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MAY 2024

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MICHAEL G. ROBERTS
CENTER FOR DEFENSE CONCEPTS AND TECHNOLOGY, HUDSON INSTITUTE
CENTER FOR MARITIME STRATEGY, NAVY LEAGUE OF THE UNITED STATES

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Cover: An aerial view of General Dynamics NASSCO shipyard on March 20, 2020, in San Diego, California. (Sean M. Haffey/Getty Images)

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A lawyer and member of the Florida and DC Bars, Mr. Roberts joined a major American shipping company in 1991 and spent the next three decades actively involved in the business, legal, and policy decisions shaping the maritime industry. Mr. Roberts was general counsel and a member of the company's senior leadership from 2008 until 2021, with responsibilities that included insurance and risk management, government affairs, and all legal matters. During that time, he led teams that started a cargo insurance company and a charitable foundation and provided strategic support for the company's expanded role in supporting US government security needs. In 2020–21, Mr. Roberts was also chairman and president of the American Maritime Partnership, a broad coalition supporting America's domestic maritime industry.

The author is deeply grateful for the support of Hudson Institute's Center for Defense Concepts and Technology, the Navy League's Center for Maritime Strategies, and for the advice and insights of many friends and colleagues throughout the industry. The views expressed in this report are solely those of the author.

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1. INTRODUCTION AND SUMMARY

The Geopolitical Threat

Geopolitical competition between the United States and China has prompted broad policy reassessments in many industries associated with military and economic security. In no strategically important sector is China's advantage over the US more pronounced than in the commercial maritime industry. Using extensive government support and other advantages, China has created a commercial shipping and shipbuilding powerhouse of extraordinary scope and scale. This gives Beijing unmatched control over the circulatory system that feeds our global economy—the ships, ports, and other aspects of these essential links in international trade. China's commercial fleet (including ships owned in Hong Kong) is the largest in the world, numbering more than 10,000 large vessels and many thousands of small cargo and fishing vessels. Those vessels exert complete control over China's domestic shipping markets;[1] push de facto control over waters that extend beyond the People's Republic of China's legal boundaries; harass US Navy, Coast Guard, and allied ships; and serve as a naval reserve that would provide crucial support in any conflict. With substantial purchases from customers in the US and Western-aligned countries, China's commercial shipbuilding industry is now slated to produce more ships than the rest of the world combined. Billions, if not tens

Photo: MV *Mesabi Miner* in the Soo Locks between Lake Superior and Lake Huron. (Interlake Steamship Company)

of billions, of dollars flow each year from these purchases to programs and shipyards that indirectly strengthen the People's Liberation Army Navy (PLAN), which is increasingly competitive with the US Navy.

In contrast, almost no American commercial ships operate in Western Pacific markets. Should a conflict with China break out, America's total international commercial fleet is much too small to meet basic US military resupply requirements, even if America deployed all of its commercial ships to the region. The US is simply a customer of global logistics supply chains and has no direct ability to prevent China from abusing them if the PRC chooses to do so. Not nearly enough of America's shipbuilding industrial base receives support from commercial building and repair work financed by private sector customers, rather than from government work paid for by US taxpayers.

Just as China is striving to neutralize America's advantages in certain strategically important sectors, American policymakers are assessing changes to mitigate risks where China has the advantage. In a recent report, I explored China's advantages in the commercial maritime sector and recommended specific policy changes that would, among other things, triple the number of US flag ships with American mariner crews trading internationally.[2] That fleet would carry the most advanced technology for crew safety and propulsion, and it would consist of ship types and deployments configured to maximize the fleet's value to American military and economic security. The plan would also phase in a requirement that American shipyards build those ships. This would provide a consistent demand signal enabling investment in technologies and process efficiencies that would improve performance and position the industry to scale up quickly if necessary in a conflict.

American national security interests thus demand a significant update of US policies governing commercial shipbuilding and the international shipping industry to help deter Chinese aggression and better secure maritime supply lines, both in peacetime and in the event of a conflict. The same is not true, however, with respect to policies governing America's *domestic* maritime industry.[3] The primary focus of that industry is commercial—to provide maritime transportation services to customers in domestic markets. However, the industry also supports American security interests in two ways. American citizen control over the use and operation of ships in domestic commerce reduces the risk that China and other geopolitical competitors could use those assets or services in hostile ways. This helps secure the US homeland against terrorism, for example, by reducing the risk that state or non-state actors could weaponize a loaded petroleum tanker to devastate an American city in much the same way as the September 11 terrorists used passenger aircraft to attack American citizens and institutions.[4] Further, in contrast to China's increasing ability to weaponize international maritime supply chains, existing law prevents China or its proxies from manipulating or weaponizing US domestic maritime supply chains. The same considerations that prevent foreign ownership and control over aircraft, electricity generation, telecommunications, and other industries that provide essential services to American citizens in the homeland also underlie longstanding policies that set boundaries against foreign ownership and control over US domestic maritime services.

America's domestic maritime industry also makes a significant contribution to the US defense industrial base. Operating ships in domestic markets provides regular employment for licensed American mariners, and nearly one-third of the mariner workforce that the US would need in an overseas military activation under current planning scenarios would come from the domestic fleet. The requirement that ships used in domestic trade be built in US shipyards has preserved an American commercial shipbuilding industry that helps support the military's shipbuilding needs and contributes to the country's readiness. Further, in an extreme activation scenario, many of the ships that serve domestic markets could also provide useful military sealift in an overseas conflict and certainly in the improbable event of an attempted invasion of the US homeland.[5]

Mistaken Criticisms

US domestic shipping laws (commonly referred to as the Jones Act) and the American maritime industry itself are nevertheless frequent targets of criticism based primarily on claims that legal restrictions foster competitive apathy among US shipping companies and shipbuilders.[6] Because US law restricts domestic markets to American-registered and -crewed vessels (like all other modes of transportation) and ships built in America, US shipping companies and shipbuilders are said to be protected against competition. This regulatory structure supposedly enables them to take advantage of customers, ignore innovation, and extract exorbitant profits at great cost to customers and consumers. Some even suggest that opening US domestic shipping markets to foreign ships would strengthen US national security. It would allegedly force US maritime companies out of their comfort zone in order to survive competition with lower-cost foreign competitors and eventually grow the US maritime industrial base to help offset China's advantages. The top-line reasoning is that competition is good, that US maritime companies are not competitive with those of China and certain other foreign counterparts, and that exposing US shipping and shipbuilding companies to foreign competition in US domestic markets—in addition to international markets—would produce growth in the American maritime industry, even though it has produced precisely the opposite outcome in international markets.

This caricature of American maritime businesses and workers rests on the fallacy that legitimate competition can exist and be measured only on a global scale and cannot be based on the competitive environment within US domestic markets. However, many American businesses—from construction to tourism to all forms of transportation—operating in the US under American norms and regulatory standards would fail the test of competitiveness if compared to businesses operating in the lowest-cost global markets under different and less costly norms and standards. If and to the extent that American ships and shipping services are more expensive than those of most foreign counterparts, it is not due to a lack of competition. Rather, it is because American maritime companies compete under totally different rules from those that apply to foreign maritime companies. These more stringent laws and regulations are appropriate because the services US companies provide and the work they perform must, by definition, take place within US territory. Analysts should thus evaluate the industry's competitiveness based on traditional business and economic factors such as number of competitors, market entry and exit, profitability, innovation, reinvestment, and so on. Using those factors, domestic shipping markets are generally more competitive than domestic rail and pipeline markets (which have high barriers to entry), are less competitive than domestic trucking markets (which have low barriers to entry), and are mixed in comparison to aviation and international shipping markets.

A similar analysis applies to the US commercial shipbuilding industry. Again, because the key work is performed within US territory, it is misleading to define the competitiveness of the US shipbuilding industry on the basis of its inability to match the lowest prices available on the international market.[7] Traditional economic indicators demonstrate that US commercial shipbuilders function in a competitive market. There are enough US shipbuilders capable of building different ship types to provide ample competition for new orders of all classes of ships. Some of the businesses are owned by major foreign shipbuilders or have licensing or other contractual relationships that facilitate the transfer of technology and expertise. US shipping companies (US shipbuilders' customers) buy ships from both US and foreign shipbuilders (the latter providing ships for international trade). They are effective negotiators and can play the yards off against each other to achieve offers that provide the optimal mix of schedule, quality, and cost.[8] Some US shipbuilders have been profitable, while others have not, and entry into and exit from the market have been frequent occurrences.

Repealing the Jones Act Would Diminish American Security

In the context of America's geopolitical competition with China, the key question concerning US domestic shipping laws

is whether changing those laws to allow foreign ships into the country's domestic markets would enhance or diminish US security interests. The answer seems fairly obvious once one clears away the fallacies concerning the competitive nature of America's maritime industries. Allowing foreign built ships into US domestic markets would undercut and eventually destroy the American commercial shipbuilding industry. Juxtaposed against a false narrative that such competition would jolt US shipyards awake from competitive apathy is an array of hard economic facts that explain exactly why shipyards in China, Korea, and Japan dominate international markets and would eventually overwhelm US markets if given access to them. Specifically, at key points over the decades (and today in China), foreign shipyards have benefited from labor costs that were up to 80 percent lower than US labor costs; more advantageous safety, environmental, and other regulatory standards and costs; and much higher levels of government support. US shipyards and shipping companies face intense intramodal, intermodal, and sourcing competition that wrings excess costs out of the domestic maritime system. And while nothing legally prevents US ships and shipyards from competing in international markets, they rarely do so simply because the deck is stacked against them in those markets.

Today, when America's national security faces more threats than at any time in more than three decades, and when the importance of expanding the US shipbuilding industrial base is greater than at any time since World War II, the notion of sacrificing the country's commercial shipbuilding industry ought to be a policy nonstarter. Exposing these industries would cost thousands of American jobs in key disciplines—such as professional design and engineering, skilled and semi-skilled labor—and shut down shipbuilding facilities across the country. This is the very industrial base that US laws aimed to preserve so that the country could scale it up if necessary. Now that America needs to scale it up (or at least better prepare to do so), arguments that the US should sacrifice those jobs and facilities based on misguided theories should be rejected out of hand.[9]

Of equal or greater concern is the suggestion of allowing foreign control over the operation and management of ships in US domestic shipping markets. The US mariner workforce would be wiped out if a change in the law forced it to compete with foreign mariners who receive entry-level base wages of roughly $8,000 per year.[10] This would destroy a key source of jobs for the American mariners who would crew military sealift vessels during a conflict, compounding workforce development challenges at a time when the need is to expand dramatically the number of American mariners. Such a change would also constitute an unprecedented breach in America's economic sovereignty, allowing companies to replace American workers with foreign labor in American territory without complying with US immigration, employment, and many other laws and regulations.

Further, such a change would severely weaken America's defenses against terrorism and supply chain weaponization by exposing key homeland markets to foreign-controlled and foreign-crewed ships that would be able to penetrate and take over those markets. Expanding the number and reach of unregulated foreign mariners throughout America's maritime economy could only increase the risk that they would become agents of harm to American citizens in the homeland, whether as individual actors or as part of a coordinated plan of attack. The serious security concerns that arise due to China's increasing ability to control maritime supply chains serving US import-export markets could be much more acute if Washington allowed Beijing or its proxies to control maritime supply chains in US domestic markets. China could punish shipping customers in America's homeland for taking positions or holding beliefs that conflict with China's totalitarian objectives, for example. It could also take entire economies hostage by shutting down maritime services to US offshore communities and in other key domestic markets.

In summary, proposals to repeal the Jones Act raised provocative issues when they surfaced in the 1990s at the end of the

Cold War and at the height of American hegemony. One could then debate the notion of extending globalist ideals into US domestic transportation markets and risk the destruction of American shipping and shipbuilding industries, which some viewed as unimportant.[11] China's challenge to America's global leadership and the strategic value of the commercial maritime industry upend the two key assumptions underlying those debates. These issues demand serious and urgent attention. In addition to collaborating with allies that have retained significant maritime capabilities, America's top two priorities in the commercial maritime sector should be to (1) expand its international fleet to meet sealift planning needs and defend its maritime logistics supply chains and (2) grow its shipbuilding industrial base. On both counts, repealing the Jones Act would work in exactly the opposite direction.

The serious and negative impacts on American security that a Jones Act repeal would produce should, in the current geopolitical context, end discussion of that subject, but it is important to include an addendum. The core fallacy that led some to think that American shipping and shipbuilding industries are uncompetitive (or that repealing the Jones Act would strengthen rather than weaken American security) has also led to many other claims that defy common sense. Contrary to some claims, repealing the Jones Act would have no impact on highway traffic congestion, would not reduce climate change, would not revive the Erie Canal as a transportation corridor, and would not reduce the cost of living in offshore communities. As an example, the incremental savings that would result from repealing the Jones Act and replacing American ships and crews with the lowest-cost foreign ships and crews to move cargo between the US mainland and Alaska, Hawaii, and Puerto Rico would be about $1.40 *per ton*, roughly equal to two first-class postage stamps. The savings, amounting to about *0.1 percent* of these economies, would primarily benefit major corporate customers, many of whom are not based in these markets (or even in the US). And even if those companies passed all of the savings on to their customers in these communities, it would not affect the cost of living there. On the contrary, all Alaskans, Hawaiians, and Puerto Ricans would bear the costs of the greater security risks that would result from transferring those key jobs away from American workers and exposing those communities' maritime connections with the US mainland to foreign control.

The same analysis would apply to domestic maritime markets across the country, from shipping in coastal waterways, inland rivers, and the Great Lakes (see map 1) to other industries like offshore oil, gas, and wind energy businesses. Maritime companies serving those markets face an array of competitive pressures and may search for competitive advantage in almost any area, from safety management to artificial intelligence. However, like companies in any other business operating within the United States, those companies have to pay market compensation to American employees and comply with all other American laws.

