



A Rational China-Oriented Military Strategy

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Acknowledgements

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Introduction

In the first part of this series, POGO evaluated the Washington defense establishment's narrative that China poses an imminent military threat to the United States and found that those assertions do not hold up to scrutiny. China faces severe economic, demographic, and ecological challenges that will likely limit its leaders' ability to embark on any sustained foreign military adventures.

Unfortunately, either through a misevaluation of the evidence or willful ignorance, the Washington national security complex continues to push that narrative and asserts that we need drastic increases in defense spending over the next five to 10 years to prepare for this purportedly looming confrontation. The Biden administration introduced an \$842 billion defense budget for fiscal year 2024, a 3.2% increase over the already historically high budget enacted for 2023. In justifying the increase, Secretary of Defense Lloyd Austin said, "This is a strategy-driven budget — and one driven by the seriousness of our strategic competition with the People's Republic of China."

But the plans put forward by civilian and uniformed defense officials to defend against China should that nation initiate a conflict make little sense. The United States is foolishly building a strategy and force to attack where this potential adversary is most fortified.

China's own strategy is defense oriented. Its leaders have crafted a powerful and a sophisticated network of shore-based missiles designed to repel attacks by disabling or sinking ships and shooting down aircraft approaching China's territory. These weapons would exact a terrible toll on any force sent against it, so China's naval fleet operating within this defensive bubble will remain relatively well-protected. It would be foolhardy to launch an attack against it.

Moreover, the U.S. strategy regarding China does not generally address what would happen were the Western powers to succeed in overcoming China's defenses. An invasion of China's mainland is difficult to fathom because it, too, would be so foolhardy. If a naval and air conflict between China and the West didn't trigger a nuclear exchange, it is nearly impossible to imagine how Western ground forces crashing across China's coast wouldn't.

The advantage China has close to its own shores would evaporate should it ever venture into open waters. China's weapons are very good at defense, but they are not suitable for projecting military power beyond their effective range. Rather than creating a force intended to attack directly into China's strongest military position, the United States and its allies should pursue a strategy of containment to deter or defeat any aggressive moves in the western Pacific region.

The Pentagon's Current Vision

American civilian and military leaders claim a rising China presents a threat and that they want to deal with it by trying to stay one step ahead militarily. They view China's military expansion as a challenge that must be defeated directly in a head-to-head matchup. The U.S. plans to do this by building a fleet of large surface warships and stealthy aircraft that would attack into the heavily defended region close to China's shores in response to a first strike by the nation. The U.S. Navy wants to continue building an aircraft carrier-centered fleet to project military power right up to the coast of mainland China and into its interior. The Air Force wants to build hundreds of stealth bomber aircraft to strike targets deep within China. These are largely vanity projects, removed from any realistic analysis of what it would take to defeat China in a future war.

While China has greatly expanded its military capabilities over the past 30 years, a closer analysis of its military shows it is designed to keep outside powers away from its shores. It is not designed to operate in the open oceans.

A major component of the nation's military modernization is the network of land-, air-, and sea-launched weapons designed to "dissuade, deter, or, if ordered, defeat third-party intervention during a largescale, theater campaign." It is commonly known as Anti-Access/Area Denial, or A2/AD. Shore-based missiles capable of striking ground or naval targets out to 4,000 kilometers and an anti-ship missile with a range of 1,500 kilometers that can be fired from mobile launchers on the ground or from aircraft make up a large part of China's defenses. China also fielded missile systems with a maximum range of 170 kilometers to defend against aircraft. The People's Liberation Army Air Force and Naval Air Force both operate a mix of aircraft — many of which are older, Soviet-derivatives — to complete this defensive system. China also has a small inventory of modern J-20 fighters, which are roughly equivalent to the F-22 and F-35.

American military planners understand how formidable China's military is close to its shores. They generally view that system as a challenge to be overcome rather than something to work around. The People's Liberation Army Navy now has more ships than the U.S. Navy, but, importantly, it lacks the overall punch that the U.S. fleet has.⁶ China can get away with this because its fleet is designed to fight relatively close to its shores. It's meant to keep outside powers away by operating under the protective bubble created by the A2/AD network.

The Washington military establishment has unwisely designed a force to attack directly into the enemy's strength. This approach smacks of hubris and disdain for a powerful adversary, and such a cavalier course of action could be catastrophic.

The Center for Strategic and International Studies conducted a series of 24 wargames in late

2022, based on the best available information, simulating a Chinese invasion of Taiwan and various allied responses. They found that China would likely not succeed in capturing Taiwan, but also found that thwarting the effort would cost the allies dearly. "The United States and its allies lost dozens of ships, hundreds of aircraft, and tens of thousands of servicemembers," the study concluded. All told, the U.S. military would likely lose about half of the present Air Force and Navy inventory. The study found that even under the best-case scenario, the U.S. Navy would lose two aircraft carriers and between seven and 20 destroyers and cruisers. These findings have to be taken with a grain of salt since the research team didn't have access to classified information and because of inherent limitations of modeling and simulation, but it is reasonable to conclude that a direct military confrontation with China on terrain they have scrupulously prepared would result in massive losses on both sides.

