CHAPTER 4
Evaluating China’s Conventional Military Power: The Naval and Air Dimensions

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Many aspects of People’s Liberation Army (PLA) development, such as the actual breakdown of People’s Republic of China (PRC)’s military budget by-service or within-service, remain unclear. But general prioritization and trends may be seen inductively from new Chinese hardware. What this all means in practice can be seen readily in Beijing’s actual military developments since the late 1990s. China is developing a formidable set of military capabilities to ensure stability on its borders and to attempt to shape territorial and maritime claims in its favor immediately beyond. It is developing weapons systems and employment patterns designed to threaten foreign forces should they intervene in sensitive disputes on China’s periphery—an approach that some Chinese sources term “counterintervention” and the US military terms “anti-access/area denial” (A2/AD). The goal is to deter such involvement in the first place and convince China’s neighbors that they must settle disputes on Beijing’s terms. China is also developing power projection platforms such as aircraft carriers and sending destroyers and frigates on naval diplomacy and nontraditional security missions, but these longer-range developments are happening gradually and do not represent high-end combat capabilities against another great power. Beijing can afford these efforts without making them the centerpiece of its investment. How, and to what extent, that might change in coming years is a difficult but important topic to analyze.

Of the key dimensions of PLA development, perhaps none are as complex and uncertain as those in and around the seas and air. This chapter will therefore survey China’s naval and military firepower development in the reform era (post-1978) and offer possible alternative projections through 2025 and slightly beyond. It utilizes the most updated data possible, a constant challenge in this area. It will also offer tentative assessments of China’s power vis-à-vis the United States over time in these dimensions, although the complex variables
and uncertainties involved—together with the author's use of open sources exclusively—must be emphasized. In doing so, this chapter will elucidate the key dynamics and nature of Chinese development in this area and suggest possible policy responses for the United States and its allies.

The chapter begins by providing an overview and historical context for PLA Navy (PLAN) and PLA Air Force (PLAAF) development. It next reviews the services' current state. It then considers potential future drivers and dynamics through 2030, considers relevant developments in the two services, highlights net assessment challenges, and offers major conclusions.

**Key Dynamics: The Past Three Decades**

Over the past three decades, China has achieved a rapidly improving but still mixed record of progress in military modernization. Now, Xi Jinping appears to be pushing the PLA to become more efficient and effective at prosecuting the "Local Wars under Modern Informatized Conditions" for which it was previously charged to prepare. Xi is the first paramount leader to stress realistic training so strongly and specifically. Complexity and realism of PLAN and PLAAF training, particularly with respect to joint operations, remains uncertain but has improved significantly of late.

**Cultivating Counterintervention**

During the 1990s, PLA development was shaped most strongly by the realization that new technologies—deployed and used by the United States—were transforming the ways of war. Yet the end of the Cold War and US-China anti-Soviet cooperation, coupled with post-Tiananmen sanctions, complicated Chinese access to such technologies. Meanwhile, a series of incidents involving Taiwan and the United States persuaded China's leaders that they needed potent counterintervention capabilities.

Confronted with these challenges, China has pursued two major development vectors. By the mid-1990s, a major effort to replace numerous obsolete Soviet-derived systems with enhanced variants drawing on improved foreign and Chinese technology was well underway, accelerated by what China's leaders saw as a series of concerning events in that decade.

Meanwhile, China also developed a broad array of potent asymmetric weapons systems that pit China's strengths against adversaries' weaknesses, enabling China to exploit its formidable geography and resources. Beijing has astutely harnessed the proliferation of asymmetric technologies—which I term "the democratization of denial"—for its benefit. The weapons development and technological revolution that China is harnessing has special relevance to the "Near Seas" (Yellow, East China, and South China Seas; within about 1,000-1,500 kilometers from the mainland) and their immediate approaches.

China enjoys proximity to all its outstanding island and maritime claims disputes. It possesses massive land-based forces and strategic depth in which to deploy them. From this foundation, it has been developing forces designed
primarily to enable China to confront any adversary that might challenge China's interests in these Near Seas. PLA modernization beyond that area is largely focused on noncombat missions with very limited levels of power projection.

The core challenge that China, the United States, and the region confront in the Near Seas area is the potential confrontation between a China that desires more leverage and control over its maritime periphery and a United States that believes stability is best preserved by assuring access up to China's 12-nautical-mile territorial waters and airspace. The catalysts that could spark actual confrontation on this issue are primarily crises triggered by island and maritime claims disputes. Although China's disputes around its land borders—except in South Asia where the problem is more chronic than acute—seem relatively stable, China's maritime sovereignty claims are unresolved and potentially volatile. In most cases regarding internal land borders, the PRC has compromised, settling eleven disputes with six neighbors since 1998. But it has not compromised on maritime sovereignty disputes and has settled only rarely its disputes with a single maritime neighbor. This is largely because China is not bound by previous treaties here or overwhelming geostrategic and technology transfer imperatives to preserve an environment conducive for domestic development (all factors that apply in relations with Russia, with which China has made massive territorial compromises).

Here, it is important to distinguish among layers or rings of Chinese interests that differ progressively with distance from China. These may be divided into core interests close in (over which Beijing desires control), vital interests just outside the core interests (over which Beijing desires influence), and important interests beyond that (which Beijing desires to be able to reach out and influence as necessary). China's central "core" interests in the Near Seas, include, primarily, the unresolved Taiwan issue and disputes with its neighbors over island and maritime claims. This is chiefly a problem in the East and South China Seas; Beijing's disputes with Seoul and Pyongyang in the Yellow Sea, while they might intensify in the future, are currently constrained by their limited nature and China's status as a power broker in peninsular affairs.

Disputes with the United States in the Near Seas primarily concern freedom of navigation and the conducting of military surveillance operations beyond China's 12 nautical mile territorial waters and airspace but within its 200 nautical mile Exclusive Economic Zone (EEZ). Largely in relation to these disputes, a series of incidents has ensnared the US and Chinese military in the past 15 years. The two countries have encountered problems in trying to contain and manage the fallout from these incidents, though fortunately not military confrontations. But China is beginning to encounter "blowback" as others in the region respond to China's own efforts to ensure its claims.

In determining actual PLAN and PLAAF capabilities, for the foreseeable future analysts face a conundrum in which hardware (platforms and weapons systems) has clearly reached very advanced levels in many cases, while software (personnel and training) remains more uneven and uncertain, and integration of joint forces and supporting information and communications is demonstrably limited. With respect to Near Seas operations, however, significant
workarounds available—including tremendous land-based support and ability to deconflict forces by space and time—mean that the PLA may not need education or jointness beyond what it already has. For long-distance conflict-capable power projection, by contrast, additional sophisticated hardware, software, and jointness are all required and all present a challenge that China has little prospect of meeting in the near term. At the operational level, then, Near Seas counterintervention, albeit a more robust version thereof, will likely remain the PLA’s core focus for some time.

Capabilities-to-Date: Naval

Proposed by Deng in 1979 and endorsed by PLAN commander Liu Huaqing in 1987, the concept of “Active defense, Near Seas operations” was subsequently operationalized. In practice, it entails preparing for limited-scale, high-tech, high-intensity, potentially offensive conflicts on, under, and above the Near Seas and their approaches.²

Current Force

Today the PLAN has begun to reap the rewards of years of substantial effort. According to the US Department of Defense (DoD), “The PLA Navy has the largest force of major combatants, submarines, and amphibious warfare ships in Asia.”³ Advanced warships are finally in series production, and much modern hardware has already been fielded. PLAN training and operations have increased significantly in area, frequency, and complexity. When nonnaval capabilities are factored in, the PLAN has already achieved much of what it needs to address China’s Near Seas interests.

The 325 current PLAN combatants include:

- 77 major surface combatants, including 27 destroyers (17 modern), 48 frigates (31 modern), and 10 new corvettes
- >60 submarines
- 56 large and medium amphibious ships
- ~85 missile-equipped small combatants
- 42 mine warfare ships
- >50 major auxiliaries
- and 400 minor auxiliary ships and service/support craft.⁴

China is achieving an astonishing build rate, with 15 distinct classes of ships and submarines produced from 1995–2005 and >50 ships laid down/launched/commissioned in 2013 alone.⁵ Quality remains prioritized over quantity, however; China is not currently building forces in sufficient numbers to support true Far Seas emphasis.

