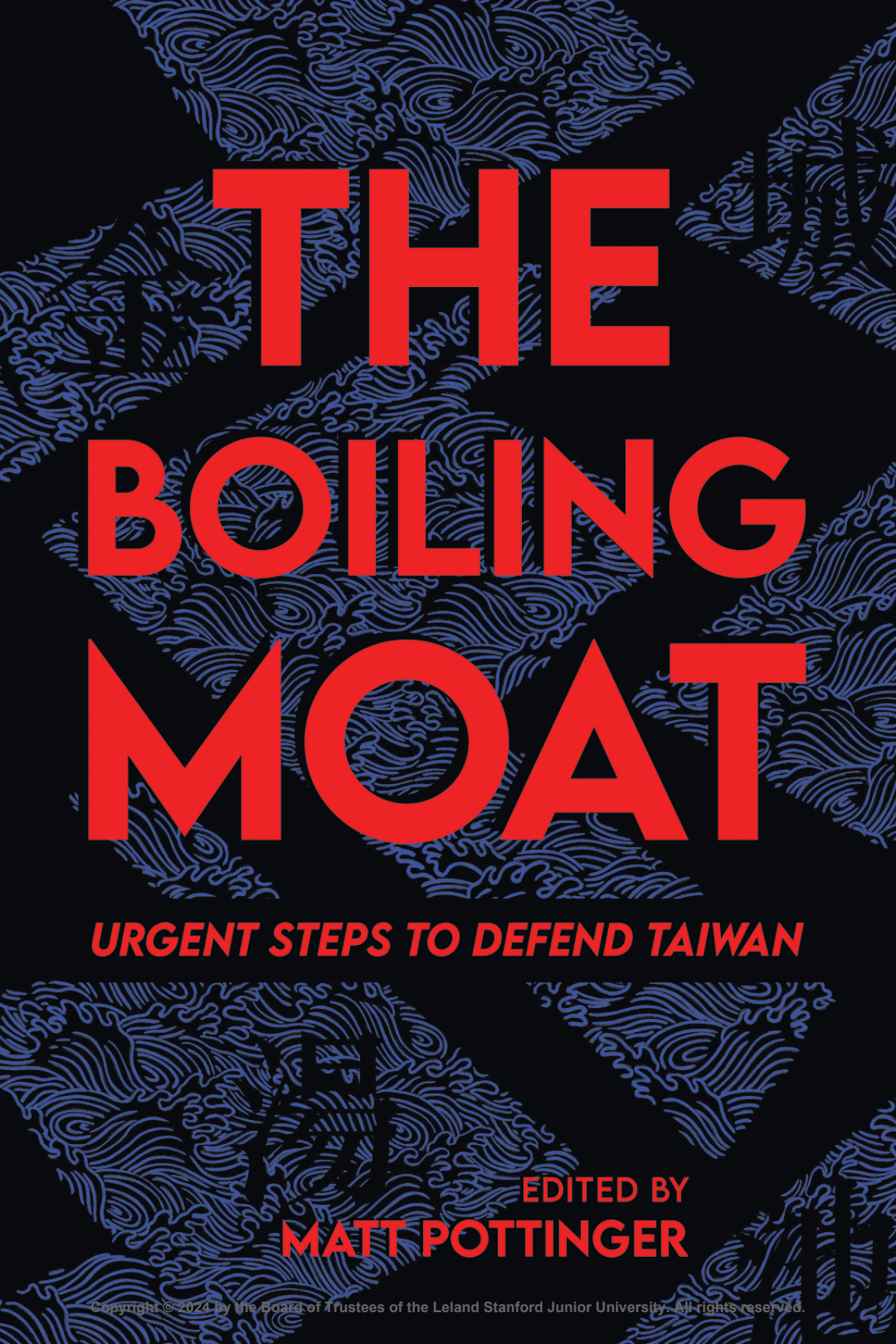

CHAPTER 7

Sink China's Navy

ROBERT HADDICK, MARK MONTGOMERY, AND ISAAC "IKE" HARRIS

The first task, then, in planning for a war is to identify the enemy's center of gravity, and if possible trace it back to a single point. The second task is to ensure that the forces to be used against that point are concentrated for a main offensive.