Structure of This Report

Chapter 2 of this report discusses the business aspects of domestic maritime markets, and it includes a summary of the supply-demand characteristics, regulatory framework, and competitive structure found generally in domestic shipping and shipbuilding markets. It offers a deeper dive into four key domestic markets: tanker, offshore container, inland and coastal (see map 1), and offshore resource development (see maps 2 and 3). The report summarizes the size and structure of these markets and reviews certain key developments in each one. The purpose of this analysis is both to improve understanding of the shipping and shipbuilding business generally and to correct certain misconceptions about how the Jones Act has and has not affected domestic markets.

Chapter 3 assesses the domestic maritime industry in the context of American national, homeland, and economic security. It summarizes how policy choices in the 1980s and 1990s resulted in the commercial shipbuilding and repair industry that America currently has, and the chapter outlines the industry's

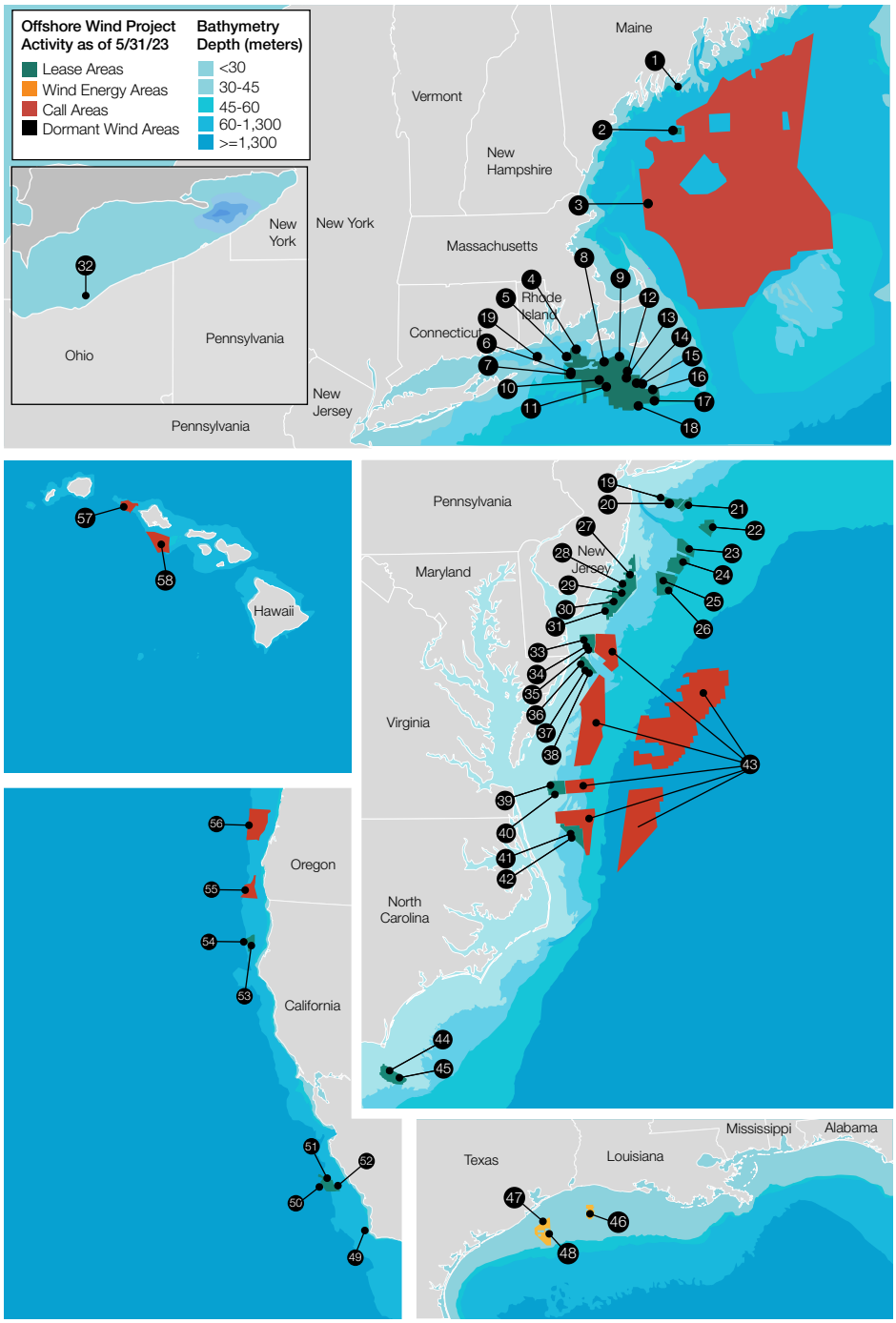
Map 1. Key Domestic Inland, Coastal, and Offshore Transportation Ports

Notes: Blue lines represent the approximate location of select US marine highways and other waterways. Non-contiguous states and territories are not shown to scale.

Source: Adapted from *US Port and Inland Waterways Modernization: Preparing for Post-Panamax Vessels* (Alexandria, VA: US Army Corps of Engineers Institute for Water Resources, 2012), 30, https://www.iwr.usace.army.mil/Portals/70/docs/portswaterways/rpt/June_20_U.S._Port_and_Inland_Waterways_Preparing_for_Post_Panamax_Vessels.pdf.

contributions to America's defense industrial base. The report then reviews how the domestic shipping industry provides employment to skilled American mariners whose expertise and loyalty support American national and homeland security interests. This chapter further discusses how having Americans at the top of the chain of command over vessels used in domestic trades reduces the risk that adversaries might use a vessel or its services against US interests.

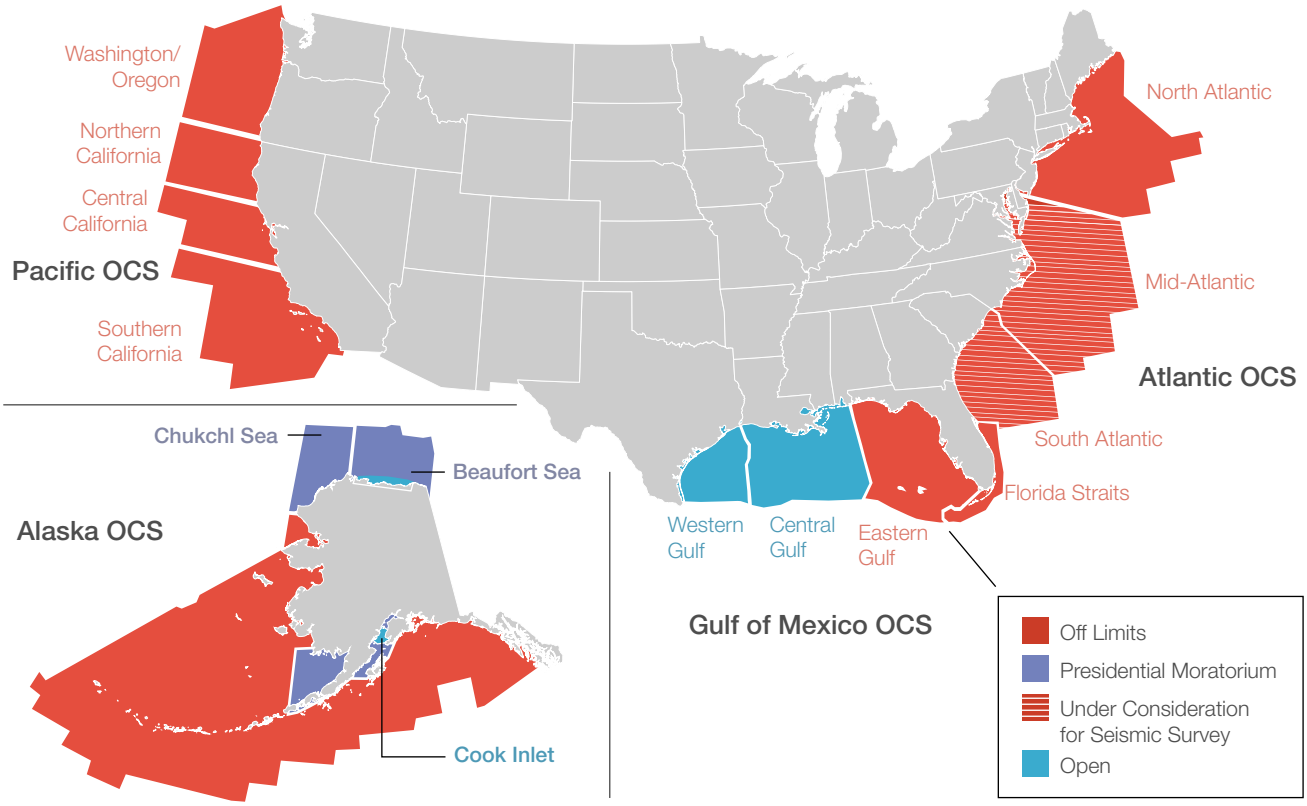
Map 2. Locations of US Offshore Wind Energy Pipeline Activity and Call Areas as of May 31, 2023



1 New England Aqua Ventus 1
2 Maine Research Area
3 Gulf of Maine Call Area
4 Revolution Wind
5 South Fork Wind Farm
6 Sunrise Wind Farm
7 Sunrise (Residual)
8 Bay State Wind
9 Vineyard Wind 1
10 New England Wind 1
11 New England Wind 2
12 Beacon Wind 1
13 Beacon Wind 2
14 SouthCoast Wind 1a
15 SouthCoast Wind 1b
16 SouthCoast Wind (Residual)
17 Floating Demonstration
19 Vineyard Northeast
20 Empire Wind 1
21 Empire Wind 2
22 Vineyard Mid-Atlantic
23 Bluepoint Wind
24 Attentive Energy
25 Community Offshore Wind
26 Atlantic Shores Offshore Wind Bight
27 Leading Light Wind
28 Atlantic Shores Offshore Wind North (Project 1)
29 Atlantic Shores Offshore Wind South (Project 2)
30 Ocean Wind 1
31 Ocean Wind 2
32 Icebreaker
33 Garden State Offshore Energy
34 Skipjack 1
35 Skipjack 2
36 MarWin
37 Momentum Wind
38 MarWin (Residual)
39 Coastal Virginia Offshore Wind (Pilot)
40 Coastal Virginia Offshore Wind (Commercial)
41 Kitty Hawk North
42 Kitty Hawk South
43 Central Atlantic Call Areas
44 Total Energies
45 Duke Energy
46 Lake Charles WEA
47 Galveston 1 WEA
48 Galveston 2 WEA
49 CADEMO
50 Central Coast (Morro Bay) Equinor
51 Central Coast (Morro Bay) EDPR/ENGIE
52 Central Coast (Morro Bay) Invenergy
53 North Coast (Humboldt) RWP
54 North Coast (Humboldt) CIP
55 Brookings Call Area
56 Coos Bay Call Area
57 Oahu North Call Area
58 Oahu South Call Area

Source: Walter Musial, Paul Spitsen, Patrick Duffy, et al., *Offshore Wind Market Report: 2023 Edition* (Washington, DC: US Department of Energy, 2023), ix, https://www.energy.gov/sites/default/files/2023-09/doe-offshore-wind-market-report-2023-edition.pdf.

Map 3. Key Domestic Offshore Resource Development Markets



Note: OCS = offshore continental shelf.

Source: "Unlocking America's Offshore Energy," American Petroleum Institute, accessed May 16, 2024, https://www.api.org/oil-and-natural-gas/energy-primers/offshore/unlocking-america-offshore-energy.

Chapter 4 focuses on where changes to US maritime policy would be most effective in responding to the new geopolitical challenges. The report confirms that fundamental changes to domestic shipping policy—the Jones Act—would be counterproductive as there is no Chinese overmatch to overcome in domestic maritime markets, and relaxing existing laws would only weaken American maritime security interests. Claims that introducing foreign competition would make American maritime companies more effective ignore an array of fundamental business economics, including the competitiveness of existing domestic maritime markets that operate under US rules.

Chapter 4 also summarizes key portions of the proposal offered in my prior report, which recommended policy changes focusing on international shipping markets.[12] Increasing America's maritime presence in those markets would produce a more robust American military sealift capacity and greater control over maritime logistics supply chains. The recommendation would use an updated version of the existing program structure and leverage an expanded US flag international fleet to grow and modernize America's commercial shipbuilding industrial base. Although the program recommendations summarized in chapter 4 may seem ambitious by the standards of the 1990s, they

are scaled and scheduled to respond effectively to the urgent threats of today and are practically achievable with the necessary leadership.

Finally, there should be no confusion: the impacts on national, economic, and homeland security of scrapping the Jones Act—changing the law to substitute foreign labor and ignore other American laws in US domestic maritime markets—would be hugely negative. It would cost tens of thousands of skilled American jobs and close key shipbuilding facilities around the country. It would not, however, introduce competition where competition does not already exist. Instead, it would simply shift the competitive equilibrium in each of those markets slightly lower. The costs of making such a change in degrading US military and homeland security and blowing a hole through the country's economic sovereignty far outweigh any benefits that America might realize.

2. COMPETITIVE CHARACTERISTICS OF AMERICA'S DOMESTIC MARITIME INDUSTRY

Basic Considerations

Demand for Maritime Services

Like other forms of domestic transportation services, it is demand for shipping services within US domestic markets (i.e., the need to move cargo by water between points in America) that drives the supply of shipping services—and ships and mariners—to meet that demand. Many factors affect the demand for domestic shipping services. The most obvious are the need to move something between two US points, and geography (i.e., having navigable coastal or inland waterways on which to provide the transportation services). Because of the absence of navigable waters, many large domestic transportation markets cannot be served by vessels (e.g., between the US West Coast and the Midwest). And of course, having a navigable waterway will not produce domestic shipping services if there is no need to move something on or near that waterway.