The organizers of the wargames doubtlessly chose the Taiwan scenario because China has been threatening an invasion since the Communists won the civil war in 1949. A fight to preserve Taiwan's independence is currently the most likely scenario in which China and the West may come into direct military conflict. President Joe Biden reiterated a long-held American pledge by repeatedly stating that the United States has an obligation to defend Taiwan from a Chinese invasion. With all the discussion in official circles about a Chinese threat to Taiwan, it seems that U.S. policymakers are spending the better part of a trillion dollars a year to fund the Pentagon to protect an island nation that is not even a U.S. territory. While it would be a tragedy and a significant blow to the global order if China were to conquer Taiwan, it would hardly threaten the national survival of the United States. Washington should instead be focusing its efforts on protecting our own vital interests and sovereignty.

That said, it is important to work with our allies and to preserve the global order, and a Chinese invasion of Taiwan would certainly disrupt that order. Yet there are plenty of reasons to be skeptical about the likelihood of that happening. Economic concerns alone will likely prevent Chinese leaders from attempting an invasion. China imported more than \$3 trillion worth of goods and services in 2021 alone. These imports include necessities like food: China only produces about 66% of the food necessary to feed its population. Should war break out in the western Pacific, to say nothing of economic sanctions, global shipping would be disrupted, severely inhibiting China's ability to import or export goods.

For a country that relies heavily on imports for its people's basic nutritional needs, such a prospect must factor into the leaders' strategic decisions. Western countries hit Russia with sanctions following the invasion of Ukraine in early 2022, and revenues from Russian oil exports have been cut nearly in half as a result. The war caused a labor shortage in Russia, and increased government spending has drastically increased inflation to 11% as of February 2023. The Russian economic challenges come after its forces crossed a relatively open land border with Ukraine. China would almost certainly face an even worse situation were it to attempt a much more complicated and logistically intense amphibious invasion of Taiwan. Taiwan sits inside what is known as the First Island Chain, which complicates the military

situation because relatively shallow waters separating the island from the mainland negate some of the advantages a deep-water fleet possesses. Conducting an amphibious operation on the scale necessary to capture an island of approximately 23 million people would be an immense challenge. ¹⁵

The wargames referenced earlier give a hint about the mutually destructive nature of a war over Taiwan's independence. Significant losses of ships and aircraft sent to fight China in that scenario would be inevitable. In fact, fighting China in its own maritime backyard violates a basic military tenant familiar to even the most junior infantry squad leader: It's a really bad idea to attack directly into the enemy's kill zone. The U.S. Army defines a kill zone as "that part of an ambush site where fires are concentrated to isolate, fix, and destroy the enemy." Soldiers are taught to avoid even *suspected* kill zones. 17

It may seem simplistic to apply an Army tactic for sergeants and lieutenants to a scenario involving massive joint forces commanded by generals and admirals, but fundamental principles apply at all levels and services. The U.S. Navy's primary doctrinal publication lists the nine principles of war, which include "maneuver." Maneuver, in this sense, is defined in the Department of Defense's joint publications as "the employment of forces in the operational area through movement in combination with fires to achieve a position of advantage in respect to the enemy." Planning to attack directly into the enemy's prepared defenses directly violates this most fundamental military principle.

It remains to be seen if the U.S. Navy can even realize its current plans of using massive aircraft carriers and other surface battle force ships to deal with China should that nation choose to initiate a conflict, considering the acquisition track record so far this century. Navy leaders have floated various shipbuilding plans over the last several years ranging from having a manned future fleet of between 321 and 404 ships along with an unmanned fleet of between 45 and 204 vessels. According to the Congressional Budget Office, Congress would need to increase the Navy's annual budget by 23% to 35% above already historically high spending levels to reach those goals. ²¹

The Navy currently spends more than \$230 billion each year to support a fleet of 296 ships, with only 238 of those in active commission. Despite ever-increasing budgets, the fleet is expected to shrink over the next few years. It is easy to see how the Navy continues to spend more money each year and still gets smaller when this century's series of shipbuilding disasters is considered. The Littoral Combat Ship and the *Zumwalt*-class destroyers have been abject failures, and the *Ford*-class aircraft carrier program has yet to demonstrate its value.

