

# China

Dean Cheng

**I**n the 2017 National Security Strategy, the Trump Administration made clear that it was shifting the focus of American security planning away from counterterrorism and back toward great-power competition. In particular, it noted that:

China and Russia challenge American power, influence, and interests, attempting to erode American security and prosperity. They are determined to make economies less free and less fair, to grow their militaries, and to control information and data to repress their societies and expand their influence...<sup>1</sup>

Until the Biden Administration issues its own National Security Strategy, the United States can probably be expected to adhere to the policies outlined in the 2017 strategy.

## Threats to the Homeland

Both China and Russia are seen as revisionist powers, but they pose very different challenges to the United States. The People's Republic of China (PRC) has a far larger economy, as well as the world's second-largest gross domestic product (GDP), and is intertwined in the global supply chain for crucial technologies, especially those relating to information and communications technology. As a result, it has the resources to support a comprehensive military modernization program that has been ongoing for more than two decades and spans the conventional, space, and cyber realms as

well as weapons of mass destruction, an area that includes a multipronged nuclear modernization effort.

At the same time, the PRC has been acting more assertively—even aggressively—against more of its neighbors. Unresolved land and maritime disputes have led Beijing to adopt an increasingly confrontational attitude toward territorial disputes in the South China Sea, in the East China Sea, and along the China–India border, and cross-Strait tensions have reemerged as a result of Beijing's reaction to the Democratic Progressive Party's victories in Taiwan's 2016 and 2020 elections.

In May 2020, the U.S.–China Economic and Security Review Commission reported that, “[w]ith the world distracted by COVID-19, China also intensified its multi-faceted pressure campaign against Taiwan. Chinese military aircraft crossed the median line of the Taiwan Strait three times in the early months of 2020 after only one such incursion in 2019.” The commission further noted that China conducted several provocative military exercises around the island and “continued its efforts to poach Taiwan's remaining diplomatic allies as the virus spread.”<sup>2</sup> Since then, China has been intruding regularly across the median line of the Taiwan Strait with ever-larger groups of aircraft.

Meanwhile, China's attempts to obscure the origins of the COVID-19 pandemic and stifle international investigations into the matter undermined global health efforts. Beijing has also sought to exclude Taiwan from multilateral efforts to combat the pandemic.

### **Growing Conventional Capabilities.**

The Chinese People's Liberation Army (PLA) remains one of the world's largest militaries, but its days of largely obsolescent equipment are in the past. Nearly two decades of officially acknowledged double-digit growth in the Chinese defense budget have resulted in a comprehensive modernization program that has benefited every part of the PLA. This has been complemented by improvements in Chinese military training and, in 2015, the largest reorganization in the PLA's history.<sup>3</sup> The PLA has lost 300,000 personnel since those reforms, but its overall capabilities have increased as older platforms have been replaced with newer, much more sophisticated systems.

A major part of the 2015 reorganization was the establishment of a separate ground forces headquarters and bureaucracy; previously, the ground forces had been the default service providing staffs and commanders. Now the PLA Army (PLAA), responsible for the PLA's ground forces, is no longer automatically in charge of war zones or higher headquarters functions. At the same time, the PLAA has steadily modernized its capabilities, incorporating both new equipment and a new organization. It has shifted from a division-based structure toward a brigade-based one and has been improving its mobility, including heliborne infantry and fire support.<sup>4</sup> These forces are increasingly equipped with modern armored fighting vehicles, air defenses, both tube and rocket artillery, and electronic support equipment.

The PLA Navy (PLAN) is Asia's largest navy. It now also outnumbers the U.S. Navy, with "360 battle force ships, compared with a projected total of 297 for the U.S. Navy at the end of FY2020."<sup>5</sup> Although the total number of ships has dropped, the PLAN has fielded increasingly sophisticated and capable multi-role ships. Multiple classes of surface combatants are now in series production, including the Type 055 cruiser and the Type 052C and Type 052D guided missile destroyers, each of which fields long-range surface-to-air (SAM) and anti-ship cruise missile systems, as well as the Type 054 frigate and Type 056 corvette.

The PLAN has similarly been modernizing its submarine force. Since 2000, the PLAN has consistently fielded between 50 and 60 diesel-electric submarines, but the age and capability of the force have been improving as older boats, especially 1950s-vintage *Romeo*-class boats, are replaced with newer designs. These include a dozen *Kilo*-class submarines purchased from Russia and domestically designed and manufactured *Song* and *Yuan* classes. All of these are believed to be capable of firing both torpedoes and anti-ship cruise missiles.<sup>6</sup> The Chinese have also developed variants of the *Yuan*, with an air-independent propulsion (AIP) system that reduces the boats' vulnerability by removing the need to use noisy diesel engines to recharge batteries.<sup>7</sup>

The PLAN has been expanding its amphibious assault capabilities as well. The Chinese have announced a plan to triple the size of the PLA naval infantry force (their counterpart to the U.S. Marine Corps) from two brigades totaling 10,000 troops to seven brigades with 30,000 personnel.<sup>8</sup> To move this force, the Chinese have begun to build more amphibious assault ships, including Type 071 amphibious transport docks.<sup>9</sup> Each can carry about 800 naval infantrymen and move them to shore by means of four air-cushion landing craft and four helicopters.

Supporting these expanded naval combat forces is a growing fleet of support and logistics vessels. The 2010 PRC defense white paper noted the accelerated construction of "large support vessels." It also specifically noted that the navy is exploring "new methods of logistics support for sustaining long-time maritime missions."<sup>10</sup> These include tankers and fast combat support ships that extend the range of Chinese surface groups and allow them to operate for more prolonged periods away from main ports. Chinese naval task forces dispatched to the Gulf of Aden have typically included such vessels.

The PLAN has also been expanding its naval aviation capabilities, the most publicized element of which has been the growing Chinese carrier fleet. This currently includes not only

the *Liaoning*, purchased from Ukraine over a decade ago, but a domestically produced copy that recently completed its first exercise.<sup>11</sup> Both of these ships have ski jumps for their air wing, but the Chinese are also building several conventional takeoff/barrier landing (CATOBAR) carriers (like American or French aircraft carriers) that will employ catapults and therefore allow their air complement to carry more ordnance and/or fuel.<sup>12</sup>

The PLAN's land-based element is modernizing as well, with a variety of long-range strike aircraft, anti-ship cruise missiles, and unmanned aerial vehicles (UAVs) entering the inventory. In addition to more modern versions of the H-6 twin-engine bombers (a version of the Soviet/Russian Tu-16 Badger), the PLAN's Naval Aviation force has added a range of other strike aircraft to its inventory. These include the JH-7/FBC-1 Flying Leopard, which can carry between two and four YJ-82 anti-ship cruise missiles, and the Su-30 strike fighter.

The PLA Air Force (PLAAF), with more than 1,700 combat aircraft, is Asia's largest air force. It has shifted steadily from a force focused on homeland air defense to one that is capable of power projection, including long-range precision strikes against both land and maritime targets.

The PLAAF currently has more than 700 fourth-generation fighters that are comparable to the U.S. F-15, F-16, and F-18. They include the domestically designed and produced J-10 as well as the Su-27/Su-30/J-11 system, which is comparable to the F-15 or F-18 and dominates both the fighter and strike missions.<sup>13</sup> China is also believed to be preparing to field two stealthy fifth-generation fighter designs. The J-20 is the larger aircraft and resembles the American F-22 fighter. The J-31 appears to resemble the F-35 but with two engines rather than one. The production of advanced combat aircraft engines remains one of the greatest challenges to Chinese fighter design.

The PLAAF is also deploying increasing numbers of H-6 bombers, which can undertake longer-range strike operations including

operations employing land-attack cruise missiles. Although the H-6, like the American B-52 and Russian Tu-95, is a 1950s-era design copied from the Soviet-era Tu-16 Badger bomber, the latest versions (H-6K) are equipped with updated electronics and engines and are made of carbon composites. The 2020 U.S. Department of Defense (DOD) report to Congress on China's military also notes that China is developing a flying wing-type stealth bomber that is probably similar to the U.S. B-2.<sup>14</sup>

Equally important, the PLAAF has been introducing a variety of support aircraft, including airborne early warning (AEW), command and control (C2), and electronic warfare (EW) aircraft. These systems field state-of-the-art radars and electronic surveillance systems that allow Chinese air commanders to detect potential targets, including low-flying aircraft and cruise missiles, more quickly and gather additional intelligence on adversary radars and electronic emissions. China's combat aircraft are also increasingly capable of undertaking mid-air refueling, which allows them to conduct extended, sustained operations, and the Chinese aerial tanker fleet, which is based on the H-6 aircraft, has been expanding.

At the biennial Zhuhai Air Show, Chinese companies have displayed a variety of unmanned aerial vehicles that reflect substantial investments and research and development efforts. The surveillance and armed UAV systems include the Xianglong (Soaring Dragon) and Sky Saber systems. The 2019 DOD report on Chinese capabilities stated that China had tested a cargo drone, the AT-200, capable of carrying 1.5 tons of cargo.<sup>15</sup> Chinese UAVs have been included in various military parades over the past several years, suggesting that they are being incorporated into Chinese forces, and the 2018 DOD report on Chinese capabilities stated that "China's development, production and deployment of domestically-developed reconnaissance and combat UAVs continues to expand."<sup>16</sup>

The PLAAF is also responsible for the Chinese homeland's strategic air defenses. Its array of surface-to-air missile batteries is one

of the largest in the world and includes the Russian S-300 (SA-10B/SA-20) and its Chinese counterpart, the Hongqi-9 long-range SAM. In 2018, the Russians began to deliver the S-400 series of long-range SAMs to China. These mark a substantial improvement in PLAAF air defense capabilities, as the S-400 has both anti-aircraft and anti-missile capabilities.<sup>17</sup> China has deployed these SAM systems in a dense, overlapping belt along its coast, protecting the nation's economic center of gravity. Key industrial and military centers such as Beijing are also heavily defended by SAM systems.