The next most important factor affecting demand for domestic shipping services is the availability of modal alternatives—primarily trucks, railroads, and pipelines. Each mode of transportation has certain inherent advantages and disadvantages depending on the nature of the services required. Pipelines can normally move dry natural gas, gasoline, and other liquid bulk products more efficiently than trucks, railroads, or ships. Long-haul dry bulk shipments (coal, grain, etc.) can move most ef-

Photo: Barges tied up along the bank of the Ohio River at the confluence of the Mississippi River on October 17, 2022, in Cairo, Illinois. (Scott Olson/Getty Images)

ficiently by water or rail. In most cases, intercity shipments of containerized freight move most efficiently by truck or rail, while trucks almost always handle local cargo distribution. Public and private investment in transportation infrastructure, from canals to railroad tracks to pipelines and interstate highway systems, can vastly improve transportation efficiency and often determines which mode of transportation prevails in a given market. Market entry is fully deregulated—any American citizen who believes he or she can turn a profit is free to develop and offer maritime service in US domestic markets. Transportation entrepreneurs routinely explore alternative modes of service to solve logistics challenges and improve efficiency.

Value Chain Optimization

A final factor affecting demand for domestic transportation services is the nearly infinite number of options available for sourcing the products themselves—the raw materials, intermediate goods, and finished products that organizations need to move. Logistics experts carefully scrutinize each aspect of every link in a supply chain to optimize the efficiency, cost, and reliability of delivering value to customers. In a globally liberalized economy with cheap and efficient international and domestic transportation options, this cost and value analysis enables businesses to identify sourcing options from both foreign and domestic locations in order to optimize savings on materials, labor, and other inputs. Because America is an advanced economy with relatively high labor, regulatory, and other costs, businesses often substitute imports for US domestically produced goods when the cost of domestic production and distribution for a given item exceeds the cost of importing the same item from a foreign source. Such analyses can prompt import substitution at each link in the supply chain, from raw materials to intermediate goods (parts that go into other intermediate goods or finished products) and finished products.[13]

Three aspects of this value optimization process are noteworthy in the context of this report. First, geopolitical instability has scrambled traditional sourcing analysis. For most of the past three decades, businesses did not broadly question geopolitical stability as almost all countries agreed to do business under a rules-based order and in relative peace. This dynamic enabled supply chain experts to focus almost exclusively on optimizing costs and efficiencies (e.g., just-in-time inventory management) and relegate concerns about supply chain resilience to black swan events (e.g., blockage of the Suez Canal by a stranded ship) or to localized political unrest. Tectonic shifts in geopolitical relationships today—China's rejection of a Western-led, rules-based order; its threats to Taiwan and alliances with Russia, Iran, and other nations; Russia's invasion of Ukraine; the Hamas terror attack on Israel; and the Houthi attacks on commercial shipping—have elevated the importance of reliability and resilience in sourcing decisions. Businesses in almost every sector are thus reconfiguring their supply chains, shifting production to domestic sources (onshoring/reshoring), or using more reliable foreign sources (near-shoring/friend-shoring).

Second, in the context of value chain optimization and regardless of the impact on sourcing decisions, no company performing work within a country's borders has the right to ignore the immigration, employment, environmental, tax, or other laws that central, regional, or local governments in that country have adopted. This includes *all* forms of work that a company carries out within the territory of the US, from mining to manufacturing, from farming to surgery, and all forms of domestic transportation services. To illustrate, consider a company that produces crude oil from the Eagle Ford play in Texas and processes it at a Houston refinery. It goes without saying that the company must hire American workers, obey American laws, and pay American taxes in connection with its production and refining activities in Texas. If that company then wishes to transport jet fuel in bulk domestically from Texas to New York, it may, in theory, have four modal options: truck, rail, pipeline, or ship. In all cases, regardless of the mode, the transportation provider must comply with US laws in providing that service. It would use trucks, railroads, pipelines, or ships that are licensed under state or federal law; employ American truck drivers, rail engineers, pipeline techni-

cians, or mariners to operate the equipment; comply with wage and hour, environmental, and numerous other regulations in connection with that service; and pay applicable taxes.[14]

This is *normal business regulation* and a core attribute of any nation's sovereignty over the activities that take place within its territories—a peg in the ground in a rules-based international order that a company's pursuit of value chain optimization cannot avoid. Repealing the Jones Act and allowing foreign ships to carry cargo in the US domestic economy would directly contradict this most basic concept. These changes would allow ships registered in Liberia, China, or any other foreign jurisdiction (often crewed by the world's lowest-cost mariners) to operate within America's domestic economy and to replace US flag ships that work under American rules and employ American mariners.[15]

This basic concept of economic sovereignty also has the practical effect of ensuring that competition within each segment of the US domestic economy takes place under common rules on a level playing field. In the example above, the work necessary to produce crude oil in a US oilfield, refine it in Houston, and transport jet fuel to New York all takes place in that context. Competitive forces may drive changes in each segment of the domestic supply chain—for example, horizontal drilling and fracking may optimize crude oil production; refinery upgrades may reduce emissions and improve efficiencies; and new or increased pipeline capacity or the use of more efficient vessels, such as articulated tug barge units (ATBs), may reduce transport costs. All of these changes could help shift the balance to favor domestic sourcing. But in none of those segments is a company free to ignore US legal and regulatory requirements regarding safety, environmental, or other matters, or to distort the market by bringing lowest-cost foreign laborers into American territory and taking jobs away from American workers.

This analysis describes the basic regulatory framework that enables a dynamic global economy and yet sets limits on business freedom. Most countries and most industries accept this framework. Arguments that America should waive or repeal its domestic shipping laws to allow foreign ships to carry cargo in US domestic trades would, if accepted, contradict that framework. Though critics of those laws mislabel them as protectionist, their arguments are in fact an effort to single out the domestic shipping industry for an extraordinary exception to normal business regulation, an exception that would enable businesses to disregard American laws and displace American workers from providing services within the territory of the US. Those arguments never gained significant traction even during the peak of the hyper-globalized Pax Americana economic environment predating the current geopolitical uncertainty. The extremely serious threats the country now faces only reinforce the wisdom of maintaining that framework, particularly for businesses like shipping that promote US military, homeland, and economic security.

A third and final observation is that the overall system of domestic shipping is intensely competitive. In most markets, a shipping company faces actual or potential intramodal competition (i.e., from other waterborne carriers), intermodal competition (from rail, truck, or pipeline services), and competition from different sourcing options in domestic or international commerce. Shipping companies routinely deploy sophisticated analytic tools to assess the competitive opportunities and threats they face. A company's failure to anticipate and respond to these competitive forces could end up sinking it. Reflecting the intensely competitive nature of the industry, earnings of domestic shipping companies are typically at or below the average profitability for other transportation modes.[16] In short, claims that domestic shipping companies are not competitive are either simply misinformed or reflect the myopic view that no American company is competitive unless it can match the lowest costs for labor and other inputs that are available on the global market.

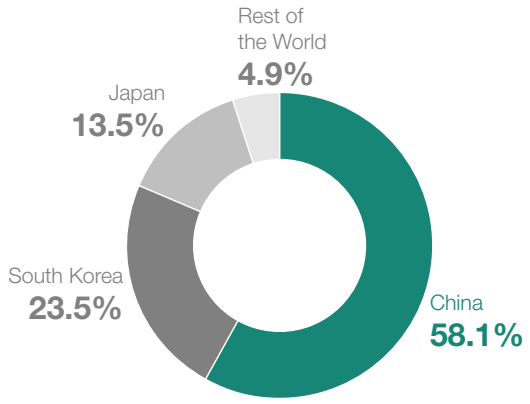
US-Built Ships

Policy support for the requirement that ships used to provide shipping services in domestic markets must be built in the US rests on a somewhat different foundation. From a historical

perspective, the requirement dates from the early nineteenth century, and Congress has updated and modified it at various times since then. Its purpose is to preserve an active American commercial shipbuilding industry as part of a broad American industrial base that supports US military and economic security. It aims in part to provide a critical mass of facilities, expertise, and skilled labor that the US may need, or may need to scale up, to supplement the country's military shipbuilding capacity to help defend America's security interests in future conflicts.

Several factors are relevant in considering the costs and benefits of this policy. Requiring US-built ships for domestic markets is the key policy that sustains commercial shipbuilding in America. Other policies (loan guarantees and small shipyard grants), while helpful, would not be sufficient, in part because they do not come close to matching the support China gives to its shipbuilding industry. And China provides those supports on top of other advantages—lower labor and regulatory costs and better market positioning—that have led Chinese shipbuilders to capture more than 50 percent of the global market for commercial ship construction (see figure 1). In the mid to late twentieth century, shipbuilders in Japan and then South Korea leveraged similar advantages to produce shipbuilding capacity of a scale and scope that shipyards in the rest of the world, including in America, could not match. Major European countries that were once heavily involved in commercial shipbuilding have become almost irrelevant except for their dominance of the cruise ship construction market.[17]

Figure 1. Major Commercial Shipbuilding Countries



Source: Based on carrying capacity (dwt) of vessels on order in 2023. BRS Group, *Shipping and Shipbuilding Markets: Annual Review 2024* (Île-de-France: BRS Group, 2024), 28, https://it4v7.interactiv-doc.fr/html/annual_review_2024_668.

Also relevant is the quarter-century boom in international shipping markets, which led to the construction of ever more and ever larger ships to bring goods from Asia to the United States and European Union.[18] This market boom did not, however, translate into a significant increase in demand for US domestic shipping services or ships. This is because the logistics challenge on the US side of the Pacific Ocean has been one of inland distribution from port cities primarily on the West Coast to population centers around the country. Navigable waterways serve almost none of those markets, and major public and private infrastructure investments—such as interstate highway improvements, double-stacked rail service, and major port projects—enabled more efficient inland distribution by rail and highway. Further, despite frequent efforts to establish coastal container distribution networks using various types of vessels, those efforts have succeeded only in penetrating a few niche markets.[19] Thus, while there remain substantial and viable domestic shipping markets in the US, which this report summarizes below, the shipping boom that propelled extraordinary demand for cargo ships in international trade did not produce a corresponding increase in demand for domestic shipping services and hence for ships to meet that demand.

Other basic indicators of market competitiveness, as this report discussed above, apply equally to the American shipbuilding industry. Market entry is unrestricted. Aside from land use, environmental, and other industrial regulations, no government permission is necessary to start a shipbuilding business in America. US shipbuilders are perfectly free to compete for orders in domestic and international markets, although orders for commercial ships

serving international markets are exceedingly rare. The number, composition, and output of commercial shipbuilders in America have fluctuated over time, corresponding to the demand for ships to serve different domestic markets. The need to upgrade and replace the approximately 45,000 tugs, towboats, and barges operating on the inland river system and in coastal bulk trades has created consistent demand that dozens of specialized yards have met, producing hundreds of such vessels each year. Offshore resource development markets have tended toward boom-and-bust cycles; sometimes government policy decisions drive these, and at other times large swings in the market cause them.

The domestic market for container ships, tankers, and other large vessels sustains several US shipyards, some of which build for both commercial and government customers. This segment of the market attracts considerable attention, in part because these are the vessel types that could be most valuable in meeting sealift and other national security needs. Further, if there is a need to scale up production of these vessel types, these are some of the yards that could do so. The price disparity between US- and foreign-built vessels is also most pronounced in this segment of the market for several reasons. These include lower labor and regulatory costs and much greater government support enjoyed by Chinese shipbuilders; economies of scale and scope developed from building for international markets that have seen sustained, massive growth; and the tendency of US shipowners to require more customization of ships to meet the specific characteristics of particular domestic shipping markets.

Nine shipyard ownership groups, operating 20 private shipyards that build large ships for commercial and government customers, provide ample competition among US shipyards for orders in domestic commercial trades.[20] Those yards have delivered to their commercial customers a total of about 400 vessels of 1,000 gross tons or more since 2000. The numbers and types of vessels they have delivered have reflected demand for transportation services within US domestic markets: 57 self-propelled tankers, container ships, or roll-on/roll-off (ro-ro) vessels; 119 tanker-sized barges; 30 large deck barges; 144 offshore supply vessels; and another 30 vessels of various types (ferries, survey vessels, dredges, etc.). In general, US shipowners are sophisticated buyers that negotiate with the shipbuilders for each vessel or class of vessels they order, often playing the shipyards off against each other to get the best deal.

Demand for offshore supply vessels, large tank and flat deck barges, and thousands of smaller inland and coastal vessels has been high enough to enable US shipbuilders to invest in efficiency-enhancing technologies as they move up the learning curve. For other vessel types (i.e., those that involve relatively few orders and hence little or no learning curve), shipyards have had to project their costs based on a more limited base of experience and may add a significant margin to their bids to reduce the risk of loss. Nevertheless, commercial shipyards have sometimes found themselves on the losing end of such projects despite their best efforts to price them realistically.[21]

The number of commercial ships that US shipbuilders deliver has fluctuated over the years, corresponding to the supply and demand characteristics in domestic markets. Demand for new ships in recent years has been unusually low because many key markets have been substantially built out. The domestic tanker market is most significant in this regard, reflecting major regulatory changes and fluctuations in market demand. Below, the report summarizes that market along with three other key domestic market segments: vessels serving Alaska, Hawaii, and Puerto Rico; maritime services on US coastal and inland waterways; and offshore energy development.

