively cheap AD capability for its littoral region.¹⁶⁹

The PLAN must contend with America's robust ASW and air superiority capabilities, with the latter not only enabling anti-submarine operations but

also posing a significant threat to the PLAN's surface fleet. Yet this advantage is clearly dampened in China's immediate littoral region, where the PLAN can count on multiple long-range "double digit" SAMs that can hold at risk USAF fighter aircraft and airborne intelligence, surveillance, and reconnaissance (ISR) platforms.¹⁷⁰ Meanwhile, ground-based interceptors can contest US command of the local airspace. Both the PLAAF and the PLAN have a growing fleet of fourth-generation multi-role fighter aircraft armed with air-launched ASCMs and air-to-air missiles. Many estimate that the total number of such "modern" fighters is now roughly 500, which represents an almost ten-fold increase from the 50 fourth-generation fighters that existed in 2000.¹⁷¹ As Richard Fisher concludes, "it is possible to consider that the PLA will have close to 1,000 4th, 4+ and 5th generation combat aircraft" by 2020.¹⁷² China is also expanding its number of enabling airborne ISR (intelligence, surveillance, and reconnaissance) platforms, including the development of the indigenous KJ-2000 AWACS (airborne warning and control system) aircraft—though the slow development of aerial refueling capabilities will limit the exercise of airpower to its immediate environs, and even here questions remain as to whether China can coordinate these aircraft and shore-based SAMS when both operate in the same airspace.¹⁷³

China likely envisions saturation attacks with air- and sea-launched ASCMs (and the land-based ASBM, once it is fully operational), which could potentially overwhelm the Aegis defences of a carrier battle group. The PLAN also benefits from a number of shore-based assets, from mobile ballistic missiles and ground-launched cruise missiles capable of targeting US fixed land bases (and potentially anti-ship attacks with the ASBM) to a fleet of fighters that could target land- and sea-based assets and provide a protective air defence cover for its naval assets. As such, it now resembles a "fortress-fleet...tethered to shore fire support," which would allow the PLAN "to range freely within the waters Beijing deems important without leaving the protective cover of shore defenses."174 The PLAN therefore seems wellplaced to fulfill its objectives for "near-seas active defense" over both Taiwan and the South China Sea. The last point should not be dismissed. China has reinforced its naval presence on a new base on nearby Hainan Island, which can accommodate submarines, surface combatants, and likely the Liaoning aircraft carrier. With such a presence, the PLAN will have a much greater ability to conduct defensive and offensive operations against other regional claimants.175

Yet Beijing is also interested in expanding its power projection and fire support capabilities into the mid seas, as shown by its medium-range

ASBM, rapid development of advanced destroyers and frigates with AAD capabilities, and effort to master aerial refueling, which would extend the range of its shore-based fighters to provide both air cover for the PLAN and escort for its long-range ALCM-armed bombers.¹⁷⁶ Once carrier aviation is mastered, the Liaoning carrier could even provide localized "air and ASW protection" for its surface and undersea fleet—a capability that will expand when additional carriers are launched. 177 Indeed, aircraft carriers could form the backbone for what Chinese naval strategists envision as "small battle groups" of surface and undersea combatants, under the PLAN's emerging doctrine of "far-seas active defense." 178 Of course, much depends on the future development of Chinese aircraft carriers. Moreover, to be a fully blue-water fleet, the PLAN could benefit from additional logistical replenishment ships and larger surface combatants with greater endurance and range. Nevertheless, China is at least preparing some of the ground work for an eventual blue-water fleet, even as it cements its capability to operate along the first island chain

