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Contents

Executive Summary

Growing the size of the Navy has been a bipartisan goal of successive administrations and Congress over the last decade. The service faces capacity limitations as it struggles to meet the demands of its current aggressive operational tempo with a fleet that is small by historical standards and faces delays in conducting maintenance. The demand to increase the Navy's ship count has only grown as China's navy has overtaken the U.S. fleet in terms of size with the blistering rate of production of its own shipbuilding industry.

Despite the Navy's plans for growing the fleet and bipartisan efforts and funding from Congress, the U.S. shipbuilding enterprise—including the Navy, Department of Defense (DoD), Congress, and industry—has failed to consistently produce ships at the scale, speed, and cost demanded. These longstanding challenges stem from a series of interwoven, systemic issues within both the U.S. government and industry, as well as broader socioeconomic trends. This report outlines the challenges facing the U.S. naval shipbuilding enterprise, their underlying drivers, and some efforts the government has taken to mitigate them.

The government struggles to provide a consistent demand signal—in the form of the Navy's annual budget request and long-range shipbuilding plans, Congress's authorization and appropriations actions in response to those plans, and the contracts signed with industry partners—to the shipbuilders, hindering their efforts to plan over the long term and invest accordingly. The Navy's volatile requirements process and, at times, unstable ship designs also contribute to shortcomings in program performance, delays, and cost overruns.

The shipbuilding industry simultaneously faces workforce limitations, aging and insufficient infrastructure, and a brittle supply chain, while being slow to adopt leading production practices. To address these challenges, the Navy and Office of the Secretary of Defense have provided significant funding support to the naval shipbuilding industrial base in the form of direct investments and contract incentives but have not yet determined the effectiveness of that spending according to the Government Accountability Office.

The U.S. naval shipbuilding challenge cannot be resolved with a single policy solution, and resolving any one of the underlying issues does not guarantee a drastic improvement of the situation. Finding the right path forward will require years of effort, investment, and cooperation between all the stakeholders involved in the process. Policymakers must be open to testing new and original measures to address the underlying issues and ultimately grow U.S. shipbuilding capacity and the overall fleet.

Introduction

The United States relies on its navy as a strategic asset to create a forward presence, contribute to deterrence, enable sea control and power projection, ensure maritime security, conduct freedom of navigation operations, and offer humanitarian aid.[1] The Navy thus serves a critical national security role in its ability to maintain a flexible forward presence. Yet despite the multitude of missions performed by the U.S. Navy, which have increased since the end of the Cold War, the size of the fleet is only approximately half of its peak Cold War strength in the 1980s. The quantitative decline of the fleet, coupled with a growing maintenance backlog, poses capacity challenges in ensuring the Navy has enough vessels available to fulfill the demands asked of it.

Moreover, U.S. maritime leadership is increasingly threatened by China's growing maritime influence. China has become the world's largest shipbuilder, with substantial investments in both commercial and naval construction. The number of battle force ships in its fleet now exceeds that of the United States, and it has grown its blue water capabilities, conducting missions in the Western Pacific, the Indian Ocean, and even near Europe.[2] And China is showing no signs of slowing its production, which will contribute to its global power—as well as its ability to contest U.S. sea power.[3]

While China has grown its fleet, the United States has struggled to maintain the number of ships it has—despite demands and funding from the government to grow the fleet and plans to reach 390 ships by 2054, according to the Navy's FY 2025 shipbuilding plan.[4] U.S. shipbuilding industrial capacity is proving insufficient to meet the demands of growing the fleet. Submarine production has been particularly constrained; while the Navy has aimed to procure two Virginia-class attack submarines per year since FY 2011, current production stands at 1.1 to 1.2 per year.[5] While new

surface ship production is largely keeping pace for amphibious ships, it has had its own series of challenges across the Littoral Combat Ship program and the recently terminated Constellation-class frigate program as a backlog grows of Arleigh Burke destroyers that have been procured but not completed.[6]

The United States faces challenges in building ships on relevant timelines and at cost.[7] As aging ships within the fleet retire, delays in ship construction and delivery leave capability gaps and drive cost overruns.[8]

Sustainment of the current fleet has suffered from industrial capacity constraints as well. The United States' strained maintenance, repair, and overhaul (MRO) capacity has left the Navy with a 20-year maintenance backlog, leading to the decommissioning of ships before the end of their expected service periods.[9]

The many analyses of these challenges point to factors across the U.S. shipbuilding enterprise—to include the Navy, Department of Defense, Congress, and industry—as well as broader socioeconomic trends. On the government side, the lack of a consistent shipbuilding demand signal and changing requirements during construction impede program efficiency. Contributing factors on the part of industry include workforce limitations, aging and insufficient infrastructure, supply chain fragility, outdated production practices, and industrial base consolidation. These underlying issues that have contributed to the broader challenges of shipbuilding delays and cost overruns are interlinked and, as many years and dollars of effort have demonstrated, cannot be solved with narrowly targeted policies. Crafting viable solutions to the U.S. shipbuilding challenge will require a comprehensive effort on the part of both government and industry to understand the incentive structures driving behavior; considerable political will that persists across administrations; and a willingness to pursue innovative policies previously considered taboo by some parts of the shipbuilding enterprise.[10]

This report builds on the extensive literature on the challenges facing the U.S. shipbuilding enterprise by identifying trends based on available data and assessing the underlying drivers of those challenges. The first section lays out the United States' shipbuilding issues, including the relative size of the U.S. Navy fleet, growth, and schedule delays. The brief then covers each of the contributing causes in more depth. Finally, it assesses efforts to mitigate the underlying causes on the part of the government.

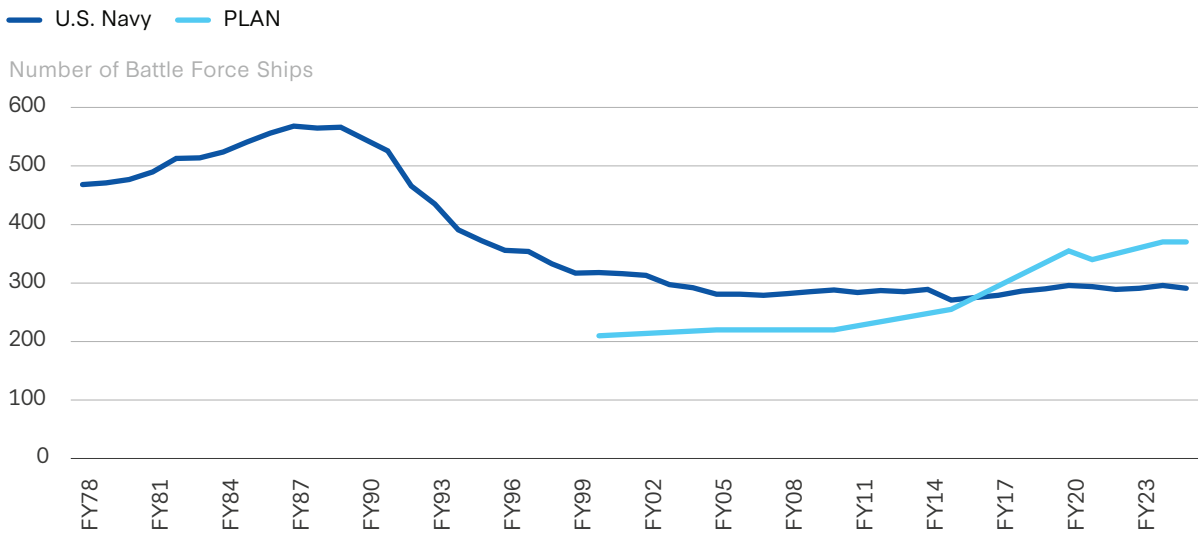
The Challenges Facing U.S. Naval Shipbuilding

The U.S. Navy performs a wide range of missions that have increased over time to maintain national security and support other U.S. interests. However, the Navy's force structure has diminished—just as the size of China's navy has grown rapidly. Despite general bipartisan support and funding for increasing the size of the fleet, the U.S. shipbuilding enterprise has been unable to provide ships at scale, at cost, and on time.

The size of the U.S. Navy's fleet has fallen considerably since the end of the Cold War. Figure 1 displays the number of Navy battle force ships between FY 1978 and FY 2025. The post–World War II fleet size peaked at 568 ships in FY 1987 under the Reagan administration. The end of the Cold War saw a rapid decline in ship count, with total force structure declining to a low point of 271 ships in FY 2015. The size of the fleet today is approximately half the size of the Navy at its FY 1987 peak.

The Navy has sought to reverse this trend with plans to grow the fleet, most notably with its release of a 355-ship goal released in December 2016 under the outgoing Obama administration. Congress made this goal official U.S. policy with the passage of the FY 2018 National Defense Authorization Act (NDAA) during the first Trump administration. In June 2023, under the Biden administration, the Navy issued a new goal of 381 ships in its Battle Force Ship Assessment and Requirement (BFSAR) report, with an additional demand for 134 large unmanned surface and underwater vehicles.[11] This priority has continued into the second Trump administration, offering evidence that growing the Navy is a bipartisan concern.

Figure 1: U.S. and China Battle Force Ship Count, FY 1978–FY 2025



Note: The People's Liberation Army Navy (PLAN) ship count is based on data from a February 2020 unclassified Office of Naval Intelligence information paper published in a Congressional Research Service report and DoD's annual China Military Power Reports.