Overview of Certain Key Markets

Domestic Tanker Markets

As the report mentioned above, pipelines usually provide the most efficient mode of transport for liquid bulk products, including crude oil and refined petroleum products. However, because of high capital costs and regulatory constraints, pipelines are not

available or do not have sufficient capacity to meet the needs of many market segments, including many coastal and inland waterway markets that vessels can serve effectively. Further, companies can scale and customize the numbers, sizes, and types of vessels providing waterborne transport to meet the needs of specific markets and customers. As a result, a large and very diversified fleet of vessels transports petroleum products within America's domestic economy, including in nearly every state. These include thousands of tank barges (which have a typical capacity of 27,500 barrels, equal to 144 tank trucks) that smaller vessels tow or push on the inland and coastal waterways as well as scores of large self-propelled ships and barges serving larger coastal markets.[22]

Regulatory changes and market shifts have had major impacts on domestic tanker markets. The Oil Pollution Act of 1990 mandated the phase-out of single-hull tankers over a period of 25 years, which created a steady demand for capacity replacement within these markets. Strong US regulatory requirements and liability concerns pushed the US domestic tanker industry to adopt world-class safety standards with redundancies built into their hull designs, steering, and other key systems. The evolution of integrated tug-barge units, which had proved effective in providing coastal and inland service in certain markets at lower costs than self-propelled ships, led to a new vessel class, ATBs, some of which today have a capacity as large as handy-size self-propelled tankers (handy-size ships have a deadweight of up to 50,000 tons).

Beginning around 2010, demand for domestic oil transportation accelerated dramatically as fracking, horizontal drilling, and other advances in drilling technology produced a boom in domestic oil production. US crude oil production more than doubled over the next decade, from about 5.5 million barrels per day (bpd) in 2010 to more than 11.3 million bpd by 2020 and to more than 13 million bpd today.[23] In the meantime, US refinery capacity remained stagnant.[24] Because the law at the time prohibited the export of US crude oil, there was tremendous pressure to develop additional domestic storage capacity and to increase domestic transport capacity for crude oil.

American shipowners and shipbuilders responded aggressively to this spike in demand. Philly Shipyard delivered 16 new tankers between 2010 and 2019, while NASSCO delivered 10 over the same period, including eight between December 2015 and June 2017.[25] This added about 10 million barrels of oil transportation capacity on self-propelled tankers, plus another 3 million on large tank barges, including ATBs, over the same period.

The other side of the story is that in December 2015, around the same time that US shipowners had taken delivery or placed firm orders for the ships they needed to meet this burst in demand, Congress changed a key law to allow the export of crude oil produced in the US.[26] Demand for domestic transportation of crude oil very quickly began to fall, as did vessel charter rates. By the end of 2017, when manufacturers had delivered all the new vessels, domestic tanker capacity exceeded demand for crude and refined products by a significant margin. Since then, however, continued growth in domestic oil production and increased US refining capacity have produced steady growth in demand so that supply and demand in the market are once again approaching equilibrium.

Analysts can make several observations about these events in addition to the obvious point that regulatory changes can have massive impacts on markets and investment decisions. First, as a result of this building boom, the US oil tanker fleet is very young, one-third younger than the world fleet average (see figure 2). Because of this capacity overhang, however, only one new self-propelled tanker has been delivered by a US shipyard over the past five years, forcing the shipbuilders that had specialized in producing tankers to focus on other types of vessels.[27] Market and government policy decisions will determine whether, when, and to what extent tanker construction will regain its significance to the American commercial shipbuilding industry.[28]

Figure 2. Average Age of US and Global Tanker Fleets

Source: Author's analysis of data from US Maritime Administration, *United States-Flag Privately-Owned Merchant Fleet Report: Oceangoing, Self-Propelled Vessels of 1,000 Gross Tons and Above That Carry Cargo from Port to Port* (Washington, DC: US Department of Transportation, 2023), https://www.maritime.dot.gov/sites/marad.dot.gov/files/2023-02/DS_USFlag-Fleet_2023_01_24Bundle%20%281%29.pdf; Regina Asariotis et al., *Review of Maritime Transport 2022* (New York: United Nations, 2022), 34, https://unctad.org/system/files/official-document/rmt2022_en.pdf.

Second, the US shipping and shipbuilding industry was highly responsive to the new demand for domestic shipping services—and ships—resulting from advances in oil-drilling technology. Indeed, in hindsight the industry clearly over-responded. Growth- and profit-seeking US maritime businesses, like businesses in most other industries, took the necessary risks when market changes presented promising and bankable new opportunities. This provides a rational, market-based explanation for fluctuations in US shipbuilding output, in contrast to narratives that mischaracterize declines in output as proof of a failure in domestic maritime policy.

Finally, this recent history of the domestic tanker industry validates one of the core concepts underpinning the Jones Act. If a key rationale is the need to retain a critical mass of US shipping and shipbuilding capabilities that the industry can scale up if necessary to meet national security needs, the industry clearly demonstrated the ability to do so in the context of major, unanticipated growth in commercial markets. Provided that a critical mass of those shipbuilding assets still exists in the United States—the facilities, technology, supply chains, workforce, etc.—the US government could certainly expect that the American commercial shipbuilding industry would do so again in response to urgent national security needs.

Offshore Container Markets

A somewhat different picture emerges when considering the demand for vessels to serve domestic container and ro-ro shipping trades connecting the US mainland with Alaska, Hawaii, and Puerto Rico. Vessels in these markets provide regularly scheduled services carrying outbound shipments of consumer goods, construction materials, and other supplies necessary to support the local economies. Backhaul container shipments from these communities to the US mainland typically amount to one-quarter or less of the outbound volumes. Growth in these shipping markets is generally tied to economic performance within those communities and averages around 2 percent annually, although each of the markets has at various times experienced significant booms and declines in economic performance and shipping volumes.

Shipping services in these trades are in the nature of a utility business, meeting the needs of almost the entire population of these communities through the services that the shipping companies (carriers) provide to retail and other businesses that "import" goods to these communities.[29] Each of these trades today has a competitive market structure, with two or more strong independent carriers, at least one additional second-tier competitor, and the credible threat of entry by others. Stable and reliable service is critical, along with efficiency and low costs. The post-Covid supply chain crisis vividly illustrated the benefits these communities receive from dedicated American shipping services and mariners, many of whom reside in the offshore communities. When shipping customers in US import-export trades faced weeks or months of service delays by foreign shipping companies that assessed freight rates five or more times higher than pre-pandemic levels, shipping services and rates by American carriers in US domestic trades remained reliable and stable.[30]

Given the importance of service reliability and stability, the impact of any changes to the Jones Act on shipping services in these markets would require careful consideration. Because the

Jones Act applies only to cargo moving between points in the US, it would not impact cargo moving in international trade from or to these communities. As for domestic shipments, analysts projecting the impact of such a change should first recognize that those shipments today move in a competitive market. If and to the extent there may be some benefit in changing any aspect of the service to reduce costs or improve efficiencies (e.g., by extending or reducing the reach of intermodal services, or changing equipment options, port rotations, or other operational details), the incumbent carriers or new entrants already have every incentive to make or propose those kinds of changes at any time—changes that they in fact routinely evaluate and sometimes implement. It is thus unlikely that repealing the Jones Act would result in any improvement in shipping services. To the contrary, such a change would increase the risk of seriously degrading shipping services in these markets (e.g., as an intentional act of economic warfare, which the report discusses below).

Projecting the economic impact of repealing the Jones Act on these markets is a fairly straightforward exercise that does not require speculation or elaborate economic modeling. As with other competitive markets, the key is to determine how substituting the lowest-cost foreign ships and crew for the American ships and crew serving each market would affect shipping costs. Again, because these are competitive markets, one would expect a direct correlation between any change in the cost of providing shipping services and the prices that companies charge for them (freight rates). While a change in the Jones Act may cause a period of service and price volatility, the market would eventually settle into a new competitive equilibrium with costs and freight rates reflecting the new rules. Any savings in shipping charges would be roughly equal to the savings in shipping costs. The direct shipping customers, many of which are not based in the offshore communities, would realize these savings and may or may not pass on the savings to their customers in those communities, depending in part on the competitiveness of each segment of downstream markets. This is because competition in the market for shipping services would force the carriers to pass along to their customers any savings they would realize by shifting to a lower-cost vessel.

Analysts should remember that carriers' shipping costs cover only a discrete segment of the total supply chain costs for goods moving in these markets. For example, a typical intermodal shipment in the offshore trades may originate at an inland distribution center such as the ones in Seattle, Los Angeles, or Jacksonville and end at the carrier's marine terminal in Anchorage, Honolulu, or San Juan. That is the portion of the total supply chain that the carrier's freight charges cover. The vessel used for ocean transportation does not affect costs upstream of that distribution center, including all costs related to product development, manufacturing, packaging, sales, marketing, and so on, and downstream, from the marine terminal to the retail outlet or the consumer's front door. Retail prices in these markets must, of course, cover all of those costs, from the very beginning of the supply chain to the end.

Similarly, replacing American ships with foreign ships would not affect most of the shipping costs that the carriers' freight rates cover in these markets. Carriers using foreign ships would incur the same costs as they would if using American ships for fuel; dockage, wharfage, stevedoring, and other port expenses; capital costs for intermodal and other equipment; trucking, rail, and warehousing services (when bundled); sales, general, and administrative costs; and many other costs of running a shipping service. Carriers have to cover all of these costs, including the cost of capital, with the freight revenue they generate, whether they use an American or foreign ship.

The portion of vessel operating and capital costs that is higher for an American ship than a foreign one can vary broadly depending on the specific vessel or service. In some cases, the cost difference is near zero, such as where companies can use fully depreciated tug-barge units that require a crew complement that is less than half the size necessary for a self-propelled

ship. At the upper end of the cost spectrum are newer American ships with crew complements of 40–50 American mariners (allowing for crew rotation and trainees).[31] Comparable low-cost foreign ships could employ entry-level mariners at a minimum base salary of about $8,000 annually, roughly 75 percent below minimum US wage scales.[32] Seafarers in international trade may be required to spend as much as 11 months per year on board a ship, often in a single service period, to earn that salary. A 2011 government report added up the cost differences and found that the incremental operating cost of using a US flag ship versus a foreign flag ship is roughly $4.6 million annually.[33] A 2020 industry study found that the incremental capital cost for new American-built container ships versus foreign-built ships may be slightly higher than incremental operating costs.[34] Thus, for newer large, self-propelled ships, the annual incremental costs for an American-built US flag ship versus a lowest-cost foreign ship would be $9–$10 million, while incremental costs for most other ship types would likely be lower.

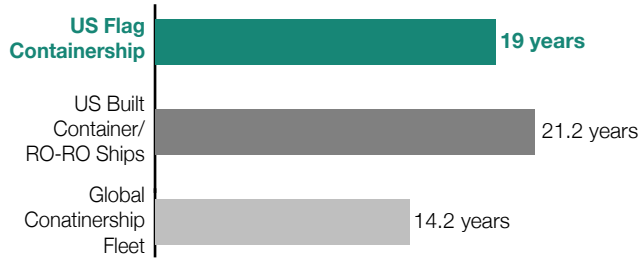
The significance of these cost differences depends, of course, on the denominator—the base over which they are spread. They are decisive amounts for the American workers whose jobs would be lost if they had to compete with foreign workers earning 75 percent less. However, the cost savings of replacing American ships with foreign ships is very *insignificant* in the contexts of total supply chain costs for the cargo a company is shipping, retail prices, and the overall economy in these markets. Ships in the mainland–Puerto Rico trade, for example, make weekly round-trip voyages with capacity to carry cargo equal to an average of about 2,750 twenty-foot shipping containers (TEUs) in each direction. The carrying capacity of each TEU is about 26 tons of cargo, meaning each ship can move more than 7 million tons of cargo annually. The incremental cost of having an American versus foreign ship move cargo across the ocean from the mainland to or from Puerto Rico is about $1.40 per ton, equal to about two first-class postage stamps. And this does not account for supply chain costs upstream or downstream of the supply chain links that the carriers' freight rates cover.[35] The insignificance of this cost difference is, of course, even more pronounced when viewed from the perspective of the overall economy in these jurisdictions. Replacing American ships with foreign ships in each of these markets might save freight costs equal to between *0.04 and 0.14 percent* of the gross domestic product in each jurisdiction.

These savings would be irrelevant to the cost of living for the average citizen of Alaska, Hawaii, and Puerto Rico, even if some economists would add diminishing amounts as a multiplier effect based on the assumption that at least some of the savings would be passed on to consumers in these communities. And readers should remember that, in all of these markets, most of the savings would come from replacing Alaskan, Hawaiian, Puerto Rican, and other American workers with foreign workers for work they perform within the US domestic economy.

Also relevant is the pace of vessel replacement in the offshore container markets, which reflects the much steadier nature of these trades as compared to the tanker markets that the report discussed above. Twenty-three self-propelled vessels were active in line-haul scheduled service as of the first quarter of 2024 (not including spare vessels): there were 13 in the Hawaii trade and five each in the Alaska and Puerto Rico trades. The average age of these vessels, 21.2 years, is one-third older than ships in the international container fleet (see figure 3). This is roughly the inverse of the US versus global age comparison for the tanker fleet. It reflects relative rates of growth in the domestic versus international container shipping markets—again, the opposite of what the domestic and international tanker markets have experienced. It also reflects the longer economically useful life of container ships and other non-tank vessels compared to tankers, which are subject to vetting by oil companies based in part on vessel age.

Finally, vessel replacement in these markets typically results in productivity gains, service improvements, and better environmental performance. For example, between 2015 and 2018,

Figure 3. Average Age of US and Global Containership Fleets



Source: Author's analysis of data from US Maritime Administration, *United States-Flag Privately-Owned Merchant Fleet Report: Oceangoing, Self-Propelled Vessels of 1,000 Gross Tons and Above That Carry Cargo from Port to Port* (Washington, DC: US Department of Transportation, 2023), https://www.maritime.dot.gov/sites/marad.dot.gov/files/2023-02/DS_USFlag-Fleet_2023_01_24Bundle%20%281%29.pdf; Regina Asariotis et al., *Review of Maritime Transport 2022* (New York: United Nations, 2022), 34, https://unctad.org/system/files/official-document/rmt2022_en.pdf.

companies replaced vessels handling more than 80 percent of the cargo moving between the US mainland and Puerto Rico with new ships built in US shipyards and custom-designed for customers in that market. The new vessels offered increased capacity and faster transits, reducing the total number of vessels dedicated to that market by more than half. They slashed average transit times by replacing towed tug barge units with self-propelled ships for more than one-third of the capacity in the market. The new ships were among the first cargo ships in the world to rely on liquified natural gas (LNG) for propulsion, replacing bunker fuel and diesel fuel. These are the kinds of improvements that one might expect from companies making long-term investments in competitive markets. The fact that the improvements caused a significant reduction in the total size of the US flag fleet simply reflects efficient investment decisions and is not, as some have claimed, evidence of a failed domestic maritime policy.