Undersea

China’s submarines have led its naval modernization. Table 4.1 depicts a force that has increased rapidly in quality and diversity.
### Table 4.1 PLAN submarines

<table>
<thead>
<tr>
<th>Class</th>
<th>Manufacturer (Shipyard)</th>
<th>Role</th>
<th>1st Hull Commissioned</th>
<th>In Service Penant Number(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jin (Type 094)</td>
<td>Huludao</td>
<td>Ballistic Missile, Nuclear-powered</td>
<td>2007</td>
<td>3 411–413</td>
</tr>
<tr>
<td>Xua (Type 092)</td>
<td>Huludao</td>
<td>Ballistic Missile, Nuclear-powered</td>
<td>1987</td>
<td>1 406</td>
</tr>
<tr>
<td>Qing (Type 032)</td>
<td>Wuchang</td>
<td>Missile (test), Diesel-powered</td>
<td>2010</td>
<td>1 201</td>
</tr>
<tr>
<td>Golf (Type 031)</td>
<td>Dalian</td>
<td>Ballistic Missile (test), Diesel-powered</td>
<td>1966</td>
<td>1 200</td>
</tr>
<tr>
<td>Shang (Type 093)</td>
<td>Huludao</td>
<td>Attack, Nuclear-powered</td>
<td>2006</td>
<td>2 407–408</td>
</tr>
<tr>
<td>Han (Type 091/091G)</td>
<td>Huludao</td>
<td>Attack, Nuclear-powered</td>
<td>1980</td>
<td>3 403–405</td>
</tr>
<tr>
<td>Kilo (Project 877EKM/636)</td>
<td>Various Russian Patrol, Diesel-powered</td>
<td>1995</td>
<td>12 365–375</td>
<td></td>
</tr>
<tr>
<td>Yuan (Type 039)</td>
<td>Wuhan/Changxing Island</td>
<td>Patrol, Diesel-powered (Air-Independent-Power)</td>
<td>2006</td>
<td>12* (039C variant undergoing tests) 8x039A (330–337), 4x039B (338–341)</td>
</tr>
<tr>
<td>Song (Type 039/039G)</td>
<td>Wuhan/Jiangnan</td>
<td>Patrol, Diesel-powered</td>
<td>1999</td>
<td>14 216, 314–329</td>
</tr>
<tr>
<td>Ming (Type 035)</td>
<td>Wuhan</td>
<td>Patrol, Diesel-powered</td>
<td>1971</td>
<td>23 232, 305–313, 342, 352–363</td>
</tr>
</tbody>
</table>

Note: Tables 4.1–4.4 use as a baseline Andrew S. Erickson, "China’s Modernization of Its Naval and Air Power Capabilities," in Ashley J. Tellis and Travis Tanner (eds.), Strategic Asia 2012–13: China’s Military Challenge (Seattle, WA: National Bureau of Asian Research, 2012), pp. 102–05, 114–18. Baseline data were subsequently updated to the extent possible using cited open sources and apparently reliable information available via online expert discussion groups, for example, China Defense Forum. Data cannot be verified perfectly, but are likely representative in aggregate.

China’s 12* Yuan-class (Type 039A/B) diesel-electric submarines boast air-independent power (AIP) “using Stirling engine technology.” The 039C successor-variant is undergoing sea trials, and up to eight hulls may be built.6 China and Russia are negotiating joint design and production of a new advanced diesel-electric submarine based on Russia’s Petersburg/Lada class.

China is beginning to send conventional- and nuclear-powered submarines into the Indian Ocean. Whereas the former are suited for slow, quiet...
Near Seas operations, the latter are optimal for long-range operations. For instance, the Song-class conventional submarine that visited Colombo, Sri Lanka on September 7-14, 2014, took 1 month to transit at 3 knots. On a much longer journey that it could have covered considerably faster, from December 13, 2013, to February 12, 2014, a Shang-class nuclear-powered attack submarine navigated near Sri Lanka and into the Persian Gulf, transiting the Strait of Malacca on the way to and from its home port on Hainan Island. Probably motivated partially by a long-term desire for the long-range sea lines of communication (SLOC) disruption capabilities that nuclear-powered attack submarines (SSNs) are uniquely suited to provide, China is gradually increasing its fleet from the two second-generation Shang-class SSNs already in service to as many as five third-generation SSNs over the next few years.

DoD projects that China’s “new class of SSNs will incorporate better quieting technology, improving China’s capability to conduct a range of missions from surveillance to the interdiction of surface vessels with torpedoes and ASCMs [anti-ship cruise missiles].” Eighty plus percent of China’s submarine force is ASCM-capable. China appears to be taking a radically specialized approach to anti-surface warfare, in which nearly every new naval platform has the ability to fire ASCMs, and many are outfitted primarily with such weapons at the general expense of torpedoes. This offers China potent possibilities.

On the deterrence front, China’s first: Type 094 SSBN was commissioned in 2007, its second in 2010, and its third in 2012, and has two more under construction. Beijing is in the process of taking its nuclear strike capability to sea credibly for the first time, with the first SSBN deterrent patrol anticipated imminently. The JL-2 SLBM, long in development and debugging, has an estimated range of 7,400 kilometers. DoD projects that China will begin deploying “its next generation SSBN (Type 096) over the next decade.”

Surface
China’s surface fleet remains one of the world’s largest. Were 10-15 advanced ships added, it would, holding other numbers constant, become second only to America’s in the Asia-Pacific. But, as table 4.2 indicates, China’s slightly-expanding surface fleet has grown far faster in quality.