The good news is that Navy leaders have apparently learned some lessons, even though they did have to learn them the hard way. Admiral Michael Gilday, chief of Naval Operations, recently appeared on a *60 Minutes* segment where he was asked about the shipbuilding mistakes of the last 20 years. "We need to have the design well in place before we begin

bending metal," Gilday said.24

The new *Constellation*-class frigate program necessitated by the failure of the Littoral Combat Ship is based on, in Navy parlance, a "parent design." Using parent designs can significantly reduce risks of cost and schedule overruns because those designs have been tested and flaws have been fixed. In this case, the parent design is that of the FREMM multipurpose frigate, jointly designed by France and Italy to serve as submarine hunters, patrol ships, and anti-aircraft platforms. The French Navy commissioned the first ship, *Aquitaine*, in 2012. Twenty-one FREMM frigates now operate in the French, Italian, Moroccan, and Egyptian navies. The U.S. Navy's version will be outfitted with components already used on other ships with active production lines, which should help further reduce risks of cost and schedule overruns that have plagued the other major shipbuilding efforts this century. Even with a safer acquisition strategy, the costs of the new frigate will be substantial, however. *Constellation*-class ships are expected to cost more than \$1 billion each.

Alternative Thinking

So what would a strategy based on the defense of America's vital interests look like?

The top-line strategy regarding China should be to deter it from making aggressive moves beyond the defensive network it has created. The strategy should be specifically designed to raise China's costs of initiating a conflict with the U.S., including by building a force designed to defeat China's military should it ever attempt to attack the United States or its allies. This would be a much more effective, and far more affordable, option than the United States' current unfeasible strategy.

To accomplish that, U.S. leaders need to have a realistic understanding of the military threat China poses. A long-established military concept relevant to the strategic situation with China is that of surfaces and gaps. A "surface" is any enemy strength. An obvious example would be a heavily defended avenue of approach or a strong dense air defense network. China has created one of the most intricate and advanced surfaces in history with the anti-access/area denial network. A "gap," on the other hand, could be something quite literal like an undefended space between units, or something more metaphorical such as an inherent weakness of the overall system like an excessively long mobilization process. ³⁰

Identifying surfaces and gaps and devising ways to avoid the former and exploit the latter is a major task for commanders and planners. Another key task is to understand their own surfaces and gaps. While he didn't specifically mention these concepts, the ancient Chinese general and philosopher Sun Tzu would certainly recognize them, and may in fact have had similar ideas in mind when he wrote, "one who knows the enemy and knows himself will not be endangered in a hundred engagements." ³¹

Rather than spending vast fortunes in what would, even in the best-case scenario, almost certainly be a Pyrrhic victory, the smarter option is to find a way to negate the advantages China has close to its own territory. The environment inside the territory known as the First Island Chain heavily favors China due to the efforts it's made and resources it's expended to defend it.³² The Chinese military would be most effective inside a line that extends south from the bottom of mainland Japan through the Ryukyu Islands out to the western edge of the Philippine Islands, and that then curls around the edge of the South China Sea.³³ Should the Chinese military ever venture beyond this line, its effectiveness would rapidly decline.

A wise Western military strategy regarding China would be to concentrate efforts on preparing for a deep-water naval campaign to defend against any aggressive moves outside of the First Island Chain. Doing so would shift the advantage from China to the Western powers, especially the United States. By following such a strategy, the United States and its allies would likely do a more effective job of deterring Chinese aggression, as it would shift any potential battle to terrain unfavorable to China and greatly increase their risks in a direct military confrontation. To have any hope of prevailing, the Chinese government would have to dramatically increase military spending to build a force capable of operating in the open ocean. The Chinese economy, which has slowed dramatically in recent years, may not be able to support such capital-intensive military projects of that kind.³⁴

As noted above, the Navy's top leaders seem to have learned one of the most significant lessons necessary to avoid future shipbuilding disasters: Having a stable design is important. But that is just the beginning. The Navy should also prioritize simplicity. The Littoral Combat Ship concept failed in large part because the Navy tried to do too much with it. The cumbersome interchangeable mission module scheme dramatically increased costs and ultimately proved unworkable. Future ships should be optimized for their primary mission and any secondary capabilities can be added later. By following such a design philosophy, the risks of technological failures and unexpected budget and schedule overruns would be greatly reduced. The lower costs would increase the chances that the Navy can reach its fleet size goals.

The U.S. strategy should also take into consideration the capabilities of our allies. We had emerged from World War II as the undisputed superpower of the Western world, which at the time left us as the only nation capable of maintaining global order. The situation in 2023 is very different than it was in 1945. Our allies are now capable of shouldering their share of security burdens. Yet American civilian and military leaders today still often act as though the U.S. military is the only force available to counter aggressors threating to disrupt global security.