Inland and Coastal Waters

America's navigable waters include about 25,000 miles of inland waterways and 95,000 miles of coastline. The associated transportation infrastructure includes more than 8,700 ports, cargo handling docks, locks, and other transportation facilities in at least 28 states.[36] Almost 45,000 US flag vessels operate on US waterways, including 34,000 barges and more than 10,000 tugs, towboats, and other self-propelled vessels. These vessels moved about 500 million tons of cargo on the inland waterways in 2021, about 14 percent of US intercity freight.[37] All of the vessels are fully subject to domestic shipping law requirements, including those concerning construction, registration, ownership, and crew. The inland and coastal barge industry produces total employment of about 270,000 jobs.[38]

Transportation providers on America's inland and coastal waterways primarily serve customers moving petroleum and petrochemicals, agricultural products, coal, aggregates and other construction materials, and other bulk commodities. Container-on-barge services have taken root in niche markets, primarily shuttling containerized imports from major coastal hub ports through the river system to internal distribution points.[39] Major factors affecting the growth or decline in industry financial performance include the strength or weakness of customers' markets, overall economic growth, and factors affecting operations, such as the reliability of infrastructure, labor shortages, and weather (e.g., droughts and floods that can affect vessel transits).

The businesses building and operating the vessels that the industry uses function in a highly competitive market. Carriers in many markets face modal competition from railroads, pipelines, and trucking firms. Entry is unregulated, and the industry is highly fragmented, with one directory listing more than 200 independent barge and towing companies competing in different segments of inland and coastal shipping markets.[40] They include some of the largest domestic shipping companies that leverage America's river systems not only to serve domestic markets but also to provide efficient access to export markets for US producers of agricultural and other bulk products. At the other end of the size spectrum, smaller family-run companies vacuum up bits of demand throughout coastal and riverine mar-

kets across the country. The same directory lists more than 230 facilities that build and repair the industry's tugs, towboats, and barges.[41] Many operators have added drydock or barge repair and cleaning facilities to use for their own operations and as an added line of business.

Offshore Resource Development

The territorial seas and exclusive economic zones (EEZs) adjacent to US coasts are a rich source of valuable resources, including petroleum reserves, minerals, fish and other aquatic resources, and wind and tidal energy. The EEZ extends outward up to 200 nautical miles from the base waterline along each coast. The total area within the US EEZ is about 4.483 million square miles, almost a million square miles more than the total landmass of the 50 United States. This includes about 275,000 square miles of EEZ in the Gulf of Mexico, an area slightly larger than the size of Texas.

Congress has recognized the area within the US EEZ as the sovereign territory of the United States for the purposes of exploring, developing, and managing its "living and non-living" natural resources.[42] In general, then, the same regulatory framework that applies to the work companies perform on land applies equally to the resource development work they perform within the EEZ. Businesses performing the work must generally hire American workers, obey American laws, and pay American taxes in connection with that work. However, one notable practical difference between land-based and water-based resource development is the fact that vessels, platforms, or other structures of some kind are necessary for performing essentially all of the work within the EEZ. This includes transportation by vessel, which is subject to the Jones Act, and other activities, such as construction work that does not constitute transportation and is therefore not subject to the Jones Act. Thus, vessels involved in construction or other activities but *not* involved in providing transportation services must generally comply with US laws, but these regulations do not require them to be US built.[43]

The resources present in the EEZ are vital to the American economy. Communities on every US coast have thriving businesses devoted to managing and developing these resources, including building, maintaining, and operating the vessels and shoreside infrastructure necessary to harvest, process, and distribute them. By traditional economic measures, markets for building and operating vessels that companies use in offshore resource development are intensely competitive. One source lists 193 US shipbuilders actively involved in building small and mid-sized vessels, including 15 yards in nine states that build complex small vessels.[44] They have delivered scores of the world's most sophisticated offshore support vessels (most within the past 15 years) that are capable of supporting petroleum exploration and development in waters more than a mile deep. The fleets that American offshore development companies operate total more than 1,000 vessels ranging in size from less than 100 to more than 500 feet in length. Dozens of companies own and operate these vessels, including some that are global leaders in offshore development.[45]

The most notable change in offshore work in recent years is the intense interest and investment in offshore wind development. Aside from a small pilot project that was installed off Rhode Island in 2016, the first commercial-scale offshore wind farms are just coming online in 2024. Developers plan to produce enough electricity from these installations to power 10 million homes as soon as 2030, starting from a base of near zero in 2023.[46] This work is very similar to offshore oil development, except that the energy being developed is renewable. The platform infrastructure includes wind turbines harvesting electricity that cables carry to shore, rather than drills harvesting petroleum that pipelines carry to shore. Federal, state, and local government support for offshore wind development has triggered major investments across the supply chain, from huge wind turbines, platforms, substations, cables, vessels, ports, and other infrastructure to the recruitment and training of a workforce that analysts expect to number in the tens of thousands.

Just as offshore development of US oil and gas resources required a period of time to build out a suitable fleet and workforce, American maritime companies and government agencies have been working through similar challenges to meet the requirements of offshore wind development. They are collaborating to prepare specialized marine terminals.[47] Many of the required vessels are under construction in US shipyards, and manufacturers have already delivered some. Experts say they will eventually include dozens of small crew transfer vessels (CTVs),[48] a half-dozen or more large service operating vessels (SOVs),[49] at least one massive wind turbine installation vessel (WTIV),[50] and other specialty vessels. Of note, companies are devising new engineering solutions that may reduce the cost and improve the efficiency of wind turbine installation, arguably the most complex aspect of offshore wind development.[51] The plan is to use these terminals and vessels to install and operate hundreds of offshore wind turbines as part of multiple projects for at least the next decade. In short, as uncertainties fade around permitting and other regulatory aspects of this major new industry, investment is moving forward, including investment in the American ships and mariners necessary to make offshore wind a significant part of the energy mix in the US for the coming decades.

Conclusions

This brief survey of the nature and certain key segments of America's domestic shipping industry aims to provide a general sense of the competitive forces driving business decisions in those markets as well as to highlight a few key recent events that have helped shape them. Very similar stories can be told about segments of the industry that this summary does not cover—bulk iron ore shipping on the Great Lakes, dredging services, passenger ferries, etc. Analysts can draw certain conclusions from this information. The first is that shipping is a competitive business, whether operating in hyper-liberalized international markets or under US rules in the country's domestic trades. Like in other competitive businesses, success in the shipping business requires an ability to manage a broad variety of demands: understanding customers' markets; anticipating competitors' strategies and competitive forces generally affecting these markets, including changes in key regulations; charging prices that fully cover all costs and provide a reasonable return on investment; managing a well-motivated and diverse workforce, from skilled and unskilled laborers to engineers and data scientists; leveraging artificial intelligence and other technologies to meet environmental and other challenges; and so on. Thousands of Americans devote their careers to handling every aspect of these services, down to the smallest detail.

Another key conclusion is that US shipbuilders have been consistently effective in producing the vessels necessary to respond to real demand for domestic maritime transportation services. They have delivered vessels for almost every sector of the domestic maritime market, from tugs and barges to customized container vessels to some of the very large vessels needed for emerging offshore wind energy markets. US shipbuilders generally produce high-quality vessels, often with innovative designs to reduce operating costs, improve environmental performance, and meet other business or regulatory objectives.

While the scope of challenges facing competitors in the domestic maritime industry is quite broad, it is hardly unique to the current environment nor generally to the maritime business, as many types of businesses in competitive markets face similar pressures. This report nevertheless offered the summary above as a response to the false narrative that American maritime industries are not competitive, ostensibly because of a supposedly antiquated, protectionist law that results in significant harm to the American economy. That narrative, which occupies much of the public discussion of America's domestic shipping laws, is wrong from a historical perspective;[52] from a conceptual standpoint (because US laws *should* apply to transportation services provided within the US domestic economy); from a market standpoint (because the domestic maritime industry is very competitive); and from an economic standpoint (because the savings that would result

from replacing American ships with foreign ships in the US domestic economy would be negligible.)

That false narrative may have been relatively harmless in normal times, at worst a distraction from more substantial issues. But in the context of the new geopolitical environment and the security concerns that China's robust commercial maritime industry raises, and considering the need to address major gaps in America's commercial maritime industry, it is important for policymakers to accurately understand how both domestic and international maritime markets actually function. With that understanding, Congress can adopt policy changes that would produce the desired result of growing the US flag fleet to meet realistic military sealift and logistics needs; reducing the vulnerability of the American economy stemming from the absence of American control over global maritime supply chains; and expanding America's shipbuilding industrial base. As the report further discusses below, policy changes that would liberalize America's domestic shipping laws would be counterproductive to those objectives and would increase the exposure of America's homeland to hostile action. They should not be pursued.

3. CONTRIBUTION OF THE DOMESTIC MARITIME INDUSTRY TO AMERICA'S SECURITY INTERESTS

The challenge that the People's Republic of China has presented to the US-led global order raises extraordinarily complex issues affecting America's military and economic security. The lines between war and peace have blurred, as the ability of one side to gain dominance over the other in strategically important economic sectors (e.g., advanced microchip design and production, rare earth refining) could provide important or decisive

MV *Mark W. Barker* on the Cuyahoga River in Cleveland, Ohio, in October 2022. (Interlake Steamship Company)

advantages in economic or military power. The front lines of any conflict with China could well be virtual, involving artificial intelligence enhanced by quantum computing to generate social upheaval and optimize aggressive economic and military strategies. Kinetic conflict could involve weapons of extraordinarily destructive power that military forces have not yet fully deployed in combat, including hypersonic missiles; highly lethal uncrewed vehicles; and other types of weaponry. For various reasons, conflict could be brief and extraordinarily destructive or incremental and long-lasting, as the ongoing wars in Ukraine and Israel demonstrate. Managing the very strong economic ties between the US and China adds to the complexity, as maintaining those ties may expose Americans to economic coercion and yet contribute to deterrence by keeping the cost of conflict higher than it would otherwise be.

Despite these complexities, the overarching security strategy remains the same. America needs to protect its homeland and insulate the American population from the adverse effects of any conflict as much as possible. America also needs to deter conflict by having enough resources to ensure that China cannot exploit any vulnerability in strategically important domains without paying too high a price for trying. The US domestic maritime industry contributes to these strategic objectives by supporting a significant shipbuilding and mariner industrial base and by helping to maintain security over the vessels and services it provides in domestic maritime markets. The sections below discuss each of these benefits.

Industrial Base—Shipbuilding and Repair

In a prior work, I analyzed the strategic importance of the commercial maritime sector in competing with China.[53] The massive asymmetry between the commercial shipbuilding industries of China and America has helped China catch up to and surpass the US Navy in numbers of combatant vessels, a gap that is all but certain to grow over the next decade. While America still builds the best and most lethal naval vessels, that advantage is likely to narrow. Different conflict scenarios raise a host of questions about the optimal numbers and mix of vessel types and capabilities that should be available to America; how quickly the Navy might need to reconfigure or replace them; the extent to which America should rely on Japan and South Korea (close allies that have world-class commercial shipbuilding industries) or allies elsewhere that have commercial shipbuilding capabilities similar to America's; and many other issues.

These concerns are much greater today than at any time since World War II. The US and its allies may have to engage China in a conflict that would be substantially in the maritime domain. Policymakers cannot know whether it would be short or long and cannot be certain that allies would be able to supply all of the industrial capacity generally, and the shipbuilding capacity in particular, that the US would need to win. Policymakers do know, however, that significant gaps in America's industrial base weaken its ability to deter conflict.

In short, in addition to coordinating with allies, America today needs to expand its industrial capacity, including commercial shipbuilding and repair capacity, so that it can scale up in a national security emergency. This does not mean (at one extreme) that America should try to match the commercial shipbuilding capacity or output of China, South Korea, or Japan. But at the other extreme, America should not walk away from the commercial shipbuilding and repair capacity it currently has. That industrial base consists of about 150 private shipyards across the country that delivered 592 commercial vessels in 2020.[54] About 90 percent of those vessels were large tugs, towboats, and barges built for commercial customers in inland and coastal markets, and the remaining 10 percent were a variety of vessel types for use in coastal and deep-sea markets. In 2019, the US commercial shipbuilding and repair industry generated about $6 billion in revenue and produced about 22,500 direct jobs and more than 80,000 total jobs.[55]

This important industrial base exists today almost entirely because of the Jones Act requirement that ships used in US do-

mestic trade be built in the US. Two basic factors—substantially higher American labor and regulatory costs, which come as a result of being part of the United States, and large subsidies paid to foreign shipbuilders, which the US government does not remotely match—explain why, since not long after World War II, American shipbuilders have been unable to match the prices that shipbuilders charge in less developed countries for ships used in international markets. The US government had a poorly designed program that aimed to offset those disadvantages and sustain a commercial US shipbuilding industry, and the Reagan administration canceled it in the 1980s.[56] The industry survived cancellation of the program primarily because of the Jones Act and as a result of a substantial buildup of the US Navy, a buildup that ended soon after the collapse of the Soviet Union.