Chinese naval vessels display growing multi-mission emphasis. Whereas previously anti-surface warfare (ASuW) focus eclipsed competing priorities, now growing effort is devoted to anti-air warfare (AAW)—a pronounced feature of Luyang-II and -III destroyers and Jiangkai-II frigates. Over-the-horizon (OTH) targeting necessary to support ASuW, also increasingly emphasized, underwritten by a growing reconnaissance strike complex with space-, air-, ground-, and sea-based components. Mineral-ME radar common on PLAN ships offers 250 kilometers active range and 450 kilometers passive range, allowing effective ASCM targeting with two-ship triangulation, even in the absence of other targeting data. Even UAVs can support OTH. PLAN UAVs boast impressive endurance, including the BZK 005 (40 hours) and the S-100 helicopter (6 hours).
<table>
<thead>
<tr>
<th>Class</th>
<th>Manufacturer (Shipyard)</th>
<th>Role</th>
<th>1st Hull Commissioned</th>
<th>In Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liaoning 16</td>
<td>Shipyard 444 (Nikolayev South, Ukraine; refitted in Dalian)</td>
<td>Aircraft Carrier</td>
<td>2012</td>
<td>1</td>
</tr>
<tr>
<td>Luyang III</td>
<td>Jiangnan/ Changxing Island</td>
<td>Destroyer (area air-defense)</td>
<td>2014</td>
<td>1 (+7 under construction; total 12+ anticipated)</td>
</tr>
<tr>
<td>Luyang II</td>
<td>Jiangnan/ Changxing Island</td>
<td>Destroyer (area air-defense)</td>
<td>2004</td>
<td>4 (+2 outfitting)</td>
</tr>
<tr>
<td>Luyang I</td>
<td>Jiangnan</td>
<td>Destroyer (area air-defense)</td>
<td>2004</td>
<td>2</td>
</tr>
<tr>
<td>Luzhou</td>
<td>Dalian</td>
<td>Destroyer</td>
<td>2006</td>
<td>2</td>
</tr>
<tr>
<td>Suzhou (Project 956E/956EM)</td>
<td>Dalian</td>
<td>Destroyer</td>
<td>1999</td>
<td>4</td>
</tr>
<tr>
<td>Luhu (Type 052A)</td>
<td>Jiangnan</td>
<td>Destroyer</td>
<td>1994</td>
<td>2</td>
</tr>
<tr>
<td>Luda IV (Type 051)</td>
<td>Dalian</td>
<td>Destroyer</td>
<td>1991</td>
<td>4</td>
</tr>
<tr>
<td>Luda 1 (Type 051)</td>
<td>Dalian</td>
<td>Destroyer</td>
<td>1971</td>
<td>&lt;8</td>
</tr>
<tr>
<td>Luohai (Type 051B)</td>
<td>Dalian</td>
<td>Destroyer</td>
<td>1999</td>
<td>1</td>
</tr>
<tr>
<td>Jiangkai II</td>
<td>Huangpu/Hudong-Zhonghua</td>
<td>Frigate (air defense)</td>
<td>2008</td>
<td>15–19</td>
</tr>
<tr>
<td>Jiangkai I</td>
<td>Huangpu/Hudong-Zhonghua</td>
<td>Frigate</td>
<td>2005</td>
<td>2</td>
</tr>
<tr>
<td>Jiangwei II</td>
<td>Huangpu/Hudong-Zhonghua</td>
<td>Frigate</td>
<td>1998</td>
<td>10</td>
</tr>
<tr>
<td>Jiangwei I</td>
<td>Hudong-Zhonghua</td>
<td>Frigate</td>
<td>1991</td>
<td>4</td>
</tr>
<tr>
<td>Jianghu VIII/V</td>
<td>Hudong-Zhonghua/Jiangnan/Huangpu</td>
<td>Frigate</td>
<td>Mid-1970s</td>
<td>&lt;22</td>
</tr>
<tr>
<td>Jianghu II</td>
<td>Hudong-Zhonghua</td>
<td>Frigate</td>
<td>1986</td>
<td>1 (2 sold to Bangladesh)</td>
</tr>
<tr>
<td>Jiangdao</td>
<td>Hudong-Zhonghua, Huangpu, Wuhan, Liaonan (Lishun)</td>
<td>Light frigate/ corvette</td>
<td>2013</td>
<td>10 (≈20–30 additional construction)</td>
</tr>
<tr>
<td>Houbei (Type 022)</td>
<td>Qixuin/5+ other yards</td>
<td>New-generation, Fast-Attack Craft (Missile)</td>
<td>2004</td>
<td>60+</td>
</tr>
<tr>
<td>Houjian/Huang (Type 037 II)</td>
<td>Huangpu</td>
<td>Fast-Attack Craft (Missile)</td>
<td>1991</td>
<td>5–6</td>
</tr>
<tr>
<td>Houzxin (Type 037 II)</td>
<td>Qixuin/Huangpu</td>
<td>Fast-Attack Craft (Missile)</td>
<td>1991</td>
<td>16</td>
</tr>
<tr>
<td>Haixing (Type 037 II)</td>
<td>Qixuin/Qingdao/ Chongqing/ Huangpu</td>
<td>Fast-Attack Craft (Patrol)</td>
<td>1992</td>
<td>25</td>
</tr>
</tbody>
</table>

Continued
China's latest destroyers and frigates, which its large, increasingly advanced shipbuilding industry is building steadily, boasts significant area air defense capabilities. To replace aging Ludaos, DoD projects that China will build 12+ Luyang-III (Type 052D) destroyers. It has already fielded one, with five more under construction. Fifteen-to-nineteen "workhorse" Jiangkai-II (Type 054A) frigates have joined the fleet, additional hulls are under construction, with "yet more expected." According to DoD, these vessels "provide a significant upgrade to the PLA Navy's area air defense capability, which will be critical as it expands operations into 'distant seas' beyond the range of shore-based air defenses."
With a budding deck aviation program that is likely to produce several increasingly advanced aircraft carriers and associated ships and submarines by the late 2020s, the possibility of land-attack cruise missiles (LACMs) being deployed in surface vessel vertical launch systems (VLS) in the near future, and deployment of larger amphibious vessels including Yuzhao-class landing platform docks and Zubr air-cushioned landing craft, the PLAN may be starting to develop a force capable of conducting strike operations ashore.

Improvements in multi-disciplined warfare capability are adding versatility. For example, while it is optimized for Near Seas operations, the new series-produced Type 056 Jiangdao-class is not just a capable missile corvette, but a ship with true ASuW, and anti-submarine warfare (ASW) capability. “Nine corvettes entered service in 2013,” DoD asserts. “China may build an additional 20 to 30 vessels of this class.”

While its recent construction of amphibious vessels overall has been limited, and none were produced in 2013, in the past several years China commissioned three 17,600-ton Type 071 Yuzhao-class landing platform docks (LPDs), the South Sea Fleet-home ported Kunlunshan, Jingangshan, and Changbaishan. Kunlunshan joined the sixth Gulf of Aden counterpiracy task force in July 2010, dispatching helicopters and an Air Cushion Vehicle (pennant number 3320). Cheaper and quicker to build than a big deck flattop, smaller flush-deck 071s are more limited in firepower quantity and quality than larger vessels. Less than one-fifth the size of a modern US carrier, they can only carry helicopters and have more restricted combat potential. DoD anticipates that China “might begin construction” of a new, larger Type 081 amphibious vessel within five years.

In one of the most sweeping maritime developments today, China Coast Guard (CCG)—composed of formerly principal civil maritime agencies, four out of five of which are now consolidating under the State Oceanic Administration—is growing rapidly in both quality and quantity. As CCG forces increasingly patrol disputed Near Seas areas to advance China’s claims there, PLAN ships are free to range further afield to bolster China’s A2/AD envelope in the Western Pacific and expand its presence and influence in the Indian Ocean and beyond.

*Software Limitations and Rebooting*

Over past decade, PLAN forces have achieved remarkable improvement in training and operational capability. Their operations are increasing in area, frequency, and complexity. Per the PLA’s latest Outline of Military Training and Education, published in mid-2008 and implemented uniformly beginning January 1, 2009—which emphasizes “a more flexible year-round training cycle”—beginning in 2013 nearly all PLA exercises have centered on integrated system-of-systems operations (ISSO), network-centric warfare with Chinese characteristics, under informatized conditions. All three PLAN fleets participated in the Philippine Sea-based October 2013 Maneuver-5 exercise, reportedly the first such unscripted Chinese effort and the PLAN’s largest high seas drill. Apparently as part of an effort to hone and demonstrate the ISSO-type
capabilities to support a Taiwan invasion, part of a larger priority to coerce the island that remains the PLA’s foremost capability development priority, over six weeks in September–October 2013, China conducted the three-part Mission Action joint military exercise series. PLA ground, navy, and air forces conducted massive maneuvers along China’s southeastern coast. In 2013, PLAN task forces of up to eight ships exited the First Island Chain nine times.

The PLAN’s 235,000 personnel, including its 35,000 conscripts, are increasingly capable. To increase operator proficiency, the PLAN is employing advanced training aids, including radar deflectors, jammers, and remote piloted vehicles (RPVs) to simulate mobile targets. In a gradual but determined improvement, commanders are evaluated on individual operations and thinking. Confrontation exercises are emphasized increasingly. There is stress on “normalizing” distant sea training in alignment with General Staff Department training guidelines. In a sign of the PLA(N)’s commitment to ISSO, China’s National University of Defense Technology has established a pilot year-long Joint Operations staff officer course.

Key uncertainties remain. For example, some sources tout Gulf of Aden anti-piracy operations and other activities as a type of otherwise-unachievable combat-relevant training. Strategic planner Liu Jianping terms the Gulf of Aden mission as “an experience for the navy’s capability to conduct Far Oceans quasi-combat operations.” Yet it is unclear how relevant the PLAN actually believes such training to be to actual combat operations. The precise extent to which the PLAN is applying Far Seas operational experience to Near Seas training likewise remains unknown.

Capabilities-to-Date: Air

The PLAAF strategy, “integrated air and space, simultaneous offensive and defensive operations,” was approved in 2004, when PLAAF, PLAN, and Second Artillery Force (SAF) representatives joined the CMC. It necessitates capacity to execute strike, air defense, power projection, and airborne early warning (AEW) and reconnaissance operations. Chinese writings suggest that these capabilities are intended in particular to support capacity to engage in anti-Taiwan operations, South China Sea power projection, and counterintervention. On November 23, 2013, China announced that it had established an Air Defense Identification Zone (ADIZ) in the East China Sea.