—CARL VON CLAUSEWITZ, *VOM KRIEGE* (*ON WAR*)

A war for the control of Taiwan would be bloody for all combatants. But that prospect may not dissuade Xi Jinping and the leaders of the Communist Party of China (CCP) if the result was China's control of Taiwan. From the CCP's perspective, the short-term costs and risks of a People's Liberation Army (PLA) lunge for Taiwan may fade to nothing compared with the achievement of the CCP's millenarian dreams.

The United States and its allies therefore need, and need to display, the military capacities to directly defeat any Chinese course of action aimed at seizing Taiwan by force and pacifying its surviving population. This is "deterrence by denial"—getting the adversary to understand that its military strategies have little chance of success, thus discouraging it from aggression.

The focus of chapters 7–9 is the military balance pertaining to Taiwan scenarios. The reason for this focus is that hard military power determines the outcome of high-stakes geopolitical contests, such as the future of Taiwan. When the stakes are the highest and one side has

convincing military options for achieving its goals, that side will have a strong incentive to escalate to decisive military options to resolve the conflict in its favor. The purpose of deterrence by denial is to convince the opponent that it does not have that option available. Chapters 7–9 will discuss how the United States and its allies can achieve deterrence by denial for Taiwan and prevent a war over the island's fate.

Today's PLA can mass enormous combat power over and around Taiwan. China's military buildup constitutes the most rapid expansion of military power by a major country in peacetime since the 1930s.[1] The PLA now has more warships than any navy in the world, the largest array of airpower in Asia, and the greatest inventory of missile power in the Indo-Pacific region. In addition, the PLA has put in place the command and reconnaissance capabilities required for modern, high-tech, and high-intensity military operations. The result is a region-spanning battle network, combining sensors and long-range missiles, that is specifically designed to destroy US naval forces underway out to Guam and the Second Island Chain and to devastate the US military's air and naval bases in the Western Pacific.[2]

Even so, the United States and its allies can fashion a strategy and military capabilities that focus their competitive advantages against China's weakness and, importantly, that do not provide an opportunity for the PLA to do the same in return. If the United States and its allies swiftly implement the reforms described below, they can defeat a PLA amphibious assault against Taiwan or an extended air and maritime blockade. The US-led coalition needs to make some urgent investments to ensure that its battle network in the Western Pacific can strike the PLA's vulnerabilities and thus close the window of opportunity that might now be open for the PLA.

The Imperative of Deterrence by Denial

"Deterrence by denial" differs from "deterrence by punishment" and is the stronger and preferred form of deterrence in great power competition. Having the capability to directly defeat, or "deny," the adversary's military strategy and forces will leave the adversary with no

further useful military options or a path to success.[3] When both sides agree that this state exists, deterrence by denial will exist.

If a defender cannot defeat or "deny" the aggressor's military strategy, the defender will instead have to resort to inflicting pain to dissuade the aggressor. The aggressor gets to decide how much pain it is willing to suffer, which, as numerous combatants throughout history have displayed, can be very high indeed. Those pursuing a punishment strategy cede the initiative to the target of the punishment and then must hope for the best. Unfortunately, hope is not a good strategy. It is much better to possess the capabilities to directly defeat the adversary's strategy and forces, denying it good choices or the initiative.[4]

What a Military Strategy to Thwart a PLA Lunge for Taiwan Should, and Should Not, Do

US and allied military planners should thus fashion an operational concept and acquire the supporting military forces designed to directly defeat the strategy and military forces the PLA will require for a military invasion of Taiwan. Although seemingly self-evident, this concept becomes more complex under deeper analysis. The PLA's carefully designed buildup over the past three decades reveals Chinese commanders and planners who understand the tasks they must accomplish and who have a deep understanding of the opportunities created by rapid advances in military technology.

The sheer size of the military force the PLA could aim at Taiwan is frightening. For example, under conservative assumptions the PLA's airpower can launch more than 1,400 precision-guided antiship and land-attack cruise missiles per day, day after day, at allied bases and warships out to the Second Island Chain, three thousand kilometers from China's coast.[5] The number of these PLA air-to-surface cruise missiles is not publicly known, but given the PLA's extraordinary buildup and China's military-industrial capacity, many thousands are likely available to the PLA's strike aircraft units.

In addition, in October 2023 the US Department of Defense identified 2,800 PLA land-based surface-to-surface ballistic and cruise

missiles (a 70 percent increase according to the Pentagon's 2022 report), some capable of precision attacks out to Guam and against surface warships underway.[6] The PLA Navy's surface ships and submarines are armed with an equally large number of long-range land-attack and antiship cruise missiles. Some analysts suspect that China has developed the capability to launch cruise missiles hidden inside standard shipping containers, useful for surprise attacks on targets anywhere in the world.[7] US and allied commanders and planners face a steep challenge defending Taiwan from an assault with this quantity of precision-guided firepower.