China also has the capacity to more indirectly challenge American conventional military supremacy by disrupting American networks with antisatellite (ASAT) weapons and cyber attacks. After all, America's "targeting and battle management networks" are highly dependent on space-based systems, with even the air-breathing UAVs requiring communication satellites to realize their full surveillance potential.¹⁷⁹ Such networks can therefore be disrupted by ASAT attacks that blind or kinetically destroy space-based assets. However, given China's own growing reliance on space-based assets for precision targeting, this would likely entail more selective attacks against individual satellites. Indeed, the PLA has already tested such selective ASAT capabilities, by illuminating" or "dazzling" a US satellite and destroying an inoperative Chinese weather satellite with a direct-ascent kinetic kill ASAT in 2007.¹⁸⁰ Alternatively, US networks can also be disabled by cyber warfare operations ranging from electronic jamming to full-scale "counter-network attack," with many suspecting China has made significant investments to buttress its cyberwarfare capabilities. 181

Conclusion

With the pivot to the Pacific, the Obama administration has taken an important step towards a grand strategy of selective primacy—a strategic choice driven by current (and likely future) budgetary cuts and underpinned by a force structure that privileges naval and air forces and a smaller, amphibious Marine Corps. As it is currently conceived, selective primacy also entails

a strong emphasis on the need to ensure America's continued operational access to the Western Pacific theatre. Barring a quick solution to America's long-term fiscal problems, this trend will likely continue for the duration of Obama's presidency and even beyond.

It is important not to overstate China's A2/AD threat or to underestimate America's formidable military capabilities that would be brought to bear if its ships or bases were attacked. China's counter-intervention capabilities would be primarily useful in denying American access and operational freedom in this theatre rather than giving Beijing command of it. But, in so doing, the PLA's expansive A2/AD capabilities could still offer some important advantages in the conduct of military operations along the Chinese coast and within the first island chain, therefore fulfilling Thomas Christensen's prescient adage that China can indeed "pose problems without catching up." It also provides the beginnings of a blue-water presence within the second island chain, evident in its more balanced naval fleet structure and growing number of major surface combatants. While designed to reinforce and enable A2/AD operations in this region, it could also indicate the start of a more ambitious effort eventually achieve a degree of sea control in the mid seas.

Yet, as shown by the Air-Sea Battle model and cross-service JOAC, the USN and USAF are equally committed to countering China's A2/AD challenge. This will have particular implications on whether China might choose to back diplomatic assertiveness with military force in the Taiwan Straits and South China Seas, and the degree to which the United States would be willing to involve itself in such disputes, which explains why one observer envisions the near seas and adjacent areas as "an important zone of strategic competition." 184 At the very least, given China's expansive claims of sovereignty rights along the littoral, Washington reliance on offshore reconnaissance for intelligence on China's military will likely lead to episodes similar to the EP-3 (2001) and USNS Impeccable (2009) incidents. 185 Even more uncertain is whether such Sino-American competition will be extended further afield to the more distant SLOCs that traverse the Malacca Straits to the Indian Ocean and beyond-though China's increasingly competitive dynamic with the United States, when combined with similar dynamics with India and Japan, does not make one optimistic in the long-term.

The potential benefits that could be accrued from the Air-Sea Battle concept should not be casually dismissed. To overcome China's full-spectrum A2/AD network, both the USAF and USN will likely have to renew their operational partnership and develop capabilities in which synergy is

cultivated and redundancies minimized, lest they find their tactics and capabilities a "wasting asset." For example, to protect USAF assets located on increasingly vulnerable fixed land bases, the Navy's Aegis BMD ships could provide an important active defence capability against Chinese ballistic missiles. Alternatively, to mitigate the threat posed by ASBMs and sea-launched ASCMs to naval assets, the Air Force could initiate "attack-in-depth" operations—whether using ASAT weapons, electronic countermeasures, or stand-off missile strikes—to disable or destroy China's ground- and space-based cueing/targeting assets and missile launchers. 187