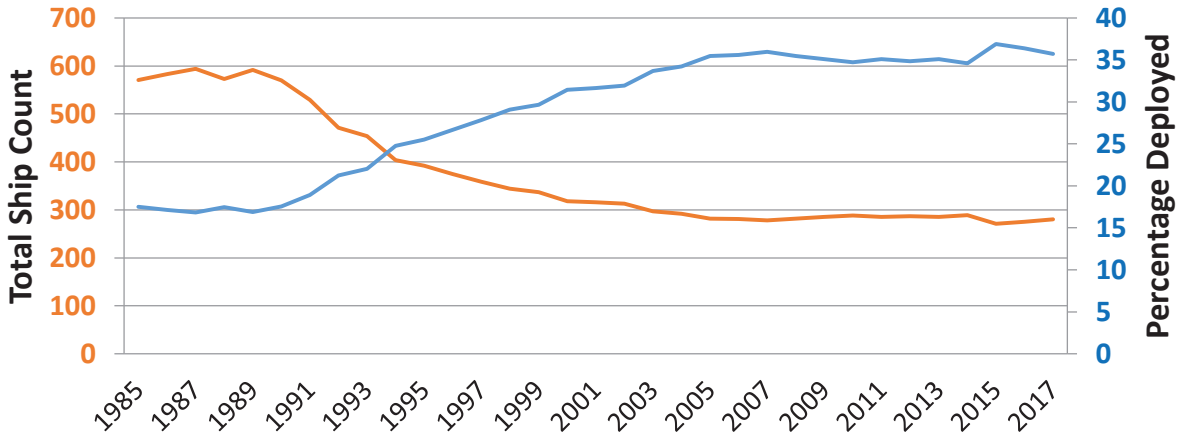
Source: Ronald O'Rourke, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress* (Washington, DC: Congressional Research Service, March 2025), https://www.congress.gov/crs-product/RL32665; Ronald O'Rourke, *China Naval Modernization: Implications for U.S. Navy Capabilities (*Washington, DC: Congressional Research Service, April 2025), https://www.congress.gov/crs-product/RL33153; and Department of Defense, *Military and Security Developments Involving the People's Republic of China* (Washington, DC: Department of Defense, 2024), https://media.defense.gov/2024/Dec/18/2003615520/-1/-1/0/MILITARY-AND-SECURITY-DEVELOPMENTS-INVOLVING-THE-PEOPLES-REPUBLIC-OF-CHINA-2024.PDF.

Navy officials and congressional lawmakers have cited the rapid growth of China's navy as further justification for growing the U.S. Navy. Figure 1 also shows China's battle force levels between FY 2000 and FY 2025 based on data from the Office of Naval Intelligence and DoD China Military Power report. China's shipbuilding industry—buoyed by significant public investment in dual-use commercial and naval industrial capacity—has delivered new ships at an impressive rate, allowing its navy of 370 battle force ships, as of 2024 estimates, to exceed that of the United States.[12]

The declining force structure of the U.S. Navy is not only a concern for its impact on strategic competition with China in the Indo-Pacific, but also for the overall readiness of the fleet. While the size of the fleet has fallen over time, the Navy has deployed a greater percentage of its ships, as shown in Figure 2. This higher operational tempo (OPTEMPO) puts greater stress on the fleet and its crews as a smaller number of ships must deploy more regularly to mission demands, thereby increasing the need for greater maintenance and sustainment.

A Government Accountability Office (GAO) analysis in 2023 reported that 10 Navy ship classes suffered worsening sustainment metrics in the 10 years between 2011 and 2021.[13] According to an April 2025 speech by then acting Chief of Navy Operations Admiral James Kilby, the Navy is at 68 percent combat surge readiness for surface ships.[14] The Navy is aiming for 80 percent readiness, with part of the pathway toward that goal being a reduction in ship maintenance delays.[15] However, shrinking naval force structure together with higher OPTEMPO has led to the deterioration of readiness in the fleet.

Figure 2: Percentage of Total Navy Battle Force Ships Deployed, from the 2017 U.S. Navy Strategic Readiness Review



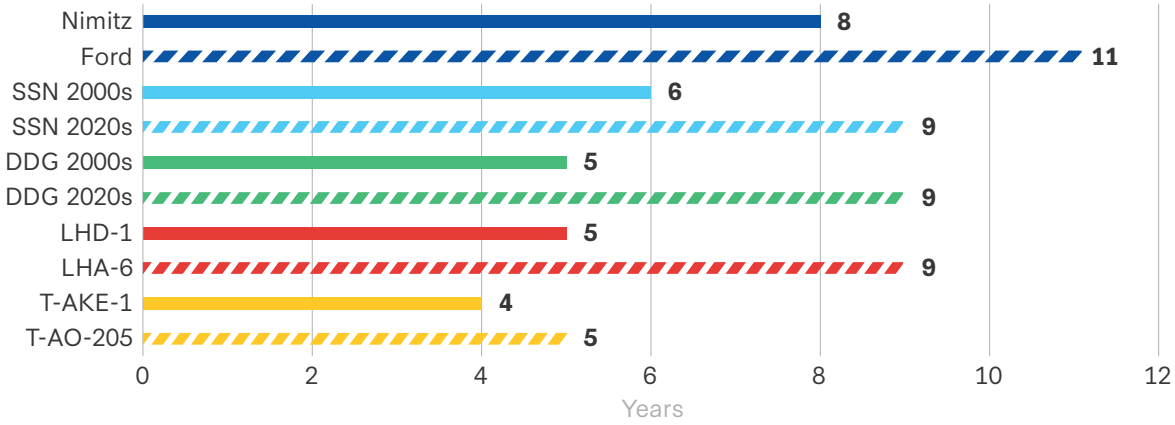
Source: U.S. Navy, *Strategic Readiness Review, 2017* (Washington, DC: U.S. Navy, December 2017), 19, https://www.globalsecurity.org/military/library/report/2017/strategic-readiness-review_12112017.pdf.

Obstacles to Growing the Fleet

Broad, bipartisan support exists to increase naval force structure to mitigate these strategic and operational challenges. Despite this backing, the Navy and broader shipbuilding enterprise has struggled to meet the demand and to grow the fleet on a relevant timeline and at cost, let alone maintain its size as older ships are retired.

Ship construction times have increased overall by historical standards, as Figure 3 shows. Across different ship classes, the total construction time to complete one ship has grown by multiple years. For example, the first carrier in the Nimitz class took 8 years to construct, while the Ford took 11 years; for destroyers, the duration of construction grew from 5 years in the 2000s to 9 years in the 2020s.

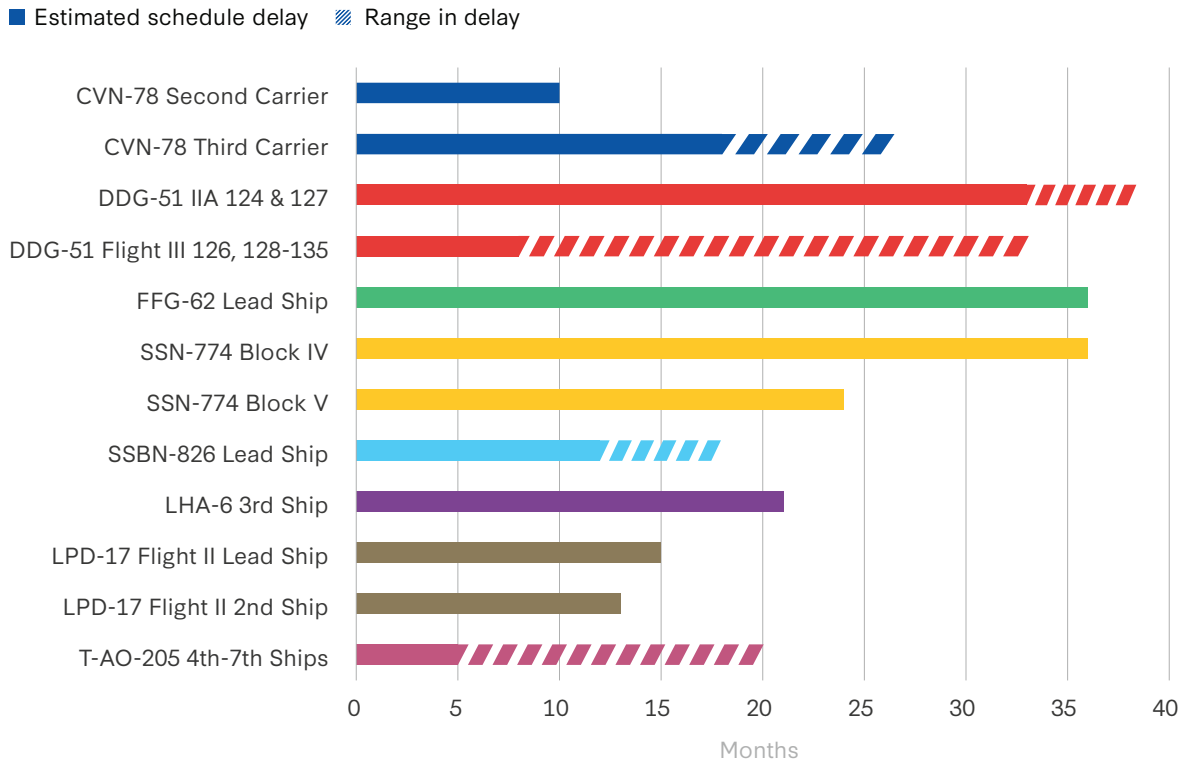
Figure 3: Historical and Current Ship Construction Times



Source: Eric J. Labs, "The 2025 Outlook for Navy Shipbuilding," Congressional Budget Office, January 8, 2025, https://www.cbo.gov/system/files/2025-01/60873-shipbuilding-outlook.pdf.

Moreover, the challenge of late deliveries, where shipyards deliver ships months or years late, continues to bedevil naval force planning. A GAO analysis published in 2025 assessed 37 of the 45 battle force ships under construction, as of September 2024, and found that all 37 vessels are facing delays.[16] Figure 4 shows the delays by each ship, based on GAO data. The failure of the shipbuilding enterprise to deliver ships on time as older ships are retired out of service has limited the Navy's ability to increase the overall size of the fleet. Navy contracting practices that focus on price—rather than speed—do little to incentivize shipbuilders to improve their timeliness.[17]

Figure 4: Navy Ship Schedule Delays for Ships Under Construction, as of September 2024