How can US and allied military planners prepare for this challenge? The US Defense Department's *Joint Publication 5-0, Joint Planning* is the Pentagon's official doctrine for planning military operations. *JP 5-0* advises military planners to identify and attack the adversary's "center of gravity," which the publication defines as "the source of power or strength that enables a military force to achieve its objective and is what an opposing force can orient its actions against that will lead to enemy failure."[8]

Loss of a center-of-gravity asset can mean defeat when the center of gravity is an essential military capability a combatant requires for its campaign. The loss of political-military icons, like aircraft carriers and their embarked aircraft and crews, could demoralize policymakers and the public and similarly lead to defeat. The PLA specifically designed its "counter-intervention" force structure, its long-range battle network, to find, attack, and destroy US air and naval bases and carrier strike groups in the Western Pacific that would be used to intervene and counter a PLA assault on Taiwan. JP 5-0 advises US military planners to attack the adversary's center of gravity while avoiding the exposure of US and allied centers of gravity as they do so. Accomplishing this against the PLA in the Western Pacific will not be easy.

The PLA Navy Is the Center of Gravity

Designing a military strategy under *JP 5-0*'s center-of-gravity guidance implies that it won't be necessary to defeat the entirety of the PLA, or

even all its invasion force, to deny a Chinese conquest of Taiwan. US and allied planners need only to find and destroy the PLA invasion force's center of gravity, the essential capability the PLA requires for a successful assault of Taiwan. The PLA Navy is that essential center-of-gravity target.[9] China needs its navy intact and free to operate if it is to land the hundreds of thousands of soldiers and millions of tons of equipment and supplies it will need for the conquest and long-term pacification of Taiwan. Airlift alone cannot provide the needed haulage capacity. Defeating China's navy will deny China military success.

How can US and allied military forces get to the PLA Navy in the Taiwan Strait when the PLA's region-spanning battle network is in place protecting the PLA Navy from US and allied intervention? In August 2022, a research team from the Center for Strategic and International Studies (CSIS) conducted twenty-four iterations of a war game that simulated a PLA amphibious assault against Taiwan. The team and game participants used the iterations to vary assumptions and parameters of the simulation to reveal interesting findings. The research team published those findings in January 2023, one of very few rigorous and unclassified studies of the Taiwan assault scenario released to the public.[10]

The good news from the perspective of Taiwan, the United States, and its allies is that the US-led coalition almost always defeated the PLA assault attempt, by annihilating the PLA Navy. The bad news is that US losses of warships, fighter aircraft, bases, and personnel in the Western Pacific were severe. Intense and continuous PLA antiship and land-attack missile strikes on air and naval bases and warship groups underway took a steep toll. Losses typically included two complete US aircraft carrier strike groups attempting to sail to Taiwan's aid; destruction of amphibious groups attempting to bring US troops to Taiwan; many hundreds of US Air Force and Marine Corps fighter aircraft destroyed on the ground at their Western Pacific bases; and more than ten thousand US personnel killed in action after three weeks of missile combat.[11]

This could be the butcher's bill for saving Taiwan. The United States and its allies would have struck China's vulnerable center of gravity,

its navy. But in doing so, the allies would have exposed their own center of gravity to the PLA's firepower. The intensity of such losses, compressed into just a few weeks, would be shocking to the US public and could put at risk the will to continue the war should China choose to do so. US military planners should provide policymakers with an operational concept that can defeat the PLA Navy without risking such high casualties to do so.

Assembling a Broad Team to Defeat the PLA Navy

As this chapter will explain, all branches of the US military can contribute to defeating a prospective PLA amphibious assault against Taiwan. When all services contribute to the effort, PLA commanders and planners will face increasing operational dilemmas that will add complexity to the challenge of successfully crossing the Taiwan Strait with an invasion force. Fortunately, all branches of the US military are now preparing for the PLA threat. Even so, there remain shortcomings and missed opportunities within these preparations, which policymakers and planners in Washington and elsewhere must address.