Of course, much depends on the capacity of the USN and USAF to fulfill their respective Air-Sea Battle roles and the degree to which future budget cuts might affect both services—and indeed whether repositioning towards the Pacific successfully offsets any platform shortfalls. The fact that the USN's most recent shipbuilding plan envisions little fundamental change to destroyer and submarine inventories is a promising sign. So too is President Obama's prioritization of sea-based BMD. Notably, the United States intends to incorporate updated Aegis systems on most of its destroyers and cruisers. The BMD-capable fleet armed with advanced Standard Missiles will increase from today's 24 vessels to 36 in 2018, and there is the possibility of its entire Aegis fleet becoming BMD-capable. 188 In addition, due to its phased/spiral development with incremental hardware and software upgrades, America's fleet of Aegis ships will have a steadily increasing capacity to defend against ASCMs and other air-breathing threats, irrespective of the speed of BMD conversions. 189 Many American allies also operate Aegis ships, which could be used to supplement US active defence capabilities in certain contingencies, especially if these ships have been upgraded for BMD. For that reason, some commentators have proposed a "high end" complement to the GMP in the form of an "Aegis BMD Global Enterprise." 190

As part of the pivot to the Pacific, Defense Secretary Panetta also pointed to new weapon systems like the new long-range bomber and an unspecified ASW aircraft, likely the P-8A Poseidon. Such platforms offer long-range strike and ASW capabilities to complement the active defences of the growing Aegis fleet. The USN also plans to add a prompt strike capability by modifying SSNs to carry conventionally-armed ballistic missiles. Phis development would prove especially useful for the Air-Sea Battle's concept of attack in depth. After all, China's double-digit SAMs pose a particular problem for USAF operations, in so far as the air-breathing weapons lack the speed to eliminate mobile SAM engagement radars and are reliant on airborne surveillance and intelligence platforms highly vulnerable to attack.

Contrary to the views of some, even unmanned air combat vehicles operating from US aircraft carriers might not so easily or successfully "strike back at the Chinese mainland." In contrast, submarines can operate relatively unfettered in this access-constrained maritime environment, not least due to China's still rudimentary ASW capabilities. If combined with small unmanned sensor platforms, submarine-launched tactical ballistic missiles would have the requisite speed to destroy mobile SAM engagement radars and capability to enable follow-on USAF defence suppression operations. Indeed, by destroying shore-based assets like over-the-horizon (OTH) radars, the United States could also disrupt the cueing for the PLAN submarine fleet.

Perhaps more problematic is the multi-service procurement of the F-35. Concerns have already been raised as to this aircraft's affordability, which could result in reduced procurement quantities and/or the cancellation of a certain aircraft model (e.g., the F-35B for the US Marine Corps). 196 Even more uncertain is its suitability for operations in more contested airspace. For example, the F-35 lacks the weapons load or multi-azimuth stealth features required to operate in an anti-access, high-threat environment like the Western Pacific, and with its limited range must operate from nearby bases and carriers or use aerial refueling assets, both of which are vulnerable to PLA attack.¹⁹⁷ Unfortunately, there is little in the way of an easy solution. One possibility is to resume production of the F-22 Raptors, the costs of which could be partially offset by lower quantities of F-35s and greater reliance on 4.5 generation aircraft for "low-end" challenges. After all, the F-22 might have similar range limitations, but it also feature better all-aspect stealth, more weapons, and greater speed and maneuverability, making it "a much better offensive or defensive counter-air platform than the F-35." 198

However, these measures might still be insufficient against China's A2/AD capabilities. China could conceivably launch cruise and ballistic missile saturation attacks to overwhelm US active defences, even if supplemented by those of its allies. This could prevent, or at the very least curtail, USAF and USN operations in the theatre of operations. The USAF may also be unable to achieve regional air superiority over a modernized PLAAF fleet, especially along China's littoral and potentially even within the first island chain. If the USN and USAF are capable of an "attack in depth" that cripples the PLA's A2/AD network, such an action could prove too provocative and escalatory to implement (or be seen as such by Chinese leaders). Simply put, an American strike at PLA's missile launchers, ISR assets, battle management systems could be construed as a strategic (albeit conventional) disarming first-strike

against its nuclear deterrent—a possibility only heightened by the clear "overlap in the types of systems that China deploys for conventional and nuclear deterrence." ¹⁹⁹ At the very least, an attack on the Chinese mainland would represent a geographic widening of the conflict, with all the risk and uncertainty that such horizontal escalation entails.

