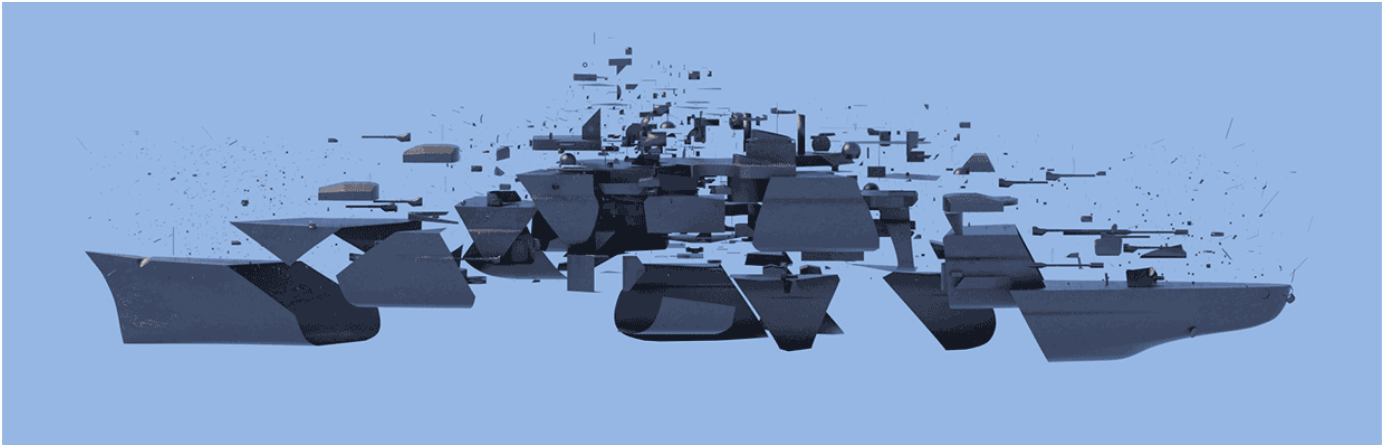


# Float, Move, and Fight

How the U.S. Navy lost the shipbuilding race.

[Alexander Wooley](#) October 10, 2021, 1:44 AM



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Timo Lenzen for Foreign Policy

The 21st century has not been kind to the U.S. Navy's vast surface fleet. In an effort to leap ahead of other navies through revolutionary designs and technologies, the Navy has instead fallen significantly behind, accepting into service ships that struggle to even "float, move, and fight"—the basic functions of the most rudimentary warship. Ship classes have been cut, and many vessels have been retired early, while others wait years for repairs. These include supposedly cutting-edge vessels that were meant to be the backbone of the current and near-future fleet.

The failures are legion and the details excruciating—to taxpayers and even more so to Navy planners: The Littoral Combat Ship (LCS) was meant to offer the U.S. Navy a way to take the fight close to hostile coasts. The Navy imagined a Swiss Army knife-style vessel, with mission packages swapped in and out as needed. Yet the LCS manages to combine a lack of firepower with serious defensive vulnerabilities and routine mechanical breakdowns. Two key systems—to counter mines and submarines—have never become operational. LCS costs doubled during construction, the original class size of 52 was cut to 35, and the Navy is retiring the lead ships after just a dozen years of service.

Or consider the massive, futuristic *Zumwalt*-class stealth destroyer. Only three of an originally planned 32 ships are going to be built. Some estimates have the all-in costs for the *Zumwalt* at \$7 billion per ship—more expensive than the *Nimitz*-class aircraft carriers they might be expected to escort. The ship's main armament, a new technology called a railgun, doesn't work and would not have been of much use in a maritime conflict with China anyway. In mid-2021, the railgun was effectively canceled.

Then there's the *Ford*. Though a varsity athlete at the University of Michigan, U.S. President Gerald Ford was known for physical stumbles, and his namesake nuclear-powered vessel, along-awaited replacement for the

workhorse *Nimitz*-class carrier, has unfortunately followed in his missteps. The overly ambitious design includes new propulsion, a buggy magnetic catapult, a new aircraft arresting system, a new primary radar, and advanced weapons elevators. Each new technology has had extensive problems, cost overruns, and delays. The Navy issues a news release every time it gets one of the ammunition elevators to work.

Over the past 20 years, the U.S. Government Accountability Office (GAO) has issued roughly 40 reports or testimonies on problematic ship types. Less attention has been paid to the totality of the problem as well as its origins and common symptoms. Together, the many failures constitute a lost generation of shipbuilding, leaving the Navy unready at a time when China has already built the world's biggest fleet, with more hulls splashing off its slipways every year. Given that tensions with China may only worsen—potentially spilling over into outright conflict—the United States needs to take better stock of how it got into this mess.