The US Space Force, along with other government and private-sector space-based intelligence-gathering resources, will make the first contribution to thwarting a PLA attack on Taiwan. Imaging and signal intelligence satellites will detect Chinese war preparations potentially many months in advance. Such indications would include a surge in the production of the missiles and munitions the PLA would need for its assault on Taiwan; the construction of new bases, warehouses, and infrastructure needed for transporting and positioning military equipment, supplies, and personnel; changes in the pattern of training and maintenance cycles for military personnel and equipment; repositioning military forces at coastal bases and embarkation areas; repositioning command posts to wartime sites; the diversion of normally civilian ferries, cargo ships, trucks, rail equipment, and aircraft for military use; the diversion and stockpiling of fuel, food, and other supplies near embarkation areas; and the call-up and deployment of reserve forces.[12]

USS *Springfield,* a Los Angeles–class attack submarine, docks at its home port at Polaris Point, Guam. The USS *Springfield* is a part of the US forward-deployed submarine force in the Pacific. *Mark Pavely/US Navy*

Space-based intelligence-gathering resources would detect these and many other signs of impending military action. Such advanced warning would allow US and allied political leaders to make their own diplomatic, economic, and informational preparations. And of course, US and allied military commanders could use this interval to prepare and reposition their forces.

Should Chinese leaders proceed with their assault on Taiwan, the US Navy's attack submarine force would likely be the first to engage in the kinetic phase of the war. The US Navy has assigned twenty-four of its forty-nine attack submarines to the Pacific Ocean, each of which carries more than twenty Mk-48 heavy torpedoes.[13] The US Navy's attack submarines are thought to be the best in the world and are the foundation of US dominance in undersea warfare.[14] As such, they are well matched for countering a PLA Navy amphibious force attempting to cross the Taiwan Strait.

The US Air Force's bomber force—141 aircraft capable of large payloads and global range with aerial refueling—is also an excellent matchup against the PLA Navy.[15] US bombers are based outside the PLA's reach, can refuel beyond the PLA's interception range, can raid

the PLA Navy in the Taiwan Strait or at China's ports with long-range missiles, and can then withdraw to secure bases to prepare for more missions. With each aircraft able to carry and launch sixteen to twenty-four long-range precision-guided land-attack and antiship missiles, the US bomber force, flying about one-third of the force's aircraft each day, could launch about eight hundred of these missiles against the PLA assault forces per day.[16] The latest US aircraft adapted to fire the Long Range Anti-Ship Missile (LRASM) is the US Navy's P-8 Poseidon maritime patrol aircraft. These modified, in-flight refuelable Boeing 737 aircraft, of which there are more than one hundred in inventory, will significantly increase the attack vectors the PLA Navy will need to consider.

PLA commanders and planners will also have to account for the US Navy's guided missile destroyers, dozens of which are based in the Pacific. The US Navy's destroyers will soon be able to launch a maritime strike variant of the long-range Tomahawk cruise missile. In addition, the navy has adapted its destroyer-launched Standard Missile 6 (SM-6) long-range air defense missile for use against surface targets.[17]

US ground forces are also building their own shore-based antiship capabilities. The US Army is acquiring the Precision Strike Missile, future versions of which will be capable of attacking surface ships underway.[18] The US Marine Corps is reorganizing itself for missile combat against the PLA from outposts along the First Island Chain. The service is acquiring the Naval Strike Missile for its shore-based antiship forces.[19]

The Challenge of Missile Combat in the Western Pacific

The development of these capabilities across the services demonstrates the Department of Defense's growing focus on countering possible Chinese military aggression. Even so, the massive volume and range of potential PLA missile firepower, the large number of targets the United States and its coalition partners will have to attack, the vast distances in the Western Pacific, and the relatively tiny amount of island terrain available for basing US military forces combine to limit the effectiveness of much of what the US military services are attempting to build.

As mentioned, the August 2022 CSIS Taiwan war-game series described the devastation that PLA missiles would inflict on US and allied forces attempting to operate from the Second Island Chain westward. This devastation occurs for three reasons. First, as mentioned, PLA airpower can launch over 1,400 antiship and land-attack cruise missiles per day, with the PLA's 2,800 land-based missiles and numerous ship-based missiles adding to this total.

Second, the PLA's electro-optical, synthetic aperture radar and nearly three hundred electronic intelligence satellites in orbit will provide continuous, all-weather, day-and-night, and finely detailed observation of US and allied military units operating within the PLA's missile engagement zone, which extends more than three thousand kilometers from China's coast (space-based synthetic aperture radar is now capable of image resolution of fifty centimeters or less, detailed enough to distinguish individual ship types and vehicles through any weather). The PLA possesses a comprehensive and redundant command and communication system, supported by over sixty communication and forty-nine navigation satellites, through which PLA commanders will control their theater-wide missile-based campaign.[20]

Third, US and allied forces have few places to hide: the surface of the ocean provides no concealment and the PLA's overhead reconnaissance system can continuously surveil the small islands in the Western Pacific.