China's airborne forces are part of the PLAAF. The 15th Airborne Corps has been reorganized from three airborne divisions to six airborne brigades in addition to a special operations brigade, an aviation brigade, and a support brigade. The force has been incorporating indigenously developed airborne mechanized combat vehicles for the past decade, giving them more mobility and a better ability to engage armored forces.

**Nuclear Capability.** Chinese nuclear forces are the responsibility of the PLA Rocket Forces (PLARF), one of the three new services created on December 31, 2015. China's nuclear ballistic missile forces include land-based missiles with a range of 13,000 kilometers that can reach the U.S. (CSS-4) and submarine-based missiles that can reach the U.S. when the submarine is deployed within missile range.

The PRC became a nuclear power in 1964 when it exploded its first atomic bomb as part of its "two bombs, one satellite" effort. China then exploded its first thermonuclear bomb in 1967 and orbited its first satellite in 1970, demonstrating the capability to build a delivery system that can reach the ends of the Earth. China chose to rely primarily on a land-based nuclear deterrent instead of developing two or three different basing systems as the United States did.

Unlike the United States or the Soviet Union, China chose to pursue only a minimal nuclear deterrent. The PRC fielded only a small number of nuclear weapons: 100–150 weapons on medium-range ballistic missiles

and approximately 60 intercontinental ballistic missiles (ICBMs).<sup>18</sup> Its only ballistic missile submarine (SSBN) conducted relatively few deterrence patrols (perhaps none),<sup>19</sup> and its first-generation submarine-launched ballistic missile (SLBM), the JL-1, if it ever attained full operational capability had limited reach. The JL-1's 1,700-kilometer range makes it comparable to the first-generation Polaris A1 missile fielded by the U.S. in the 1960s.

While China's nuclear force remained stable for several decades, it has been part of the modernization effort of the past 20 years. The result has been modernization and some expansion of the Chinese nuclear deterrent. The core of China's ICBM force is the DF-31 series, a solid-fueled, road-mobile system, along with a growing number of longer-range, road-mobile DF-41 missiles that may already be in the PLA operational inventory. The DF-41 may be deployed with multiple independently targetable reentry vehicles (MIRVs).<sup>20</sup> China's medium-range nuclear forces have similarly shifted to mobile, solid-rocket systems so that they are both more survivable and more easily maintained.

This past year has seen a sudden inflation in the number of strategic nuclear warheads available to the PLA Rocket Force. Imagery analysts at several think tanks discovered at least three fields of silos under construction in western China.<sup>21</sup> Each appears to contain around 100 silos, which means that China is potentially expanding its land-based nuclear deterrent component by over an order of magnitude.

Notably, the Chinese are also expanding their ballistic missile submarine fleet. Replacing the one Type 092 *Xia*-class SSBN are perhaps six Type 094 *Jin*-class SSBNs, four of which are already operational. They will likely be equipped with the new, longer-range JL-2 SLBM.<sup>22</sup> Such a system would give the PRC a secure second-strike capability, substantially enhancing its nuclear deterrent.

There is some possibility that the Chinese nuclear arsenal now contains land-attack cruise missiles. The CJ-20, a long-range, air-launched cruise missile carried on China's



H-6 bomber, may be nuclear tipped, although there is not much evidence that China has pursued such a capability. China is also believed to be working on a cruise missile submarine that, if equipped with nuclear cruise missiles, would further expand the range of its nuclear attack options.<sup>23</sup>

As a result of its modernization efforts, China's nuclear forces appear to be shifting from a minimal deterrent posture, suited only to responding to an attack and even then with only limited numbers, to a more robust but still limited deterrent posture. While the PRC will still likely field fewer nuclear weapons than either the United States or Russia, it will field a more modern and diverse set of capabilities than India, Pakistan, or North Korea, its nuclear-armed neighbors, are capable of fielding. If there are corresponding changes in doctrine, modernization will enable China to engage in limited nuclear options in the event of a conflict.

This assessment changes, however, if the missiles going into the newly discovered silos are equipped with MIRVs (multiple independently targetable reentry vehicles). If the Chinese place five MIRVs atop each missile, then 300 new ICBMs would have some 1,500 warheads—equivalent to the U.S. and Russian numbers allowed under New START. Even if there are fewer than 300 ICBMs, the new SLBMs and new bombers would still mean that within a few years, China could field as large a nuclear force as the United States or Russia is capable of fielding.

In addition to strategic nuclear forces, the PLARF has responsibility for medium-range and intermediate-range ballistic missile (MRBM and IRBM) forces. These include the DF-21 and DF-26 missiles, which can reach as far as Guam and southern India.<sup>24</sup> It is believed that Chinese missile brigades equipped with these systems may have both nuclear and conventional responsibilities, making any deployment from garrison much more ambiguous from a stability perspective. The expansion of these forces also raises questions about the total number of Chinese nuclear warheads.

**Cyber and Space Capabilities.** The major 2015 reorganization of the PLA included creation of the PLA Strategic Support Force (PLASSF), which brings the Chinese military's electronic, network (including cyber), and space warfare forces under a single service umbrella. Previously, these capabilities had been embedded in different departments across the PLA's General Staff Department and General Armaments Department. By consolidating them into a single service, the PLA has created a Chinese "information warfare" force that is responsible for offensive and defensive operations in the electromagnetic and space domains.

Chinese network warfare forces are known to have conducted a variety of cyber and network reconnaissance operations as well as cyber economic espionage. In 2014, the U.S. Department of Justice charged PLA officers from Unit 61398, then of the General Staff Department's 3rd Department, with theft of intellectual property and implanting of malware in various commercial firms.<sup>25</sup> Members of that unit are thought also to be part of Advanced Persistent Threat-1, a group of computer hackers believed to be operating on behalf of a nation-state rather than a criminal group. In 2020, the Department of Justice charged a number of PLA officers with one of the largest breaches in history: stealing the credit ratings and records of 147 million people from Equifax.<sup>26</sup>

Chinese space capabilities gained public prominence in 2007 when the PLA conducted an anti-satellite (ASAT) test in low-Earth orbit against a defunct Chinese weather satellite. The test became one of the worst debris-generating incidents of the space age, with several thousand pieces of debris generated, many of which will remain in orbit for more than a century. However, the PRC has been conducting space operations since 1970 when it first orbited a satellite.

Equally important, Chinese counter-space efforts have been expanding steadily. The PLA not only has tested ASATs against low-Earth orbit systems, but also is believed to have

tested a system designed to attack targets at geosynchronous orbit (GEO), approximately 22,000 miles above the Earth. As many vital satellites are at GEO, including communications and missile early-warning systems, China's ability to target such systems constitutes a major threat.

The creation of the PLASSF, incorporating counter-space forces, reflects the movement of counter-space systems, including direct-ascent ASATs, out of the testing phase to fielding with units. A recent report from the U.S. National Air and Space Intelligence Center (NASIC) notes that Chinese units are now training with anti-satellite missiles.<sup>27</sup>

### Threats to the Commons

The U.S. has critical sea, air, space, and cyber interests at stake in the East Asia and South Asia international common spaces. These interests include an economic interest in the free flow of commerce and the military use of the commons to safeguard America's own security and contribute to the security of its allies and partners.

Washington has long provided the security backbone in these areas, and this in turn has supported the region's remarkable economic development. However, China is taking increasingly assertive steps to secure its own interests in these areas independent of U.S. efforts to maintain freedom of the commons for all in the region. Given this behavior, which includes the construction of islands atop previously submerged features, two things seem obvious: China and the United States do not share a common conception of international space, and China is actively seeking to undermine American predominance in securing international common spaces.

In addition, as China expands its naval capabilities, it will be present farther and farther away from its home shores. China has now established its first formal overseas military base, having initialed an agreement with the government of Djibouti in January 2017.<sup>51</sup>

**Dangerous Behavior in the Maritime and Airspace Common Spaces.** The

aggressiveness of the Chinese navy, maritime law enforcement forces, and air forces in and over the waters of the East China Sea and South China Sea, coupled with ambiguous, extralegal territorial claims and assertion of control there, poses an incipient threat to American and overlapping allied interests. Chinese military writings emphasize the importance of establishing dominance of the air and maritime domains in any future conflict.

Although the Chinese do not necessarily have sufficient capacity to deny the U.S. the ability to operate in local waters and airspace, the ability of the U.S. to take control at acceptable costs in the early stages of a conflict has become a matter of greater debate.<sup>28</sup> As its capabilities have expanded, China has increasingly challenged long-standing rivals Vietnam and the Philippines. It also has begun to push toward Indonesia's Natuna Islands and into waters claimed by Malaysia.

It is unclear whether China is yet in a position to enforce an air defense identification zone (ADIZ) consistently, but the steady two-decade improvement of the PLAAF and PLAN naval aviation will eventually provide the necessary capabilities. Chinese observations of recent conflicts, including wars in the Persian Gulf, the Balkans, and Afghanistan, have emphasized the growing role of airpower and missiles in conducting "non-contact, non-linear, non-symmetrical" warfare.<sup>29</sup> This growing parity, if not superiority, constitutes a radical shift from the Cold War era, when the U.S., with its allies, clearly would have dominated air and naval operations in the Pacific.