Current Force

China’s air forces have made rapid progress in hardware. According to DoD, “The PLAAF is the largest air force in Asia and the third-largest air force in the world.” Together with the PLAN, the PLAAF currently has:

- >2,100 operational combat aircraft (fighters, bombers, fighter-attack and attack aircraft). 1,700 are fighters (130 within range of Taiwan), 400 are bombers (200 within range of Taiwan);
• 475 transports (150 within range of Taiwan), 100 surveillance and recon-
nnaissance aircraft;
• and 1,450 older fighters, bombers, and trainer aircraft for training, research, and development. 29

The PLAAF has been improving strike capabilities by modernizing second, third, and fourth generation aircraft, including the H-6K bomber; adding new trainers and fourth generation multirole aircraft while developing new fourth generation aircraft variants; and developing the J-20 and J-31 fifth generation low-observable fighters whose ultimate delivery date and capabilities remain unknown. It has deployed limited numbers of KJ-200 and KJ-2000 AEW aircraft and new UAVs including reconnaissance- and strike-capable long-range and low-observable systems. Power projection remains one of the PLAAF’s greatest limitations. As stopgap measures, the PLAAF has purchased limited numbers of used Russian IL-76 transports while developing the Y-20 heavy lift and Y-9 medium-lift transports. Table 4.3 depicts PLAAF fixed- (non-rotary-) wing aircraft.

Currently, PLAN Aviation handles most maritime strike operations and deconflicts, rather than integrates, its operations with the PLAAF. 30 Its fixed-wing aircraft, which largely overlap but differ in several important instances from the PLAAF’s, are tabulated in table 4.4.

Addressing a long-standing weakness, many of China’s combat aircraft offer increased ranges. NASIC assesses that “[a]n increasing number of Chinese aircraft are capable of operating over water at ranges from 300–500 nautical miles (nm) from the coast of China without refueling. The fighter offering the greatest range, and which can reach the first island chain, is the Flanker series of aircraft purchased from Russia. Chinese bombers such as the H-6K can range farther out from the mainland.” 31

China’s air forces feature dramatically improved armaments, electronic warfare systems, and targeting capabilities. For example, the PRC’s PL-12 active-radar-guided air-to-air missile allows anti-aircraft strike from up to 70 kilometers. 32 The YJ-12 air-launched ASCM, deployable from H-6 bombers, offers long-range supersonic attack. Active electronically scanned array (AESA) radar, which China reportedly has in its four KJ-2000 Airborne Warning and Control System (AWACS) aircraft, offer an advantageous combination of relatively powerful signal broadcast that remains relatively difficult for unintended recipients to detect. 33 Digital radio frequency memory (DRFM) jammers, such as China’s KG300G pod-mounted unit deployed on the J-10, FC-1, and JF-17, offer the ability to digitally capture and retransmit signals for the purpose of jamming and spoofing adversary radars. 34

Sino-Russian negotiations for the sale to China of the Su-35 fighter continue, with China especially interested in the long-range IRBIS-E passive electronically scanned array radar and the Saturn 117SAL-41F1A turbofan engines that come with the aircraft. “If China does procure the Su-35,” DoD projects, “these aircraft could enter service in 2016 or 2018.” 35
Table 4.3  PLA primary fixed-wing aircraft

<table>
<thead>
<tr>
<th>Type</th>
<th>Manufacturer</th>
<th>Role</th>
<th>First Delivery</th>
<th>In Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-6 (including -G/-H/-K/-M missiles)</td>
<td>XAC</td>
<td>Bomber</td>
<td>1968</td>
<td>(80) 82</td>
</tr>
<tr>
<td>JH-7A “Flounder”</td>
<td>XAC</td>
<td>Fighter (Ground Attack/Strike)</td>
<td>2004</td>
<td>83</td>
</tr>
<tr>
<td>Q-5 “Fantan”</td>
<td>HAIC</td>
<td>Fighter (Ground Attack/Strike)</td>
<td>1970</td>
<td>120</td>
</tr>
<tr>
<td>J-8H “Finback”</td>
<td>SAC Shenyang</td>
<td>Fighter (Interceptor/Air Defense)</td>
<td>2002</td>
<td>144</td>
</tr>
<tr>
<td>J-8F “Finback”</td>
<td>SAC Shenyang</td>
<td>Fighter (Interceptor/Air Defense)</td>
<td>2003</td>
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<td>J-8D “Finback”</td>
<td>SAC Shenyang</td>
<td>Fighter (Interceptor/Air Defense)</td>
<td>1990</td>
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<td>J-8B “Finback”</td>
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<td>Fighter (Interceptor/Air Defense)</td>
<td>1988</td>
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<td>Su-30MKK “Flanker”</td>
<td>Sukhoi, Russia</td>
<td>Fighter (Multirole)</td>
<td>2000</td>
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<td>J-11B/BSI</td>
<td>SAC Shenyang</td>
<td>Fighter (Multirole)</td>
<td>2004</td>
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<td>J-11A (Chinese kit-assembled Su-27SK)</td>
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<td>Fighter (Multirole)</td>
<td>2001</td>
<td>96</td>
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<tr>
<td>Su-27SK “Flanker-B”</td>
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<td>Fighter (Multirole)</td>
<td>1992</td>
<td>43</td>
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<td>J-10B</td>
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<td>Fighter (Multirole)</td>
<td>2009</td>
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<td>J-10A/S</td>
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<td>Fighter (Multirole)</td>
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<td>J-7G</td>
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<td>J-7E</td>
<td>CAC</td>
<td>Fighter (Multirole)</td>
<td>1993</td>
<td>144</td>
</tr>
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<td>J-7C</td>
<td>CAC</td>
<td>Fighter (Multirole)</td>
<td>1985</td>
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<td>J-7B</td>
<td>CAC</td>
<td>Fighter (Multirole)</td>
<td>1980</td>
<td>183</td>
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<tr>
<td>KJ-2000</td>
<td>Beriev, Russia/ XAC-Modified</td>
<td>Airborne Early Warning &amp; Control</td>
<td>2004</td>
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<td>(A-50 “Mainstay”)</td>
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<tr>
<td>II-76MD</td>
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<td>Y-8W/KJ-200</td>
<td>SAC Shannxi</td>
<td>Airborne Early Warning &amp; Control</td>
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<tr>
<td>Y-8G</td>
<td>SAC Shannxi</td>
<td>Reconnaissance/ Surveillance</td>
<td>2007</td>
<td>(4) 7</td>
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<td>J(Z)-8FR</td>
<td>SAC Shenyang</td>
<td>Reconnaissance/ Surveillance</td>
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<td>24</td>
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<td>JZ-8</td>
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<td>Reconnaissance/ Surveillance</td>
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<td>JZ-6</td>
<td>SAC Shenyang</td>
<td>Reconnaissance/ Surveillance</td>
<td>1976</td>
<td>48</td>
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<tr>
<td>Y-8XZ</td>
<td>SAC Shannxi</td>
<td>Electronic Warfare</td>
<td>2007</td>
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<tr>
<td>Y-8CB</td>
<td>SAC Shannxi</td>
<td>Electronic Warfare</td>
<td>?</td>
<td>4</td>
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<tr>
<td>Tu-154M/D &quot;Careless&quot;</td>
<td>Tupolev, Russia</td>
<td>Electronic Intelligence</td>
<td>1998</td>
<td>4</td>
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<tr>
<td>Y-8T</td>
<td>SAC Shannxi</td>
<td>Command/Control</td>
<td>2007</td>
<td>3</td>
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<tr>
<td>737-300</td>
<td>Boeing, US</td>
<td>C3I</td>
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<td>H-6I</td>
<td>XAC</td>
<td>Tanker</td>
<td>1998</td>
<td>10</td>
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<tr>
<td>737-800</td>
<td>Boeing, US</td>
<td>Transport</td>
<td>2010</td>
<td>2</td>
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<tr>
<td>737-700</td>
<td>Boeing, US</td>
<td>Transport</td>
<td>2003</td>
<td>2</td>
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<tr>
<td>737-300</td>
<td>Boeing, US</td>
<td>Transport</td>
<td>1988</td>
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</table>