Thus, the task of countering a PLA amphibious assault on Taiwan will fall most heavily on US and allied attack submarines plus the US Air Force's long-range bombers based outside the range of the PLA's missiles. The US Army and Marine Corps antiship missile programs will serve to complicate PLA planning. But these units on the First Island Chain may struggle to survive and aren't currently in a position to make more than a minor contribution, a conclusion the CSIS research team also reached.[21] Short-range tactical aircraft and surface naval forces will similarly be at great risk. The CSIS war-game series revealed that the more the US commander built up his naval and tactical air forces close to Taiwan, the worse the outcome for the United States since this exposed more targets for the PLA's missiles to destroy.[22]

US commanders will have to weigh the contribution these forces could make to the battle versus the likely rapid destruction they would suffer.

Requirements for Success and Capability Gaps

US and allied campaign planners may have to reckon with over a thousand ship targets, consisting of over three hundred PLA Navy "gray hull" warships, supported by hundreds more from China's paramilitary coast guard, its "maritime militia," and large and advanced ferries and civilian cargo ships that were designed to transport military vehicles and supplies across the Taiwan Strait.[23] Thwarting a PLA amphibious assault may also require attacks on the ports, piers, and warehouses the PLA would use to embark its Taiwan-bound landing force. US and allied forces may also need to suppress PLA airbases and air defense systems. The result is a long list of targets, amounting to perhaps thousands of individual weapon aimpoints.

For the United States, its Pacific Fleet attack submarines will likely be the first to attack the PLA warships and elements of the amphibious assault armada. The stealthy and sophisticated submarines will inflict a high toll on PLA warships that block entry into the Taiwan Strait or that attempt to move east of Taiwan to establish air and sea control positions. The submarines' Tomahawk cruise missiles could also attack shore-based air defense targets, a task the submarines have performed numerous times since the 1991 Persian Gulf War.

Unfortunately, maintenance problems are limiting the submarines' availability; one-third of the navy's attack submarines are idle at depot maintenance shipyards.[24] Applying this factor to submarines assigned to the Pacific leaves just fifteen submarines available for all missions, which include responding to Russian and North Korean contingencies. Policymakers could transfer attack submarines based outside the Pacific, taking risks with possible opportunistic aggression elsewhere in the world.

Fifteen US attack submarines responding to the Taiwan crisis would carry with them about 375 torpedoes, enough to potentially destroy scores of PLA Navy and auxiliary ships. After expending their

torpedoes, surviving submarines would have to return to a functioning naval base to reload. Accounting for PLA missile strikes, the nearest such US base would be Hawaii or, if also damaged, the West Coast of the United States. There are closer naval bases in allied countries, but these would likely be damaged if those countries entered the war or closed for US military operations if they had not. The result would be a two- or three-week interval before the reloaded US submarines returned to the Taiwan battle.

The US bomber force would have to assume responsibility for most of the remaining campaign against the PLA armada. Like the submarine fleet, maintenance problems limit the bomber force's availability. In 2022, 41 percent of the B-1Bs, 59 percent of the B-2As, and 59 percent of the B-52Hs were designated "mission capable."[25] Applying these percentages to the current bomber force yields seventy-three potentially available bombers for all missions, including strategic nuclear deterrence and other contingencies. Under a conservative assumption of forty bombers ready and assigned each day to the Taiwan war, the bomber force could launch about eight hundred long-range land-attack and antiship missiles per day.

Munitions Are the Problem

A shortage of appropriate munitions for the bombers' counter-maritime campaign remains the most serious, but fixable, problem. The best US missile for attacking PLA warships is the air-launched LRASM. The LRASM is stealthy and designed to identify and attack a particular ship in a formation of ships underway. Its 375-mile range allows the launching aircraft to remain outside the range of most PLA air defenses. The LRASM is a variant of the Joint Air-to-Surface Standoff Missile-Extended Range (JASSM-ER), a precision long-range missile for attacking fixed targets on land. Lockheed Martin assembles both missiles at the same production facility. Both the JASSM-ER and the LRASM are fully tested and in production.[26]

Unfortunately, the US Air Force plans to acquire only a negligible quantity of LRASMs even as it plans for a large stockpile of the

land-attack JASSM variant. The air force's fiscal year 2024 budget proposal requests the purchase of only twenty-seven LRASMs during the fiscal year, compared with 550 JASSM-ERs. For the missiles' entire acquisition programs ending later this decade, the air force envisions acquiring only 488 antiship LRASMs, compared with an eventual stockpile of 12,323 land-attack JASSMs.[27] The US Air Force's B-1B bombers could expend the entire planned inventory of LRASMs with just twenty aircraft sorties—only one or two days of combat over the Taiwan Strait.