China has also begun to employ non-traditional methods of challenging foreign military operations in what Beijing regards as its territorial waters and airspace. It has employed lasers, for example, against foreign air and naval platforms, endangering pilots and sailors by threatening to blind them.<sup>30</sup>

**Increased Military Space Activity.** One of the key force multipliers for the United States is its extensive array of space-based assets. Through its various satellite constellations, the U.S. military can track opponents,

coordinate friendly forces, engage in precision strikes against enemy forces, and conduct battle-damage assessments so that its munitions are expended efficiently.

Because the American military is expeditionary (i.e., its wars are fought far from the homeland), its reliance on space-based systems is greater than that of many other militaries. Consequently, it requires global rather than regional reconnaissance, communications and data transmission, and meteorological information and support. At this point, only space-based systems can provide this sort of information on a real-time basis. No other country is capable of leveraging space as the U.S. does, and that is a major advantage. However, this heavy reliance on space systems is also a key American vulnerability.

China fields an array of space capabilities, including its own BeiDou/Compass system of navigation and timing satellites, and has claimed a capacity to refuel satellites.<sup>31</sup> It has four satellite launch centers. China's interest in space dominance includes not only accessing space, but also denying opponents the ability to do the same. As one Chinese assessment notes, space capabilities provided 70 percent of battlefield communications, over 80 percent of battlefield reconnaissance and surveillance, and 100 percent of meteorological information for American operations in Kosovo. Moreover, 98 percent of precision munitions relied on space for guidance information. In fact, "[i]t may be said that America's victory in the Kosovo War could not [have been] achieved without fully exploiting space."<sup>32</sup>

To this end, the PLA has been developing a range of anti-satellite capabilities that include both hard-kill and soft-kill systems. The former include direct-ascent kinetic-kill vehicles (DA-KKV) such as the system famously tested in 2007, but they also include more advanced systems that are believed to be capable of reaching targets in mid-Earth orbit and even geosynchronous orbit.<sup>33</sup> The latter include anti-satellite lasers for either dazzling or blinding purposes.<sup>34</sup> This is consistent with PLA doctrinal writings, which emphasize the

need to control space in future conflicts. "Securing space dominance has already become the prerequisite for establishing information, air, and maritime dominance," says one Chinese teaching manual, "and will directly affect the course and outcome of wars."<sup>35</sup>

Soft-kill attacks need not come only from dedicated weapons, however. The case of Galaxy-15, a communications satellite owned by Intelsat Corporation, showed how a satellite could disrupt communications simply by always being in "switched on" mode.<sup>36</sup> Before it was finally brought under control, it had drifted through a portion of the geosynchronous belt, forcing other satellite owners to move their assets and juggle frequencies. A deliberate such attempt by China (or any other country) could prove far harder to handle, especially if conducted in conjunction with attacks by kinetic systems or directed-energy weapons.

Most recently, China has landed an unmanned probe at the lunar south pole on the far side of the Moon. This is a major accomplishment because the probe is the first spacecraft ever to land at either of the Moon's poles. To support this mission, the Chinese deployed a data relay satellite to Lagrange Point-2, one of five points where the gravity wells of the Earth and Sun "cancel out" each other, allowing a satellite to remain in a relatively fixed location with minimal fuel consumption. While the satellite itself may or may not have military roles, the deployment highlights that China will now be using the enormous volume of cis-lunar space (the region between the Earth and the Moon) for various deployments. This will greatly complicate American space situational awareness efforts, as it forces the U.S. to monitor a vastly greater area of space for possible Chinese spacecraft. The Chinese Chang'e-5 lunar sample retrieval mission in 2020 and the recent Chinese landing on Mars underscore China's effort to move beyond Earth orbit to cis-lunar and interplanetary space.

**Cyber Activities and the Electromagnetic Domain.** As far back as 2013, the Verizon Risk Center identified China as the "top external actor from which [computer] breaches

emanated, representing 30 percent of cases where country-of-origin could be determined.”<sup>37</sup> Given the difficulties of attribution, country of origin should not necessarily be conflated with perpetrator, but forensic efforts have associated at least one Chinese military unit with cyber intrusions, albeit many years ago.<sup>38</sup> The Verizon report similarly concluded that China was the source of 95 percent of state-sponsored cyber espionage attacks. Since the 2015 summit meeting between Chinese President Xi Jinping and U.S. President Barack Obama, during which the two sides reached an understanding to reduce cyber economic espionage, Chinese cyber actions have shifted. Although the overall level of activity appears to be unabated, the Chinese seem to have moved toward more focused attacks mounted from new sites.

China’s cyber espionage efforts are often aimed at economic targets, reflecting China’s much more holistic view of both security and information. Rather than creating an artificial dividing line between military security and civilian security, much less information, the PLA plays a role in supporting both aspects and seeks to obtain economic intellectual property as well as military electronic information.

This is not to suggest that the PLA has not emphasized the military importance of cyber warfare. Chinese military writings since the 1990s have emphasized a fundamental transformation in global military affairs. Future wars will be conducted through joint operations involving multiple services, not through combined operations focused on multiple branches within a single service, and will span not only the traditional land, sea, and air domains, but also outer space and cyberspace. The latter two arenas will be of special importance because warfare has shifted from an effort to establish material dominance (characteristic of industrial age warfare) to establishing information dominance. This is due to the rise of the information age and the resulting introduction of information technology into all areas of military operations.

Consequently, according to PLA analysis, future wars will most likely be “local wars under informationized conditions.” That is, they will be wars in which information and information technology will be both widely applied and a key basis of victory. The ability to gather, transmit, analyze, manage, and exploit information will be central to winning such wars: The side that is able to do these things more accurately and more quickly will be the side that wins. This means that future conflicts will no longer be determined by platform-versus-platform performance and not even by system against system: Conflicts are now clashes between rival systems of systems.<sup>39</sup>

Chinese military writings suggest that a great deal of attention has been focused on developing an integrated computer network and electronic warfare (INEW) capability. This would allow the PLA to reconnoiter a potential adversary’s computer systems in peacetime, influence opponent decision-makers by threatening those same systems in times of crisis, and disrupt or destroy information networks and systems by cyber and electronic warfare means in the event of conflict. INEW capabilities would complement psychological warfare and physical attack efforts to secure “information dominance,” which Chinese military writings emphasize as essential for fighting and winning future wars.

It is essential to recognize, however, that the PLA views computer network operations as part of information operations, or information combat. Information operations are specific operational activities that are associated with striving to establish information dominance. They are conducted in both peacetime and wartime with the peacetime focus on collecting information, improving its flow and application, influencing opposing decision-making, and effecting information deterrence.

Information operations involve four mission areas:

- **Command and Control Missions.** An essential part of information operations is the ability of commanders to control joint



operations by disparate forces. Thus, command, control, communications, computers, intelligence, surveillance, and reconnaissance structures constitute a key part of information operations, providing the means for collecting, transmitting, and managing information.

- **Offensive Information Missions.** These are intended to disrupt the enemy's battlefield command and control systems and communications networks, as well as to strike the enemy's psychological defenses.
- **Defensive Information Missions.** Such missions are aimed at ensuring the survival and continued operation of information systems. They include deterring an opponent from attacking one's own information systems, concealing information, and combating attacks when they do occur.
- **Information Support and Information-Safeguarding Missions.** The ability to provide the myriad types of information necessary to support extensive joint operations and to do so on a continuous basis is essential to their success.<sup>40</sup>

Computer network operations are integral to all four of these overall mission areas. They can include both strategic and battlefield network operations and can incorporate both offensive and defensive measures. They also include protection not only of data, but also of information hardware and operating software.

Computer network operations will not stand alone, however; they will be integrated with electronic warfare operations as reflected in the phrase "network and electronics unified." Electronic warfare operations are aimed at weakening or destroying enemy electronic facilities and systems while defending one's own.<sup>41</sup> The combination of electronic and computer network attacks will produce synergies that affect everything from finding and assessing the adversary, to locating one's own forces, to weapons guidance, to logistical

support and command and control. The creation of the PLASSF is intended to integrate these forces and make them more complementary and effective in future "local wars under informationized conditions."

### Threat of Regional War

Three issues, all involving China, threaten American interests and embody the "general threat of regional war" noted at the outset of this section: the status of Taiwan, the escalation of maritime and territorial disputes, and border conflict with India.

**Taiwan.** China's long-standing threat to end the de facto independence of Taiwan and ultimately to bring it under the authority of Beijing—by force if necessary—is both a threat to a major American security partner and a threat to the American interest in peace and stability in the Western Pacific.

After easing for eight years, tensions across the Taiwan Strait have resumed as a result of Beijing's reaction to the outcome of Taiwan's 2016 presidential election. Beijing has suspended most direct government-to-government discussions with Taipei and is using a variety of aid and investment efforts to deprive Taiwan of its remaining diplomatic partners.