China's first aircraft carrier, the Liaoning (right), arrives in the waters off Hong Kong.

China's first aircraft carrier, the *Liaoning* (right), arrives in the waters off Hong Kong on July 7, 2017. ANTHONY WALLACE/AFP via Getty Images

The failures in new platforms and technologies were self-induced, unforced errors. They didn't occur as the United States was trying to match a rival or play catch-up to another power. They came, in part, as a result of hubris—an unrivaled belief in the country's power of rapid innovation.

One key turning point came in 1991 during Operation Desert Storm. That lightning victory was perceived not only as a success for coalition forces but for U.S. industry and technology—a star-studded debut of new weapons systems that had been decades in the making. Naval planners were

dazzled by the new technology; they figured that by incorporating more revolutionary capabilities into their shipbuilding, they could build fewer hulls with smaller crews. This was particularly enticing at the time, as the end of the Cold War had seen a peace dividend that included the drawing down of the Reagan-era 600-ship fleet.

A decade later, in 2001, Donald Rumsfeld was sworn in as U.S. defense secretary, obsessed with technological revolution. He pushed for radical change. Early on in the development of the *Ford*, he overruled the Navy's preference for taking a slow, evolutionary approach to developing the *Nimitz*'s successor, deciding the plans were not sufficiently transformational. Instead, he forced through a program that tried to pull together various revolutionary (and untested) technologies. The result: Some 20 years later, the ship has still not deployed. "The Navy embraced technology for technology's sake," said Rep. Elaine Luria, the vice chair of the House Armed Services Committee and a veteran surface warfare officer whose congressional district includes the massive Norfolk Naval Shipyard and Naval Station Norfolk.

One challenge was trying to design and deploy new shipboard technologies while at the same time building a new ship. Earlier cutting-edge technologies like vertically launched missiles and the AN/SPY-1 radar—core to the *Ticonderoga*— and *Arleigh Burke*-class surface ships—

received extensive testing and development both onshore and at sea before they were ever installed in operational warships. This previous practice of “de-risking” meant that if a single technology failed, it failed alone. When, on the other hand, a technology fails aboard a warship that has been handed over to the Navy, the interdependence of systems means the entire ship is rendered nonoperational.

“Whole programs were premised on the introduction of new technologies that will need to work while designing the program not knowing if those technologies will actually work,” said Shelby Oakley, a director for contracting and national security acquisitions at GAO, describing flaws in the LCS and *Zumwalt*.

The results across all three types of vessels were the same: massive cost overruns and ships with reduced capabilities delivered late and incomplete. In the case of the LCS, the original plan was that industry would produce two different designs—prototypes that would serve as research and development vessels—and the Navy would select one. Instead, the Navy kept both test designs, and they went into production as is, deemed good enough.

The decades of U.S. shipbuilding failures were long masked by the absence of any near-peer fleet. But today, the Office of Naval Intelligence (ONI) has concluded that China has the largest navy in the world—by the end of 2020, it had an

estimated 360 battle force ships, compared with 297 for the United States. ONI projects that China will have 400 battle force ships by 2025 and 425 by 2030. More worrisome for U.S. planners: Chinese warships are increasingly capable, reducing the quality gap that is the traditional wellspring of U.S. confidence as it contemplates emerging adversaries.

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The U.S. Navy now faces contradictory demands. On the one hand, Congress and others are telling it to heed the lessons of recent catastrophes and take a more incremental approach to ship and technology design, procurement, and testing. Yet it also faces congressional pressure to get a significantly larger battle force—in a hurry. That may explain the cognitive dissonance that continues to define naval planning.

For five years, the Navy has lived with the order, codified into law, to increase its fleet to 355 ships. In mid-2021, the Biden administration announced a fuzzy successor to this number, calling for 321 to 372 manned ships. At the same time, the administration and the Defense Department have sounded the alarm on the growing threat posed by China in virtually every domain, with outgoing and incoming Indo-Pacific commanders saying that China may take military action against Taiwan within the next six years. Yet the Navy's latest budget doesn't come close to enabling a shipbuilding

program that would meet even the lower range of government targets.

The result is a Navy that continues to decommission ships faster than it builds them. It scraps multibillion-dollar hulls for a lack of repair capacity and falls further behind not just China but relative minnows like Italy and Finland, which have successfully introduced new, robust ship types that the United States has spent decades vainly trying to build.