The US Navy and Air Force acquisition plans for LRASMs are insufficient to counter a prospective PLA amphibious assault against Taiwan. During such a scenario, the US bomber force is the only tool capable of launching the large volume of antiship missiles needed to cope with the PLA invasion fleet, potentially numbering over a thousand vessels.[28]

Are there other suitable air-launched antiship munitions that could add to the slim inventory of LRASMs? The US bomber force needs munitions with at least moderate range (up to three hundred miles) that airmen can fit with different sensors depending on the target (fixed or moving targets on land or ships at sea underway), that suppliers can assemble in large numbers at a steady rate, and that the US Air Force and Navy can purchase in large numbers at reasonable prices. The JASSM and the LRASM do not meet these requirements; although long range and highly effective, these missiles are expensive ($3.25 million for one LRASM) and too difficult to assemble in large numbers.

To remedy this problem, the Boeing Company has developed the Powered Joint Direct Attack Munition (PJDAM). The PJDAM is a kit that includes a small jet engine, fold-out wings, fuel, a small electrical generator, and precision-guidance sensors that attach to a standard five-hundred-pound bomb. The PJDAM has a range of three hundred miles from its launch point and is capable of precision attacks on moving targets including ships underway.[29]

Although not as sophisticated as the JASSM-ER or the LRASM, the PJDAM is an example of an "affordable mass" munition that the US bomber force could employ for a long, sustained campaign.

Forty bomber sorties per day, with each aircraft armed with thirty of the smaller PJDAMs, would deliver strikes against 1,200 aimpoints per day and at ranges that greatly reduce the risks to the bombers from China's air defenses.

US and allied attack submarines could assist the bombers' counter-maritime campaign by focusing their torpedo attacks on the PLA Navy's air defense cruisers, destroyers, and frigates, beginning with those warships operating east of Taiwan. About one hundred PLA warships are on this list.[30] The submarines could also assist the bombers with Tomahawk land-attack missile strikes on PLA air defense targets.[31]

Reconnaissance and Command from Space

In addition to providing early warning of a PLA military operation against Taiwan, US and allied space forces would provide overhead optical, infrared, synthetic aperture radar, and electronic surveillance and reconnaissance of the battle zone around Taiwan, identifying targets for the bombers and submarines. Space forces will also provide critical communication pathways for imagery data and commands to and from commanders and the "shooters," the bombers and submarines.[32] US space forces will also require the capability to defend themselves against PLA counter-space operations and should possess the capability to hold at-risk PLA space assets to deter Chinese escalation into the space domain.[33]

Given the PLA's formidable counter-space capabilities, success in the space domain will require accelerating the buildout of the new generation of satellite constellations composed of scores or hundreds of satellites. With space now militarily contested "terrain," the United States and its allies also require space assets that monitor the space domain for adversary activity and defend US and allied space assets.

The US Space Force is currently deploying its Proliferated Warfighter Space Architecture (PWSA), which will eventually comprise an integrated network of up to five hundred communication and missile-warning satellites in low earth orbit. The PWSA will provide global coverage, securely and reliably transporting targeting data and

commands to individual air, naval, and ground units in combat.[34] It will be difficult for the PLA to defeat the widely distributed and self-healing PWSA network.

As it builds out its own proprietary distributed communication and reconnaissance satellite constellations, the US Space Force and other US government agencies have supporting relationships with numerous private-sector space service providers. For example, under the Starshield program, Space Exploration Technologies (SpaceX) provides secure communications, earth observation, and specialized launch services to the US Space Force.[35] Other private-sector space companies also provide the US Defense Department and other government agencies with electro-optical and synthetic aperture radar images, electronic intelligence, and specialized space domain awareness and adversary tracking capabilities. Although necessary under current circumstances, the US Defense Department and intelligence agency officials should assess how reliable these private vendors will be during the stress of combat and what risk mitigation they should consider while the government completes its own proprietary constellations.