For these reasons, less provocative measures have been raised. For example, the United States could accept constraints on its operational access in the Western Pacific, and focus instead on achieving a blockade against China around the Malacca and Lombok straits. However, despite the potential effectiveness of leveraging China's so-called "Malacca Dilemma," the United States seems unlikely to simply acquiesce to an access-constrained environment in the Western Pacific. Others call for an intermediate "war at sea" strategy, which would entail sea denial operations within the first island chain using hunter-killer SSNs and a flotilla of small missile-carrying ships. He USN would still find it difficult to track and destroy PLAN submarines, especially since ASW air assets might not even be able to operate in the contested airspace over littoral. The proposed flotilla is also no panacea, not when the PLAN has already established a comparable force of ASCM-armed fast attack ships, and indeed an entire naval fleet heavily invested in such weaponry

The *Joint Operational Access Concept* offers perhaps the most cogent piece advice in directly challenging China's A2/AD capabilities. As it acknowledges, the US military will likely suffer "higher casualty levels than joint forces have suffered in decades" in a high-threat A2/AD environment, and will need to accept "higher levels of calculated risk." As such, even if Air-Sea Battle proves conceptually coherent and sufficiently funded, the United States will still likely need to develop greater resilience against A2/AD threats. Such resilience could be improved by passive defence measures—from the return of reinforced armored plating on the hulls of warships, which might be able to better withstand ASCM attacks, to the hardening of base infrastructure against missile strikes. Yet such technical measures, even if implemented, should not be seen as a panacea. To ensure selective primacy, the United States might simply have to be willing to bear the possible costs of operating in an A2/AD-constrained environment, in terms of both resources and potential casualties.

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- 108 Ronald O'Rourke, "China Naval Modernization: Implications for U.S. Navy Capabilities—Background and Issues for Congress," Congressional Research Service Report for Congress (10 December 2012): 97.
- 109 Bill Gertz, "Battle Concept Signals Cold War Posture on China," Washington Times, 9 November 2011. It is also notable that the previous highpoint of USAF-USN cooperation took place in response to the Soviet's growing naval power in the 1970s, when the Air Force helped augment the Navy's capacity for sea-mining and carrier-based air defences, as well as its anti-ship capabilities with the incorporation of the USN's Harpoon missile. See Norton Schwartz and Jonathan Greenert, "Air-Sea Battle, Promoting Stability In An Era of Uncertainty," The American Interest, 20 February 2012, http://www. the-american-interest.com/article. cfm?piece=1212
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- 118 2010 Quadrennial Defense Review, 2; and 2012 Strategic Defense Guidance, 4
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- 122 Anton Lee Wishak II, "An Anti-Access Approximation: The PLA's Active Strategic Counterattacks on Exterior Lines," China Security 19 (2011), 43.
- 123 Jun Zhan, "China Goes to the Blue Water: The Navy, Seapower Mentality and the South China Sea," Journal of Strategic Studies 17, 3 (1994): 180-208; Nan Li, "The Evolution of China's Naval Strategy and Capabilities: From 'Near Coast' and 'Near Seas' to 'Far Seas," Asian Security 5, 2 (2009): 144-169.
- 124 See Roger Cliff, John Fei, Jeff Hagen, Elizabeth Hague, Eric Heginbotham, John Stillion, Shaking the Heavens and Splitting the Earth: Chinese Air Force Employment Concepts in the 21st Century (Santa Monica, CA: RAND Corporation, 2011), Chp 3.
- 125 Mastro and Stokes, Airpower Trends in Northeast Asia: Implications for Japan and the U.S.-Japan Alliance, (Arlington, VA: Project 2049 Institute, 29 August 2009), 3-5
- 126 Ashley Tellis, "US-China Relations in a Realist World," in *Tangled Titans*:

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- 127 For these scenarios, see Toshi Yoshihara, "Chinese Missile Strategy and the US Naval Presence in Japan: The Operational View from Beijing," Naval War College Review 63, 3 (Summer 2010): 48-49; Marshall Hoyler, "China's 'AntiAccess' Ballistic Missiles and U.S. Active Defense," Naval War College Review 63, 4 (Autumn 2010): 86; and Daniel Kostecka, "China's Aerospace Power Trajectory in the Near Seas," Naval War College Review 65, 3 (Summer 2012): 110-111.
- 128 United States, Department of Defense, Annual Report to Congress: Military and Security Developments Involving the People's Republic of China, 2010 (Office of the Secretary of Defense, May 2010), 1 (hereafter 2010 Report to Congress).
- 129 Michael Chase, Andrew Erickson, and Christopher Yeaw, "Chinese Theater and Strategic Missile Force Modernization and its Implications for the United States," Journal of Strategic Studies 32, 1 (February 2009) 71-72.
- Mark Stokes and Ian Eaton, Evolving Aerospace Trends in the Asia-Pacific Region: Implications for the Taiwan Straits and Beyond (Arlington, VA: Project 2049 Institute, 27 May 2010), 10
- I31 Mark Stokes, "The Second Artillery Force and the Future of Long-Range Precision Strike," in Strategic Asia 2012-13: China's Military Challenge (Seattle and Washington DC: The National Bureau of Asian Research, 2012), 144. The DF-16 is expected to have sufficient range to act as bridge between existing SRBMs and longer medium-range ballistic missiles. It could also be what Roger Cliff and others have previously described as a new version of the DF-

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 (Annapolis, Maryland: Naval Institute
 Press, 2011), 296.
- 135 2012 Report to Congress, 24. Some observers had previously predicted the H-6K bomber to have an anti-ship cruise missile with ranges of between 100-200 kilometers, either a radar missile modeled after the SS-N-22 Sunburn or an anti-radiation missile designed to home in on a ship's radar signature. See Andrew F. Krepinevich, Why AirSea Battle? (Washington, DC: Center for Strategic and Budgetary Assessment, 2010), 21.
- 136 Ian Johnston, "The Assassin Under the Radar: China's DH-10 Cruise Missile Program," Futuregram 09-005, Project 2049 Institute (1 October 2009), 3-4.
 Also see Stokes, "The Second Artillery Force," 146; and Andrew Erickson and Jingdong Yuan, "Antiaccess and China's Air-Launched Cruise Missiles," in Chinese Aerospace Power: Evolving Maritime Roles, eds. Andrew Erickson and Lyle Goldstein (Annapolis, Maryland: Naval Institute Press, 2011), 283.

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- 137 2012 Report to Congress, 6; "The Dragon's New Teeth: A rare look inside the world's biggest expansion," The Economist, 7 April 2012.
- 138 Miere, "America's Pivot to East Asia," 83-84; and Richard Fisher Jr., China's Military Modernization: Building for Regional and Global Reach (Westport, CT: Praeger Security International, 2008), 81.
- 139 Toshi Yoshihara and James Holmes, Red Star over the Pacific: China's Rise and the Challenge to U.S. Maritime Strategy (Annapolis, MD: Naval Institute Press, 2010), 34, 7.
- 140 O'Rourke, "China Naval Modernization," 16. The author lists 18 vessels from 2004-2006, but this also includes the commissioning of a single Shangclass SSN.
 - Lyle Goldstein and William Murray, "Undersea Dragons: Chain's Maturing Submarine Force," International Security 28, 4 (Spring 2004): 166-167; William Murray, "An Overview of the PLAN Submarine Force," in China's future Nuclear Submarine Force, eds. Andrew Erickson, Lyle Goldstein, William Murray, and Andrew Wilson (Annapolis, MD: China Maritime Studies Institute and Naval Institute Press, 2009), 61; Richard Fisher, "The Impact of Foreign Technology on China's Submarine Force and Operations," in China's Future Nuclear Submarine Force, eds. Andrew Erickson, Lyle Goldstein, William Murray, and Andrew Wilson (Annapolis, MD: China Maritime Studies Institute and Naval Institute Press, 2009), 144.
- 142 Eric McVadon, "China's Maturing Navy," in China's Future Nuclear Submarine Force, eds. Andrew Erickson, Lyle Goldstein, William Murray, and Andrew Wilson (Annapolis, MD:

- China Maritime Studies Institute and Naval Institute Press, 2009), 9. The range for this ASCM is provided in Murray, "An Overview of the PLAN Submarine Force," 61.
- 143 Murray, "An Overview of the PLAN Submarine Force," 61.
- 144 O'Rourke, "China Naval Modernization," 13. The number of Yuan SSKs is from Andrew Erickson, "China's Modernization of Its Naval and Air Power Capabilities," in *Strategic Asia 2012-13: China's Military Challenge* (Seattle and Washington DC: The National Bureau of Asian Research, 2012), 102.
- 145 2012 Report to Congress, 23. AIP offers the capacity to quietly recharge batteries without exposing itself to the surface by snorkeling. For further information, see Goldstein and Murray, "Undersea Dragons," 166-167 and William Murray, "An Overview of the PLAN Submarine Force," 67-69.
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- 147 Yoshihara and Holmes, *Red Star Over the Pacific*, 148.
- 148 Christopher Twomey, "The Military-Security Relationship," in *Tangled Titans: The United States and China*, ed. David Shambaugh (Lanham: Rowman and Littlefield Publishers), 243.
- 149 The latter are seen as particularly effective, given the numerous instances that cruise missiles have damaged vessels, including HMS Sheffield picket ship in the Falklands War and the USS Stark frigate in the Iran-Iraq tanker war, both of which were damaged using French-built Exocet cruise missiles. See Yoshihara and Holmes, Red Star Over the Pacific, 102.
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- 151 2012 Report to Congress, 22.
- 152 Vitaliy O. Pradun, "From Bottle Rockets to Lightning Bolts: China's Missile-centric Strategy and PLA Strategy against Military Intervention," Naval War College Review, 64.2 (Spring 2011):
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- 155 Goldstein and Murray, "Undersea Dragons," 185.
- 156 Pradun, "From Bottle Rockets," 15. However, the author also adopts an either/or perspective when it comes to A2 and AD, in which an expansive area-denial capability effectively negates an anti-access approach. Instead, it seems more prudent to see A2 and AD as complimentary, in which there is effort to first prevent America's access to the theatre and then to "engage and defeat" the adversary within the theatre if such A2 action fails.
- 157 Erickson, "China's Modernization,"
 62. For New Delhi in particular, China's strong interest and involvement in port construction from Pakistan to Myanmar points to a long-term interest in naval access arrangements in this region, in what the US military has dubbed the "string of pearls" strategy. For more on China's blue water ambitions, see Robert Ross, "China's Naval Nationalism: Sources, Prospects, and

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- 158 Andrew Erickson, Abraham Denmark, and Gabriel Collins, "Beijing's 'Starter Carrier' and Future Steps: Alternatives and Implications," Naval War College Review 65, 1 (Winter 2012): 25. Further details can be found in O'Rourke, "China Naval Modernization," 18-23.
- 159 O'Rourke, "China Naval Modernization," 25; and Erickson, "China's Modernization," 103.
- 160 Ibid., 24.
- 161 See Gabe Collins and Andrew Erickson, "New Destroyer a Significant Development for Chinese Sea Power," Wall Street Journal (China Realtime Report), 9 October 2012, http://blogs.wsj.com/chinarealtime/2012/10/08/newdestroyer-a-significant-development-for-chinese-sea-power; and Toshi Yoshihara and James Holmes, "The Mater 'PLAN': China's New Guided Missile Destroyer," The Diplomat, 4 September 2012, http://thediplomat.com/2012/09/04/the-master-planchinas-new-guided-missile-destroyer.
- 162 O'Rourke, "China Naval Modernization," 26, 28; 2012 Report to Congress, 23; and Erickson, "China's Modernization," 103.
- 163 Andrew Erickson, "Can China Become a Maritime Power?" in Asia Looks Seaward: Power and Maritime Strategy, eds. Toshi Yoshihara and James Holmes (Westport, CT: Praeger Security International, 2008), 79.
- 164 Li, "The Evolution of China's Naval Strategy," 153-154.
- 165 J. Michael Cole, "China Building New Type 052D Guided Missile Destroyer," Taipei Times, 29 August 2012, http://www.taipeitimes.com/News/taiwan/archives/2012/08/29/2003541468.
- 166 Erickson, "Can China Become a Maritime Power?" 80; 2012 Report to Congress, 23.