A truly containment-minded naval strategy would have the United States work with allies to turn the Pacific into what's known as an extended "defense in depth," a strategy in which

there are multiple layers of defense rather than having just a single defensive line. In this case, there would be multiple layers of submarine pickets extending outward from the Chinese coast. The United States, United Kingdom, and Australia have a trilateral security pact, known as AUKUS, created to deal with a rising China that could serve as a useful arrangement if it were to be executed properly. Leaders of the three countries announced the new security agreement on September 15, 2021.³⁵

The partnership is designed to make it easier for the participants to share technology to meet common security challenges. Its major focus is to get nuclear-powered submarines into the hands of the Australians.³⁶ The Australians were barred from building their own nuclear submarines because they signed on to the "123 Agreement" with the United States in 2010, which prohibits signers from enriching nuclear materials for military purposes except in cases where the country partners with a nuclear-weapon state.³⁷ The AUKUS agreement provides that exception.

Biden highlighted the shared security concerns of the three nations at a ceremony on March 14, 2023, announcing an accelerated timeline for the project. "Today, as we stand at the inflection point in history, where the hard work of enhancing deterrence and promoting stability is going to affect the prospects of peace for decades to come, the United States can ask for no better partners in the Indo-Pacific, where so much of our shared future will be written," Biden said.³⁸

Beyond deterrence, such a strategy may even help temper some of the tension in that part of the world. A more defensive-minded approach, rather than the power projection approach currently being pursued, would appear far less aggressive from China's perspective. And at a time when Pentagon budgets are rapidly approaching \$1 trillion per year, it would also provide relief to the beleaguered taxpayers.³⁹

Implementing the Alternative Strategy

Moving forward, submarines should be at the center of the Western powers' arsenals rather than aircraft carriers. They pose a significant threat to any surface fleet, and at the same time could help calm tensions in the western Pacific.

While submarines, and especially attack boats, aren't purely defensive weapons, neither are they offensive weapons the way that aircraft carriers or amphibious assault ships are. Instead, submarines occupy a niche in the middle.

Perhaps the best way to describe their combat function is as a spoiling weapon. A spoiling attack is "a form of attack that preempts or seriously impairs an enemy attack while the enemy is in the process of planning or preparing to attack." The purpose of a spoiling attack

is to disrupt the enemy's plans and operations rather than to capture terrain or secure a wider objective. Attack submarines are highly effective at sinking an enemy's surface ships, and some submarines can be used to launch nuclear ballistic missiles and conventional cruise missiles to strike enemy targets ashore. But they can't be used as part of an invasion to put large numbers of troops ashore.

Then-Senator Gary Hart and his national security advisor William Lind, writing in 1986, called submarines the capital ships of the future. They were discussing the challenges of defeating the Soviet Union's Navy at the time, but the value of an effective undersea force remains the same today. "Whoever wins the submarine war wins the naval war," they wrote.⁴¹

Engineers design modern submarines to run quiet so they are difficult to detect with sonar. Although China has developed capabilities to hunt submarines, most of those capabilities are optimized for and are most effective in the relatively shallow waters between mainland China and the First Island Chain. ⁴² It is much more difficult to detect submarines in deeper waters; they can largely thwart the enemy's sonar by hiding under a thermal layer of colder water that reflects sound waves. ⁴³ Western military planners should concentrate their preparations on the deep water fight where their fleets would have an advantage over China's navy.

Should China attempt to mount a naval expedition, a large fleet of submarines supported by unmanned underwater vehicles and long-range missiles could be used to create a blockade in the exits of the relatively narrow channels through the First Island Chain to sink Chinese ships as they attempt to transit. Doing so would significantly raise the cost of such an expedition. The prospect of having to navigate an unseen adversary that is difficult to combat may be enough to deter China from risking their vulnerable surface fleet in the first place.

The United States Navy currently operates a fleet of 68 submarines, all of which are nuclear powered.⁴⁴ Nuclear powered submarines provide several advantages including endurance and stealth. The Navy's submarines are only limited by the appetite of their crews since food is the only consumable the boats can't produce on their own. But nuclear-powered submarines are incredibly expensive, and submarines do not need to be nuclear powered to be effective.

The Swedish Navy, for instance, was the first to operate submarines equipped with the nearly silent Stirling engine air-independent propulsion (AIP) systems. ⁴⁵ These *Gotland*-class submarines can operate submerged for several weeks by burning liquid oxygen and fuel. ⁴⁶ The eponymous submarine HSwMS *Gotland* "sunk" the U.S. Navy aircraft carrier USS *Ronald Reagan* during a series of simulated combat missions in 2005. The exercises so impressed U.S. Navy leaders that they leased the 1,600-ton diesel submarine and its crew for two years to test the *Reagan*'s ability to detect this potential undersea threat. They found that, for all the money spent developing anti-submarine defensive systems, the *Gotland* remained undetectable. ⁴⁷

The Swedish Navy is now in the process of building an updated air-independent propulsion *Blekinge*-class submarine. The new boats will have the ability to operate in the open ocean but will be significantly smaller than other attack submarines. The *Blekinge*-class boats will be 207 feet long, displace 1,900 tons submerged, and be operated by a crew of up to 35 people. ⁴⁸ The Navy's updated *Virginia*-class submarines by comparison will be 377 feet long, displace 7,800 tons, and be operated by a crew of 132. ⁴⁹ An important difference between the air-independent propulsion submarines and their nuclear-powered counterparts is the cost. A *Blekinge*-class submarine is expected to cost approximately \$600 million per copy, whereas a *Virginia*-class submarine costs approximately \$3.45 billion per copy today. This means it would be possible to get six of the smaller boats for the same price as one *Virginia*-class sub. ⁵⁰ The *Virginia*-class submarines also require a much larger crew of sailors to operate. ⁵¹ The smaller crew size of the air-independent submarines will reduce operating costs in the long-term.