Note: Name, Age, May 6, Modernization

Table 4.3  PLA primary fixed-wing aircraft

<table>
<thead>
<tr>
<th>Type</th>
<th>Manufacturer</th>
<th>Role</th>
<th>First Delivery</th>
<th>In Service</th>
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<tr>
<td>II-76MD</td>
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<td></td>
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<tr>
<td>Tu-154M</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>An-30</td>
<td>°C</td>
<td>An-26 °C</td>
<td>An-24 °C</td>
<td></td>
</tr>
<tr>
<td>Y-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y-8</td>
<td></td>
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<tr>
<td>Y-12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y-11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRJ700 C</td>
<td>870</td>
<td>CRJ100 C</td>
<td>800</td>
<td></td>
</tr>
<tr>
<td>Y-5</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

JJ-7               |            | JJ-6                           | CJ-6/A         |

Note: Name, Age, May 6, Modernization

While PLAN A vessels are impractical, PLAN B is competitively

China also officially states that the (NC) provides

Notes: Name, Age, May 6, Modernization

While PLAN A vessels are impractical, PLAN B is competitively

China also officially states that the (NC) provides

Notes: Name, Age, May 6, Modernization
Table 4.3 Continued

<table>
<thead>
<tr>
<th>Type</th>
<th>Manufacturer</th>
<th>Role</th>
<th>First Delivery</th>
<th>In Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>IL-76MD &quot;Candid&quot;</td>
<td>Ilyushin, Russia</td>
<td>Transport</td>
<td>1991</td>
<td>(15) 14</td>
</tr>
<tr>
<td>Tu-154M &quot;Careless&quot;</td>
<td>Tupolev, Russia</td>
<td>Transport</td>
<td>1986</td>
<td>(5) 12</td>
</tr>
<tr>
<td>An-30 &quot;Clank&quot;</td>
<td>Antonov, Ukraine</td>
<td>Transport</td>
<td>1975</td>
<td>8</td>
</tr>
<tr>
<td>An-26 &quot;Curl&quot;</td>
<td>Antonov, Ukraine</td>
<td>Transport</td>
<td>?</td>
<td>12</td>
</tr>
<tr>
<td>An-24 &quot;Coke&quot;</td>
<td>Antonov, Ukraine</td>
<td>Transport</td>
<td>?</td>
<td>10</td>
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<tr>
<td>Y-7</td>
<td>XAC</td>
<td>Transport</td>
<td>1984</td>
<td>(50) 41</td>
</tr>
<tr>
<td>Y-8</td>
<td>SAC Shaanxi</td>
<td>Transport (Medium)</td>
<td>1981</td>
<td>25</td>
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<tr>
<td>Y-12</td>
<td>HAI</td>
<td>Transport (Light)</td>
<td>?</td>
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</tr>
<tr>
<td>Y-11</td>
<td>HAI</td>
<td>Transport (Light)</td>
<td>?</td>
<td>20</td>
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<tr>
<td>CRJ700 Challenger 870</td>
<td>Bombardier, Canada</td>
<td>Transport (Utility)</td>
<td>2005</td>
<td>5</td>
</tr>
<tr>
<td>CRJ100 Challenger 800</td>
<td>Bombardier, Canada</td>
<td>Transport (Utility)</td>
<td>1997</td>
<td>5</td>
</tr>
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<td>Y-5</td>
<td>SAIC</td>
<td>Transport (Utility)</td>
<td>1958</td>
<td>(200) 170</td>
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<tr>
<td>Su-27UB &quot;Flanker-C&quot;</td>
<td>Sukhoi, Russia</td>
<td>Trainer</td>
<td>1992</td>
<td>32</td>
</tr>
<tr>
<td>JL-8 (Export Designation: &quot;Karakorum&quot;)</td>
<td>HAIC</td>
<td>Trainer</td>
<td>1998</td>
<td>300</td>
</tr>
<tr>
<td>An-30 &quot;Clank&quot;</td>
<td>Antonov, Ukraine</td>
<td>Trainer</td>
<td>1975</td>
<td>6</td>
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<td>JJ-7</td>
<td>GAIC</td>
<td>Trainer</td>
<td>1985</td>
<td>(100) 50</td>
</tr>
<tr>
<td>JJ-6</td>
<td>SAC Shenyang</td>
<td>Trainer</td>
<td>1970</td>
<td>100</td>
</tr>
<tr>
<td>CJ-6/A</td>
<td>HAIC</td>
<td>Trainer</td>
<td>1963</td>
<td>350</td>
</tr>
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</table>


While jointness, tactical training, and creativity remain limited, like their PLAN Aviation and other PLA counterparts, the PLAAF’s 398,000 personnel are improving professionalism through increasingly frequent, far-ranging, realistic exercises. An elite cadre of pilots enjoys significant flying hours, unscripted competitions, and rapid progress.36

Key Dynamics: The Next Decade and Beyond

China already boasts the world’s second largest economy and defense budget, officially $132 billion in 2014. By 2022, the US National Intelligence Council (NIC) projects that China will become the world’s largest economy (measured by purchasing power parity) and sometime near 2030 will take the title definitively as measured by market exchange rates. By 2025, the World Bank projects, “together China and India will serve as nearly twice the engine for growth of the United States and euro zone combined.”37 The US National Intelligence Council (NIC) assesses that by 2030 “Asia will have surpassed North America and Europe combined in terms of global power, based upon GDP, population...
Table 4.4 PLAN fixed-wing aircraft

<table>
<thead>
<tr>
<th>Type</th>
<th>Manufacturer</th>
<th>Role</th>
<th>First Delivery</th>
<th>In Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-6G &quot;Badger&quot;</td>
<td>XAC</td>
<td>Bomber (Missile Variant)</td>
<td>2005?</td>
<td>(35) 30</td>
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<tr>
<td>H-6D &quot;Badger&quot;</td>
<td>XAC</td>
<td>Bomber (Missile Variant)</td>
<td>1985</td>
<td>16</td>
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<tr>
<td>JH-7A &quot;Flounder&quot;</td>
<td>XAC</td>
<td>Strike Fighter/Bomber</td>
<td>2004</td>
<td>(81) 75</td>
</tr>
<tr>
<td>JH-7 &quot;Flounder&quot;</td>
<td>XAC</td>
<td>Strike Fighter/Bomber</td>
<td>1998</td>
<td>(54)</td>
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<td>Q-5 &quot;Funtan-A&quot;</td>
<td>HAIC</td>
<td>Fighter (Surface Attack/Strike)</td>
<td>1970</td>
<td>35</td>
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<td>Su-30</td>
<td>Sukhoi, Russia</td>
<td>Fighter (Interceptor/Air Defense)</td>
<td>2004</td>
<td>24</td>
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<td>MKK2 &quot;Flanker&quot;</td>
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<td>J-8 IV &quot;Finback D&quot;</td>
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<td>20</td>
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<tr>
<td>J-8 II &quot;Finback B&quot;</td>
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<td>Fighter (Interceptor/Air Defense)</td>
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<td>J-7 IV (J-7E)</td>
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<td>Fighter (Multirole)</td>
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<td>J-16</td>
<td>SAC Shenyang</td>
<td>Fighter (Multirole)</td>
<td>2011</td>
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<td>J-11BH/BSH</td>
<td>SAC</td>
<td>Fighter (Surface Attack)</td>
<td>2011</td>
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<td>Maritime Patrol/ASW (Flying Boat)</td>
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<td>AEW&amp;C</td>
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<td>Y-8X &quot;Cub&quot;</td>
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<td>Tanker</td>
<td>1998</td>
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<td>Yak-42D</td>
<td>Yakovlev, Russia</td>
<td>Transport</td>
<td>1990</td>
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<td>Y-7H</td>
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<td>Transport (Light)</td>
<td>?</td>
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<td>Y-7</td>
<td>XAC</td>
<td>Transport (Light)</td>
<td>1984</td>
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<td>Y-5</td>
<td>Shijiazhuang Aircraft Industry Company (SAIC)</td>
<td>Transport (Light)</td>
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<td>Trainer</td>
<td>1998</td>
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<td>JJ-7</td>
<td>GAIC</td>
<td>Trainer</td>
<td>1985</td>
<td>4</td>
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<td>Harbin Aircraft Manufacturing Company (production ended 1982)</td>
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<td>Trainer</td>
<td>1966+</td>
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<tr>
<td>CJ-6/6A</td>
<td>HAIC</td>
<td>Trainer</td>
<td>1963</td>
<td>38</td>
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</tbody>
</table>

size, military spending, and technological investment. China alone will probably have the largest economy. It will be "the central player in world trade and the largest trading partner of many countries." The NIC also projects that China will be close to being a science and technology peer competitor of the US by 2030.