Discussions about reinvigorating US commercial shipbuilding continued into the 1990s, focusing either on attacking foreign shipbuilding subsidies or on targeting government support of series construction programs at US shipyards.[57] As Pax Americana dawned, Congress could not find a consensus and approved neither approach. So US shipyards had essentially no government support to help offset foreign subsidies, and faced structural labor and regulatory costs that were substantially higher than in Japan and Korea in the late twentieth century and in China this century. Those three countries combined have a 95 percent share of today's global commercial shipbuilding market.

Hence, by far the most substantial policy supporting commercial shipbuilding in the US has been the Jones Act, which enables America's commercial shipbuilders to compete fairly against each other to meet demand for ships serving US domestic trades. Those markets are substantial and diverse enough that the policy has worked as intended by preserving a critical mass of commercial shipbuilding capabilities and facilities so that America has something to scale up should it ever need to do so.

There is ample room to debate whether and how much any of the alternative policy approaches that were under consideration during the crucial period of the late 1980s and 1990s would have changed the landscape for US shipbuilders. A targeted, well-conceived, and effectively implemented series construction program may or may not have succeeded, but it was likely the best option available. Attacks on foreign shipbuilding subsidies would have aligned with mainstream economic policy for industries that are not associated with national security, but such an approach would not have addressed major structural disadvantages that US shipbuilders faced. And shipbuilding is very much associated with national security, a fact that is much clearer in today's geopolitical environment than it was in the 1990s.

What is not seriously debatable, however, is the effect that eliminating the Jones Act today would have on US shipbuilding. As the report discussed above, American companies that compete on a level playing field—while following American rules, employing an American workforce, and paying American taxes—would instantly face competitors that are subject to radically lower foreign labor and other costs that American shipbuilders—because they operate in the territory of the United States—cannot access. The new competitors would also have the advantages of foreign government support not available to US shipbuilders and the benefits of scale and scope they developed by supplying the ships that companies needed during the largest global trade increase in human history. Investors' reaction to such a policy shift would be quick and decisive: they would immediately disinvest in companies facing competitors with such massive structural advantages. The workforce supporting US commercial shipbuilders would quickly dissipate.

Claims that the outcome would be different, that US shipbuilders would just tighten their belts to meet the new competition and would not only survive but also grow, ignore these hard economic facts. They also rest on a superficial and misguided characterization of the industry that ignores both the competitiveness of domestic markets and the fact that US shipbuild-

ers, because of these hard economic facts, are not competitive in most international shipbuilding markets today even though nothing prevents them from trying.

Industrial Base—American Mariners

In an era when mariners from outside the United States crew nearly all commercial ships in international trades, one may expect most Americans to have a very limited understanding of what it takes to operate ships on the open oceans. The specialized skill sets necessary to operate a tanker, for example, take years of education, training, and experience to develop. Different vessel types—container ships, bulkers, ro-ros, LNG carriers, cruise ships, offshore wind and resource development vessels, etc.—have distinctive operating characteristics requiring extensive knowledge that comes on top of a broad base of navigational, engineering, and other skills common to all qualified mariners.[58] Officers and crew bear enormous responsibilities to keep fellow crew members safe, preserve vessels and cargo often worth hundreds of millions of dollars, and prevent destruction to ocean and coastal environments. Accelerating advances in technology and ever-more demanding oversight of vessel safety, environmental performance, leadership, and crew management require mariners to continue their education and training throughout their careers.

US policy has always recognized the national security importance of having enough well-trained American citizen mariners. In the narrowest of terms, policymakers have operated on the belief that loyal American mariners would be more dependable than foreign mariners in keeping US military forces supplied in an overseas conflict, including in their willingness to sail into harm's way if necessary. The US Merchant Marine's role in World War II was quite broad and included ferrying supplies to support allied military and civilian populations.[59] The value of loyal American mariners applies not only in following directions that support US military operations but also in resisting orders that are inconsistent with US national security. This value may have greater relevance in the more ambiguous types of competition and conflict the US faces in meeting current geopolitical challenges.[60]

Because of highly liberalized international shipping markets, compensation that companies pay mariners in those trades is generally far below what would be acceptable to Americans who have a broad variety of career choices. Thus, on a base of nearly 2 million seafarers globally,[61] there are fewer than 10,000 licensed American mariners today. American mariners include those serving on US flag ships in international trade, which receive government support, and those serving on ships in US domestic trades, which do not.[62] Vessels in domestic trades employ roughly one-third of the civilian American mariner population that the US needs to meet basic military sealift requirements. Of note, the number of US flag ships necessary in military sealift activation scenarios drives the number of American mariners necessary for national security purposes. Those numbers depend on a variety of assumptions that are currently under review.[63] For the purposes of this discussion, however, it is enough to say that the number of US flag ships and American mariners necessary in the current geopolitical environment is certainly not lower—and is likely significantly higher—than it has been in many decades.

Yet the most recent test of the sealift activation system (which the US Transportation Command, or USTRANSCOM, conducted in 2019) showed that, in a best-case scenario and using planning assumptions that are now stale, the number of available mariners was at least 10 percent below the number that the US would need to sustain a full activation for more than a few months.[64] While the industry has made progress toward filling the gap, it still falls short of developing the numbers of American mariners it needed under prior planning scenarios, and far short of the numbers it will need once US military strategists update those scenarios.

In short, because of the radically changing geopolitical climate, the US needs American mariners more today than at any time

in recent history, and it likely needs more of them than most people might ever have expected. It goes almost without saying that US leaders should sharply question any policy change that would reduce the number of American mariners. That is certainly the case for suggestions that America should repeal or relax the Jones Act provisions that prohibit foreign mariners from serving US domestic shipping markets. Not only would such a change contradict basic notions of economic sovereignty (as the report discussed above) but it would also hand important American maritime jobs to foreign mariners and, in the process, compromise American national security.

Homeland Security—American Mariners

The Jones Act supports American homeland security in two ways. First, existing US law requires that American mariners control the direct operation of vessels used in domestic markets and mandates that the master, senior officers, and at least 75 percent of the unlicensed crew on a US flag ship are American citizens.[65] These requirements align with the fact that because US flag vessels are considered United States territory, work performed on them must comply with US immigration, wage and hour, and other laws and regulations. They provide the additional benefit that, with such a crew complement, American citizens make all decisions concerning the navigation, docking, and other operations of vessels serving US domestic markets, and these decisions are effectively immune from being overridden by potentially mutinous noncitizen crews. This arrangement reduces the possibility that hostile foreign actors could use the vessels serving US domestic markets as a means of infiltration or subvert them and use them as instruments of terrorism against American citizens or infrastructure in the US homeland.

The commonsense logic underpinning these requirements aligns with other industrial activities on US soil, from trucking and other modes of transportation to utilities and oil refineries. It is especially important here considering the broad scale and reach of the domestic maritime industry. As the report noted above, some 45,000 American cargo vessels (including 10,000 self-propelled ships, tugs, and other vessels) operate along more than 25,000 miles of coastal and inland waterways that include 8,700 ports, cargo handling docks, locks, and other transportation facilities. They sail under some 1,700 "fracture critical" bridges like Baltimore's Francis Scott Key Bridge, which was destroyed by a foreign cargo vessel at a cost of six lives and billions of dollars in damages.[66] The vessels operate in and around American towns and cities that are home to a large proportion of the American population while carrying a wide variety of cargo, including liquid and dry bulk commodities (such as petroleum, chemicals, fertilizers, and other products) that hostile actors can readily convert into explosives or otherwise weaponize. Although foreign ships with foreign crews in US import-export trade call at a very small percentage of those facilities (seaports mostly in coastal cities), those ports are under active supervision by the Coast Guard and other law enforcement agencies. The vast majority of America's maritime transportation facilities, however, are not under active Coast Guard supervision.

The point here is simple and worth emphasizing: requiring American crews on the thousands of vessels serving US domestic markets reduces the chances that bad actors could use any of those vessels to inflict harm on American citizens in the US homeland. The possibility of subverting a vessel to harm Americans may have seemed remote in the 1990s, but it has seemed much less remote since the terrorist attacks of September 11, 2001. In today's geopolitical environment of potentially unrestricted warfare, it is almost unthinkable that America would change existing law and open itself up to such risks.[67]

Homeland Security—American Owners

In addition to mandating that American citizens directly operate US flag vessels, the law requires that American citizens hold at least 75 percent ownership of and actual control over the use of vessels operated in domestic markets.[68] This requirement is substantially the same as the ownership and control provisions in US aviation law.[69] The law permits foreign debt financing of

American vessels and passive foreign equity investment of vessels used in domestic trades. As a result, American owners of vessels that companies use in domestic trades have access to globally competitive financing options.

The purpose of these longstanding ownership restrictions is to reduce the risk that hostile actors might use vessels serving US domestic markets in ways that are inconsistent with American national and homeland security interests. The restrictions recognize the power that owners have over the use of their vessels and the scope of harm that could result from the misuse of those vessels or the services they provide. A commercial vessel's owner sits at the top of the chain of command, ultimately hiring the vessel's officers and crew and directing the use of the vessel. The vessel's master carries out the owner's directives under a presumption of regularity, and the crew carries out the master's orders on the same basis.

The ways in which a foreign owner could misuse a vessel to harm American security interests are limited only by the imagination of America's enemies. Concerns that the report discussed above as to the subversion of vessels to commit acts of terrorism are a subset of the potential risks, as a vessel's owner would have even greater power to carry out such acts than would the crew on its own. Further, in the event of a security emergency requiring the use of an American ship (e.g., to support sealift operations in foreign waters), the vessel's owner would have significant power to withhold or delay such services.

Other plausible scenarios include manipulating or withdrawing essential commercial maritime services in key domestic markets. As the report discussed above, container shipping services connecting the US mainland to Alaska, Hawaii, and Puerto Rico are like a utility, indirectly supplying consumer and other goods to nearly all the citizens of those communities through contracts between "importers" and the carriers that own and control the ships serving those markets. The carriers thus have an important responsibility to the citizens of those communities to provide consistent and reliable services, and competition among the American carriers serving those markets helps assure that they meet those responsibilities. Conversely, allowing China directly or through surrogates to acquire power over those services would enable Beijing to manipulate them—turn them down or off—not for commercial reasons but instead in pursuit of geopolitical goals. The PRC could effectively weaponize the maritime supply lines that link these communities to the US mainland. Similar concerns would apply to other domestic shipping markets. For example, American vessels from domestic refineries in the Gulf of Mexico carry most of the gasoline, jet fuel, and other petroleum products that businesses and individuals consume in Florida, while ships move most of the iron ore from Minnesota to steel mills throughout the Great Lakes. In these and other markets, America's enemies could inflict enormous economic damage by disrupting these supply lines.[70]

Maritime services in any domestic market segment are more secure than they would otherwise be because of the legal requirement that American citizens own and control the vessels providing those services. This requirement is based on the obvious presumption that American owners, like American officers and crew, are more likely to be loyal to American interests, would be less able than foreign owners to evade accountability for their actions, and are therefore less likely to direct or allow the use of their vessels or services in ways that would harm US interests.

Conclusions

It is hardly controversial to recognize that existing US domestic shipping laws have a positive impact on American national and homeland security interests. Because of the Jones Act, America has retained significant commercial shipbuilding capabilities and a workforce of well-trained and experienced American mariners—a defense maritime industrial base that would not otherwise exist or that would be much smaller than it is today. Because of the Jones Act, American ports and waterways are safer, and essential maritime services within the US domestic

economy are better insulated from use against America's interests than they would otherwise be. These benefits are clear.

Some may question the extent or degree of these benefits, minimizing the risks that American control over the use and operation of vessels in US domestic markets so effectively mitigate. Whatever questions these arguments might have raised 30 years ago, amid real threats of terrorism and today's geopolitical challenges, the idea of reducing American control or allowing increased foreign control over the vessels that navigate our waterways to serve our communities is a nonstarter. Critics have also suggested that the American maritime industry would be larger if regulatory changes forced it to compete in US domestic markets with the lowest-cost foreign shipping and shipbuilding companies. This argument, which the report addressed above, is based on a false narrative concerning the competitiveness of the domestic maritime industry and is patently groundless.

4. HOW THE EVOLVING COMPETITION WITH CHINA SHOULD RESHAPE US MARITIME POLICIES

The emergence of China as a global competitor and the strategic significance of its commercial maritime strength contradict fundamental assumptions that underlie decades of US maritime policy. The different ways in which these events threaten US security interests and possible US and allied responses are the subject of ongoing discussion. The benefits and limits of collaboration with allies that have retained substantial maritime capabilities are important parts of that discussion. But America should also take targeted steps to shore up its own commercial maritime industry and not rely solely on allies to protect its security interests in this sector. The question then becomes where and how America should reshape its policy to meet the maritime security risks the country now faces.

US Flag Ships

Focusing recommended policy changes on international shipping markets (versus domestic markets) is appropriate for several reasons. First, no significant changes are necessary to promote American military and homeland security interests in the domestic maritime sector since the law already requires that US citizens control the ships and services operating in domestic trades. There is no Chinese overmatch to overcome in domestic markets. But in international trade—particularly in the Western Pacific, where conflict would most likely occur if the

Photo: A tugboat sits in dry dock at a boatyard on Staten Island on April 27, 2021, in New York City. (Gary Hershorn/Getty Images)

US fails to deter it—the overmatch is overwhelming. The goal of policy changes thus should be to increase the American fleet operating internationally in order to deter war and reduce risk in US international maritime supply chains. That is where the US would need American ships to meet the Pentagon's need for sealift, and putting those resources in place ahead of time would provide the greatest benefit.

Further, Washington can grow the US flag international fleet quickly by substituting new or reflagged American ships for open-registry or flag of convenience (FOC) ships in existing trades. No change in the supply-demand characteristics of the international shipping market itself would be necessary. In contrast, because market-driven supply-demand dynamics are the foundation of existing maritime services in US domestic trade and American ships already provide these services, and therefore contribute to the US mariner and shipbuilding industrial base, using the domestic trade to expand that base would require growth in the market itself (i.e., an increase in demand for domestic shipping services). That is certainly possible as market dynamics or government policy changes can have profound effects on the domestic shipping market. As the report discussed above, for example, the fracking revolution led to an extraordinary growth in the demand for domestic oil shipping, and American carriers and shipyards responded by building dozens of new tankers. A change in government policy (i.e., lifting the ban on exports of crude oil) abruptly reversed that market-based change in demand.