A fleet that costs less to purchase and operate is important because numbers matter in naval affairs. Retired Navy Captain Sam Tangredi, writing in the U.S. Naval Institute's *Proceedings* after analyzing 28 historical naval campaigns, found that in 25 of those campaigns the side with the larger fleet ultimately won. The three exceptions all took place hundreds of years ago. "All other wars were won by superior numbers or, when between equal forces, superior strategy, or admiralship. Often all three qualities act together," Tangredi said. ⁵²

Policymakers today don't envision that the U.S. fleet alone would shoulder the burden of defending against potential Chinese aggression. The AUKUS agreement is an attempt to bolster the Western powers' combined strength by increasing the number of nuclear submarines in the region. But it remains to be seen if the AUKUS plan can be implemented in time to matter.

The U.S. Navy is already struggling to procure enough Virginia-class submarines to meet its own needs. The U.S. Navy has been buying two of the boats per year since 2011 according to the Congressional Research Service, 53 but it's unclear if the shipyards have the capacity to produce additional submarines for foreign customers. "If you are asking my opinion, if we were going to add additional submarine construction to our industrial base, that would be detrimental to us right now, without significant investment to provide additional capacity, capability to do that," said Rear Admiral Scott Pappano, the U.S. Navy's strategic submarine program executive officer during an August 2022 event. 4 U.S. Navy officials want to increase Virginia-class submarine production, but estimate it will take at least five years for the shipyards to increase their capacity just to meet U.S. demand. Far from providing an ally with additional weapons capacity, this approach could further hamper both nations as they wait on the delivery of a single system that is already facing significant delays, shortages, and overruns.

The timeline for the AUKUS deal similarly raises some questions. CIA Director William Burns

reported that Chinese President Xi Jinping ordered his military to be ready to invade Taiwan by 2027. ⁵⁶ Under the terms of the agreement, Australian sailors will train with the U.S. and the Royal Navy in the near term in preparation for both navies rotating submarines to Australia starting in 2027. Australia will then purchase up to five *Virginia*-class attack submarines in the early 2030s. The three participants will also collaborate to build a new class of nuclear submarines in the late 2030s. ⁵⁷

Rather than selling nuclear submarines to our allies, the United States could alternatively work with them to also develop their own fleets of modern non-nuclear submarines. Because they are far more affordable than nuclear attack submarines, conventional attack boats can be purchased in larger numbers. The allied nations could turn the western Pacific into a massive defense in depth with stealthy and lethal submarines potentially lurking close to every atoll. By working together, the allied nations could make the entire Pacific Ocean very dangerous for the Chinese Navy.

Conclusion

All of humanity received a lucky break when the first Cold War ended peacefully. A war between the Soviet Union and the West could have resulted in a death toll in the hundreds of millions. To hear today's politicians and military leaders using rhetoric and arguments that echo that earlier struggle in reference to China should worry everyone.

The kind of war that many politicians and military leaders envision, where cyber-enabled fighter jets, long-range missiles, and multi-billion-dollar ships are used against their Chinese counterparts, isn't even theoretically practical. China and the United States are both nuclear powers. If a direct military confrontation breaks out between China and the West, it is difficult to imagine how such a conflict would not cross the nuclear threshold.

Now more than ever, we need cooler heads to prevail. The current trajectory of events leads the world into extremely dangerous, and vastly expensive, territory. A strategy and force structure that is largely defensive, as proposed here, offers an alternative security plan that should ideally deter war and, failing that, would thwart potential aggression. The largely defensive nature of this proposal should assure the world of our peaceful intentions, which could help cool tensions.

Following the end of the 20th century, which was defined by war and the looming threat of more, we had an opportunity to forge a different path in the 21st. Yet we spent the first two decades of this century fighting costly and ultimately fruitless wars. A war with China would result in casualties counted in the billions. It is not too late to salvage something resembling a peaceful 21st century, but that can only happen if those in charge choose a different path for us now.