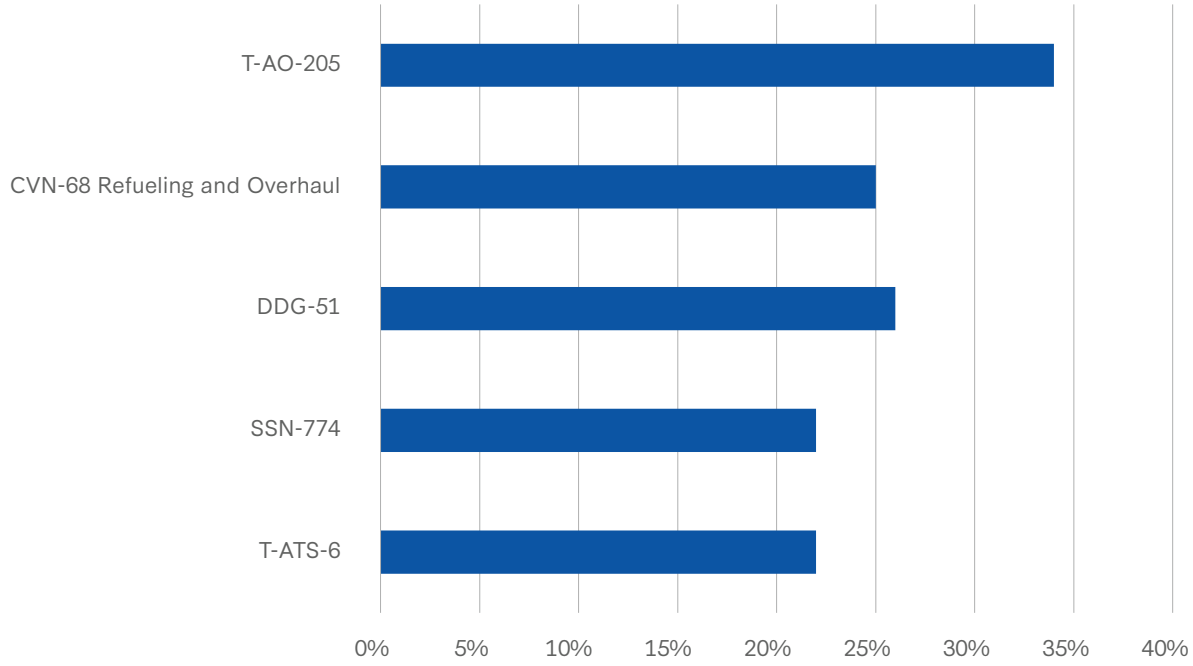
Source: U.S. Government Accountability Office, *Shipbuilding and Repair: Navy Needs a Strategic Approach for Private Sector Industrial Base Investments* (Washington, DC: GAO, February 2025), 16, https://www.gao.gov/products/gao-25-106286.

Despite the Navy's focus on price in contract, rising prices for ships and program cost overruns have nevertheless made it more prohibitive for the government to grow the fleet rapidly. Cost growth—defined as "increases in the estimated procurement costs of lead ships in Navy shipbuilding programs that occur after those lead ships are procured"—is "significant and chronic," according to Congressional Research Service (CRS) and Congressional Budget Office (CBO) experts.[18] This cost growth stems from unrealistically low lead ship cost estimates, made in part based on unbalanced assumptions and as an effort to sell new shipbuilding programs to Navy and DoD leadership as well as Congress.[19]

The unit cost of particular ship classes has also significantly increased in real terms over time. Figure 5 shows the unit cost in the five-year period ending with the FY 2025 budget request, with the Arleigh Burke–class and Virginia-class vessels 26 percent and 22 percent, respectively, higher.

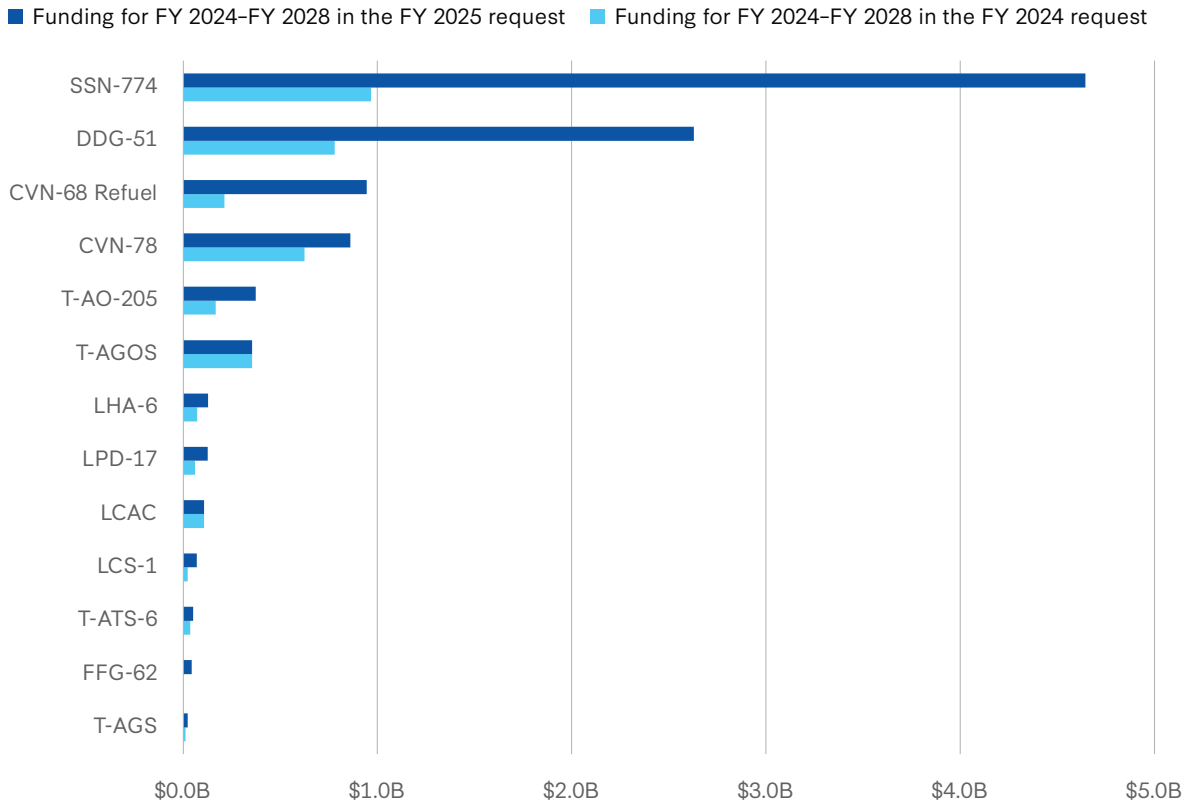
Moreover, the Navy must also contend with cost growth in shipbuilding programs that are currently underway. CBO found that the Navy "substantially increased the amount of money that it has budgeted to complete ships that were authorized in previous years."[20] Figure 6 shows the cost overruns for ships previously authorized in the FY 2024 and FY 2025 requests. Total cost overruns amounted to $3.4 billion for FY 2024 and $10.4 billion for FY 2025.[21]

Figure 5: Percentage Increase in Ship Unit Price (Above Inflation) Over Past Five Years



Source: Congressional Budget Office, *An Analysis of the Navy's 2025 Shipbuilding Plan* (Washington, DC: Congressional Budget Office, January 2025), 16, https://www.cbo.gov/system/files/2025-01/60732-shipbuilding.pdf.

Figure 6: Cost Overruns in the FY 2024 and FY 2025 Budget Requests for Ships Authorized in Previous Years



Source: Congressional Budget Office, *An Analysis of the Navy's 2025 Shipbuilding Plan,* 16.

Growing strategic competition with China and operational imperatives to improve readiness have amplified calls to grow the size of the fleet. However, the U.S. shipbuilding enterprise has struggled to meet this heightened demand as ship construction times increase, deliveries are delayed, and costs continue to rise. The goal of growing the Navy is not new. Yet, growth is not happening. The next section explores the challenges on the part of both the government and industry that have limited the ability of shipyards to meet the shipbuilding demand.

The Drivers of U.S. Naval Shipbuilding Challenges

The shortcomings of the U.S. shipbuilding enterprise to deliver ships at scale, on relevant timelines, and at cost stem from a wide range of factors affecting both the government and industry. The shipyards struggle with uncertain demand linked to changing government priorities, which are driven in part by the strategic environment. Factors linked to broader socioeconomic trends, like unemployment rates and supply chain constraints, also drive issues. In short, the shipbuilding challenge is a function of the overall ecosystem, and addressing shortfalls will require sustained attention from multiple stakeholders across years or decades.

Government-Side Drivers

INCONSISTENT DEMAND SIGNAL

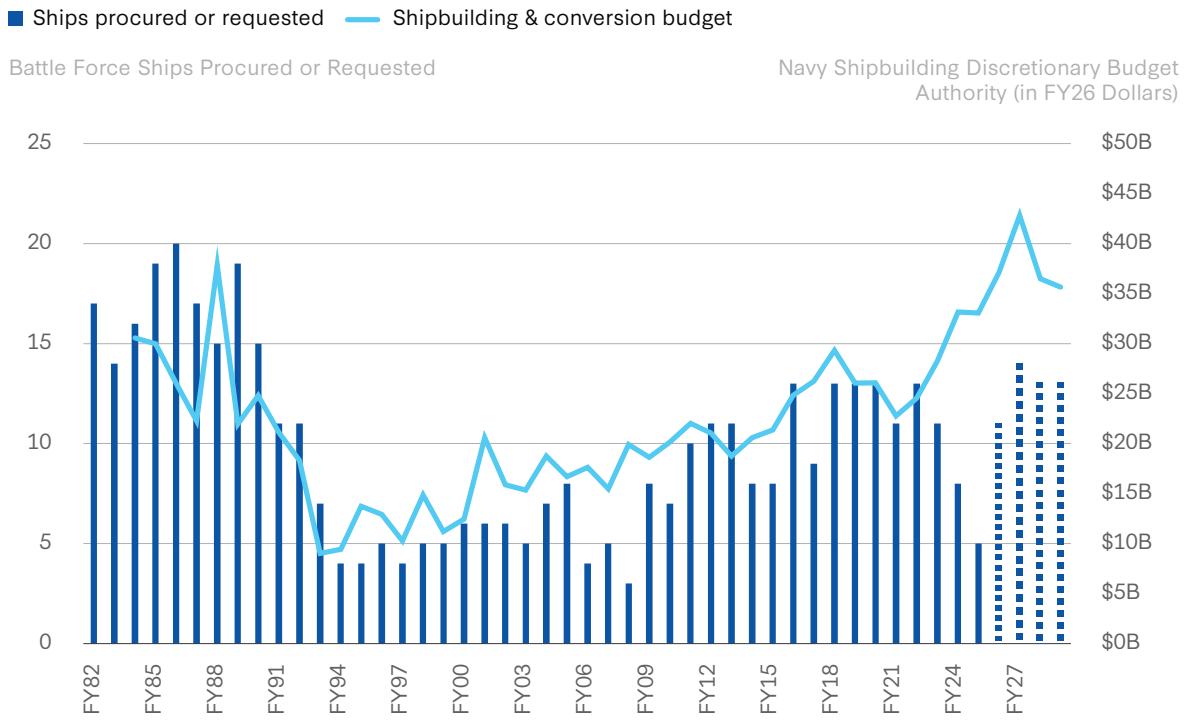
The demand signal for ships provided by the government—by the Navy in its plans released in the annual budget request and long-range shipbuilding plans, by Congress in its authorization and appropriations processes in response to those plans, and through contracts signed with industry partners—serves as the ultimate driver of naval shipbuilding activity. The maritime industrial base and supply chain in turn respond to that demand to scale up or down their operations in anticipation of changes in the number of ships they must construct. The drawdown in ship procurement in the wake of the Cold War led to a contraction in the naval shipbuilding industry. The Navy and Congress have since placed greater emphasis on growing the size of the fleet in response to changes in the strategic environment, but industry partners argue that fluctuations in

the demand signal and the government's plans do not provide the necessary stability for their own planning and investment purposes.