A richer, more technologically advanced nation can afford a stronger military. As early as 2025, the International Institute for Strategic Studies predicts, China's defense spending might surpass America's. Even if these straight-line projections prove exaggerated, tremendous economic and technical-industrial activity is already affording China potent military capabilities and strategic exports. And extending our consideration to 2030 takes us beyond China's current procurement pipeline, opening up new possibilities for innovation and programmatic maturation. But it remains far from certain what Beijing will actually do to safeguard its growing interests, and to what extent it can and will parlay increasing economic and technical resources into military capabilities and deployments.

**Indicators and Drivers**

There are already indications that the PLA is developing abilities to deploy beyond China's immediate periphery. Since 2008, PLAN vessels have protected merchant vessels continuously in the Gulf of Aden, engaged in far-ranging naval diplomacy, provided humanitarian assistance, and supported UN operations. The PLAN and PLAAF helped protect Chinese evacuees as part of a 35,000-citizen NEO from Libya in March 2011.

Potential drivers of Chinese power projection include:

- growing overseas interests
- growing resource demands and scarcity
- protection of citizens, assets, and resource access abroad
- growing interests in Afghanistan/Southwest Asia, just as America is reducing presence there
- increasing tendency toward "innovative intervention," as seen in Gulf of Aden anti-piracy operations and Mekong River patrols pushing the boundaries of traditionally categorical Chinese sovereignty restrictions
- offers of overseas facilities in Djibouti, Seychelles, and Pakistan, with Port Salalah, Oman already serving as an important access point for the PLAN
- major presence in two key "Great Game" regions: Africa (rich in resources and in people, the future of world population and labor growth) and the Arctic SLOCs. By 2030, the NIC projects, it "will be possible to transit both the Northern and Northwest Passage for about 110 days per year, with about 45 days easily navigable." China aims to capitalize on this opportunity, emerging as a major partner for smaller Arctic nations, with the largest embassy in Iceland, frequent visits by officials, and a port call by the Xuelong icebreaker.
Based on these drivers, in a favorable scenario, China may field a force with some degree of global reach and influence. Key developments by 2030 might include the following:

- The PLAN and PLA AF will have largely modern platforms and well-trained personnel.
- China may achieve disruptive innovation capabilities, particularly in the defense electronics, space, and missile sectors, as well as in specific frontier technologies such as unmanned systems, hypersonics, directed energy, nanotechnology, and additive manufacturing.
- China’s defense industrial base may come to include:
  - The world’s largest civilian and military shipbuilding industry by tonnage, able to build sophisticated vessels of all types.
  - An aviation industry capable of producing advanced systems including, finally, sophisticated aeroengines.
  - Robust arms sales networks and growing influence, including with such pivotal states as Pakistan, Turkey, and Saudi Arabia.
- The PLA may have the capability to hold at risk US land-, sea-, and air-based forces, not only in the Western Pacific, but even in Guam and Hawaii, and conceivably beyond.
- China may have transitioned from a coastal state- to maritime power-outlook in important respects.
  - China’s seven military regions will have been consolidated and reconfigured into a more joint, flexible, extroverted configuration.
  - Chinese ships and aircraft may gather intelligence regularly in and above US EEZs, not only off Guam and Hawaii, but also the West Coast.
  - Chinese forces may call on a growing network of overseas access points.
- These and other capabilities may serve an increasingly flexible, multidimensional foreign policy calculus, characterized by increased security support to the UN and increased Chinese organization of bilateral and multilateral security arrangements and exercises.

In one of the most sophisticated analyses to date of a good-case scenario for PLA distant operations development, Oriana Mastro posits: "By 2025 a global expeditionary PLA will be able to project power in a well-defined area for a specific duration of time anywhere in the world."39

Yet alternative scenarios must also be considered, particularly the possibility that domestic or regional challenges limit or even preclude further PLA extraregional focus. China’s official internal security budget exceeds the official PLA budget. China has 1.9 million Ministry of Public Security officers and 660,000 People’s Armed Police personnel as compared to 1.25 million PLA ground force personnel. These ratios suggest continued domestic security concerns.40 Greater cross-Strait integration could unleash uniquely Chinese historical-political forces, triggering unrest, governmental reforms, and even strategic introversion.
Moreover, even if favorable conditions are assumed overall, examination of specific areas of potential Chinese power projection reveals complexities in intention and capabilities. For example, China’s growing maritime interests and energy dependency may gradually drive more thoroughgoing PLA development. Chinese reliance on Middle East energy is growing, just as shale gas-rich North America’s is decreasing. By 2050, the NIC projects, Asia will be 90 percent dependent on imported oil.41 Accounting for 60 percent of China’s oil (11% of China’s total energy consumption) in 2012, the level of oil imported by China is projected to reach 75 percent by 2030. In 2012, 84 percent of China’s oil imports transited the Strait of Malacca and the South China Sea.42 While Myanmar-China and Russia-China pipelines have come online, in DoD’s assessment such “new pipelines will only slightly alleviate China’s maritime dependency on either the Strait of Malacca or the Strait of Hormuz...the sheer volume of oil and liquefied natural gas that is imported to China from the Middle East and Africa will make strategic SLOCs increasingly important to China.”43

Foreign and Chinese experts alike have long cited securing SLOCs to safeguard rising energy imports as a key potential driver of PLA, particularly PLAN, development. Yet it remains far from certain what, if any, Chinese consensus might develop in this area. These factors make it extremely difficult to predict the extent to which natural resource imports are likely to drive PLAN development.

**Implementation Challenges and Opportunities**

Addressing globe-spanning interests beyond the Near Seas militarily requires longer-range power projection capabilities. Yet the challenges Beijing faces in acquiring the capabilities and developing the missions to operate a combat force there are daunting and could well increase further. China’s Near Seas advantages largely do not translate to the Far Seas, where it faces significant liabilities including weaknesses in ASW and data collection, fusion, and dissemination.44

Other limiting factors inhibiting China include geography, funding, force integration and training challenges, and the rising capabilities of other militaries. All these become much more difficult when attempting to project power over great distances. More sophisticated longer range capabilities cost ever more to maintain at a given level. This would impose a significant economic burden, particularly given the ongoing slowdown in Chinese economic growth. Additionally, the more cost-effective asymmetric countermeasures that others would likely implement against China’s attempts to expand the reach of its military power will pose real difficulties for the PLA.

Despite these larger challenges, however, China could conceivably enjoy opportunities. First, ships and aircraft produced relatively cost-effectively by China today can serve for years to come. Second, China’s defense industrial base has already reached Russian/European levels in some areas. The majority of missile programs, for example, approach leading-edge levels. Despite continuing efforts to improve propulsion systems, is a leading shipbuilder. China
boasts the world’s largest wind tunnel, the JF12 hypersonic facility, capable of simulating conditions up to Mach 5–9.\textsuperscript{45} The US Defense Science Board worries that China might “match or even outpace U.S. spending on unmanned systems in the future.”\textsuperscript{46} Even as China improves indigenous capabilities, it continues to seek access to the most advanced foreign technologies. Low-observable technology is one area of emphasis, as seen in the \textit{Lijian} UAV and J-20 and -31 fighters—the latter of which share design characteristics. Prioritized PLAN-relevant technologies “include three-dimensional maritime environmental monitoring technologies, fast, multi-parameter ocean floor survey technologies, and deep-sea operations technologies.” Prioritized PLAAF-relevant technologies “include development of chemical and solid laser state technologies to field a weapon-grade system ultimately from ground-based and airborne platforms.”\textsuperscript{47} Third, while a significant economic slowdown would slow Chinese military development overall, it could nevertheless stimulate Chinese development of disruptive technological innovation. Such an approach already emerged at a lower level of Chinese capacity, when the 1999 Belgrade Embassy bombing persuaded China’s leadership to fund “assassin’s mace” megaprojects to develop weapons of disproportionate effect like the ASBM.