Endnotes

- C. Todd Lopez, "Competition With China Drives FY 2024 Budget Request," DOD News, March 28, 2023, https://www.defense.gov/News/News- Stories/Article/Article/3343663/competition-with-china-drives-fy-2024-budget-request/.
- Office of the Secretary of Defense, Annual Report to Congress: Military and Security Developments Involving the People's Republic of China, (2021), 77, https://media.defense.gov/2021/Nov/03/2002885874/-1/-1/0/2021-CMPR-FINAL.PDF.
- 3. Hans Kristensen, Federation of American Scientists, *China's New DF-26 Missile Shows Up At Base In Eastern China* (January 21, 2020), https://fas.org/blogs/security/2020/01/df-26deployment/; Felix K. Chang, Foreign Policy Research Institute, "China's Anti-Ship Ballistic Missile Capability in the South China Sea" (May 24, 2021), https://www.fpri.org/article/2021/05/chinas-anti-ship-ballistic-missile-capability-in-the-south-china-sea/.
- 4. "HQ-22: Long-range air defense missile system," http://www.military-today.com/missiles/hq 22.htm, accessed September 26, 2022.
- 5. Benjamin Brimelow, "China now has the world's 3rd-largest aviation force. Here are the combat jets it's using to catch up with the West," *Business Insider*, December 15, 2021, https://www.businessinsider.com/china-air-force-navy-combat-aircraft-catching-up-to-west-2021-12.
- Congressional Research Service, China Naval Modernization: Implications for U.S. Navy Capabilities—Background and Issues for Congress, CRS-RL33153 (March 8, 2022), 2, https://sgp.fas.org/crs/row/RL33153.pdf; Mark F. Cancian, Center for Strategic and International Studies, U.S. Military Forces in FY 2021: Navy (November 2020), 6, https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/201109 Cancian FY2021 Navy.pdf.
- 7. Mark F. Cancian, Matthew Cancian, and Eric Heginbotham, "The First Battle of the Next War: Wargaming a Chinese Invasion of Taiwan," *Center for Strategic and International Studies*, January 2023, 1, https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/230109 Cancian FirstBattle NextWar.pdf?VersionId=WdEUwJYWI ySMPIr3ivhFolxC gZQuSOQ.
- Tony Capaccio, "What-If DC War Game Maps Huge Toll of a Future US-China War Over Taiwan," Stars and Stripes, August 9, 2022, https://www.stripes.com/theaters/us/2022-08-09/us-china-war-simulation-taiwan-6925300.html.
- 9. "The First Battle of the Next War: Wargaming a Chinese Invasion of Taiwan," [see note 7].
- 10. Kevin Liptak, "Biden's past promises for US to defend Taiwan under microscope in meeting with China's Xi," *CNN*, November 14, 2022, https://www.cnn.com/2022/11/13/politics/joe-biden-taiwan/index.html.

- 11. "Imports of goods and services (current US\$) China," The World Bank, accessed April 13, 2023, https://data.worldbank.org/indicator/NE.IMP.GNFS.CD?locations=CN.
- 12. Zongyuan Zoe Liu, "China Increasingly Relies on Imported Food. That's a Problem," *Council on Foreign Relations*, January 25, 2023, https://www.cfr.org/article/china-increasingly-relies-imported-food-thats-problem.
- 13. Mary Ilyushina and Robyn Dixon, "Russia oil revenues plummeted in February as war penalties hit," *Washington Post*, March 15, 2023, https://www.washingtonpost.com/world/2023/03/15/russia-oil-revenues-plummet-sanctions/.
- 14. Georgi Kantchev and Evan Gershkovich, "Russia's Economy Is Starting to Come Undone," *Wall Street Journal*, March 28, 2023, https://www.wsj.com/articles/russias-economy-is-starting-to-come-undone-431a2878.
- 15. "Taiwan," United States Census Bureau, accessed April 13, 2023, https://www.census.gov/popclock/world/tw.
- 16. Headquarters, Department of the Army, *Offense and Defense, Volume 1*, FM 3-90-1, March 2013, 3-24, https://irp.fas.org/doddir/army/fm3-90-1.pdf.
- 17. Headquarters, Department of the Army, *Infantry Platoon and Squad*, ATP 3-21.8, April 2016, 6-10, https://armypubs.army.mil/epubs/DR pubs/DR a/ARN13842-ATP 3-21.8-001-WEB-4.pdf.
- 18. United States Navy, *Naval Doctrinal Publication 1: Naval Warfare*, March 2010, 57, https://cimsec.org/wp-content/uploads/2020/08/NDP1_April2020.pdf.
- 19. Department of Defense, *Joint Operations*, Joint Publication 3-0, August 11, 2011, III-28, https://www.benning.army.mil/mssp/security%20topics/Potential%20Adversaries/content/pdf/JP%203-0.pdf.
- 20. Congressional Research Service, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*, CRS- RL32665 (July 21, 2022), 9, https://crsreports.congress.gov/product/pdf/RL/RL32665/367.
- 21. Congressional Budget Office, *An Analysis of the Navy's Fiscal Year 2022 Shipbuilding Plan*, CBO-58447 (November 2022), 3, https://www.cbo.gov/system/files/2022-11/58447-shipbuilding.pdf.
- 22. Office of the Undersecretary of Defense (Comptroller), Defense Budget Overview,
 United States Department of Defense Fiscal Year 2023 Budget Request (April 2022), 69,
 https://comptroller.defense.gov/Portals/45/Documents/defbudget/EV2023/EV2023
 - https://comptroller.defense.gov/Portals/45/Documents/defbudget/FY2023/FY2023