During the 1980s, the Reagan administration outlined a goal for a 600-ship navy.[22] This emphasis on naval shipbuilding from the government (as commercial shipbuilding declined, see "Consolidation" section below) and procurement quantities peaked in FY 1986 at 20 ships, as shown in Figure 7. In the eight fiscal years between FY 1982 and FY 1989, the Navy procured 137 total ships.

The end of the Cold War precipitated a major decline in ship procurement as demand for new naval vessels receded. In the decade between FY 1990 and FY 1999, the Navy procured only 71 total ships, and the shipbuilding budget fell 76 percent in real terms from a peak of $37.8 billion in FY 1988 to a low of $9 billion in FY 1993.

Figure 7: U.S. Battle Force Ships Procured or Requested and Navy Shipbuilding Procurement Budget, FY 1982–FY 2029



Source: O'Rourke, *Navy Force Structure and Shipbuilding Plans*, 77; and FY 2025 Public Budget Authority Database, Office of Management and Budget, March 11, 2024, https://www.govinfo.gov/app/details/BUDGET-2025-DB.

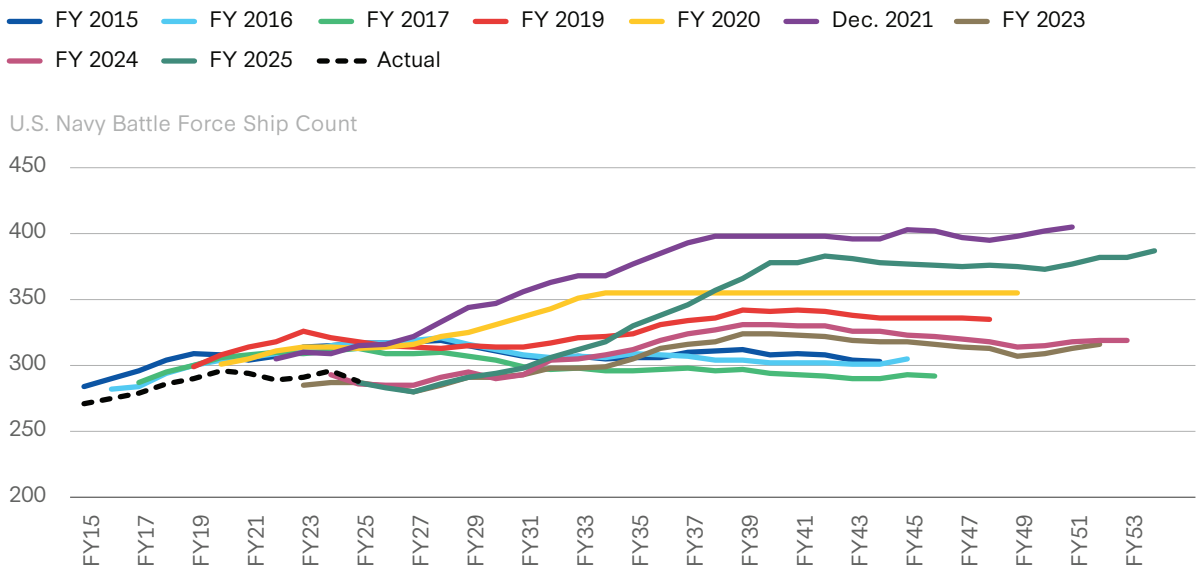
While the Navy only procured 58 ships between FY 2000 and FY 2009 with ongoing ground-centric operations in Afghanistan and Iraq after the 9/11 attacks, quantities and budgets began to grow significantly in the following decade, with Congress funding the procurement of 103 ships. As previously stated, in December 2016, the Navy outlined its goal for a 355-ship fleet, which was confirmed by Congress as U.S. policy in the FY 2018 NDAA.[23]

These efforts to grow the overall size of the fleet—subsequently confirmed during the Trump and Biden administrations with Navy plans considering even larger force structures—have largely been met with growing procurement budgets; however, the shipbuilding budget did fall 22 percent in real terms between FY 2018 and FY 2021, and the number of ships procured dropped in FY 2024 and FY 2025. Still, this general upward trend in budgets has been accompanied by calls to further boost procurement and production rates of certain types of ships from Congress and the Navy. Officials and lawmakers support increasing the procurement of Virginia-class attack submarines from two per year to three per year.[24]

While industry partners support this growth, they have cautioned that the Navy must provide a consistent, long-term demand signal to justify the capital expenditures needed to boost production, noting that inflation and appropriations uncertainty have dampened the prospects for such investments despite more robust order-books.[25] Suppliers to the shipyards also require messaging of a sustained demand over time in order to ramp up their production to support shipbuilding efforts. Inconsistent demand can additionally lead to workforce instability and the loss of skilled labor.

Fluctuations in the Navy's long-range, 30-year shipbuilding plan submitted to Congress annually exemplify industry's concerns over the lack of a steady demand signal. Figure 8 compares the Navy's requirements for the total number of ships in the fleet from the FY 2015 plan through the FY 2025 plan along with the actual size of the fleet over time. The top-line goals for the size of the fleet have changed considerably across the nine plans, with some failing to specify one target set of numbers and offering alternatives.[26] This inconsistency, both at the top-line level and below for certain ship types, challenges industry's ability to plan over the long term.

Figure 8: Comparison of Navy Long-Range Shipbuilding Plans and Actual Ship Count, FY 2015–FY 2025 Plans



Note: Data for the FY 2023 and FY 2024 long-range shipbuilding plans reflect alternative 1 of the three provided. FY 2025 data reflects the FY 2025 shipbuilding plan reflected in the BFSAR rather than the alternative.

Source: CSIS analysis of U.S. Navy Reports to Congress on the Annual Long-Range Plan for Construction of Naval Vessels and Navy budget materials.

Political maneuvering within the budget and appropriations processes also threatens a steady demand signal. The Navy must construct its budget within the parameters set by DoD leadership, which in turn must comply with guidance from the Office of Management and Budget. Both the first Trump and Biden administrations only requested one Virginia-class submarine in the FY 2021 and FY 2025 budgets, respectively, despite broad, bipartisan support for the program and a steady procurement rate of two per year.[27] While DoD officials cited the delivery delays and backlog facing the program in FY 2025 as justification in the latter case, they may have also been relying on Congress to add the second boat back in its final appropriations.[28] Regardless of whether they were legitimate concerns over industrial capacity or budgetary machinations, such changes from the standard procurement pattern do not provide a steady demand signal.

Some forms of government contracting practices can provide more consistent signaling to industry partners and the broader supplier base than other contract types. The use of congressionally approved, multiyear procurement and block buy contracting allows DoD to use a single contract for multiple years' worth of procurement of a system or platform without having to exercise a contract option after the first year.[29] This provides a more stable planning environment for industry while also potentially reducing weapon procurement costs for DoD.[30] The Navy has previously used multiyear procurement contracts for Virginia-class submarines and Arleigh Burke–class destroyers, among other vessels, and block buy contracts for the littoral combat ship (LCS), the John Lewis–class oiler program, and the two Gerald R. Ford–class aircraft carriers.[31]

While a more consistent demand signal would improve the ability of industry and the supply chain to respond to the Navy's requirements, it is not the sole solution to the United States' shipbuilding challenges. Despite the Navy having procured Virginia-class submarines at a rate of two per year from FY 2011 through FY 2024, the actual production rate has never reached that level. Approximately 1.2 boats per year have been built since 2022, leading to a backlog of submarines yet to be constructed.[32] As this example illustrates, the government's demand signal is just one of a plethora of issues that contribute to the challenges facing U.S. shipbuilding.

VOLATILE NAVAL REQUIREMENTS AND UNSTABLE SHIP DESIGN

The Navy's requirements process translates strategic objectives and operational needs into specific, measurable capabilities for new ships and systems through a complex process involving multiple stakeholders. The overarching goal is to ensure that each acquisition program addresses validated warfighting gaps while balancing performance, cost, and schedule constraints. Setting requirements for ships is particularly difficult because they are highly complex, multi-mission platforms that must integrate dozens of major subsystems—propulsion, sensors, weapons, aviation, command and control, and habitability—into a single system of systems that must be able to operate for months at sea. Ships also have very long design and service lives (30–50 years), and mission systems requirements regularly change in light of evolving missions, threats, and technologies.[33] The complexity and expense of ships means that new ship classes are relatively rare, increasing the stakes for the Navy to ensure that the new ship classes meet evolving needs.

These factors have contributed to complicated and protracted naval ship design processes and an absence of design stability during construction, challenges highlighted by both former Navy

leadership and shipbuilders during this research. These practices have resulted in recurring cost overruns, delivery delays, and vessels that fail to meet initial performance expectations. In contrast, international shipbuilders—both naval and commercial—achieve far tighter cost and timeline control by ensuring design maturity before construction begins and strictly limiting change orders. Builders also typically have flexibility to implement their own construction standards so long as delivered vessels match operational and performance benchmarks.[34]

U.S. naval procurement generally allows construction to commence before the design is mature and funding is finalized. This practice can create a cascading series of complications as shipbuilders must continuously accommodate design modifications, manage schedule slippage, and await extra appropriations. The nature of U.S. Navy technical specifications adds further complexity because they dictate specific construction methods and materials.[35] This limits builders' ability to adapt to construction issues and creates a time-intensive compliance regimen.[36]

The Constellation-class frigate program demonstrates how design instability and naval standards can impact delivery—and ultimately doom a shipbuilding program, as evidenced by its November 2025 cancellation. The program was formulated to deliver more reliable vessels than its troubled LCS predecessors, with the existing European FREMM (European Multi-Mission Frigate) design chosen specifically to reduce risk and accelerate delivery timelines.[37] However, extensive modifications were required to meet U.S. Navy specifications, reducing commonality with the FREMM design from 80 percent to 15 percent.[38] These turned what was intended as an off-the-shelf design into an effectively new class of vessels with complexity exceeding that of the clean-sheet design.[39] The lead ship's delivery had slipped from 2026 to at least 2029, with significant cost escalations.[40]

Troublingly, the Constellation program fell victim to similar issues as the LCS program. In that instance, concerns about the LCS class's survivability prompted a complete redesign of the hull and internals while ships were under construction—increasing weight, stretching construction timelines, and escalating per-unit costs above initial estimates.[41]

Flight III of the Arleigh Burke destroyer program exhibited similar design-completion problems. The SPY-6 radar, a core component of the upgrade, encountered significant technical issues during development. These cascaded into the ship design itself, requiring redesigns of electric and cooling systems and delaying sea trials.[42]

Ultimately, U.S. naval shipbuilding's persistent challenges in this area stem from three interconnected problems: allowing construction to begin before designs are sufficiently mature; using prescriptive specifications that dictate methods rather than performance requirements; and contracting practices that provide limited financial incentives—and ability—for builders to control costs and timelines.