Beijing has also undertaken significantly escalated military activities directed at Taiwan. For example:

- In 2021, 20 Chinese aircraft, including fighters, bombers, and support aircraft, conducted the largest single incursion into Taiwanese airspace.<sup>42</sup>
- Chinese fighters, along with airborne early warning aircraft, have increased their exercises southwest of Taiwan, demonstrating a growing ability to conduct flexible air operations and reduced reliance on ground-based control.<sup>43</sup>
- Through mid-April of 2021, China had already flown 260 unnotified sorties over Taiwan's ADIZ, compared to the record number of 380 it flew in 2020.<sup>44</sup>

- The PLA has also undertaken sustained joint exercises to simulate extended air operations, employing both air and naval forces, including its aircraft carriers.<sup>45</sup>

These activities continued unabated and in some ways even intensified in the wake of China's struggle with COVID-19.<sup>46</sup>

Regardless of the state of the relationship at any given time, Chinese leaders from Deng Xiaoping and Mao Zedong to Xi Jinping have consistently emphasized the importance of ultimately reclaiming Taiwan. The island—along with Tibet—is the clearest example of a geographical “core interest” in Chinese policy. China has never renounced the use of force, and it continues to employ political warfare against Taiwan's political and military leadership.

For the Chinese leadership, the failure to effect unification, whether peacefully or through the use of force, would reflect fundamental political weakness in the PRC. For this reason, China's leaders cannot back away from the stance of having to unify the island with the mainland, and the island remains an essential part of the PLA's “new historic missions,” shaping its acquisitions and military planning.

It is widely posited that China's anti-access/area-denial (A2/AD) strategy—the deployment of an array of overlapping capabilities, including anti-ship ballistic missiles (ASBMs), submarines, and long-range cruise missiles, satellites, and cyber weapons—is aimed largely at forestalling American intervention in support of friends and allies in the Western Pacific, including Taiwan. By holding at risk key American platforms and systems (e.g., aircraft carriers), the Chinese seek to delay or even deter American intervention in support of key friends and allies, thereby allowing the PRC to achieve a *fait accompli*. The growth of China's military capabilities is specifically oriented toward countering America's ability to assist in the defense of Taiwan.

Moreover, China's efforts to reclaim Taiwan are not limited to overt military means. The “three warfares” highlight Chinese political

warfare methods, including legal warfare/lawfare, public opinion warfare, and psychological warfare. The PRC employs such approaches to undermine both Taiwan's will to resist and America's willingness to support Taiwan. The Chinese goal would be to “win without fighting”—to take Taiwan without firing a shot or with only minimal resistance before the United States could organize an effective response.

**Escalation of Maritime and Territorial Disputes.** Because the PRC and other countries in the region see active disputes over the East and South China Seas not as differences regarding the administration of international common spaces, but rather as matters of territorial sovereignty, there exists the threat of armed conflict between China and American allies who are also claimants, particularly Japan and the Philippines.

Because its economic center of gravity is now in the coastal region, China has had to emphasize maritime power to defend key assets and areas. This is exacerbated by China's status as the world's foremost trading state. China increasingly depends on the seas for its economic well-being. Its factories are powered increasingly by imported oil, and its diet contains a growing percentage of imported food. China relies on the seas to move its products to markets. Consequently, it not only has steadily expanded its maritime power, including its merchant marine and maritime law enforcement capabilities, but also has acted to secure the “near seas” as a Chinese preserve.

Beijing prefers to accomplish its objectives quietly and through nonmilitary means. In both the East China Sea and the South China Sea, China has sought to exploit “gray zones,” gaining control incrementally and deterring others without resorting to the lethal use of force. It uses military and economic threats, bombastic language, and enforcement through legal warfare (including the employment of Chinese maritime law enforcement vessels) as well as military bullying. Chinese paramilitary-implemented, military-backed encroachment in support of expansive extralegal claims could lead to an unplanned armed clash.

The growing tensions between China and Japan and among a number of claimants in the South China Sea are especially risky. In the former case, the most proximate cause is the dispute over the Senkakus.

China has intensified its efforts to assert claims of sovereignty over the Senkaku Islands of Japan in the East China Sea. Beijing asserts both exclusive economic rights within the disputed waters and recognition of “historic” rights to dominate and control those areas as part of its territory.<sup>47</sup> Chinese fishing boats (often believed to be elements of the Chinese maritime militia) and Chinese Coast Guard (CCG) vessels have been encroaching steadily on the territorial waters within 12 nautical miles of the uninhabited islands. In 2020, CCG or other government vessels repeatedly entered the waters around the Senkakus.<sup>48</sup> In the summer of 2016, China deployed a naval unit (as opposed to the CCG) into the area.<sup>49</sup>

Beijing’s 2013 ADIZ declaration was just part of a broader Chinese pattern of using intimidation and coercion to assert expansive extralegal claims of sovereignty and/or control incrementally. For example:

- In June 2016, a Chinese fighter made an “unsafe” pass near a U.S. RC-135 reconnaissance aircraft in the East China Sea area.
- In March 2017, Chinese authorities warned the crew of an American B-1B bomber operating in the area of the ADIZ that they were flying illegally in PRC airspace. In response to the incident, the Chinese Foreign Ministry called for the U.S. to respect the ADIZ.<sup>50</sup>
- In May 2018, the Chinese intercepted an American WC-135, also over the East China Sea.<sup>51</sup>

There have been no publicly reported, ADIZ-related confrontations since then.

In the South China Sea, overlapping Chinese, Bruneian, Philippine, Malaysian, Vietnamese,

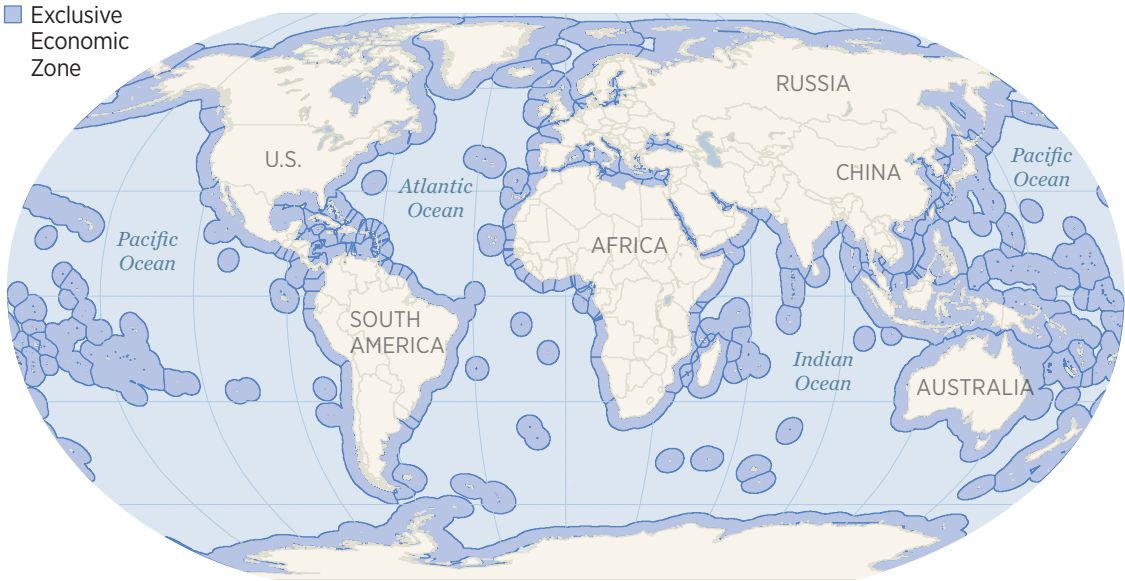
and Taiwanese claims raise the prospect of confrontation. This volatile situation has led to a variety of confrontations between China and other claimants, as well as with Indonesia, which is not claiming territory or rights disputed by anyone except (occasionally) China.

China–Vietnam tensions in the region, for example, were once again on display in 2020 when CCG vessels twice rammed and sank Vietnamese fishing boats near the disputed Paracel islands.<sup>52</sup> Vietnam has also protested China’s decision to create additional administrative regions for the South China Sea, one centered on the Paracels and the other centered on the Spratlys.<sup>53</sup> This is part of Beijing’s “legal warfare” efforts, which employ legal and administrative measures to underscore China’s claimed control of the South China Sea region. For this reason, conflict often occurs around Chinese enforcement of unilaterally determined and announced fishing bans.<sup>54</sup>

Because of the relationship between the Philippines and the United States, tensions between Beijing and Manila are the most likely to lead to American involvement in these disputes. There have been a number of incidents going back to the 1990s. The most contentious occurred in 2012 when a Philippine naval ship operating on behalf of the country’s coast guard challenged private Chinese poachers in waters around Scarborough Shoal. The resulting escalation left Chinese government ships in control of the shoal, after which the Philippines successfully challenged Beijing in the Permanent Court of Arbitration regarding its rights under the U.N. Convention on the Law of the Sea (UNCLOS). There is no indication that the Chinese have reclaimed land around the shoal as they did in the Spratlys, but they continue to control access to the reef, and the presence of the Chinese Coast Guard remains a source of confrontation.<sup>55</sup>

In March and April of 2021, a similar dispute seemed to be simmering around Whitsun Reef in the Spratlys. The presence there of more than two hundred Chinese fishing boats, among them known assets of China’s maritime militia,<sup>56</sup> sparked protests from Manila. After a

## The Scope of Exclusive Economic Zones (EEZs)



As shown in the map above, EEZs and other waters under national jurisdiction account for 40 percent of the world's oceans. U.S. freedom of navigation worldwide would be compromised if national governments were granted expansive authority to restrict foreign militaries from operating in their EEZs. The South China Sea, virtually all of which is covered by various EEZ claims (see map at right), has become a particular flashpoint as China has sought to restrict freedom of navigation for U.S. military vessels there.