 Budget Request Overview Book.pdf; "Fleet Size," Naval Vessel Register, accessed

 November 28, 2022, https://www.nvr.navy.mil/NVRSHIPS/FLEETSIZE.HTML.
- 23. Richard R. Burgess, "Navy Fleet Would Shrink Further Under 2023 Ship Decommissioning Plan," *Seapower Magazine*, March 28, 2022, https://seapowermagazine.org/navy-fleet-would-shrink-further-under-2023-ship-decommissioning-plan/.

- 24. "Is the Navy ready? How the U.S. is preparing amid a naval buildup in China," 60 Minutes, video, March 19, 2023, 20:59, https://www.youtube.com/watch?v=rEc5hsWNsCQ&t=1280s.
- 25. Program Executive Office, Unmanned and Small Combatants, "Guided Missile Frigate (FFG 62)," (August 2021), 6, https://www.navsea.navy.mil/Portals/103/Documents/Exhibits/SAS2021/2AS2021-ConstellationClassFrigate.pdf.
- 26. "The Navy takes delivery of the FREMM Aquitaine," *Ministère des Armées*, November 27, 2012 https://web.archive.org/web/20180416120355/https://www.defense.gouv.fr/marine/a-la-une/la-marine-receptionne-la-fremm-aquitaine/.
- 27. "FREMM European Multimission Frigate, France / Italy," *Naval Technology*, February 14, 2019, https://www.naval-technology.com/projects/fremm/.
- 28. Megan Eckstein, "Fincantieri Wins \$795M Contract for Navy Frigate Program," *USNI News*, April 30, 2020, https://news.usni.org/2020/04/30/fincantieri-wins-795m-contract-for-navy-frigate-program.
- 29. Congressional Research Service, *Navy Constellation (FFG-62) Class Frigate Program: Background and Issues for Congress*, CRS- R44972 (January 31, 2022), 1, https://s3.documentcloud.org/documents/21194498/navy-constellation-ffg-62-class-frigate-program-background-and-issues-for-congress-jan-31-2022.pdf.
- 30. United States Marine Corps, *Marine Corps Doctrinal Publication 1 Warfighting* (Washington: Government Printing Office, 1997), 92-94.
- 31. Sun Tzu, *The Art of War*, trans. Ralph D. Sawyer (Boulder: Westview Press, Inc., 1994), 179.
- 32. James R. Holmes, "Defend the First Island Chain," *Proceedings* 140, no. 4 (April 2014), https://www.usni.org/magazines/proceedings/2014/april/defend-first-island-chain.
- 33. Thomas Gibbons-Neff, "Chinese ballistic missiles dubbed 'Guam Killer' pose increasing threat to U.S island, report says," *Washington Post*, May 11, 2016, https://www.washingtonpost.com/news/checkpoint/wp/2016/05/11/chinese-ballistic-missiles-dubbed-guam-killer-pose-increasing-threat-to-u-s-island-report-says/.
- 34. World Bank, "China Overview," updated April 20, 2023, https://www.worldbank.org/en/country/china/overview#1.
- 35. Tyler Pager and Anne Gearan, "U.S. will share nuclear submarine technology with Australia as part of new alliance, a direct challenge to China," *Washington Post*, September 16, 2021, https://www.washingtonpost.com/politics/2021/09/15/us-will-share-nuclear-submarine-technology-with-australia-part-new-alliance-direct-challenge-china/.
- 36. Alexander Ward and Paul McLeary, "Biden announces joint deal with U.K. and Australia to counter China," *Politico*, September 15, 2021, https://www.politico.com/news/2021/09/15/biden-deal-uk-australia-defense-tech-sharing-511877.