Industry-Side Drivers

CONSOLIDATION OF THE SHIPBUILDING INDUSTRIAL BASE

The demand for new naval battle force ships today is met by a small number of major private shipbuilders. These shipyards emerged from a period of consolidation within the shipbuilding industry resulting from the decline of U.S. commercial shipbuilding and a decreasing naval demand signal in the wake of the Cold War. While some advocates argue the growth of U.S. commercial shipbuilding would bolster naval efforts, other analysts highlight the technical differences between the two industries and the potential for competition over a limited workforce.

The years immediately following World War II were the high-tide mark of American naval power. The United States possessed the world's largest shipbuilding capacity, with eight publicly owned naval shipyards and at least 64 private shipyards actively constructing large ships.[43] In the postwar period, the naval shipyards continued to serve as the primary source of Navy shipbuilding but scaled back operations.[44] However, private shipyards quickly proved unsustainable as demand collapsed amid greater international competition for commercial ships, and several major yards closed, along with the emergency yards that were created during wartime.[45] Competitors in Japan, Europe, and eventually South Korea progressively built new, state-of-the-art facilities that were optimized for the large, block-assembled, and welded vessels in the postwar era, while U.S. yards generally retained their obsolete, labor-intensive prewar layouts.[46] However, no public Navy shipyards were closed.[47]

During the 1950s and 1960s, private U.S. shipyards received some relief as the Navy shifted new construction from the public naval yards to private yards, reflecting assessments of their greater efficiency as well as sustained industry lobbying while launching an effort to modernize the fleet.[48] The private shipyards received an even greater boost from the Nixon administration's decision to extend subsidies to yards for building tankers and dry bulk carriers in addition to cargo and passenger ships. This led to a surge in demand for commercial vessels so great that the Navy struggled to find private shipyards to produce naval ships for which Congress had appropriated funding.[49]

However, the largely intertwined fates of the private naval and commercial shipbuilding industries diverged during the 1980s. The Reagan administration ended the subsidies for commercial shipbuilding, leading to the collapse of the industry.[50] The number of active shipyards declined by 40 percent and employment decreased by a third.[51] Despite an increase in naval shipbuilding work as the Reagan administration set a goal of growing the Navy to 600 ships, it was not enough to sustain some major yards without additional commercial contracts to "fall back on," leaving only six private shipyards to build naval ships, "none of which were making any money from building merchant ships."[52]

As discussed earlier, the end of the Cold War also saw a significant reduction in the demand for naval shipbuilding, leading the remaining shipyards to scale back their capacity. It saw a decrease in U.S. MRO capacity as well, particularly in the organic (government-run) industrial base. The Base Realignment and Closure (BRAC) process in the 1990s halved the number of government-owned U.S. naval shipyards from eight to four, which significantly reduced MRO capacity.[53]

In total, 17 private shipyards that constructed ships for the defense industry have "closed or left the defense industry" over the last 50 years, according to the Navy.[54] As of 2021, only seven shipyards constructed battle force ships for the Navy, out of the 25 remaining yards that construct medium- to large-sized vessels in the United States.[55] Consequently, the consolidation of the shipbuilding industry and its decline in capacity from the post-Cold War drawdown has contributed to the challenges facing the U.S. naval shipbuilding enterprise to grow the fleet.

Some commentators have suggested that a resurgence of the U.S. commercial shipbuilding industry could alleviate some of the challenges facing naval shipbuilding.[56] While U.S. private shipyards rely significantly on the Navy for contracts—forcing them to optimize for the unique technical requirements of combatant ships instead of efficiency and quantity of vastly less complex commercial vessels—advocates for this position argue that commercial orders could act to smooth out the often-unstable demand signal from the government for military ships.[57] A robust commercial industrial base could also support investment in new production tools and methods, which might not have the business case in a smaller naval production run, as well as the development of a more robust supply chain for general maritime goods. In addition to supporting maritime industry, commercial shipbuilding could provide critical capacity for sealift or other shipbuilding production in the event of a national crisis, according to advocates.[58]

In several major shipbuilding nations, such as China and South Korea, naval shipbuilding sectors benefit from commercial shipbuilding through a larger pool of skilled labor and a deeper supply chain of maritime materiel.[59] Chinese yards' commercial contracts—frequently awarded by Western and Taiwanese firms—subsidize the creation of dual-use capacity.[60] Analysts point to satellite images of Chinese yards, which frequently show commercial and naval hulls in adjacent dry docks.[61]

However, the extent to which commercial shipbuilding can realistically support naval needs in the United States is unclear and may be limited.[62] Structural differences between commercial and naval shipbuilding complicates commercial integration into naval production. The commercial shipbuilding industry is shaped by clear profit incentives, relatively stable designs, and cooperative buyer-builder relationships, whereas naval shipbuilding in the United States has often emphasized technological innovation and high and unique standards rather than efficiency and predictability.[63] Navy ships have "significant amounts of interior outfitting for their combat systems and crew-related spaces," compared to commercial ships, and are also designed for longer service lives.[64]

Commercial shipyards may also find the U.S. Navy a different and more difficult customer than traditional shipping clients, which may slow their integration into the naval industrial base, especially if they do not have experience building U.S. government ships for other entities like MARAD.[65] Moreover, naval and commercial shipbuilders would likely compete over a limited labor supply (as described in the following section) and potentially exacerbate workforce challenges for naval programs—although commercial shipyards require fewer outfitting workers given the differences between commercial and naval shipbuilding.[66]

A 2025 Center for Naval Analyses report noted that the commercial shipbuilding industry may be better suited to providing capacity for smaller, simpler, or more modular vessels instead of

the highly capable but complex major surface combatants produced by private naval-focused shipyards, which require a higher degree of precision and security standards.[67] In this frame, in the event of national mobilization, the commercial sector could augment naval capacity by producing uncrewed platforms, decoys, or basic hulls outfitted with defense systems to provide needed mass in light of predicted high loss rates in a potential Indo-Pacific conflict.

Other ideas for leveraging commercial industry in wartime relate to the concept of "federated shipbuilding" or "nation as a shipyard," wherein commercial yards (and other industrial concerns) across the country could produce modules for assembly into standardized common hull designs at larger shipyards.[68] However, this would require substantial changes to how the commercial and naval shipbuilding industry in the United States typically functions, with submarine construction being a major exception. Some of this work has already begun, as the Navy explores increasing the use of block production of parts of warships by yards distributed across more of the country.[69]

WORKFORCE LIMITATIONS

U.S. officials, shipbuilders, and experts have identified workforce issues as one of the most important challenges facing the U.S. shipbuilding enterprise.[70] U.S. shipyards face recruitment and retention difficulties due to factors ranging from insufficient compensation to structural demographic trends. These difficulties were exacerbated by the Covid-19 pandemic, which simultaneously accelerated the retirement of the experienced legacy workforce and tightened the labor market for new entrants.

The overall shipbuilding workforce has shrunk considerably over time. According to Federal Reserve data, 198,700 people were employed in "ship and boat building"—both naval and commercial—in June 1980, over 36 percent more than the 145,700 employed as of June 2025.[71] Navy officials and experts have indicated that U.S. shipyards will need to hire 100,000 new workers for submarine production alone, as part of 250,000 new workers needed for the overall maritime industrial base.[72] Current employment is not only insufficient to meet demand from the Navy, but also the Coast Guard, which is embarking on a historic rebuilding program including cutters, waterway patrol boats, and icebreakers.

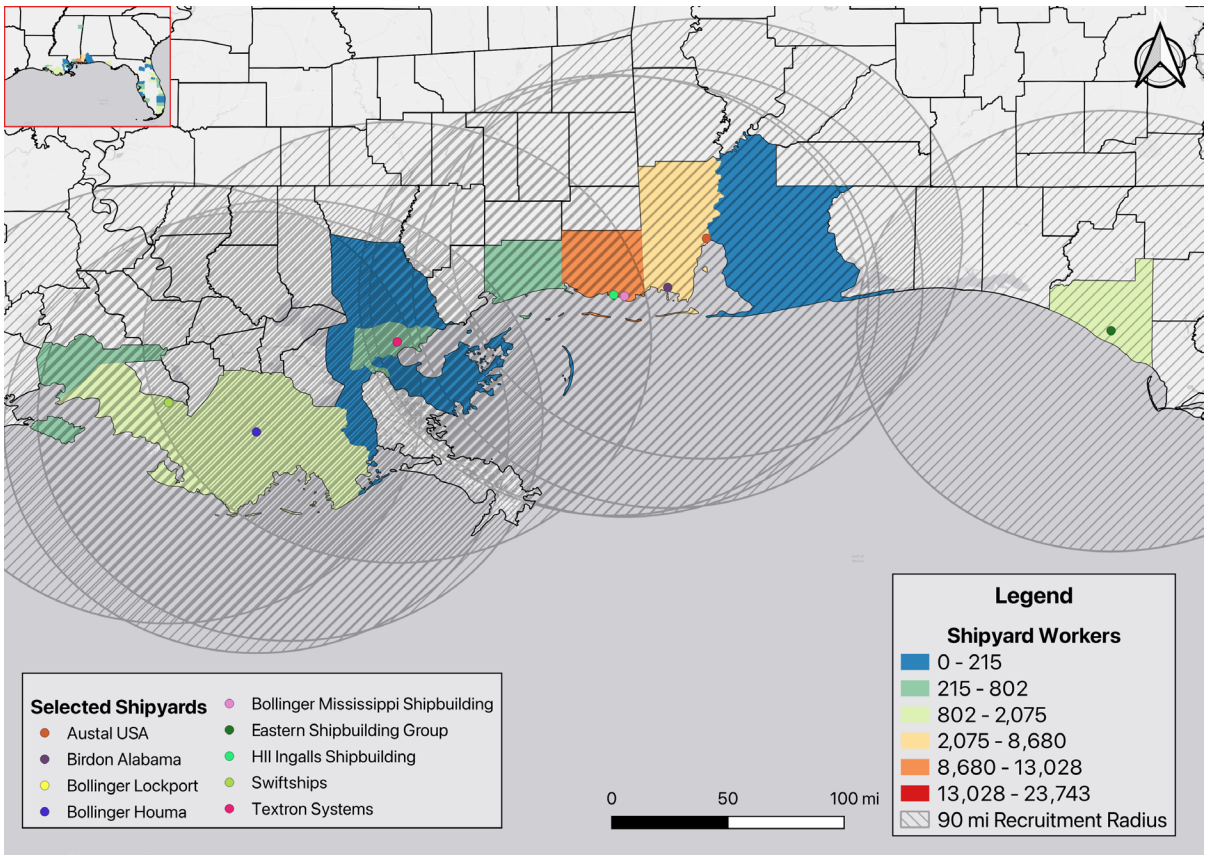
This sectoral workforce shrinkage stems from multiple issues, including the legacy of a reduced demand signal from government and the consolidation of the maritime industrial base over the past three decades. Reduced demand for shipbuilding activity led private shipyards to shed workers and slow the hiring of new employees. The sector's historic pattern of boom-and-bust hiring cycles may have further diminished new workers' interest in joining the shipbuilding sector.