\textbf{Future Forces: Naval}

Currently, DoD assesses, “China’s improving naval capabilities enable roles and missions that would have been impossible for the PLA to pursue just a decade ago.”\textsuperscript{48} What further advances seem probable 10–20 years hence? Over the next decade, as ONI assesses, China will continue to develop its core naval capabilities, while also “completing” its transition from a coastal navy to a navy capable of multiple missions around the world.” The PLAN “will be expected to perform a wide variety of tasks including assuring the nation’s economic lifelines, asserting China’s regional territorial interests, conducting humanitarian assistance and disaster relief, and demonstrating a Chinese presence beyond region waters.”\textsuperscript{49} The key question is how quickly, and to what extent, it will pursue these other missions.

China’s counterintervention capabilities will continue to expand in scope, with robust coverage of the entire South China Sea, as well as the Philippine Sea, over the next decade. ONI judges that “[t]he deployment of LACMs on future submarines and surface combatants could enhance China’s ability to strike key US bases throughout the region, including Guam.” Progressing in this counterintervention-plus direction alone will require major improvements in maritime and air domain awareness vis-à-vis the near seas’ 875,000 square nautical miles and the Philippine Sea’s 1.5 million square nautical miles. For instance, China is not currently capable of fully enforcing the southern reaches of a potential South China Sea ADIZ. To support such efforts, “The PLA(N) will probably employ significant numbers of land and ship based UAVs to supplement manned ISR aircraft and aid targeting for various long-range weapons systems. UAVs will probably become one of the PLA(N)’s most valuable ISR assets in ongoing and future maritime disputes and protection of maritime claims.”\textsuperscript{50}
China is already developing some form of deck aviation capability, for both national prestige and limited missions beyond Taiwan. China's Liaoning aircraft carrier is several years from initial operational capability (IOC) with a carrier-capable air regiment. It will probably be several more years on top of that (several + several years) until a Liaoning-centered carrier group can challenge forces from another major navy. ONI forecasts: "By 2020, carrier-based aircraft will be able to support surface fleet operations in a limited air-defense role."51 China has reportedly begun construction of its first indigenous aircraft carrier. More capable follow-on carriers, with catapults, should be anticipated in coming years.

Supporting more than limited long-range operations would require manifold additional platforms and capabilities, including additional replenishment ships, deep water ASW proficiency, and integrated joint operations. Default projections by ONI appear modest thus far, for example, that "the PLA(N) surface force may be more capable of identifying adversary submarines in limited areas by 2020."52 Logistics and intelligence support remain key obstacles, especially in the Indian Ocean. Over next decade, DoD forecasts, China is likely to establish several Indian Ocean "access points" for "refueling, replenishment, crew rest, and low-level maintenance."53

**Future Forces: Air**

In the assessment of RAND's David Shlapak, "The revolution in the PLAAF's order of battle is over. It has made up the three decades separating the MiG-19 and the Su-27 in fifteen remarkable years, and it continues to progress. Whether the PLAAF can close the gaps that remain between its capabilities and those of the world's most advanced air forces remains to be seen. Given how it has transformed itself over the last twenty years, however, one would be foolish to bet too heavily against it."54 DoD's 2014 report explains how China's air force may in fact achieve this feat: "The PLAAF is pursuing modernization on a scale unprecedented in its history and is rapidly closing the gap with Western air forces across a broad spectrum of capabilities including aircraft, command and control (C2), jammers, electronic warfare (EW), and data links. Although it still operates a large number of older second- and third-generation fighters, it will likely become a majority fourth-generation force within the next several years."55 Within the next decade or so, moreover, China's air forces will likely greatly increase their strike capabilities. A successfully-fielded J-20 "will instantly overmatch any fighter" operated by lesser neighboring air forces.56

A major question for Chinese airpower projection is how rapidly and to what extent China can develop high-performance indigenous aeroengines. Absent this capability, it will remain reliant on a Russia diminishing in innovativeness yet determined to deny China the ability to develop superior military aircraft or export them competitively. Other areas requiring improvement are fielding transport and refueling aircraft in significant numbers, as well as AWACs aircraft of sufficient numbers and sophistication to safeguard and coordinate air operations. To support possible global expeditionary capabilities by 2030,
Mastro posits that the PLAAF would need to acquire additional Russian Il-76 transports and/or build improved Y-20 aircraft with upgraded engines, field the J-20 and/or J-31, and deploy large UAVs fleets.\textsuperscript{57}

**Net Assessment Challenges**

All elements of the complex, multivariate military equation are essential to a comprehensive net assessment. This requires information inaccessible in open sources. This chapter is further limited in its coverage. Of particular relevance to the navies of the United States and its allies and friends, it does not analyze China’s massive, increasingly formidable land-based anti-naval and -air capabilities, or the complex command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) network to ensure their effective coordination and targeting. These capabilities are composed primarily of SAF-controlled ballistic and cruise missiles, PLAAF-controlled surface-to-air missiles (SAMs), and PLAN-controlled coastal-defense cruise missiles (CDCMs).

Outright comparisons of Chinese and US forces is misleading because their vessels differ significantly, and the two sides have very different objectives and missions to accomplish. Avoiding one-sided analysis is likewise essential. Undoubtedly, the PLA will expand its portfolio of weapons systems capable of targeting US regional bases and vessels. “U.S. bases on Okinawa are in range of a growing number of Chinese MRBM, and Guam could potentially be reached by air-launched cruise missiles,” DoD concludes. Moreover, “Chinese missiles have also become far more accurate and are now better suited to strike regional air bases, logistics facilities, and other ground-based infrastructure, which Chinese military analysts have concluded are vulnerabilities in modern warfare. China is fielding an array of conventionally armed ballistic missiles, ground- and air-launched land-attack cruise missiles, special operations forces, and cyber warfare capabilities to hold such targets at risk throughout the region.”\textsuperscript{58} But this says nothing of the countermeasures that United States and allied forces might employ, as well as the ways in which they might successfully target their Chinese counterparts.

Perhaps the best that can presently be done with open sources is to review carefully the few judgments offered by the latest unclassified US government publications, and to consider what are the most critical factors affecting the relevant equations. In DoD’s assessment, strike capabilities would play a leading role in virtually any foreseeable conflict that China entered, bolstered by the ability of OTH radars and satellites to locate targets at greater distances from China: “In a near-term conflict, PLA Navy operations would likely begin in the offshore and coastal areas with attacks by coastal defense cruise missiles, maritime strike aircraft, and smaller combatants and extend as far as the second island chain and Strait of Malacca using large surface ships and submarines. As the PLA Navy gains experience and acquires larger numbers of more capable platforms, including those with long-range air defense, it will expand the depth of these operations further into the western Pacific.”\textsuperscript{59} “Given the
pace of PLA(N) modernization,” ONI assesses, “the gap in military capability between the mainland and Taiwan will continue to widen in China’s favor over the coming years.”60 Specifically, DoD judges, “China today probably could not enforce a full military blockade [against Taiwan]. However, its ability to do so will improve significantly over the next five to ten years.”61

**US and Allied Responses**

To prevent China or any other potential challenger from denying the United States and its allies the continued ability to operate in the global commons and to prevent the use of force from being used to change the status quo in strategic regions, the United States is developing the Air-Sea Battle Concept (ASBC), recently renamed Joint Concept for Access and Maneuver in the Global Commons (JAM-GC).62 These names are confusing to nonspecialists not immersed in the benefits of Navy-Air Force cooperation to exploit operational synergies and conserve resources, and operational details are classified. A more straightforward encapsulation is provided by the “Joint Operational Access Concept” (JOAC), which describes the logical US/allied goals well: use available forces jointly with maximum effectiveness to preserve the status quo of peace and freedom of operation. Labeling JAM-GC or JOAC as solely against China is inaccurate: while they are clearly designed largely to address potential Chinese military challenges, other potential targets include Iran or any other country that might seek to disrupt peace and access. Here particular humility is required in prediction: the previous Air-Land Battle concept developed clearly for use against the USSR was ultimately used against Iraqi forces in Operation Desert Storm.