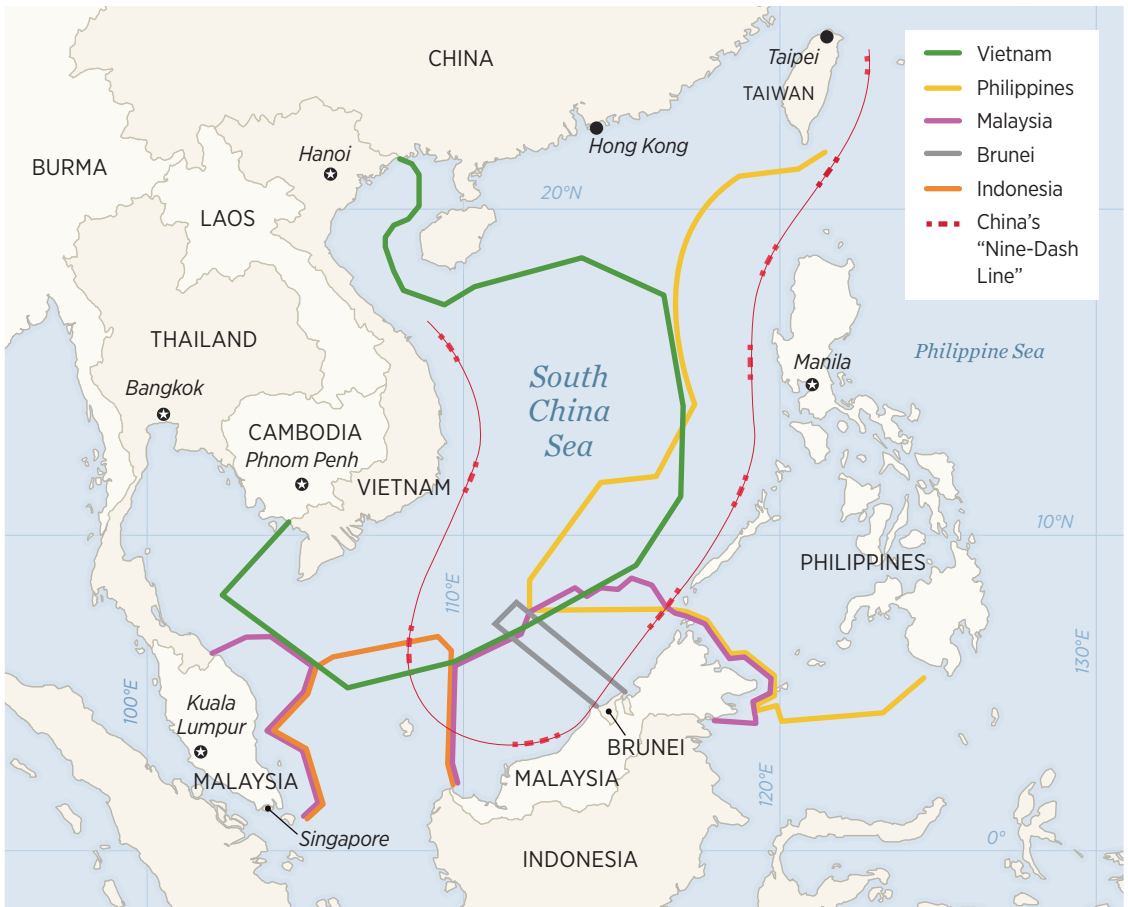


SOURCE: Heritage Foundation research.

 heritage.org



## Exclusive Economic Zone (EEZ) Claims in the South China Sea



**SOURCE:** "China Has Militarised the South China Sea and Got Away with It," *The Economist*, June 23, 2018, <https://www.economist.com/asia/2018/06/21/china-has-militarised-the-south-china-sea-and-got-away-with-it> (accessed July 23, 2021).

 heritage.org

stay of a few weeks—which Beijing claimed was necessary because of the poor weather—most of the ships departed. The unprecedented gathering of fishing boats and maritime militia could be an attempt to establish a basis within the Philippines exclusive economic zone (EEZ) for a subsequent return backed by the Chinese Coast Guard.

In all of these cases, the situation is exacerbated by rising Chinese nationalism.<sup>57</sup> In the

face of persistent economic challenges, nationalist themes are becoming an increasingly strong undercurrent and affecting policymaking. Although the nationalist phenomenon is not new, it is gaining force and complicating efforts to maintain regional stability.

Governments may choose to exploit nationalism for domestic political purposes, but they also run the risk of being unable to control the genie that they have released. Nationalist

rhetoric is mutually reinforcing, which makes countries less likely to back down than in the past. The increasing power that the Internet and social media provide to the populace, largely outside of government control, adds elements of unpredictability to future clashes. China's refusal to accept the 2016 Permanent Court of Arbitration findings, which were overwhelmingly in favor of the Philippines, despite both Chinese and Philippine accession to UNCLOS is a partial reflection of such trends.

In case of armed conflict between China and the Philippines or between China and Japan, either by intention or as a result of an accidental incident at sea, the U.S. could be required to exercise its treaty commitments.<sup>58</sup> Escalation of a direct U.S.–China incident is also not unthinkable. Keeping an inadvertent incident from escalating into a broader military confrontation would be difficult. This is particularly true in the East and South China Seas, where naval as well as civilian law enforcement vessels from both China and the U.S. operate in what the U.S. considers to be international waters.

The most significant development in the South China Sea during the past three years has been Chinese reclamation and militarization of seven artificial islands or outposts. In 2015, President Xi promised President Obama that China had no intention of militarizing the islands. That pledge has never been honored. In fact, as described by Admiral Harry Harris, Commander, U.S. Pacific Command, in his April 2017 posture statement to the Senate Committee on Armed Services:

China's military-specific construction in the Spratly islands includes the construction of 72 fighter aircraft hangars—which could support three fighter regiments—and about ten larger hangars that could support larger airframes, such as bombers or special mission aircraft. All of these hangars should be completed this year. During the initial phases of construction China emplaced tank farms, presumably for fuel and water, at Fiery Cross, Mischief

and Subi reefs. These could support substantial numbers of personnel as well as deployed aircraft and/or ships. All seven outposts are armed with a large number of artillery and gun systems, ostensibly for defensive missions. The recent identification of buildings that appear to have been built specifically to house long-range surface-to-air missiles is the latest indication China intends to deploy military systems to the Spratlys.<sup>59</sup>

There have been additional developments since the admiral's statement,<sup>60</sup> but the DOD's 2019 annual report on the Chinese military found no new militarization,<sup>61</sup> which would seem to suggest that the process has been completed.

There is the possibility that China will ultimately declare an ADIZ above the South China Sea in an effort to assert its authority over the entire area.<sup>62</sup> There also are concerns that under the right circumstances, China will take action against vulnerable targets like Philippines-occupied Second Thomas Shoal or Reed Bank, where a Chinese fishing boat in 2019 rammed and sank a Philippine boat, causing a controversy in Manila. There is also consistent speculation in the Philippines about when the Chinese will start reclamation work at Scarborough. This development in particular would facilitate the physical assertion of Beijing's claims and enforcement of an ADIZ, regardless of the UNCLOS award.

**Border Conflict with India.** The possibility of armed conflict between India and China, while currently remote, poses an indirect threat to U.S. interests because it could disrupt the territorial status quo and raise nuclear tensions in the region. A border conflict between India and China could also prompt Pakistan to try to take advantage of the situation, further contributing to regional instability.

Long-standing border disputes that led to a Sino–Indian war in 1962 have again become a flashpoint in recent years. In April 2013, the most serious border incident between India and China in more than two decades occurred

# Chinese Fault Lines



**China-India Border.** The Line of Actual Control represents one of the world’s longest disputed borders and has been the site of several standoffs between the Chinese and Indian militaries in recent years, including a border crisis in 2020 that resulted in the first casualties from hostilities at the border in more than 40 years.

**East China Sea.** China claims the disputed Senkaku/Diaoyu Islands, which are currently administered by Japan. In recent years, Chinese aircraft

and naval vessels have entered the airspace and territorial sea around the islands with growing frequency.

**Taiwan.** The Republic of China on Taiwan claims sovereignty. The People’s Republic of China disputes this and regularly conducts provocative military maneuvers near Taiwan.

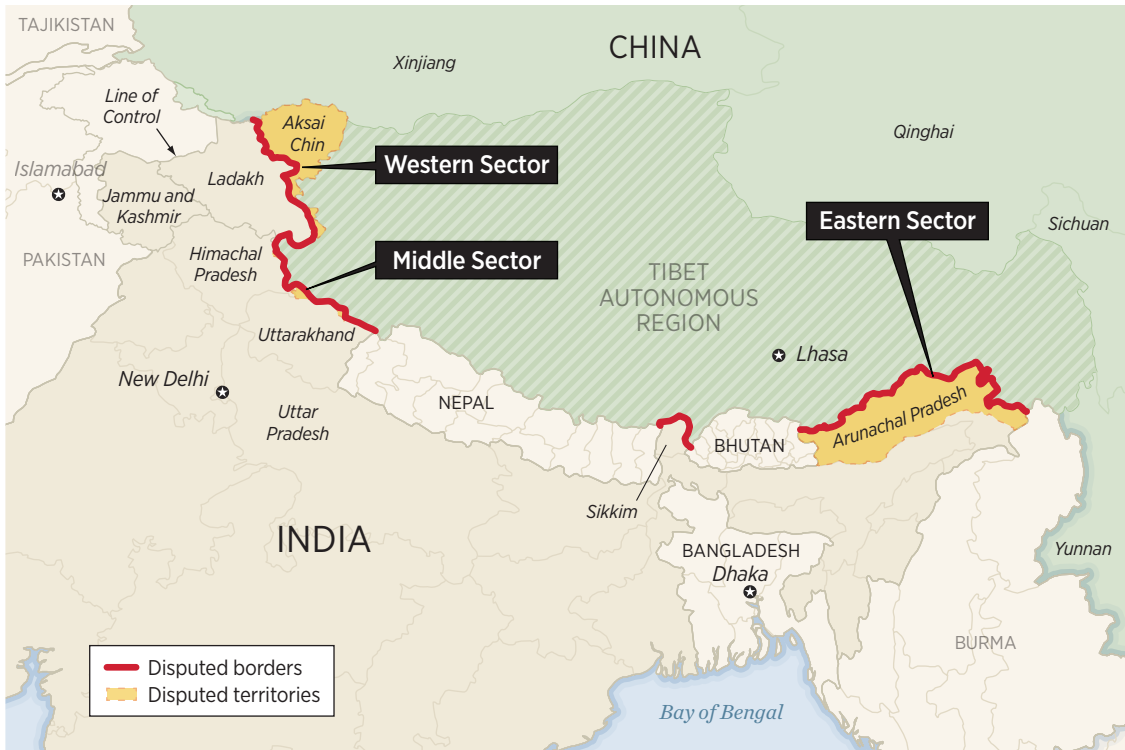
**South China Sea.** The South China Sea hosts several territorial disputes between China and Taiwan and its