The US Space Force and other agencies are in a transition from legacy constellations composed of a few expensive and highly vulnerable satellites to new resilient constellations composed of hundreds of networked assets. There is a race to establish these new capabilities in the face of the PLA's counter-space capabilities and a looming showdown in the Western Pacific.

Preparing for War

US military commanders in the Western Pacific will require guidance from policymakers on the scope of their latitude to employ military force. These rules of engagement will govern the amount and types of US military forces allocated to the battle, the weapon systems they are permitted to employ, the types of targets they can attack, and the geographic boundaries for these operations.

Policymakers and military commanders should expect a PLA amphibious assault attempt against Taiwan to be incredibly intense and

rapid. For the commanders tasked with repelling the assault, there will be little time for contemplating alternative parameters to the rules of engagement. The CSIS war-game series revealed that delaying the US decision to enter the battle greatly increased the probability of a PLA victory and increased the losses of US forces that entered the war.[36]

Therefore, the US president and his advisors should determine well in advance of a crisis the authorities and rules of engagement under which US military commanders will operate given various scenarios. These authorities will have to consider permitting attacks on China's port, piers, embarkation facilities, and air defenses. In war games, people playing the role of American decision makers have often been loath to strike the Chinese mainland out of concern it would lead to an escalatory spiral. This is another reason why the air force's tiny stockpile of antiship missiles is so problematic. It constrains a US president's options and may force him to confront a dilemma he wouldn't otherwise face, either using more plentiful land-attack missiles to repel a PLA invasion or accepting a colossal US defeat.

In any case, delaying this analysis and crucial decisions about rules of engagement until after the war begins will benefit the PLA and increase US and allied losses. Policymakers may believe that strategic warning (discussed earlier) will allow them time for contemplation, but it will be dangerous to assume that there will always be adequate warning. Beijing should be kept guessing, of course, about how far the US president would be willing to go in war. Announcing in advance what the US president would *not* be willing to do is a cardinal sin when trying to maximize deterrence.

The US Eighth Air Force, responsible for all US bomber units, should regularly practice operating from a wide variety of dispersed and expeditionary locations around the United States and the Pacific region. Commanders should prepare to disperse the bomber force into small units and prepare systems to support and maintain these distributed units under wartime conditions. The US Air Force's aerial refueling force should similarly prepare to support the prospective bomber campaign spanning the Pacific Ocean. Commanders should ensure that a resilient command system is in place to coordinate the elements of

this campaign. This should all be integrated into the US Air Force's "Agile Combat Employment" concept, a plan to rapidly distribute US aircraft to numerous temporary airfields that have Deployable Air Base Sets (DABS) with fuel bladders, runway repair kits, temporary air control, and unique maintenance and weapons-handling gear.

Military forces and relevant defense industries inside the US homeland should also prepare for war. The PLA's ability to strike the continental United States is limited, but it is not zero. Without preparation, critical targets could be vulnerable to damage from cruise missiles launched from submarines and shipping containers or from infiltrators prepositioned inside the US homeland. Potentially vulnerable sites might include aircraft and missile production facilities, naval bases, and air bases. These facilities are also dependent on the utilities that supply them with electrical power, which could also be vulnerable. PLA-linked infiltrators could target bomber crews and their families, as well as critical defense industry workers, living in unprotected areas. Commanders and managers inside the United States should prepare for worst-case scenarios.

To assault Taiwan, the PLA would have to expose its amphibious fleet to a US and allied battle network. US commanders and planners can fashion and organize the tools to hold this vulnerable Chinese center-of-gravity target at risk and do so without also risking large-scale US casualties. However, gaps in US capabilities and preparations remain. US policymakers and military planners should immediately focus their attention on ensuring that their team is ready for the amphibious assault scenario.

Two-Year Action Plan

What actions in the near term should US policymakers and planners take to ensure the readiness of their forces to defeat a PLA amphibious assault against Taiwan?

1. The US Department of Defense and Congress should urgently appropriate supplemental funding to reform and improve the US submarine industrial base, to reduce the backlog of attack

submarines currently idle while awaiting maintenance. Congress should also increase funding for bomber maintenance, to increase bomber mission readiness.