Robust debate is now underway concerning how the United States can best deter, or—in a worst-case scenario—fight China.63 Support for a robust JAM-GC-type approach can be seen in analysis from the Center for Strategic and Budgetary Analysis (CSBA).64 Critics of blind, suppress, and defeat-type preemption that JAM-GC promotes note the JOAC’s own acknowledgement that “the potentially escalatory effects of strikes into an adversary’s homeland must be carefully weighed against US political objectives and acceptable risk. Such escalation is particularly likely when the conflict is distant from the US homeland, and there has been no corresponding attack on US territory. In these cases, the probability and risk of reprisal attacks against the continental United States must be considered.”65 Given Beijing’s perception that it cares about Near Seas disputes far more than Washington, critics question whether a US president would ever select such an option and whether Washington could achieve peacetime deterrence on the basis that s/he might do.

I: X. Hammes offers an alternative approach: “offshore control,” which “works with willing Asia-Pacific nations to ensure that the United States can interdict China’s energy and raw material imports and industrial exports, while protecting our partners.”66 He believes that a distant blockade of energy imports can target Chinese economic vulnerability while containing escalation. Yet this would be incredibly escalatory from Beijing’s perspective, damaging to
the global economy, and impractical to implement given the complex nature
of the shipping industry, in which ships and crews are often multinational,
cargoes such as oil can be resold many times in transit, and bills of lading can
be falsified.67

The author advocates a third approach: "deterrence by denial." In all con-
ceivable scenarios Washington and its allies would seek to preserve the status
quo and Beijing would seek to disrupt it selectively concerning sovereignty
disputes. This offers the former significant strategic, operational, and tactical
advantages, because it is China that would have to initiate a conflict and seize
territory, thereby exposing its forces. While Washington and its allies would
prefer to maintain control of the sea, air, and other mediums where possible,
because of these strategically defensive objectives, to achieve their bottom-
line objectives they need only to maintain the ability to deny China's military
objectives by preventing China from seizing and holding disputed territory.
Even as the overall balance of power continues to shift significantly, this allows
them to pursue their own asymmetric counterintervention approaches against
the PLA that the PLA has pursued so potently against them in recent years.
The United States and its allies could and should have done more, sooner; but
in recent years, there is finally growing recognition of the need to take a page
from China's playbook in this regard.

Regardless of the outcome of this debate, Washington is already making a
concerted effort to demonstrate ability to "break the kill chains" of relevant
Chinese weapons systems by disrupting their operational stages from target
identification to destruction. Judging from official statements, the United
States retains such options, and is pursuing new technologies and techniques
to continue to do so in the future.

This brings us to a final, important caveat: this chapter does not analyze the
CCG in depth. Its numerous ships and some helicopters and other aircraft offer
versatile peacetime presence and pressure options—sometimes in conjunction
with government-controlled civilian craft. It allows China to pose a "gray zone"
challenge in which it does not pursue claims with military force directly but
rather uses "salami-slicing" tactics against rival law enforcement forces that
are either more legally constrained (as is the large, capable Japan Coast Guard)
or are far smaller and less capable (as are all China's South China Sea neigh-
bors). This "win without fighting" approach is already yielding some gains
for Beijing, in part because direct US Navy involvement could be escalatory
in many instances, yet the US Coast Guard lacks the mission and resources
to play a corresponding Near Seas role. As one observer argues cogently, "[B]e-
cause it's such a big stick, ASB will probably be far less effective against small-
scale Chinese aggression, such as coercive military actions in maritime territo-
rial disputes, where the stakes are small enough to (probably) avoid high levels
of escalation. The United States is still thus searching for a credible deterrence
strategy for such cases."68 This gray zone issue is critical, since it lies at the core
of what China is actually achieving in peacetime, as opposed to developing
and deploying military capabilities for wartime that one hopes will never be
employed in practice.

* The author

1. "Xi Jinping
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   news/20
Conclusion

As Abraham Denmark concludes, "[T]he rise of China is the defining characteristic of every commons. A 30-year modernization effort has made China the region’s largest potential threat to the stability of the global commons while, ironically, also making it more dependent on those commons." For the United States, this is not a "peer competitor" problem on a global scale; it is about the Near Seas and their immediate approaches, as well as proximate airspace. If China wants to develop more global military power projection capabilities, it will confront daunting technological, economic, political, and organizational difficulties regardless of the resources at its disposal. And those resources may not continue to increase rapidly; China may not maintain its status as the burgeoning juggernaut that many anticipate.

For the foreseeable future, the principal challenge to the United States and its regional allies lies in the fact that Beijing is committed to establishing a sphere of influence across the Near Seas. There, it appears to seek a "zone of exceptionalism" within which its interests are privileged and factored strongly into all major strategic developments. To ensure this preferential environment, it wants to be able to deter, coerce, or defeat regional adversaries; restrict freedom of military operations that it deems unfriendly; and deter US intervention.

China probes and pressure unremittingly where it perceives weakness, but moderates its behavior when it encounters determined, capable opposition. Washington must maintain and demonstrate strength to preserve strategic stability and work closely with its allies in this regard. Just how much US power, presence, and policy punch is sufficient to maintain the status quo remains a critical question for the region.

Fortunately, however, a Chinese conflict with regional neighbors and the United States is not inevitable. China clearly recognizes the challenges it faces in projecting significant military power beyond this immediate neighborhood, and the advantages that the US retains in that more distant competition. For now, at least, Beijing can secure its extraregional interests by relying on a combination of relatively simpler military capabilities, together with diplomacy and cooperation with others, including the United States, which share common interests in global commons security. By continuing to contribute useful public goods such as anti-piracy patrols near the Horn of Africa, nontraditional security operations can offer Beijing the increased global status and influence that it craves without running roughshod over the security of less powerful nations and the global system on which all nations rely for stability and prosperity.

Notes

* The author thanks Avery Goldstein, Michael Swaine, and William Murray for invaluable inputs.


6. Ibid., p. 8.


16. Ibid.

17. Ibid., p. 9.


29. Ibid., p. 78.
38. Ibid., p. 68.
40. Author's discussion with Dennis Blasko, January 2015.
43. Ibid., p. 19.
48. Ibid., p. 20.
49. ONI.
50. Ibid.
51. Ibid.
52. Ibid.
56. Ibid., p. 69.
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ASSESSING CHINA'S POWER
EDITED BY JAE HO CHUNG
“China’s growing power and what it means for the rest of us is the topic of the decade. What we lack is an objective, balanced, and systematic evaluation of just how powerful China is. This volume, the work of 13 outstanding China specialists, goes a long way to filling the gap.”
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The topic of China’s rise and what it really means for the global and regional order is the subject of intense debate in scholarly discourse and media around the world. While some are confident that China will rise to the level of an equally powerful competitor to the United States, others are more cautious. Assessing China’s Power engages with this ongoing debate through empirical, sector-based, and systematic assessments of China’s power. Top scholars address China’s power today, compare China’s power with that of the United States, and forecast China’s power in 2025. This volume offers persuasive accounts of where China stands out, where China still has room to improve, and where China’s comprehensive power is and will be situated within the hierarchy of the international system.

Jae Ho Chung is Professor of International Relations and Director of the Program on US-China Relations at Seoul National University, Korea. His books include Central Control and Local Discretion in China and Between Ally and Partner. He is also the founding coordinator of the Asian Network for the Study of Local China.
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