Southeast Asian neighbors. China’s unlawful claims in the sea and attempts to restrict freedom of navigation there have also produced tensions with the U.S., which has sent aircraft and naval vessels through the South China Sea to signal its objections to the nature of China’s claims. This has resulted in a number of confrontations between Chinese and U.S. vessels.

**SOURCE:** Heritage Foundation research.

heritage.org

## Disputed Borders Between India and China



**Western Sector.** Aksai Chin, a barren plateau that was part of the former princely state of Jammu and Kashmir, has been administered by the Chinese since they seized control of the territory in the 1962 Sino-Indian border conflict. One of the main causes of that war was India’s discovery of a road China had built through the region, which India considered its territory.

**Middle Sector.** The Middle Sector, where the Indian states of Uttarakhand and Himachal Pradesh meet the Tibet Autonomous Region, is the least contentious of the three main disputed “sectors,” with the least amount of territory contested. It is also the only sector for which the Chinese and Indian governments have formally exchanged maps delineating their claims.

**Eastern Sector.** China claims nearly the entire Indian state of Arunachal Pradesh, which Beijing calls South Tibet. The McMahon Line, which has served as the de facto Line of Actual Control since 1962, was established in 1914 by the British and Tibetan representatives and is not recognized by China. The U.S. recognizes Arunachal Pradesh as sovereign Indian territory.

**SOURCE:** Heritage Foundation research.

heritage.org

when Chinese troops settled for three weeks several miles inside northern Indian territory on the Depsang Plains in Ladakh. A visit to India by Chinese President Xi Jinping in September 2014 was overshadowed by another flare-up in border tensions when hundreds of

Chinese PLA forces reportedly set up camps in the mountainous regions of Ladakh, prompting Indian forces to deploy to forward positions in the region. This border standoff lasted three weeks until both sides agreed to pull their troops back to previous positions.



In 2017, Chinese military engineers were building a road to the Doklam plateau, an area claimed by both Bhutan and China, and this led to a confrontation between Chinese and Indian forces, the latter requested by Bhutanese authorities to provide assistance. The crisis lasted 73 days; both sides pledged to pull back, but Chinese construction efforts in the area have continued.<sup>63</sup> Improved Chinese infrastructure not only would give Beijing the diplomatic advantage over Bhutan, but also could make the Sili-guri corridor that links the eastern Indian states with the rest of the country more vulnerable.

In June 2020, the situation escalated even further. Clashes between Indian and Chinese troops using rocks, clubs, and fists led to at least 20 Indian dead and (as the Chinese authorities recently admitted) at least four Chinese killed. This was in the Galwan Valley area of Ladakh.<sup>64</sup> In September, there were reports of shots exchanged near the Pangong Lake region, signaling further potential escalation.<sup>65</sup>

India claims that China occupies more than 14,000 square miles of Indian territory in the Aksai Chin along its northern border in Kashmir, and China lays claim to more than 34,000 square miles of India’s northeastern state of Arunachal Pradesh. The issue is also closely related to China’s concern for its control of Tibet and the presence in India of the Tibetan government in exile and Tibet’s spiritual leader, the Dalai Lama.

China is building up military infrastructure and expanding a network of road, rail, and air links in its southwestern border areas. To meet these challenges, the Indian government has also committed to expanding infrastructure

development along the disputed border, although China currently holds a decisive military edge.

### Conclusion

China presents the United States with the region’s most comprehensive security challenge. It poses various threat contingencies across all three areas of vital American national interests: homeland; regional war, including potential attacks on overseas U.S. bases as well as against allies and friends; and international common spaces. China’s provocative behavior is well documented. It is challenging the U.S. and its allies such as Japan at sea, in the air, and in cyberspace; it has raised concerns on its border with India; and it is a standing threat to Taiwan. Despite a lack of official transparency, publicly available sources shed considerable light on China’s rapidly growing military capabilities.

The Chinese commissioned their first homegrown aircraft carrier two years ago and are fielding large numbers of new platforms for their land, sea, air, and outer space forces as well as in the electromagnetic domain. The PLA has been staging larger and more comprehensive exercises, including major exercises in the East China Sea near Taiwan, that are improving the ability of the Chinese to operate their abundance of new systems. It has also continued to conduct probes of both the South Korean and Japanese ADIZs, drawing rebukes from both Seoul and Tokyo.

This *Index* assesses the overall threat from China, considering the range of contingencies, as “aggressive” for level of provocation of behavior and “formidable” for level of capability.

## Threats: China

	HOSTILE	AGGRESSIVE	TESTING	ASSERTIVE	BENIGN
Behavior		✓			
	FORMIDABLE	GATHERING	CAPABLE	ASPIRATIONAL	MARGINAL
Capability	✓				

## Endnotes

1. *National Security Strategy of the United States of America*, The White House, December 2017, p. 2, <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf> (accessed June 2, 2021).
2. Anastasia Lloyd-Damjanovic, “Beijing’s Deadly Game: Consequences of Excluding Taiwan from the World Health Organization During the COVID-19 Pandemic,” U.S.–China Economic and Security Review Commission *Issue Brief*, May 12, 2020, p. 2, [https://www.uscc.gov/sites/default/files/2020-05/Beijings\\_Deadly\\_Game\\_Excluding\\_Taiwan\\_from\\_WHO\\_during\\_COVID-19\\_Pandemic.pdf](https://www.uscc.gov/sites/default/files/2020-05/Beijings_Deadly_Game_Excluding_Taiwan_from_WHO_during_COVID-19_Pandemic.pdf) (accessed June 2, 2021).
3. Joel Wuthnow and Phillip C. Saunders, *Chinese Military Reform in the Age of Xi Jinping: Drivers, Challenges, and Implications*, National Defense University, Institute for National Strategic Studies, Center for the Study of Chinese Military Affairs, *China Strategic Perspectives* No. 10, March 2017, *passim*, <https://ndupress.ndu.edu/Portals/68/Documents/stratperspective/china/ChinaPerspectives-10.pdf> (accessed June 2, 2021).
4. U.S. Department of Defense, Defense Intelligence Agency, *China Military Power: Modernizing a Force to Fight and Win*, 2019, pp. 58–60, [https://www.dia.mil/Portals/27/Documents/News/Military%20Power%20Publications/China\\_Military\\_Power\\_FINAL\\_5MB\\_20190103.pdf](https://www.dia.mil/Portals/27/Documents/News/Military%20Power%20Publications/China_Military_Power_FINAL_5MB_20190103.pdf) (accessed June 2, 2021).
5. Ronald O’Rourke, “China Naval Modernization: Implications for U.S. Navy Capabilities—Background and Issues for Congress,” Congressional Research Service *Report for Members and Committees of Congress* No. RL33153, updated March 9, 2021, p. 2, <https://fas.org/sgp/crs/row/RL33153.pdf> (accessed June 2, 2021). See also Table 2, “Numbers of Chinese and U.S. Navy Battle Force Ships, 2000–2030,” in *ibid.*, p. 32.
6. Dennis Gormley, Andrew S. Erickson, and Jingdong Yuan, “A Potent Vector: Assessing Chinese Cruise Missile Developments,” *Joint Force Quarterly* No. 75 (4th Quarter 2014), pp. 98–105, [https://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-75/jfq-75\\_98-105\\_Gormley-et-al.pdf](https://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-75/jfq-75_98-105_Gormley-et-al.pdf) (accessed June 2, 2021).
7. U.S. Department of Defense, Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2017*, p. 24, [https://dod.defense.gov/Portals/1/Documents/pubs/2017\\_China\\_Military\\_Power\\_Report.PDF](https://dod.defense.gov/Portals/1/Documents/pubs/2017_China_Military_Power_Report.PDF) (accessed June 2, 2021).
8. U.S. Department of Defense, Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2019*, p. 35, [https://media.defense.gov/2019/May/02/2002127082/-1/-1/2019\\_CHINA\\_MILITARY\\_POWER\\_REPORT.pdf](https://media.defense.gov/2019/May/02/2002127082/-1/-1/2019_CHINA_MILITARY_POWER_REPORT.pdf) (accessed June 2, 2021).
9. U.S. Department of Defense, Defense Intelligence Agency, *China Military Power: Modernizing a Force to Fight and Win*, p. 70.
10. Section II, “National Defense Policy,” in People’s Republic of China, Ministry of National Defense, *White Paper 2010*, [http://eng.mod.gov.cn/publications/2017-04/11/content\\_4778206\\_2.htm](http://eng.mod.gov.cn/publications/2017-04/11/content_4778206_2.htm) (accessed June 3, 2021).
11. Kristin Huang, “Shandong Aircraft Carrier Group Concludes South China Sea Exercise,” *South China Morning Post*, May 2, 2021, <https://www.scmp.com/news/china/military/article/3131977/shandong-aircraft-carrier-group-concludes-south-china-sea> (accessed June 3, 2021).
12. Franz-Stefan Gady, “China’s New Aircraft Carrier to Use Advanced Jet Launch System,” *The Diplomat*, November 6, 2017, <https://thediplomat.com/2017/11/chinas-new-aircraft-carrier-to-use-advanced-jet-launch-system/> (accessed June 3, 2021).
13. International Institute for Strategic Studies, *The Military Balance 2021: The Annual Assessment of Global Military Capabilities and Defence Economics* (London: Routledge, 2021), p. 255.
14. U.S. Department of Defense, Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2020*, p. 144, <https://media.defense.gov/2020/Sep/01/2002488689/-1/-1/2020-DOD-CHINA-MILITARY-POWER-REPORT-FINAL.PDF> (accessed June 3, 2021).
15. U.S. Department of Defense, Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2019*, p. 58.
16. U.S. Department of Defense, Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2018*, p. 34, <https://media.defense.gov/2018/Aug/16/2001955282/-1/-1/2018-CHINA-MILITARY-POWER-REPORT.PDF> (accessed June 3, 2021).
17. Franz-Stefan Gady, “Russia Delivers 1st S-400 Missile Defense Regiment to China,” *The Diplomat*, April 3, 2018, <https://thediplomat.com/2018/04/russia-delivers-1st-s-400-missile-defense-regiment-to-china/> (accessed June 3, 2021).
18. U.S. Department of Defense, Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2019*, p. 66.