- 167 Li, "The Evolution of China's Naval Strategy," 153.
- 168 Pradun, "From Bottle Rockets," 13.
- 169 2012 Report to Congress, 23; John Patch, "A Thoroughbred Ship-Killer," U.S. Naval Institute Proceedings (April 2010): 48-53.
 - 70 This includes sixteen battalions of 150 kilometer-range S-300PMU1s and indigenously-produced HQ-9s and at least eight battalions of the 200 kilometer-range S-300PMU2, supported by a nation-wide integrated radar network. Roger Cliff, "The Development of China's Air Force Capabilities," Testimony presented before the U.S.-China Economic and Security Review Commission on 30 May 2010, 4 http://www.rand.org/pubs/testimonies/2010/RAND_CT346.pdf. Also see Cliff et al., Entering the Dragon's Lair, 85.
- 171 Wayne Ulman, "China's Military Aviation Forces," in Chinese Aerospace Power: Evolving Maritime Roles, eds. Andrew Erickson and Lyle Goldstein (Annapolis, Maryland: Naval Institute Press, 2011), 45. This includes not only Su-27 and Su-30 Flankers acquired from Russia, with the Su-30MKK variants considered particularly formidable, and the indigenously produced J-10 (based on the Su-27), J-11s, and a fifth-generation J-20 now being flight tested. The total is similar to the 420 estimated by DoD in 2011 and 567 estimated by the International Institute for Strategic Studies in 2010. See Richard Fisher, "China's Maturing Fighter Force," International Assessment and Strategy Center Report (15 October, 2011), http://www.strategycenter.net/ research/pubID.265/pub_detail.asp
- 172 Fisher, "China's Maturing Fighter Force."
- 173 Erickson, "China's Modernization," 71-72, 77
- 174 Yoshihara and Holmes, Red Star over the Pacific, 74

- 175 Buszynski, "The South China Sea," 146; and Felix Chang, "China's Naval Rise and the South China Sea: An Operational Assessment," *Orbis* 56, 1 (Winter 2012): 25.
- 176 On the last point, see Krepinevich, Why AirSea Battle, 21.
- 177 Kostecka, "China's Aerospace Power Trajectory," 116. Also see Erickson et al., "Beijing's 'Starter Carrier," 47.
- 178 Li, "The Evolution of China's Naval Strategy," 160.
- 179 Barry Watts, "The Implications of China's Military and Space Programs," Testimony presented before the U.S. China Economic and Security Review Commission on 11 May 2011, 5, https://www.csbaonline.org/publications/2011/05/the-implications-of-chinas-military-and-civil-space-programs/.
- 180 Erickson, "Can China Become a Maritime Power," 73; Krepinevich, Why AirSea Battle, 15.
- 181 Watts, "The Implications of China's Military," 6. Investments include standing up PLA information warfare units designed for counter-network attacks, recruitment of civilian computer hacking surrogates, and a growing number of cyber incursions against the United States and its allies. See Timothy L. Thomas, "China's Electronic Long Range Reconnaissance," Military Review 88, 6 (November-December 2008): 47-54.
- 182 For a good example that underplays this point, see James Kraska, "How the US Lost the Naval War of 2015," *Orbis* 54, 1 (Winter 2010): 35-45.
- 183 Thomas Christensen, "Posing Problems without Catching Up: China's Rise and Challenges for U.S. Security Policy," *International Security* 25, 4 (Spring 2001): 5-40.
- 184 Erickson, "China's Modernization," 63.
- 185 Twomey, "The Military-Security Relationship," 238-239.