Nationwide economic and demographic shifts have intensified the impact of the reduction in government demand since the Cold War. The decline of the U.S. manufacturing sector and shifts toward the service industry have shrunk the pool of workers with blue-collar experience or interest. Recruiting and retaining shipyard workers is difficult, in part because shipyard workers are required to perform physical labor while exposed to the elements for little more pay than employees in air-conditioned service jobs, like retail workers, a differential which reportedly has decreased over time.[73] Raising shipyard wages would lead to much higher shipbuilding costs for the Navy as labor currently accounts for approximately 40 percent of a ship's overall procurement cost, according to

CRS.[74] However, higher shipbuilding costs to account for the labor market may be a price the Navy and Congress must pay in order to expand the shipbuilding workforce and thus industrial capacity.

The concentration of maritime industrial base activity, especially in the Gulf and Hampton Roads areas, presents both challenges and opportunities for recruitment. The Gulf Coast has been referred to as a "bathtub" of labor, where workers flow between the region's many naval, commercial, and repair yards as contracts and demand shifts.[75] In general, shipyards recruit workers from a relatively small radius around their facility. The Gulf shipyards see a high concentration of workers located within the recruitment area of multiple yards, as Figure 9 below demonstrates. Employers in the Hampton Roads region have also described workforce flows between private shipyards, Norfolk Naval Base, and private repair yards whenever wages in one sector surpass the other two.[76]

Figure 9: Gulf Coast Shipyards and the "Labor Bathtub"

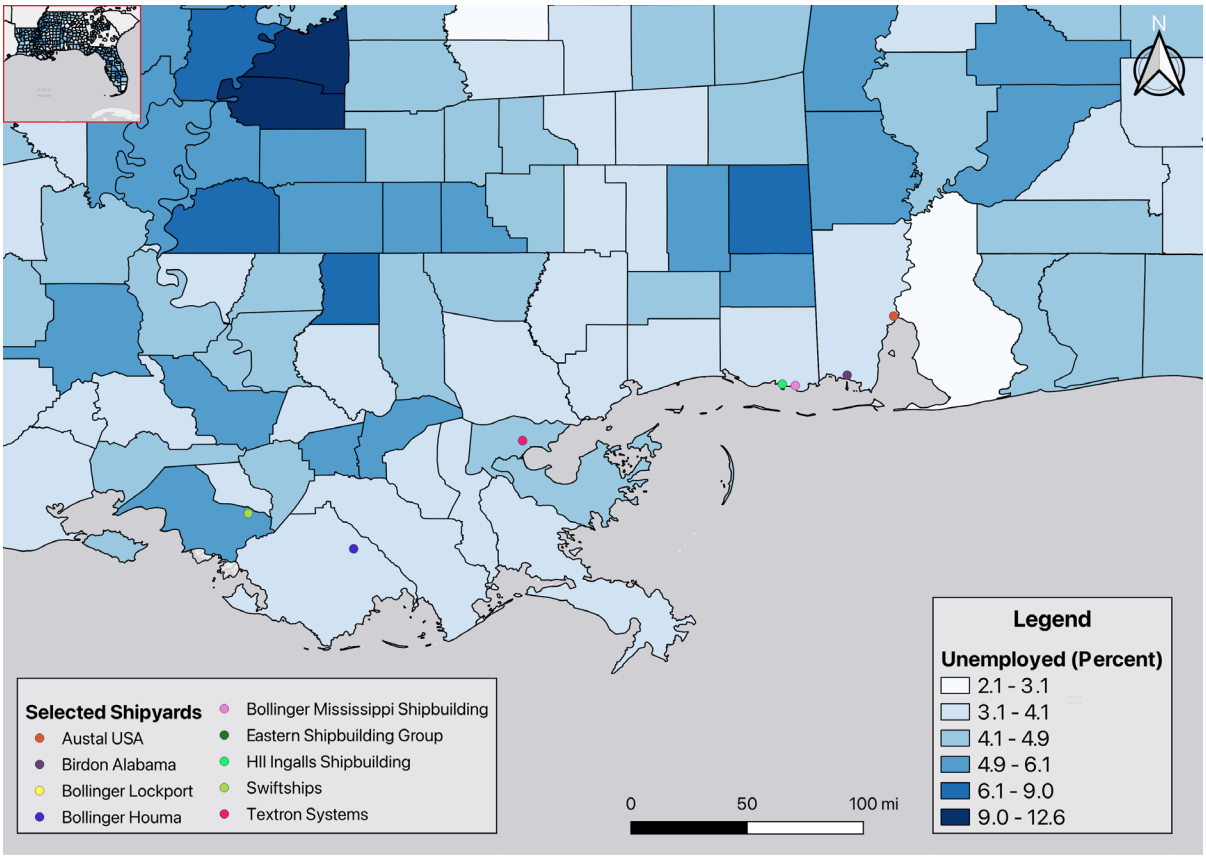


Source: Analysis of U.S. Bureau of Labor Statistics data by Jose M. Macias III at CSIS.

While proximity creates a larger labor pool that shipyards with work can pull from, clustering also creates upward wage pressures that can be a challenge for shipyards to manage. Additional naval work in the Gulf region has reportedly led to increased wages due to increased competition for workers.[77] New Coast Guard contracts could add to this upward pressure, as would increased commercial shipbuilding demand. Nor is the region's labor supply seeming to keep pace. As Figure 10 shows, unemployment across the Gulf Coast, especially near major shipbuilders like Austal

USA, is low as of 2025. However, a 2022 report commissioned by the Navy found that the area's shipbuilding workforce peaked in 2016 and has fallen significantly since.[78] In a normal market, high demand combined with low supply would drive up wages, but naval contracts often lock Shipbuilders into wage rates that subsequently prove unrealistic or noncompetitive.[79] Wage relief from Congress and the Navy may be a necessary solution to fix this misalignment, particularly in shipbuilding clusters such as the Gulf Coast and southeastern Virginia.[80]

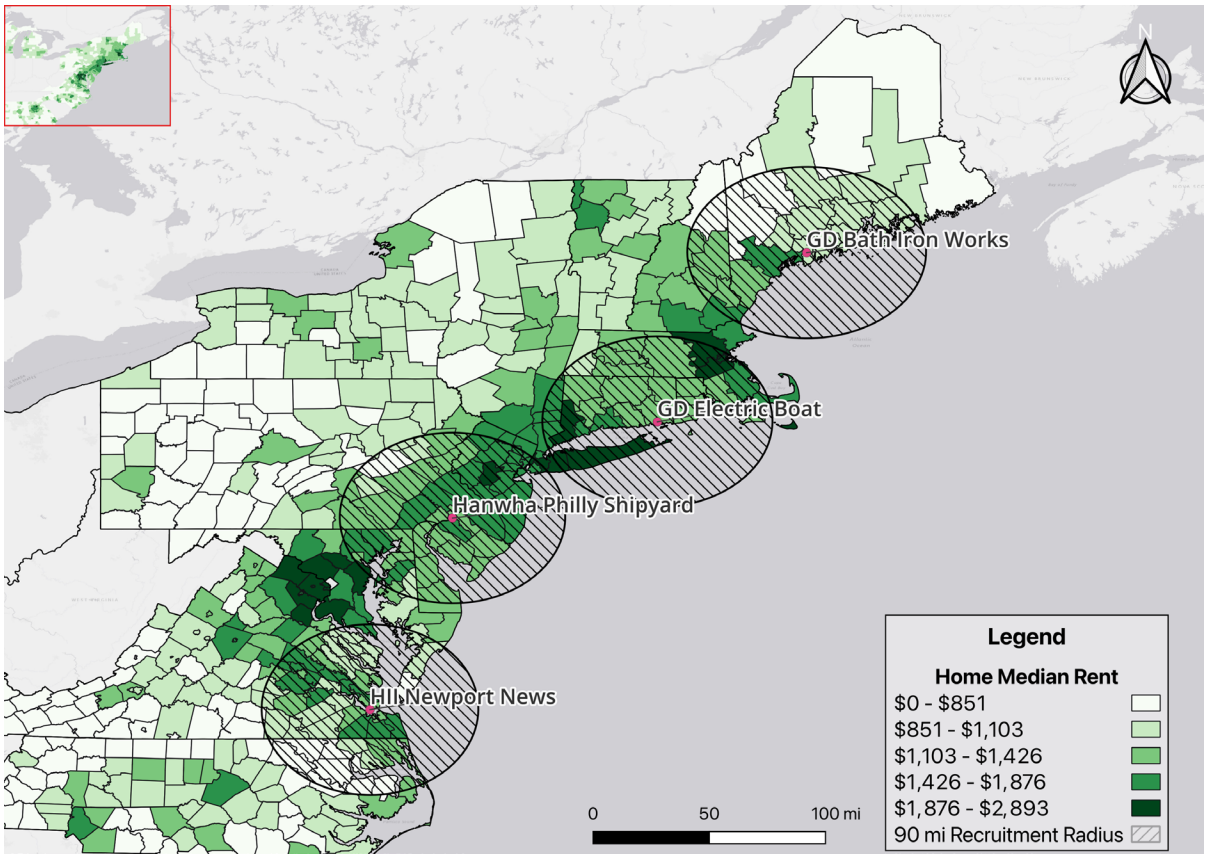
Figure 10: Labor Force Availability Rates Along the Gulf Coast



Source: Analysis of U.S. Bureau of Labor Statistics data by Jose M. Macias III at CSIS.