19. Andrew S. Erickson and Michael S. Chase, "China's SSBN Forces: Transitioning to the Next Generation," Jamestown Foundation *China Brief*, Vol. 9, Issue 12 (June 12, 2009), [http://www.jamestown.org/single/?no\\_cache=1&tx\\_ttnews\[tt\\_news\]=35120#U5G00Sjb5NQ](http://www.jamestown.org/single/?no_cache=1&tx_ttnews[tt_news]=35120#U5G00Sjb5NQ) (accessed June 3, 2021).
20. U.S. Department of Defense, Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2019*, p. 45.
21. Brad Lendon, "China Is Building a Sprawling Network of Missile Silos, Imagery Appears to Show," CNN, July 2, 2021, <https://www.cnn.com/2021/07/02/asia/china-missile-silos-intl-hnk-ml/index.html> (accessed September 11, 2021); Matt Korda and Hans Kristensen, "China Is Building a Second Nuclear Missile Silo Field," Federation of American Scientists, Strategic Security Blog, July 26, 2021, <https://fas.org/blogs/security/2021/07/china-is-building-a-second-nuclear-missile-silo-field/> (accessed September 11, 2021); and Shannon Bugos and Julia Masterson, "New Chinese Missile Silo Fields Discovered," *Arms Control Today*, Vol. 51 (September 2021), <https://www.armscontrol.org/act/2021-09/news/new-chinese-missile-silo-fields-discovered> (accessed September 11, 2021).
22. U.S. Department of Defense, Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2019*, p. 66.
23. For more information on China's cruise missile program, see Dennis M. Gormley, Andrew S. Erickson, and Jingdong Yuan, *A Low-Visibility Force Multiplier: Assessing China's Cruise Missile Ambitions* (Washington: National Defense University Press, 2014), <http://ndupress.ndu.edu/Portals/68/Documents/Books/force-multiplier.pdf> (accessed June 3, 2021). Published by the NDU Press for the Center for the Study of Chinese Military Affairs, "established as an integral part of the National Defense University's Institute for National Strategic Studies on March 1, 2000."
24. U.S. Department of Defense, Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2019*, p. 45.
25. Press release, "U.S. Charges Five Chinese Military Hackers for Cyber Espionage Against U.S. Corporations and a Labor Organization for Commercial Advantage," U.S. Department of Justice, May 19, 2014, <https://www.justice.gov/opa/pr/us-charges-five-chinese-military-hackers-cyber-espionage-against-us-corporations-and-labor> (accessed June 3, 2021).
26. BBC News, "Equifax: US Charges Four Chinese Military Officers over Huge Hack," February 11, 2020, <https://www.bbc.com/news/world-us-canada-51449778> (accessed June 3, 2021).
27. National Air and Space Intelligence Center, "Competing in Space," December 2018, p. 21, <https://media.defense.gov/2019/Jan/16/2002080386/-1/-1/1/190115-F-NV711-0002.PDF> (accessed June 3, 2021).
28. Gregory B. Poling, "The Conventional Wisdom on China's Island Bases Is Dangerously Wrong," War on the Rocks, January 10, 2020, <https://warontherocks.com/2020/01/the-conventional-wisdom-on-chinas-island-bases-is-dangerously-wrong/> (accessed June 3, 2021), and J. Michael Dahm, "Beyond 'Conventional Wisdom': Evaluating the PLA's South China Sea Bases in Operational Context," War on the Rocks, March 17, 2020, <https://warontherocks.com/2020/03/beyond-conventional-wisdom-evaluating-the-plas-south-china-sea-bases-in-operational-context/> (accessed June 3, 2021).
29. "Building an Active, Layered Defense: Chinese Naval and Air Force Advancement," interview with Andrew S. Erickson, U.S. Naval War College, by Greg Chaffin, National Bureau of Asian Research, September 10, 2012, <https://www.nbr.org/publication/building-an-active-layered-defense-chinese-naval-and-air-force-advancement/> (accessed June 3, 2021).
30. Patrick M. Cronin and Ryan D. Neuhard, "Countering China's Laser Offensive," *The Diplomat*, April 2, 2020, <https://thediplomat.com/2020/04/countering-chinas-laser-offensive/> (accessed June 3, 2021).
31. Xinhua, "China Announces Success in Technology to Refuel Satellites in Orbit," June 30, 2016, [http://www.china.org.cn/china/Off\\_the\\_Wire/2016-06/30/content\\_38784419.htm](http://www.china.org.cn/china/Off_the_Wire/2016-06/30/content_38784419.htm) (accessed June 3, 2021).
32. Mei Lianju, *Space Operations Teaching Materials* (Beijing, PRC: Academy of Military Sciences Publishing House, 2013), p. 65.
33. See, for example, Brian Weeden, *Through a Glass, Darkly: Chinese, American, and Russian Anti-Satellite Testing in Space*, Secure World Foundation, March 17, 2014, [https://swfound.org/media/167224/through\\_a\\_glass\\_darkly\\_march2014.pdf](https://swfound.org/media/167224/through_a_glass_darkly_march2014.pdf) (accessed June 3, 2021).
34. Ian Easton, "The Great Game in Space: China's Evolving ASAT Weapons Programs and Their Implications for Future U.S. Strategy," Project 2049 Institute, 2009, pp. 4–5, [https://project2049.net/wp-content/uploads/2018/05/china\\_asat\\_weapons\\_the\\_great\\_game\\_in\\_space.pdf](https://project2049.net/wp-content/uploads/2018/05/china_asat_weapons_the_great_game_in_space.pdf) (accessed June 3, 2021).
35. Mei Lianju, *Space Operations Teaching Materials*, p. 69.
36. Peter B. de Selding, "Runaway Zombie Satellite Galaxy 15 Continues to Pose Interference Threat," *SpaceNews*, October 15, 2010, <http://www.space.com/9340-runaway-zombie-satellite-galaxy-15-continues-pose-interference-threat.html> (accessed June 3, 2021).