- 186 See Andrew Krepinevich, "The Pentagon's Wasting Assets: The Eroding Foundations of American Power," Foreign Affairs 88, 4 (July/August 2009): 18-33
- 187 These scenarios are from Tol et al., *Air-Sea Battle*, xv.
- 188 For instance, the Navy reportedly has the intention—likely to be unfulfilled due to the slight slowdown in nearterm BMD conversions and the reduction in total number of major surface combatants—to eventually have 94-capable BMD ships by 2024.
- 189 See Ronald O'Rourke, "Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress," Congressional Research Service Report for Congress (19 March 2012).
- 190 See Brad Hicks, George Galdorisi, and Scott Truver "The Aegis BMD Global Enterprise: A 'High End' Maritime Partnership," Naval War College Review 65, 3 (Summer 2012): 65-80. US allies that operate Aegis ships include Japan, South Korea, Norway, and Australia
- 191 Wan, "Panetta, in speech in Singapore."
- 192 Elaine Grossman, "Pentagon Unveils New Plan for Conventional Submarine-Based Ballistic Missiles," Global Security Newswire, 27 January 2012, http:// www.nti.org/gsn/article/pentagonunveils-new-plan-conventionalsubmarine-based-ballistic-missiles/.
- 193 Thomas Barnett, "Big-War Thinking in a Small-War Era: The Rise of the Air-Sea Battle Concept," China Security 6, 3 (2010): 7.
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Owen Coté, "Assessing the Undersea Balance Between the United States and China," in Competitive Strategies for the 21st Century: Theory, History, and Practice, ed. Thomas Mahnken (Stanford, CA: Stanford University Press, 2012), 197-198; and Coté, "How Will New Submarine Sensors and Payloads Influence Naval Warfare in the 21st Century," Information Dissemination Blog, 4 June 2012, http://www.informationdissemination.net/2012/06/how-will-new-submarine-sensors-and.html.

- 195 Coté, "Assessing the Undersea Balance," 192-193. The United States could also deploy acoustic barriers to detect PLAN submarines entering the second island chain, as they must pass through relatively narrow straits though the utility of early detection can be negated if China flushes out its submarines prior to any Sino-American crisis.
- 196 The best case remains delayed production in the short-term, which could still lead to capability shortfalls and require service life extension of legacy aircraft. The worst case is a procurement "death spiral," by which rising unit costs reduce the total procurement quantities, thereby further reducing the average unit costs in a spiraling cycle. See Gertler, "F-35 Joint Strike Fighter," 25; and Anton Bezglasny and

- Douglas Ross, "Strategically superfluous, unacceptably overpriced: The case against Canada's F-35A Lightning II acquisition," *Canadian Foreign Policy Journal* 17, 3 (September 2011): 242.
- 197 Thomas Ehrhard, An Air Force Strategy for the Long Haul (Washington, DC: Center for Strategic and Budgetary Assessments, 2009), 44.
- 198 Ibid., 84.
- 199 Thomas Christensen, "The Meaning of the Nuclear Evolution: China's Strategic Modernization and US-China Security Relations," Journal of Strategic Studies 35, 4 (August 2012): 467.
- 200 Douglas Peifer, "China, the German Analogy, and the New AirSea Operational Concept," Orbis (Winter 2011): 114-132.
- 201 Jeffrey Kline and Wayne Hughes, "Between Peace and the Air-Sea Battle: A War at Sea Strategy," Naval War College Review 65, 4 (Autumn 2012): 35-40. Other measures of a war at sea strategy include maritime interdiction or blockade and using US Marines to hold the South China Seas at risk.
- 202 Joint Operational Access Concept, 37, 38.
- 203 See Yoshihara and Holmes, Red Star Over the Pacific, 99-100; and Hoyler, "China's 'Antiaccess' Ballistic Missiles," 84-105.

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