But these market or policy decisions—which may help or hurt America's maritime industry—are typically driven by considerations that are independent of their effect on America's defense maritime industrial base. The effort to change that policy focus and grow the domestic shipping industry for the express purpose of expanding the maritime industrial base raises several questions: Where would new demand for domestic shipping services come from? Would it come from entirely new business development, and if so, what? Or could Washington encourage or mandate that businesses use waterborne shipping instead of other modes of transportation? How much growth might very aggressive policy changes create in the American shipping and shipbuilding industries, and how much would it cost? What ship types would be optimal for new or expanded domestic shipping services, and how well would they meet sealift needs in the event of a conflict? Would deploying these vessels in domestic trades serve America's security needs as well as US flag ships operating in international commercial trade between the US and Western Pacific and around the world?

By asking these questions, I do not intend to discourage continued entrepreneurial efforts to grow the domestic maritime industry, and the government should provide reasonable support for those efforts. Every success in this regard expands the US maritime industrial base and improves American security. But given the enormous challenges America faces in reestablishing its presence in international shipping markets to protect maritime supply chains and meet sealift needs in the event of conflict, it seems clear that the primary focus of changes in American commercial maritime policy should be on those international markets.

Finally, focusing on international shipping markets also makes sense because the basic policy infrastructure necessary to grow the US flag fleet is already in place. The highly liberalized regulatory framework governing international shipping leaves ships operated under American rules at an extreme economic disadvantage in competing against FOC ships. Government support has been necessary for maintaining a modestly sized US merchant marine presence in international trade. Therefore, in the absence of fundamental changes in the regulatory system governing international shipping (changes that are not likely to take root anytime soon), Washington needs to expand support for the industry in order to address current geopolitical threats and increase the number of American ships and mariners operating internationally. Updating the support programs themselves to optimize the benefits they provide to the American

people is also important. Chapter 5 of my prior report included a comprehensive outline of a realistic path toward crucial improvements in this sector.[71]

Commercial Shipbuilding and Repair

The story is similar for commercial shipbuilding. China has followed the traditional model of building up and leveraging its commercial industrial base to support its defense needs. Its commercial shipbuilding industry indirectly covers a large share of the costs of producing and maintaining the largest navy in the world, and it is extremely well positioned to scale up if a conflict requires it. America chose not to follow that example. It decided in the late twentieth century (by failing to adopt a shipbuilding strategy) that it would do without a large commercial shipbuilding industrial base and would instead rely primarily on taxpayer-financed government shipbuilding for the Navy and Coast Guard. Even if that decision seemed to make sense in the 1990s, it has left America in a deep hole given the national security risks the country faces today.

America has a commercial shipbuilding industry today because of the Jones Act. But it needs to build on that foundation to produce a larger and more diversified commercial shipbuilding and repair industry. As this report has noted, the goal is not to match China hull-for-hull but to expand the industry to better support US government shipbuilding and repair needs and become well positioned to scale up quickly in the event of conflict. Meeting demand for ships in domestic markets, although critical to the industry, will not be enough. US shipbuilders already cover domestic markets, and while there are significant new domestic markets, they are likely too small and unpredictable to achieve the kind of growth the country needs.

Thus, for the same basic reasons outlined above regarding US flag ships, support to grow the US commercial shipbuilding industry should prioritize the construction of targeted vessel types for operation in international trade rather than domestic trade. However, in contrast to the existing programs that support a small US flag fleet in international trade, there is no existing policy infrastructure to achieve that result with US-built ships. My prior report therefore suggested a clear path for doing this. It would tie together the need for a much larger fleet of active US flag commercial vessels necessary for standby military sealift purposes with a requirement to build those ships, on a realistic phase-in schedule, in US shipyards. Starting within three years of enactment, US commercial shipyards would deliver 10 to 15 new vessels each year. They would design the vessels for deployment in international commercial markets with private sector customers covering most of the costs, yet the vessels and the American mariners crewing them would provide critical sustainment sealift in the event of conflict. US government officials would designate key aspects of the vessels and services for construction and operation: vessel types; advanced technology requirements such as propulsion, environmental performance, and crew safety (autonomous-ready); special defense features; trade lanes; and more. Participation in the program would be subject to competitive bidding on a best-value award basis and would likely involve bid teams comprising American shipping companies, US shipbuilders, foreign shipping companies, technology partners, etc.

This kind of demand-driven series construction program is the key to success—having enough orders of the same or similar types of vessels would enable US shipbuilders to move up the learning curve and make the investments and process improvements they need to bring down costs. With a dependable demand signal that US shipbuilders will have orders to deliver 10 to 15 commercial ships each year over an indefinite time period, and with an innovative and competitive bidding process, unit costs per vessel will come down dramatically. Although there are no guarantees, this approach has the best chance of enabling American commercial shipbuilders to become internationally competitive for particular types of ships.

Executing on such a program is achievable and could provide transformative benefits to improve American readiness and deter

conflict. It would quickly expand US flag capacity and the American mariner workforce, providing a valuable tool to help protect peacetime supply chains, resist gray zone tactics, and meet standby military sealift needs. American shipbuilding and repair capacity would grow and modernize with upgraded or new facilities, technology, and workforces. The competitive bidding process would help ensure that taxpayer support for the program covers the reasonable costs of "Americanizing" the construction and operation of these vessels, while private sector shipping customers would cover most costs through normal freight contracts. Creative programs to incentivize the commercial use of these vessels could improve the business case for those participating in the program and reduce taxpayer costs dramatically.

Recommended Changes to Domestic Shipping Laws

While the challenge of China should not lead America to make fundamental changes in domestic shipping laws, policymakers could pursue certain targeted changes to those laws that would strengthen America's shipping and shipbuilding industries. These include measures to help expand the American maritime workforce, improve procedures for waiving the Jones Act in an emergency, and close unwarranted loopholes in domestic shipping laws. While these targeted changes are relatively minor compared to the new program outlined above, policymakers could package them together with those policy changes into one of the most consequential commercial maritime reforms in a century.

Expanding the American Maritime Workforce

One of the top priorities in the maritime industry is workforce development, which affects shipbuilding and repair work and vessels in both the domestic and international US flag fleets. The industry has recently made significant progress in several areas, including recruiting for entry-level positions, lifestyle improvements on board the ships (e.g., broader deployment of Starlink, which allows for better internet connectivity at sea), and funding to improve government management of the mariner workforce. It could make additional progress by extending state support for maritime apprentice programs, providing expatriate tax parity for mariners operating internationally, and implementing further lifestyle improvements (e.g., telehealth availability, shorter rotations, etc.), among other efforts.

This progress comes, however, on a base that reflects decades of at best stable numbers of US-built and US flag ships. Much of the focus to date is on closing the gap between the existing workforce and what is necessary to build, repair, and operate the US flag fleet as it stands today. It is critical, however, to accurately set the optimal size of the American maritime workforce in light of the new geopolitical challenges. If realistic sealift needs in a Western Pacific conflict would require two to three times more US flag ships than the country has today, and if policymakers expect US shipbuilders to build that fleet, maritime recruiting targets need to eventually reflect those numbers. Legislation to achieve that result should therefore include the resources necessary to recruit, train, and retain a new generation of skilled American maritime workers in numbers sufficient to build and crew those vessels.

Jones Act Exceptions

Much of the controversy concerning the Jones Act has involved requests for emergency administrative waivers to respond to hurricanes or other disasters. There are political and economic incentives to pursue waivers in those circumstances. Political leaders, under pressure to do anything possible to help disaster victims, will have a checklist of possible actions that may include measures that may not, in given circumstances, actually help alleviate suffering. Moreover, there is sometimes a strong economic incentive for certain businesses to seek a Jones Act waiver, not to obtain a service that American ships cannot provide but to use cheaper foreign ships during the response period and pocket the difference.

Multiple agencies need to evaluate waiver requests on an expedited basis. On the merits, the logistics challenge in an emer-

gency is almost always inland distribution, the so-called final mile of delivery. The challenge is rarely in getting supplies to bulk delivery sites in the disaster areas that ships serve, such as marine terminals and tank farms, but in getting supplies from those sites to inland distribution points that trucks usually serve, such as gas stations, warehouses, or consumers' front doors. Thus, waiving the Jones Act to allow foreign ships to serve bulk facilities that are already fully stocked or that American ships are fully covering provides no support to disaster victims.[72] Indeed, such a waiver can harm US disaster response and readiness by snarling supply chains, discouraging American investment in response capabilities, and distracting attention from solutions that would actually help disaster victims. However, a shipping waiver should be available when American ships cannot provide help that disaster victims genuinely and urgently need.[73]

To reduce the controversy and potential misuse of the waiver process, Congress should update the law to eliminate any economic benefits of using a foreign flag vessel to respond to a disaster. Further, supporters of the Jones Act should make efforts to improve awareness of the circumstances in which a waiver would, and would not, provide genuine support to victims during an emergency, both as background information and in real time.

Closing Loopholes / Trade Law Constraint

Despite the basic requirement that companies performing work within US territory, including the EEZ, must comply with American immigration, wage and hour, and other laws and regulations, scores of foreign-registered vessels and hundreds if not thousands of foreign maritime workers operate within US waters but outside most US laws, taking jobs away from American workers. Companies have used at least two legal mechanisms to circumvent the requirement of American workers in various circumstances. First, US Customs and Border Patrol (CBP) determines whether particular activities constitute "transportation" under the Jones Act. A letter ruling process begun decades ago was poorly designed and resulted in rulings that many viewed as suspect. The effect of those rulings was to deem different categories of offshore work not subject to the Jones Act and allow vessels neither built in the US nor crewed by American citizens to perform the work. While the procedures have improved in recent years, certain doubtful rulings remain in effect and provide precedent for what many view as continued unwarranted evasions of US law.

The second legal mechanism allows foreign companies, *but not US companies*, to use a foreign workforce (and not comply with US wage and hour and other laws) on vessels operating within the US EEZ as long as the country in which the foreign owners are based allows reciprocal access to American mariners operating within their EEZs.[74] This applies to all vessels that CBP categorizes as not providing transportation services in the US EEZ. Obviously, the ability to use foreign workers (many of whom earn a fraction of what US workers earn) is often a decisive factor in determining which company gets the job. As a result, many of the vessels providing construction and other non-transportation services within the US EEZ have not only low-cost foreign crews but also foreign owners and operators.

Aggressive efforts to close these loopholes, including litigation and proposed legislation,[75] have had mixed success in part because of concerns about a highly punitive trade law provision that some believe might be triggered if those efforts are successful. Trade negotiators who developed the General Agreement on Trade and Tariffs (GATT) and the World Trade Organization (WTO) considered the requirement that only US-built ships provide domestic shipping services to be contrary to general free trade principles.[76] Because US policymakers considered that requirement essential to America's national security interests, they insisted on including an exemption explicitly preserving the requirement in 1947 and on retaining the exemption when the GATT was converted into the WTO framework in 1994. However, WTO negotiators imposed onerous conditions in exchange for retaining the exemption.[77] Most importantly, the detailed contours of the requirement were frozen in place such

that any changes to US law that the WTO might find to have *expanded* the requirement *would arguably jeopardize the exemption in its entirety*. It is a landmine that, if triggered, could take out not just the toe that stepped over the line but the entire body of the exemption. This extraordinarily punitive sanction could retroactively invalidate the legal framework on which companies have invested tens of billions of dollars in building vessels in American shipyards. The exemption is also subject to a WTO ministerial review every other year "for the purpose of examining whether the conditions which created the need for the exemption still prevail."[78] At such proceedings, the US routinely confirms the national security value of the requirement, while a few other countries typically argue that the requirement is no longer necessary "in today's global economy."[79]

GATT and WTO negotiators agreed to these highly punitive conditions in a geopolitical environment that is vastly different than today's. The US-built requirement supports a key element of US national security strategy, specifically America's ability to retain a core commercial shipbuilding industrial base that can be scaled up to help offset China's vast shipbuilding industry, an industrial base that China has leveraged to build the largest navy in the world. Most remarkably, in recent WTO proceedings under this provision, *China and Russia* are among the countries questioning America's national security interest in this provision. At best, such complaints smack of extreme hypocrisy given the intricate web of government support China provides to its shipbuilding industry. And when it is American naval forces that are defending freedom of navigation near the Red Sea and the safety of ships carrying trade between China and Europe against Houthi attacks that Iran (China's geopolitical ally) finances and directs, American maritime policies should not be subject to challenge by China or any other country in this forum. The "conditions which created the need for the exemption" have not gone away—they've become much more serious.

It should be remembered, however, that the exemption exists and is effective despite the onerous conditions that were imposed. While those conditions (particularly the GATT landmine) have a chilling effect on closing certain loopholes, an effort to permanently recognize the exemption while eliminating these conditions could backfire in a WTO forum that may not yet have fully adapted to the new geopolitical security environment. Hence, whether, how, and when this measure is addressed requires careful consideration.

5. CONCLUSION

The economic activity that makes up America's marine transportation system contributes $500 billion to US GDP and generates about 10 million total jobs.[80] It is by definition work performed in American waters and within America's domestic economy and is properly subject to US legal and regulatory standards and economic norms. American companies competing within that ecosystem must, like other businesses operating in the United States, hire American workers, meet ever more exacting standards for safety and environmental performance, and pay US taxes.