- 37. Department of Energy, "123 Agreements for Peaceful Cooperation," *Energy.gov*, last updated December 7, 2022, https://www.energy.gov/nnsa/123-agreements-peaceful-cooperation; Daryl Kimball and Kingston Reif, "The U.S. Atomic Energy Act Section 123 At a Glance," *Arms Control Association*, April 2019, https://www.armscontrol.org/factsheets/AEASection123.
- 38. Jeremy Diamond and Kevin Liptak, "China looms large as Biden makes submarine moves with UK, Australia," CNN, March 14, 2023, https://www.cnn.com/2023/03/13/politics/joe-biden-aukus-china/index.html.
- 39. John M. Donnelly, "'Watershed' \$1 trillion defense budget on the horizon," *Roll Call*, March 14, 2023, https://rollcall.com/2023/03/14/watershed-1-trillion-defense-budget-on-the-horizon/.
- 40. Department of the Army, FM 3-90: Tactics, July 2001, 5-39, https://www.bits.de/NRANEU/others/amd-us-archive/fm3-90%2801%29.pdf.
- 41. Gary Hart and William S. Lind, *America Can Win: The Case for Military Reform* (Bethesda: Adler & Adler Publishers Inc., 1986), 89.
- 42. Parth Satam, "Chinese PLA Navy Sharpens Its Anti-Sub Warfare Skills To Neutralize US Submarines From Helping Taiwan," *The EurAsian Times*, July 27, 2022, https://eurasiantimes.com/chinese-pla-navy-sharpens-its-anti-sub-warfare-skills/.
- 43. Ryan White, "Why are submarines so hard to find?" *Naval Post*, March 30, 2021, https://navalpost.com/why-are-submarines-so-hard-to-find/.
- 44. "Fleet Size," Naval Vessel Register, last updated April 5, 2023, https://www.nvr.navy.mil/NVRSHIPS/FLEETSIZE.HTML.
- 45. "Sweden Submarine Capabilities," *Nuclear Threat Initiative*, March 2, 2023, https://www.nti.org/analysis/articles/sweden-submarine-capabilities/.
- 46. Raymond McConoly, "How did HSwMS Gotland hunt the US aircraft carrier during an exercise?" Naval Post, September 14, 2021, https://navalpost.com/hswms-gotland-vs-uss-ronald-reagan/; "Stirling Engine," Seattle University, College of Science and Engineering, accessed April 10, 2023, https://www.seattleu.edu/scieng/physics/physics-demos/thermodynamics/stirling-engine/; "Götland (A19) class Submarine," Seaforces-Online Naval Information, accessed April 10, 2023, https://www.seaforces.org/marint/Swedish-Navy/Submarine/Gotland-A19-class.htm.
- 47. "How did HSwMS Gotland hunt the US aircraft carrier during an exercise?" [see note 46].
- 48. "Submarine type A26," *Kockums*, accessed April 10, 2023, https://web.archive.org/web/20110606140015/http://www.kockums.se/PageFiles/736/A26Datasheet.pdf.
- 49. "Attack Submarines SSN ," Navy.mil, updated March 13, 2023, https://www.navy.mil/Resources/Fact-Files/Display-FactFiles/article/2169558/attack-submarines-ssn/.
- 50. "Blekinge (A26) class Submarine," *Seaforces-Online Naval Information*, accessed April 10, 2023, https://www.seaforces.org/marint/Swedish-Navy/Submarine/Blekinge-A26-class.htm; Congressional Research Service, *Navy Virginia (SSN-774) Class Attack*

- Submarine Procurement: Background and Issues for Congress, CRS RL32418 (September 29, 2021), 6.
- https://crsreports.congress.gov/product/pdf/RL/RL32418/213.
- 51. "Virginia class Attack Submarine SSN," *Seaforces-Online Naval Information*, accessed April 10, 2023, https://www.seaforces.org/usnships/ssn/Virginia-class.htm.
- 52. Sam J. Tangredi, "Bigger Fleets Win," *Proceedings* Vol. 149, January 2023, https://www.usni.org/magazines/proceedings/2023/january/bigger-fleets-win.
- 53. Congressional Research Service, *Navy Virginia (SSN-774) Class Attack Submarine Procurement: Background and Issues for Congress*, CRS-RL32418, (March 31, 2023), 1, https://s3.documentcloud.org/documents/23740964/navy-virginia-ssn-774-class-attack-submarine-procurement-background-and-issues-for-congress-march-31-2023.pdf.
- 54. Ken Moriyasu, "AUKUS submarines: A burden too big for overloaded U.S. shipyards," Nikkei Asia, August 31, 2022, https://asia.nikkei.com/Politics/International-relations/Indo-Pacific/AUKUS-submarines-A-burden-too-big-for-overloaded-U.S.-shipyards.
- 55. Sam LaGrone, "Navy Estimates 5 More Years for Virginia Attack Sub Production to Hit 2 Boats a Year," *USNI News*, March 31, 2023, https://news.usni.org/2023/03/31/navy-estimates-5-more-years-for-virginia-attack-sub-production-to-hit-2-boats-a-year.
- 56. Michael Martina and David Brunnstrom, "CIA chief warns against underestimating Xi's ambitions toward Taiwan," *Reuters*, February 22, 2023, https://www.reuters.com/world/cia-chief-says-chinas-xi-little-sobered-by-ukraine-war-2023-02-02/.
- 57. Kathryn Armstrong, Frances Mao, and Tom Housden, "Aukus deal: US, UK and Australia agree on nuclear submarine project," *BBC*, March 14, 2023, https://www.bbc.com/news/world-australia-64945819.





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