Shipyards in other parts of the country face their own challenges in recruiting and maintaining an adequate workforce. In the Great Lakes region, efforts to recruit shipbuilders from elsewhere in the country have run into difficulties due to the climate and cultural differences.[81] In the Northeast, as Figure 11 shows, and along the West Coast, elevated housing costs pose a significant challenge to shipyards attracting and retaining skilled labor. Shipyard workers often struggle to find housing, particularly when relocating to legacy shipyards near major urban centers or expensive coastal areas. Submarine builders have faced further difficulties due to their more extensive security clearance requirements.[82] Shipyards, with financial support from the Navy, have made efforts to support affordable housing options for shipyard workers to counteract these affordability issues.[83]

Figure 11: East Coast Median Monthly Rent, 2023



Source: Analysis of U.S. Census data by Jose M. Macias III at CSIS.

In addition to labor shortages, there has also been a reduction in the level of workforce experience. The cohort of skilled employees retained after the Cold War has largely retired, a trend exacerbated by Covid-19. This has fostered an increase of the proportion of "green" (inexperienced) labor, which has itself led to production difficulties. According to the GAO, several U.S. shipyards report that over half of their trade workers have less than five years of experience. Shipbuilders note that it takes between three and five years for their workers to become fully skilled.[84] If U.S. shipyards substantially expand hiring in response to greater demand, the "green" proportion of their workforce will grow. Green workforces require greater supervision from experienced supervisors to successfully carry out work orders to lower the risk of costly and time-consuming rework. However, the "greening" challenge is not the same across all shipyards and regions, and each may require a tailored approach to resolving it.

Just as the success of a new or revitalized shipyard depends on physical plant and financial capital, the shipyard's skilled workforce is a key determiner of its success—or failure.[85] As the demand for skilled shipbuilding labor rises, the shipbuilders and the Navy will need to work together to tackle a wide array of challenges that are holding back the large increase in the workforce needed to build the United States' naval strength. These challenges, including demographic trends, insufficient

wages, and housing costs, will require government action across the entire maritime industrial base, including the Navy, Coast Guard, military sealift, auxiliary, and commercial sectors.

AGING AND INSUFFICIENT INFRASTRUCTURE

The infrastructure and physical plants of U.S. shipyards contribute to the challenges facing the shipbuilding enterprise due to their age and relatively outdated status. As far back as 1986, shipbuilding industry analysts in the United States noted that "module construction, prefabrication, assembly lines . . . all require large amounts of physical space, a commodity in very short supply and one difficult to create in older yards."[86] The issue of physically constrained production space has been compounded by a lack of spending from both government and industry.[87] A GAO report similarly noted infrastructure limitations for naval shipbuilders as including aging infrastructure, a lack of space to expand, and insufficient capacity to produce future ship orders.[88] Former Navy Secretary Carlos del Toro's WEST 2024 address criticized U.S. shipbuilders for prioritizing shareholder returns and executive compensation over capital expenditures and workforce development.[89]

The Navy has pushed contractors to commit to substantial capital investments in recent years. However, the shipyards and suppliers would likely seek to recover the cost of those investments and associated interest through changes to their cost structure, which would lead to higher procurement costs for the Navy and Congress.[90] Furthermore, constructing a new yard or reactivating an inactive one would face significant hurdles, including alternative developments of valuable waterfront real estate, extreme weather, environmental remediation, and a dearth of relevant construction expertise.[91] CRS has estimated that constructing new shipbuilding facilities could cost hundreds of millions or billions of dollars and take years to complete.[92]

Industry has invested its own money in infrastructure upgrades. Since 2014, the shipbuilding and broader marine industries spent $8.5 billion in capital expenditures, according to data from Aswath Damodaran of NYU Stern, though not all of this money was spent on infrastructure.[93] HII's Ingalls Shipyard on the Gulf Coast embarked on a capital intensive "Shipyard of the Future" modernization in the 2010s, with the funds drawn from corporate, state, and Navy sources.[94] This modernization was aimed at improving their cost competitiveness on upcoming amphibious warfare vessel contracts for the Navy.[95] However, in 2023, the Office of the Secretary of Defense paused the program, causing considerable consternation over the possible loss of revenue after a major investment, as well as the risk of losing its skilled workforce.[96] An inconsistent demand signal for shipbuilding, epitomized by the pausing of the amphibious program, was cited by several major shipbuilders as a reason to not invest in their own shipyards' infrastructure ahead of proven demand in the form of signed contracts.[97]

BRITTLE SUPPLY CHAIN

The U.S. maritime industrial base extends well beyond the small number of private and government shipyards. The maritime supply chain is dependent on a sprawling array of subcontractors and parts manufacturers. The health of this network is a critical enabler—and possible vulnerability—for U.S. shipbuilding. Challenges impacting the supplier base, particularly corporate consolidation and the growing prevalence of sole-source suppliers, contribute to the United States' shipbuilding

shortcomings. The shipbuilding sector's supply chain faces issues such as the reduction of demand following the Cold War, corporate consolidation, and the growing prevalence of sole-source suppliers.

The shipbuilding supplier network has contracted following the post-Cold War drawdown in demand.[98] This has mirrored broader trends in the defense sector; Kirt Wendelken, vice commander of the Naval Supply Systems, stated in 2022 that 20 percent of defense sector suppliers left the industry between 2015 and 2020 due to supply chain, economic, and labor challenges.[99] The submarine industrial base alone has lost 12,000 suppliers since the 1990s, while a 2018 DoD report estimated the shipbuilding material sector has lost 20,500 establishments since 2000.[100] This exodus has left the Navy dependent on small-to-mid-sized single-source supplies for over 80 percent of naval parts.[101] In the submarine industrial base specifically, around 70 percent of the suppliers of critical components do not have competitors.[102] Similarly, the Aircraft Carrier Industrial Base Coalition reported in 2023 that 50 percent of its suppliers provide sole or single-source materiel.[103] While there is no public list of all of the critical sole or single-source suppliers in the maritime industrial base, some publicly mentioned examples include the manufacturing and refurbishment of propeller shafts,[104] aircraft carrier air conditioning systems,[105] turbines, reduction gears, and castings.[106] While experienced and specialized suppliers can lead to greater efficiency in the provision of high-technology materiel supply, the prevalence of sole or single-source suppliers increases the fragility of the industrial base and hampers the United States' ability to rapidly increase its naval production.

Corporate consolidation, principally spurred by this drawdown in demand, has also shrunk the maritime industrial base. In response to market conditions, companies like Fairbanks Morse Defense (FMD) have begun to consolidate the sector. FMD alone has acquired over a dozen suppliers since the end of 2020, including AMMCON (fittings and assembled components), Federal Equipment Company (cranes and specialized material handling), Hunt Valve (actuators and valves), Research Tool & Die (electrical systems), and Rolls-Royce's naval propulsors and handling division (the United States' only private facility capable of casting naval propellers).[107] This consolidation is not necessarily a negative, unless it leads to the creation of single sources of supply for particular items. Members of Congress and some experts have raised concerns about the possibility of the consolidation of the United States' only two firms capable of manufacturing precision valves.[108]

The formation of consolidated naval suppliers is a natural—and potentially healthy—response to shipbuilding's historically cyclical demand patterns. However, it may run contrary to broader national security imperatives if it creates a single-source market. Competition in the supplier base not only helps keep costs under control and encourages innovation but also provides alternative sources of supply in the event of an emergency. A more robust, distributed, and unconsolidated marine industrial base would be more capable of quickly scaling in wartime, drawing on workforce and material from across more of the country and its industrial base.

The health of the shipbuilding sector's supply base is a critical determinant of the success of the broader shipbuilding effort. Reversing decades of contraction within the supply base will not be easy or quick. Government action could shape the market by credibly signaling a demand increase

sufficient for new suppliers to justify entering the market or via its direct investments capacity and technology in the subprime industrial base. Industry can also play its part. The shipbuilding primes are aware of the plight of the supply chain and have repeatedly raised concerns about the health of the supplier base in interviews. They too could assist suppliers with cooperative agreements or by helping them secure capital to expand production.[109]

INSUFFICIENT UPTAKE OF LEADING PRACTICES

The shipbuilding industry has undergone a period of technological and practice transformation over the past several decades.[110] The commercial industries in shipbuilding nations like South Korea and Japan have invested heavily in shipyard digitization and automation initiatives, as well as advanced management practices, to create greater efficiency.[111] Foreign-owned, especially dual-use shipbuilders with commercial business often make better use of robotics and automation in manufacturing processes such as panel making than U.S. naval shipyards. These advancements help address difficulties such as the depleted workforce and offer efficiency improvements that can help bring down costs in the long run.[112]