2. Policymakers should direct the commanders of US bomber and air-refueling forces to make the counter-maritime mission in the Indo-Pacific theater their top conventional military priority. Bomber and refueling force commanders, planners, air crews, and support personnel should focus their training and logistic preparations on Indo-Pacific contingencies, especially those related to Taiwan. Bomber force commanders and support units should practice operating from a wide variety of dispersed and expeditionary bases.
3. US Air Force and Navy acquisition officials should urgently acquire the largest feasible stockpiles of "affordable mass" precision-guided air-to-surface munitions, such as the Powered Joint Direct Attack Munition. Engineering and testing teams should rapidly certify these munitions with a variety of sensor and precision-guidance options to reliably strike maritime targets in all weather, illumination, and electronic warfare conditions. Executing this action is feasible using already proven technology employed in other weapon systems.
4. The US Navy and Air Force program offices responsible for JASSM and LRASM procurement should work with the supplier to dramatically and rapidly increase the production of the LRASM variant, even though it will mean fewer JASSMs, of which the air force already has thousands in stock.
5. US Air Force policymakers should recall ten B-1B Lancer bombers the service retired in 2021 and request Congress to appropriate the approximately $300 million it would take to restore these aircraft to flight operations.[37] This action would add the capacity to launch 240 JASSM and LRASM missiles to the total bomber launch capacity and more than 300 PJDAMs or similar munitions.
6. US policymakers and defense planners should consider plans to pre-position US Army and Marine Corps antiship munitions

and combat supplies in Taiwan to facilitate the option of deploying these US forces to Taiwan before or during a contingency.

7. Acquisition officials in the US Space Force should accelerate the deployment of the service's Proliferated Warfighter Space Architecture satellite constellation, to provide US and allied combined and joint forces with a resilient and reliable global communication network impervious to PLA counter-space capabilities.
8. Leaders of the US Space Force and the US intelligence community should review their relationships with private-sector space-based imagery and satellite communication companies that currently provide detailed electro-optical, synthetic aperture radar, infrared, and electronic intelligence imagery and communication services, to ensure that these relationships will be reliable during wartime and that these vendors integrate effectively with combat intelligence products and war plans.[38]
9. The US Space Force should acquire, and the US Space Command should employ, maneuvering and potentially armed space assets. These systems should be capable of closely inspecting adversary space assets and providing prospective offensive military capabilities in space, with the goal of deterring aggressive adversary actions against US and allied space-based capabilities.
10. US policymakers should direct US Indo-Pacific Command and US Air Force Global Strike Command commanders to periodically conduct large- and short-notice "show of force" training exercises in and over the Western Pacific, to display to Chinese and allied leaders the ability of US forces to quickly mobilize large-scale battle networks and firepower for prospective Taiwan military contingencies. Such exercises are good training opportunities, and they also display capabilities and will to potential adversaries and partners, essential for sustaining deterrence and reassuring allies.
11. Commanders of military facilities in the US homeland, along with managers of critical defense industrial sites and the private-sector owners and operators of US critical infrastructure, should prepare their facilities and personnel for potential cyberattacks,

long-range missiles strikes, and infiltrators in the event of a crisis over Taiwan. Special attention should be paid to the critical infrastructure that support military mobility—rail, air, and port systems and the power grids and utilities that support them.

12. The US Navy should expedite operational certification and delivery of Maritime Strike Tomahawks to the fleet. This would provide more than one hundred additional long-range strike platforms for US commanders.
13. US planners must plan and exercise with Taiwan counterparts to understand the capability and capacity of Taiwanese surface ships, submarines, aircraft, and ground-based units to sink PLA vessels. Taiwan has a large number of missiles, but these will be heavily attacked by the PLA. This planning effort would allow for maximum coordination among forces in a kinetic conflict and help prevent friendly-fire incidents.

Summing up, the United States and its allies in the region could have the tools in place to defeat a prospective PLA amphibious assault against Taiwan and do so without exposing large and vulnerable formations of its forces to the PLA's firepower, as happened during most iterations of the 2022 CSIS Taiwan war-game series. These tools would include the US Navy's attack submarines; the US Air Force's bombers and air-refueling tankers; cheap, easy-to-build, precision-guided munitions, like the PJDAM; and overhead reconnaissance, targeting, and communications support from the US Space Force and other stealthy strategic reconnaissance capabilities.

Policymakers should urgently turn their attention to completing the actions described above. Doing so will strengthen deterrence against the amphibious assault scenario, a looming danger to US, Taiwanese, and allied interests over the remainder of this decade.

NOTES

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