37. Verizon, *2013 Data Breach Investigations Report*, pp. 21–22, <https://cybersecurity.idaho.gov/wp-content/uploads/sites/87/2019/04/data-breach-investigations-report-2013.pdf> (accessed June 3, 2021). See also Elise Ackerman, “New Verizon Security Report Finds a Growing Number of Attacks by China’s Hacker Army,” *Forbes*, April 23, 2013, <https://www.forbes.com/sites/eliseackerman/2013/04/23/new-verizon-security-report-finds-a-growing-number-of-attacks-by-chinas-hacker-army/#11429f622c49> (accessed June 3, 2021), and Lucian Constantin, “Verizon: One in Five Data Breaches Are the Result of Cyberespionage,” *PC World*, April 23, 2013, <http://www.pcworld.com/article/2036177/one-in-five-data-breaches-are-the-result-of-cyberespionage-verizon-says.html> (accessed June 3, 2021).
38. Mike Lennon, “Unit in China’s PLA Behind Massive Cyber Espionage Units,” *SecurityWeek*, February 18, 2013, <https://www.securityweek.com/cyber-unit-chinas-pla-behind-massive-cyber-espionage-operation-report> (accessed June 3, 2021). For the full report, see Mandiant, *APT1: Exposing One of China’s Cyber Espionage Units*, <https://www.fireeye.com/content/dam/fireeye-www/services/pdfs/mandiant-apt1-report.pdf> (accessed June 3, 2021).
39. Bai Bangxi and Jiang Lijun, “‘Systems Combat’ Is Not the Same as ‘System Combat,’” *China National Defense Newspaper*, January 10, 2008, cited in Dean Cheng, “U.S.–China Competition in Space,” testimony before the Subcommittee on Space, Committee on Science, Space, and Technology, U.S. House of Representatives, September 27, 2016, p. 2, <https://docs.house.gov/meetings/SY/SY16/20160927/105387/HHRG-114-SY16-Wstate-ChengD-20160927.pdf> (accessed June 3, 2021).
40. Guo Ruobing, *Theory of Military Information Security* (Beijing, PRC: National Defense University Publishing House, 2013), pp. 12–21.
41. Tan Rukan, *Building Operational Strength Course Materials* (Beijing, PRC: Academy of Military Sciences Publishing House, 2012), p. 204.
42. Reuters, “Taiwan Reports Largest Ever Incursion by Chinese Air Force,” March 26, 2021, <https://www.reuters.com/article/us-taiwana-china-security/taiwan-reports-largest-ever-incursion-by-chinese-air-force-idUSKBN2BI24D> (accessed June 3, 2021).
43. Reuters, “Taiwan Air Force Scrambles Again to Warn off Chinese Jets,” *Al Jazeera*, March 16, 2020, <https://www.aljazeera.com/news/2020/03/taiwan-airforce-scrambles-warn-chinese-jets-200317003712908.html> (accessed June 3, 2021).
44. Alastair Gale, “U.S. Concerns About China Put Focus on Taiwan’s Defensive Weakness,” *The Wall Street Journal*, April 22, 2021, [https://www.wsj.com/articles/u-s-concerns-about-taiwan-put-focus-on-islands-defensive-weakness-11619113253?mod=searchresults\\_pos2&page=1](https://www.wsj.com/articles/u-s-concerns-about-taiwan-put-focus-on-islands-defensive-weakness-11619113253?mod=searchresults_pos2&page=1) (accessed June 3, 2021), and Matthew Strong, “Chinese Reconnaissance Plane Enters Taiwan’s ADIZ,” *Taiwan News*, January 2, 2021, <https://www.taiwannews.com.tw/en/news/4092562> (accessed June 3, 2021).
45. Kristin Huang, “Chinese Air Force’s Drill ‘Aimed at Signalling Deterrent Around Taiwan,’” *South China Morning Post*, April 2, 2020, <https://www.scmp.com/news/china/military/article/3077997/chinese-air-forces-drill-aimed-signalling-deterrent-around> (accessed June 3, 2021).
46. Erin Hale, “In Shadow of Coronavirus, China Steps up Manoeuvres Near Taiwan,” *Al Jazeera*, April 23, 2020, <https://www.aljazeera.com/news/2020/04/shadow-coronavirus-china-steps-manoeuvres-taiwan-200422011542456.html> (accessed June 3, 2021), and Yew Lun Tian and Ben Blanchard, “China Rattles Sabres as World Battles Coronavirus Pandemic,” *Reuters*, April 21, 2020, <https://www.reuters.com/article/us-china-security/china-rattles-sabres-as-world-battles-coronavirus-pandemic-idUSKBN2230GC> (accessed June 3, 2021).
47. See Chapter 10, “The South China Sea Tribunal,” in Tufts University, The Fletcher School, *Law of the Sea: A Policy Primer*, <https://sites.tufts.edu/lawofthesea/chapter-ten/> (accessed June 3, 2021).
48. “Japan Lodges Protests Against Chinese Maritime Intrusions Near Senkakus,” *The Japan Times*, April 22, 2020, <https://www.japantimes.co.jp/news/2020/04/22/national/japan-protest-chinese-intrusions-senkakus/> (accessed June 3, 2021).
49. Ankit Panda, “Japan Identifies Chinese Submarine in East China Sea: A Type 093 SSN,” *The Diplomat*, January 16, 2018, <https://thediplomat.com/2018/01/japan-identifies-chinese-submarine-in-east-china-sea-a-type-093-ssn/> (accessed June 3, 2021); Howard Wang, “China vs. Japan: Is the East China Sea Showdown Back on?” *The National Interest*, The Buzz Blog, June 7, 2019, <https://nationalinterest.org/blog/buzz/china-vs-japan-east-china-sea-showdown-back-61492> (accessed June 3, 2021); and Ankit Panda, “China Patrol Ships Sustain Presence Near Senkaku Islands: Report,” *The Diplomat*, June 10, 2019, <https://thediplomat.com/2019/06/china-patrol-ships-sustain-presence-near-senkaku-islands-report/> (accessed June 3, 2021).
50. Jason Le Miere, “China Claims U.S. Military Plane ‘Illegally’ Entered Chinese Air Defense Zone,” *Newsweek*, March 24, 2017, <http://www.newsweek.com/china-claims-us-military-plane-illegally-entered-chinese-air-defense-zone-573711> (accessed June 3, 2021).
51. Hans Nichols and Courtney Kube, “Two Chinese Fighter Jets Intercept U.S. Plane over East China Sea, Officials Say,” *NBC News*, updated May 18, 2017, <http://www.nbcnews.com/news/us-news/two-chinese-fighter-jets-intercept-u-s-plane-officials-say-n761931> (accessed June 3, 2021).



52. Khanh Vu, "Vietnam Protests Beijing's Sinking of South China Sea Boat," Reuters, April 4, 2020, <https://www.reuters.com/article/us-vietnam-china-southchinasea/vietnam-protests-beijings-sinking-of-south-china-sea-boat-idUSKBN21M072> (accessed June 3, 2021), and "Chinese Vessel Rams Vietnamese Fishing Boat in S. China Sea," *The Maritime Executive*, June 14, 2020, <https://www.maritime-executive.com/article/report-chinese-vessel-rams-vietnamese-fishing-boat-in-s-china-sea> (accessed June 3, 2021).
53. Reuters, "Vietnam Protests Beijing's Expansion in Disputed South China Sea," April 19, 2020, <https://www.reuters.com/article/us-vietnam-china-southchinasea/vietnam-protests-beijings-expansion-in-disputed-south-china-sea-idUSKBN2210M7> (accessed June 3, 2021).
54. Tam Anh, "Vietnam Rejects China's Illegal Fishing Ban," *Vn Express International*, April 29, 2021, <https://e.vnexpress.net/news/news/vietnam-rejects-china-s-illegal-fishing-ban-4270611.html> (accessed June 3, 2021).
55. Andreo Calozzo, "Philippines Slams China's 'Dangerous' Move in Disputed Sea," Bloomberg, updated May 3, 2021, <https://www.bloomberg.com/news/articles/2021-05-03/philippines-dials-up-protest-on-china-s-dangerous-sea-maneuver?sref=InMWfBxD> (accessed June 3, 2021).
56. Center for Strategic and International Studies, Asia Transparency Initiative, "Caught on Camera: Two Dozen Militia Boats at Whitsun Reef Identified," April 21, 2021, <https://amti.csis.org/caught-on-camera-two-dozen-militia-boats-at-whitsun-reef-identified/> (accessed June 3, 2021).
57. "Philippines Has Ulterior Motives to Suddenly Hype up the Matter over Niu'e Jiao," *Global Times*, April 5, 2021, <https://www.globaltimes.cn/page/202104/1220284.shtml> (accessed June 3, 2021).
58. Although it has long been a matter of U.S. policy that Philippine territorial claims in the South China Sea lie outside the scope of American treaty commitments, the treaty does apply in the event of an attack on Philippine "armed forces, public vessels or aircraft in the Pacific." Mutual Defense Treaty Between the United States and the Republic of the Philippines, August 30, 1951, Article V, [http://avalon.law.yale.edu/20th\\_century/phil001.asp](http://avalon.law.yale.edu/20th_century/phil001.asp) (accessed June 3, 2021). In any event, Article IV of the treaty obligates the U.S. in case of such an attack to "meet the common dangers in accordance with its constitutional processes." Regardless of formal treaty obligations, however, enduring U.S. interests in the region and perceptions of U.S. effectiveness and reliability as a check on growing Chinese ambitions would likely spur the U.S. to become involved.
59. Admiral Harry B. Harris, Jr., U.S. Navy, Commander, U.S. Pacific Command, statement "On U.S. Pacific Command Posture" before the Committee on Armed Services, U.S. Senate, April 27, 2017, p. 8, [https://www.armed-services.senate.gov/imo/media/doc/Harris\\_04-27-17.pdf](https://www.armed-services.senate.gov/imo/media/doc/Harris_04-27-17.pdf) (accessed June 26, 2019).
60. Center for Strategic and International Studies, Asia Maritime Transparency Initiative, "An Accounting of China's Deployments to the Spratly Islands," May 9, 2018, <https://amti.csis.org/accounting-chinas-deployments-spratly-islands/> (accessed June 3, 2021).
61. U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2019*, p. 75.
62. Kelvin Chen, "China to Set up ADIZ in South China Sea," *Taiwan News*, May 5, 2020, <https://www.taiwannews.com.tw/en/news/3928503> (accessed June 3, 2021).
63. Joel Wuthnow, Satu Limaye, and Nilanthi Samaranyake, "Doklam, One Year Later: China's Long Game in the Himalayas," *War on the Rocks*, June 7, 2018, <https://warontherocks.com/2018/06/doklam-one-year-later-chinas-long-game-in-the-himalayas/> (accessed June 3, 2021).
64. BBC News, "Ladakh: China Reveals Soldier Deaths in India Border Clash," February 19, 2021, <https://www.bbc.com/news/world-asia-56121781> (accessed June 3, 2021).
65. Jeffrey Gettleman, "Shots Fired Along India–China Border for First Time in Years," *The New York Times*, updated September 29, 2020, <https://www.nytimes.com/2020/09/08/world/asia/india-china-border.html> (accessed June 3, 2021).