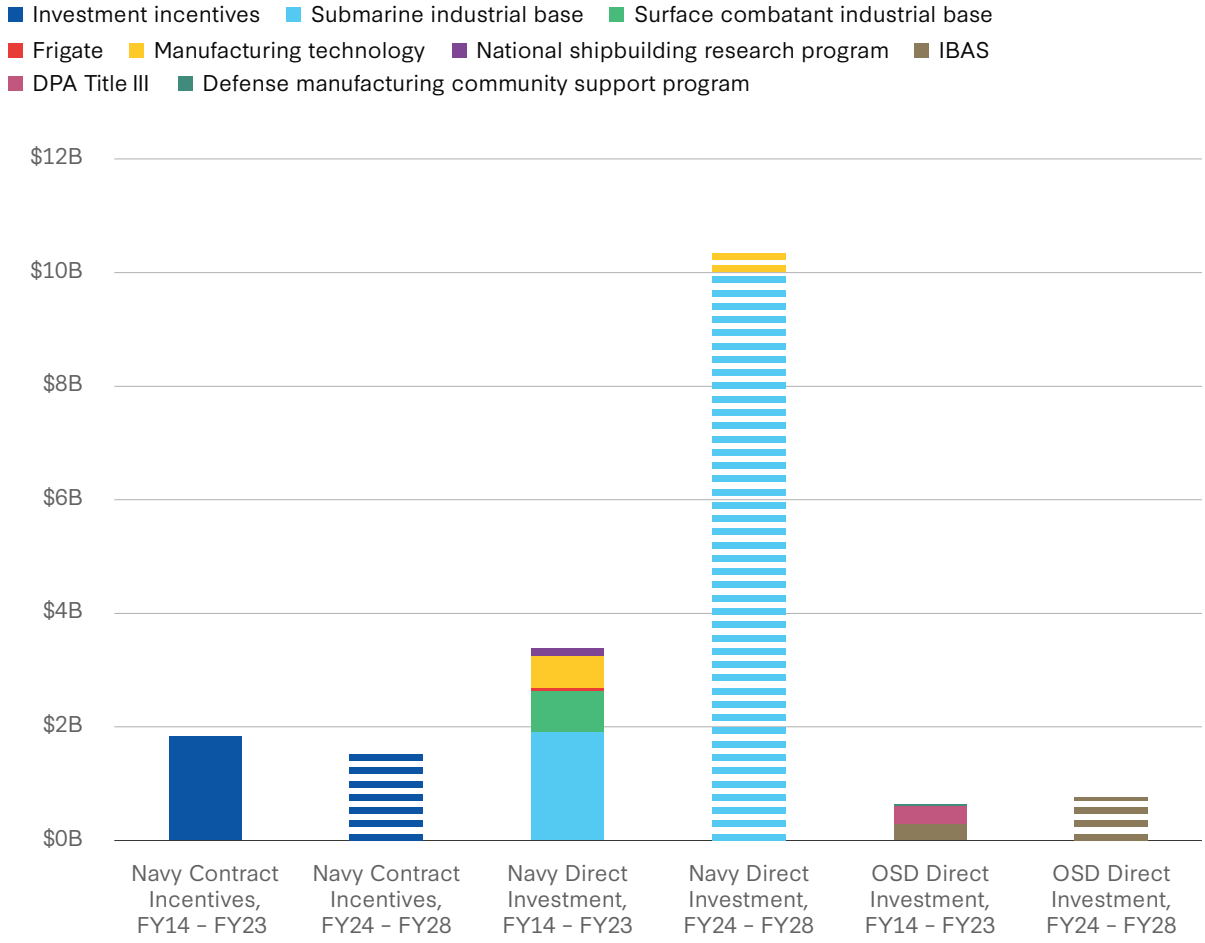
The United States' shipbuilding enterprise has struggled to stay abreast of best practices in shipbuilding in recent decades, in no small part because of the small size of the U.S. commercial shipbuilding base, which tends to be where innovation arises in the sector worldwide.[113] Ongoing competition on cost and quality, along with strict delivery schedules, has driven commercial shipbuilders to invest in technological improvements. A higher level of production in some sectors, like liquified natural gas (LNG) carriers, enables a business case in which there is sufficient return on investment to make these investments worthwhile. The GAO assessed in 2024 that "the Navy has continued to face persistent challenges in its ability to design and deliver timely, affordable new ships that perform as expected" due in part to it having not adopted leading commercial practices.[114]

Efforts to Bolster the Naval Shipbuilding Industrial Base

The U.S. government has taken a series of actions over the past decade to address these challenges facing the shipbuilding enterprise. Beyond directly procuring more ships, DoD spent over $5.8 billion to support the shipbuilding industrial base from FY 2014 to FY 2023, with additional plans for $12.6 billion in spending from FY 2024 to FY 2028, according to a February 2025 GAO analysis.[115] As Figure 12 shows, that includes direct investments from the Navy ($3.4 billion for FY 2014–FY 2023) and the Office of the Secretary of Defense (OSD) ($628 million for FY 2014–FY 2023) across different areas and programs. The Navy also provides contract incentives ($1.8 billion for FY 2014–FY 2023) in the form of special capital expenditures and construction readiness incentives to encourage shipbuilders to make Navy-approved shipyard facility investments and help meet construction schedules and deliveries through capital improvements.[116]

The submarine industrial base (SIB) has been a key priority for and recipient of the Navy's direct investments. These investments have sought to establish new supply sources as a means of reducing risk and to coordinate the procurement of materials for both the Virginia-class and Columbia-class submarine programs.[117] The Navy established an SIB program in October 2021, as part of its goal to deliver one Columbia-class submarine and two Virginia-class submarines annually by 2028, with efforts to strengthen the submarine supply chain, invest in advanced manufacturing technologies, and recruit and train the workforce.[118]

Figure 12: Navy and OSD Investments and Contract Incentives in the Shipbuilding Industrial Base



Note: Columns with hatched lines represent planned spending between FY 2024 and FY 2028.

Source: U.S. Government Accountability Office, *Shipbuilding and Repair: Navy Needs a Strategic Approach for Private Sector Industrial Base Investments* (Washington, DC: GAO, February 2025), 33, https://www.gao.gov/products/gao-25-106286.

Building on the progress made by the SIB program in the submarine sector, the Navy stood up the Maritime Industrial Base (MIB) program in September 2024, integrating the SIB program and other maritime industrial base initiatives, like the Surface Combatant Industrial Base (SCIB) program, under a single organization.[119] The MIB program was established to strengthen the maritime industrial base through three primary lines of effort: supplier development, workforce development, and advanced manufacturing. The Navy reports having funded over 800 initiatives across 38 states aimed at reinforcing supply chain resiliency since FY 2018, with the MIB program playing a role in these efforts.[120] The MIB program has invested in expanding large casting capacity, while the Navy also launched a public-private collaboration to redevelop Alabama Shipyard into a hub for submarine, ship, and component production.[121]

To bolster the shipbuilding workforce, the MIB program has invested in programs to identify and train the next generation of workers, including recruitment, education, and K-12 outreach initiatives

and advanced training programs across the country.[122] MIB programs have produced 10,000 new workers as part of efforts to meet the projected need for 250,000 new workers across the maritime industrial base over the next decade.[123]

As part of its advanced manufacturing line of effort, the MIB program has worked with partners in the government and industry to deliver technologies including additive manufacturing, automation, artificial intelligence, and robotics to the industrial base.[124] The MIB program reports that these initiatives have yielded progress with additive manufacturing solutions, reducing maintenance delays by over 1,300 days since the beginning of FY 2014.[125] A U.S. shipbuilder noted in an interview that MIB program investments have made a difference in restoring both supply chain and workforce capacity.[126] These improvements suggest a gradual modernization of the maritime industrial base, but concerns persist surrounding the pace of innovation and scalability.

OSD is also investing resources into programs aimed at revitalizing the maritime industrial base. According to the GAO, between FY 2014 and FY 2023, OSD provided $628 million of direct investments into the shipbuilding industry, primarily through its Industrial Base Analysis and Sustainment (IBAS) program and using Defense Production Act (DPA) Title III authorities.[127] OSD has used IBAS, a program that tackles deficiencies across the defense industrial base, to address challenges in the maritime industrial base by providing funding and support for programs that address critical needs, such as workforce building efforts. DPA Title III authorities can be used to provide loans, grants, and purchase agreements for projects that expand the production capacity of the industrial base.[128] These programs support broader defense industrial initiatives that provide technical training programs, advance research and development efforts, and scale technological advancements to directly benefit the shipbuilding industrial base.[129] For instance, in 2020, DPA Title III was used to award Austal Limited a $50 million investment for enhancing U.S. domestic production of steel capabilities, an investment which Austal subsequently matched, opening a steel shipbuilding facility in Mobile, Alabama, in 2022.[130]

While the government has taken steps to address some of the challenges facing the U.S. shipbuilding enterprise by providing these direct investments and incentives, the GAO has found that DoD "has yet to fully determine the effectiveness of these funds or ensure visibility into how they are spent."[131] Moreover, the Navy and OSD do "not coordinate spending across all of their investment efforts to prevent duplication and overlap of spending."[132] While additional effort and time to track these investments will provide a better idea of their effectiveness in supporting the shipbuilding industrial base, the plethora of issues discussed in the preceding section show that more funding alone cannot serve as the sole solution.

Conclusion

Despite support and funding—albeit inconsistent at times—from the Navy and Congress to grow the size of the fleet, the U.S. shipbuilding enterprise has struggled to deliver ships on a relevant timeline and at cost. The underlying drivers of these shortcomings—an inconsistent demand signal; volatile requirements and ship design; industrial consolidation; workforce limitations; and insufficient infrastructure, among others—show that the U.S. shipbuilding challenge is a complex, enterprise-wide issue. There is no single policy solution to solve the overall problem. Moreover, resolving any one of the underlying issues does not guarantee a drastic improvement of the situation.

The organizations that make up the U.S. shipbuilding enterprise—from executive branch actors (the Navy, DoD, and the White House) to Congress and the broader maritime industrial base—must recognize that finding a solution will require years of effort, investment, and cooperation. They must also be open to testing new and original measures to address the underlying issues and ultimately grow U.S. shipbuilding capacity and the overall fleet.

Proposed options include *continuous production*, which emphasizes maintaining continuous and steady production rates of Navy ships based on multiyear contracting.[133] This approach would "avoid year-to-year changes in procurement profiles," as downstream force levels could change, and would manage the transition from procuring one class of ship to the next-generation class.[134]

To expand U.S. shipbuilding capacity, the Navy could also consider a *federated shipbuilding* approach, as discussed earlier, to expand strategic outsourcing efforts. This could involve applying a modular strategy to ship design and construction that allows the Navy to leverage

production facilities and labor workforces across the country before transporting modules to a final assembly shipyard.[135]

Alternatively, policymakers could look to solutions beyond U.S. borders to bolster shipbuilding capacity by expanding cooperation with allies and partners. There are several pathways for cooperation that policymakers could explore, from allied acquisition or investment in U.S. shipyards and joint distributed production to expanded allied MRO of U.S. ships and U.S. purchase of existing allied warship designs.[136]

Each of the approaches above, along with other proposed options, address different aspects of the challenges facing the U.S. naval shipbuilding enterprise. Each also has different benefits, limitations, and barriers to implementation. While deciding on one or a combination of approaches to improve U.S. naval shipbuilding demands further research and careful consideration—and likely changes to existing law, processes, and organizations—policymakers cannot afford to delay.

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