"While the Navy has expended lots of calories on attempts at LCS improvements with little to show for its efforts, other nations have continued to move forward fielding smaller, better, and more capable frigates and corvettes," said Chris Bassler, a senior fellow at the Center for Strategic and Budgetary Assessments who previously held a leadership role at the Navy's Directorate for Innovation, Technology Requirements, and Test and Evaluation.

U.S. problems stem in part from the way the Navy designs ships. Post-Cold War cuts led to a slowdown in new shipbuilding across the board, and as a result, ailing private industry lobbied the Clinton administration to take on more engineering and design work, a function historically performed in-house by the Navy. Naval Sea Systems Command (NAVSEA) and its associated labs had earlier designed successful ships like the *Ticonderoga*-class cruisers and the *Wasp*-class amphibious assault ships. Then,



seeking cost savings in the late 1990s, the Navy reduced this in-house naval architecture and engineering staff by 75 percent, from roughly 1,200 to 300.

But perhaps the biggest contrast with China right now is shipbuilding capacity. While China has dozens of big shipyards that can build both warships and big commercial vessels, there are only seven yards in the United States that can build major warships. That dearth of capacity has several effects. With newer classes constantly in the shop for repairs, some ships sit at pier for years before being seen to. Late in 2020, the Navy decided to scrap the \$4 billion *Bonhomme Richard*, a big-deck amphibious assault ship that had suffered an internal fire while docked in San Diego, in large part because the industrial base was stretched too thin to be able to handle the reconstruction needed.

For decades, the number of public and private yards has been shrinking, resulting in little competition and reduced capacity. Yards won't invest in infrastructure without orders on the books, and without a steady flow of orders, builders lose skilled workers, know-how, and subcontractors. Unlike in China, there's little commercial shipping to fall back on to keep the U.S. shipbuilding base afloat; around 90 percent of all commercial ships today are built in South Korea, Japan, and China.

And there aren't enough drydocks, especially if the Navy

gets serious about expanding the fleet. The infrastructure is old and in poor shape: Norfolk Naval Shipyard's Drydock Number One has been in use since 1833—it refitted the Civil War-era ironclad USS *Merrimack*. The newest drydock at the four Navy-run shipyards was completed in 1962. As it is, it would take almost 20 years to work through the Navy's current maintenance backlog.

What can be done? Some think Washington should throw more money at the problem by, for example, increasing the Navy's budget—moving away from the traditional “rule of thirds” division of budget resources among the Army, Air Force, and Navy. Another fix would be to rebuild NAVSEA's in-house engineering and design capabilities. At the very least, critical subsystems need to be successfully prototyped before being integrated into a ship's design. And there should be more discipline before formally launching a new shipbuilding program, ensuring that every new technology has been rigorously assessed.

But just as a slow-moving aircraft carrier generates tremendous forward momentum, the U.S. planning and budgetary process becomes hard to steer or stop once it gets going, especially when funds are already flowing to a new ship class. Add the fact that profit-pursuing private shipyards have an outsized say in the design and building of new vessels, and you have a recipe for disaster.

A straightforward fix—though difficult with annual budget assessments—would be to ensure accurate, long-term shipbuilding plans. Such plans would allow industry to make investments, hire and train workers, and build capacity. The Navy also needs to direct and work more closely with industry to help it better understand the mission the Navy wants to meet. That would ultimately lead to cost savings and efficiencies, as more ships of a given class roll off the slipways, and would keep the industrial base humming.

Potential solutions to the Navy's shipbuilding woes should have appeal to both foreign and domestic policy agendas. The Biden administration believes that the United States must blunt China's ambitions—across the political, economic, and cultural spectrum—by building its strength at home and working with allies abroad. And if the U.S. government wants to counter China's industrial investment and manufacturing capacity, pursue better R&D, and employ more skilled workers, where better to start than the nation's shipyards?

In the meantime, after more than two decades of failure, the U.S. Navy is turning to stopgap measures and holy grails—with little prospect of a bigger or stronger fleet in the near future, when the China challenge is likely to become more acute. In 2020, when the Navy selected the winning bid for the new FFG(X) guided missile frigate, it was based on an

Italian design and was less technologically ambitious than the recent failed classes. It has also modernized the venerable *Arleigh Burke* to remain the staple of the surface fleet until a new guided missile destroyer program, launched this summer, pays dividends with a brand-new surface combatant.

But none of the short-term fixes can patch decades of failure to keep the Navy in trim. Promised warships decades ahead of their time, American sailors instead are left to go into harm's way with ships from decades past. U.S. policymakers need to own up to that—and fix it.

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