Despite loud criticism of the Jones Act, few people would challenge this basic framework. Some have suggested a sort of compromise, waiving or repealing the Jones Act yet requiring that those providing maritime services within the US domestic economy still comply with American legal and regulatory standards (sometimes excluding the use of American mariners). This is like knocking out one's natural teeth and replacing them with dentures. It misunderstands the nature of domestic shipping laws, which have the central purpose of affirming full American sovereignty over maritime services that companies provide within US domestic markets. If the genuine objective of those promoting that kind of change is regulatory reform, the proper path to achieve such reform is to persuade government bodies of the merits of the substantive reforms they propose. If the objective of the "reformers" is instead to attain a broad or selective surrender of US sovereignty over domestic shipping services so that companies can replace American mariners with foreign mariners and selectively disregard US regulatory standards, it is an effort

Photo: A container is lifted off of a ship at the Bayport Container Terminal in Harris County, Texas, on May 23, 2012. (Karen Warren/Houston Chronicle via Getty Images)

that *should* fail and that has in fact gained no traction despite decades of chatter.

Although much of the Jones Act criticism has involved undifferentiated complaints about the inability to use foreign vessels in US domestic markets, it is important to directly address the requirement that companies use only US-built vessels to provide domestic shipping services. For many, this is the most important aspect of the Jones Act as it provides a base of business that helps ensure the survival of commercial shipbuilding in America. But it is a policy that can only achieve so much. Its creators did not design or intend it to make American shipyards internationally competitive or to help them overcome overwhelming competitive disadvantages in meeting American labor, regulatory, and tax burdens versus lowest-cost and heavily subsidized shipbuilders in China, Korea, or Japan. US commercial shipyards survive by competing with each other to build vessels that meet the demand for shipping services in domestic markets, and even though those markets are large and diverse, international shipping markets in a historically globalist economy dwarf them. Further, unlike shipping, shipbuilding is not a service industry. While the globalist policy framework generally accepts the notion that companies providing services within the territory of a nation must comply with that nation's laws, shipbuilding does not fit neatly into that framework. Neither is it accurate, however, to compare shipbuilding to the production of consumer goods like plastic toys, patio furniture, and other items that have little or no possible relevance to national security.

Americans have historically viewed shipbuilding as an important component of national power. Indeed, America's ability to rapidly produce thousands of transport ships was a critical factor that helped defeat the Axis forces in World War II.[81] But several factors—the collapse of the Soviet Union that left America as the sole global superpower, America's leadership in promoting peace and prosperity through trade, and the breathtaking pace of technological advancement—combined to put into doubt the traditional notions of what is necessary for US national security. Few people in the 1990s envisioned a serious challenge to America's leadership (maybe China might someday be a problem), and fewer still would have predicted the importance of commercial shipping and shipbuilding to America's economic and military security interests. Yet in the 2020s Americans can see that both assumptions were wrong. America's status as the sole superpower and key shaper of the global order is seriously threatened with potentially catastrophic results. And America's near complete absence from, and China's dominance over, the commercial maritime domain creates massive vulnerabilities in numerous scenarios involving economic and military conflict.[82]

The path to mitigate those vulnerabilities includes several branches—expanding US naval capabilities, strengthening maritime cooperation with allies, increasing US control over international maritime supply chains, and expanding America's shipbuilding and repair industrial base. Significant changes in maritime policies affecting international markets are necessary to support those goals, changes that policymakers should pursue with the greatest urgency given a geopolitical adversary that is not inclined to wait to exploit America's weaknesses. But America's existing domestic shipping laws already support those objectives, and, broadly speaking, strengthening or weakening those laws would have a corresponding effect on American security interests. Some have likened those laws—particularly the Jones Act—to an insurance policy with very low premiums that ensure America retains maritime capabilities it might need in future conflicts. With the prospect of potential conflict much higher today than at any time in many decades, now is precisely the wrong time to consider canceling that policy.

ENDNOTES

1 Chinese law provides that only Chinese-registered ships can operate in China's domestic maritime trades. See Alexander Geoghegan and Kelvin Lam, "A Quick Overview of Maritime Cabotage Regimes," in *Legal Briefing* (London: UK P&I Club, August 2018), 4, https://www.ukpandi.com/media/files/imports/13108/briefings/33224-uk_legal_briefing_cabotage_web.pdf. A survey released in 2018 found that 91 countries have some restrictions on providing domestic maritime services. See *Cabotage Laws of the World* (London: Seafarers' Rights International, 2018), https://maritimecyprus.com/wp-content/uploads/2018/10/cabotage-laws-of-the-world-ss-1.pdf.

2 Michael Roberts, *Rewriting the Future of America's Maritime Industry to Compete with China* (Washington, DC: Hudson Institute, 2023), https://www.hudson.org/national-security-defense/rewriting-future-america-maritime-industry-compete-china-michael-roberts.

3 America's domestic shipping laws (commonly referred to as the Jones Act) allow only qualified American ships to provide transportation services in US domestic trades.

4 The allision of the cargo ship M/V *Dali* that caused the collapse of the Francis Scott Key bridge in Baltimore cost six lives and caused billions of dollars in economic damages. Although the root cause remains under investigation, the incident illustrates the potential harm that could be inflicted by weaponizing commercial shipping in US waterways. Further, the blast that leveled Beirut in August 2020 also shows the scope of damage that exploding a single shipload of bulk cargo could do. The Port of Beirut detained a Russian-chartered bulk carrier in 2013 to collect back port fees and investigate unseaworthiness claims. Officials offloaded its cargo of ammonium nitrate into a warehouse, where it sat until it exploded seven years later, killing more than 200 people and destroying a large section of the city. See Timour Azhari and Tom Perry, "Explainer: Two Years since Beirut Blast, Why Has No Top Official Been Held to Account?," Reuters, August 3, 2022, https://www.reuters.com/world/middle-east/two-years-since-beirut-blast-why-has-no-top-official-been-held-account-2022-08-03.

5 In all but the most extreme scenarios, however, military planners prioritize the use of other vessels ahead of ships actively employed in domestic trades because of the disruption this would cause to the domestic economy.

6 For example, George Will, "Ahoy! It's Crony Capitalism Sailing in and out of US Ports," *Washington Post*, October 4, 2023, https://www.washingtonpost.com/opinions/2023/10/04/jones-act-shipping-crony-capitalism; Colin Grabow and Scott Lincicome, "Protectionism Kills US Merchant Shipping," *Wall Street Journal*, February 26, 2024, https://www.wsj.com/articles/protectionism-kills-u-s-merchant-shipping-tariffs-international-trade-manufacturing-4b39afa0.

7 The law requires US-based fabrication and assembly of a ship's hull and superstructure for it to qualify for use in domestic trades. These are among the core manufacturing functions that make up our defense maritime industrial base. The law does not, however, prevent US shipyards from acquiring the components or technology that go into a ship from foreign sources. Many US shipbuilders have developed sophisticated supply chains to bring the best materials and knowledge available to commercial and military shipbuilding in the US.

8 The US government contracted management of its National Multi-mission Security Vessel program out to an American firm based on that company's experience in managing vessel procurement and construction programs. See Douglas Burnett, "A Better Way to Build Ships," *Proceedings* 148, no. 1 (January 2022): 1,427, https://www.usni.org/magazines/proceedings/2022/january/better-way-build-ships.

9 This is not to suggest that complacency with our shipbuilding policies is the proper course. Rather, the new geopolitical threats demand that America produce effective policy changes that will expand its commercial shipbuilding by supporting series construction of particular ship types for use in international trades. I discuss this in section V of *Rewriting the Future.*

10 ILO Newsroom, "ILO Body Adopts New Minimum Monthly Wage for Seafarers," International Labor Organization, May 18, 2022, https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_845493/lang--en/index.htm.

11 I participated in several of those debates, including one in the mid-1990s at the top of the World Trade Center in New York before it was knocked down by terrorists on September 11, 2001.

12 Roberts, *Rewriting the Future of America's Maritime Industry*.

13 The term *import substitution* often refers to shifting supply to domestic sources as a substitute for imports from foreign sources. This discussion uses that term to describe the mirror image of that sourcing shift: substituting imports from foreign sources for domestically produced goods.

14 We may agree or disagree with certain of the legal requirements that apply to these business activities, but that is beside the point.

15 Some analyses have questioned whether Congress would require foreign ships to comply with US laws if it were to change the Jones Act to permit those ships to operate in domestic trades. See Government Accountability Office, *Puerto Rico: Characteristics of the Island's Maritime Trade and Potential Effects of Modifying the Jones Act*, GAO-13-260 (Washington, DC: US GAO, 2013), https://www.gao.gov/products/gao-13-260; *Journal of Maritime Law and Commerce* 46, no. 4 (October 2015), https://ir.hornbeckoffshore.com/static-files/63dd88cf-40bf-45a8-aac6-03e0a4f97549.

16 A spot check of limited publicly available data confirms this, as the 2023 operating incomes for two major domestic shipping companies that are listed (most are privately held) were about 8 percent and 13 percent. See Joseph H. Pyne and David W. Grzebinski, *2023 Annual Report* (Houston, TX: Kirby Corporation, 2024), https://investors.kirbycorp.com/static-files/46f2ed44-e850-4d45-b1c3-3e3644116877 and Matthew J. Cox et al., *Matson 2023 Annual Report and Form 10-K* (Honolulu, HI: Matson Inc., 2024), https://investor.matson.com/static-files/cf1e5175-6514-484b-b8ba-1e2e2e8aa7fb). However, operating incomes for two leading

Class I railroads, CSX and Union Pacific, were around 40 percent; see CSX Corporation, SEC Form 10-K, 2023, https://s2.q4cdn.com/859568992/files/doc_financials/2023/q4/913a6f6f-7cbe-4481-9873-39ab722ebec0.pdf and Union Pacific Corporation, SEC Form 10-K, 2023, https://www.up.com/cs/groups/public/@uprr/@investor/documents/investordocuments/pdf_up_10k_02092024.pdf.

17 Shipbuilding Committee, *Peer Review of the Italian Shipbuilding Industry: Q1 2024* (Paris: OECD, 2024), https://www.oecd.org/sti/ind/peer-review-of-the-italian-shipbuilding-industry.pdf.

18 From 1980 to 2000, the total carrying capacity of the global fleet increased by less than 25 percent, while that capacity has tripled since 2000. See Regina Asariotis et al., "World Shipping Fleet, Services, and Freight Rates," in *Review of Maritime Transport 2023* (New York: United Nations, 2023), 27–54, https://unctad.org/system/files/official-document/rmt2023_en.pdf.

19 The hope of coastal container distribution led me to help organize an industry group in 2000 to explore the business and policy options for increasing coastal container shipping. This and similar efforts led to the Marine Highway Initiative that helps support coastal and inland marine transport of containerized goods.

20 Tim Colton, "US Builders of Large Ships," Shipbuilding History, accessed April 1, 2024, http://shipbuildinghistory.com/shipyards/large.htm. One of the nine (General Dynamics) owns NASSCO, which has built ships for government and commercial customers, as well as two shipyards (Bath Ironworks and Electric Boat) that have built ships exclusively for government customers. A second, Huntington Ingalls, owns two shipyards (Newport News and Ingalls Shipbuilding) that have built ships exclusively for government customers since 2000.

21 One cannot overstate the importance of having enough shipbuilding orders, as in most other manufacturing businesses, to develop a learning curve to promote efficiencies and drive down costs.

22 The capacities of the larger tank vessels typically range up to about 330,000 barrels, although some tankers that carry crude oil from Valdez, Alaska, to West Coast refineries have more than twice that capacity.

23 "US Field Production of Crude Oil—Thousand Barrels per Day, Annual," US Energy Information Administration, March 29, 2024, https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=-pet&s=mcrfpus2&f=a.

24 "US Operable Crude Oil Distillation Capacity—Thousand Barrels per Calendar Day, Monthly," US Energy Information Administration, March 29, 2024, https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MOCLEUS2&f=M. From 2010, operable crude oil distillation capacity increased by only 2 percent by 2015 and 8 percent by 2020.

25 Tim Colton, "Large or Otherwise Significant Shipbuilders," Shipbuilding History, accessed April 1, 2024, http://shipbuildinghistory.com/shipyards/large.htm.

26 Government Accountability Office, *Crude Oil Markets: Effects of the Repeal of the Crude Oil Export Ban*, GAO-21-118 (Washington, DC: US GAO, 2020), https://www.gao.gov/products/gao-21-118.

27 Philly Shipyard has transitioned to building specialized national security multi-mission vessels and container ships, while NASSCO and VT Halter have focused on building ships for the US Navy and Coast Guard.

28 Setting aside the possibility of a significant spike in demand for domestic movement of crude oil or refined petroleum products, potential new uses for tankers in domestic trades, such as in transporting liquified carbonates for carbon capture and sequestration operations, could spur substantial new shipbuilding orders at US yards.

29 Common carrier regulation remains at least nominally in place, but government oversight has been unnecessary because of adequate service and price competition between the carriers in those markets. See Transportation, 49 U.S.C. § 13701, https://uscode.house.gov/view.xhtml?path=/prelim@title49/subtitle4/partB/chapter137&edition=prelim.

30 Ernst & Young, *Shipping Performance and Economic Contributions of Jones Act Routes in the Caribbean* (Washington, DC: Transportation Institute, 2022), https://transportationinstitute.org/wp-content/uploads/2022/08/Transportation-Institute-Jones-Act-Study-18-Aug-2022.pdf. Governments in other regional shipping markets that found themselves under pressure during the pandemic have explored options—such as developing government-controlled shipping lines for domestic services—to insulate themselves from such exposures. "Thailand Plans National Shipping Line for Domestic Routes to Build Trade," Maritime Executive, October 25, 2023, https://www.maritime-executive.com/article/thailand-plans-national-shipping-line-for-domestic-routes-to-build-trade.

31 Crew complements for a vessel include mariners actively working and their replacements as mariners rotate off the ship for time off or vacation. While the numbers of mariners actively working on US flag and foreign flag vessels are comparable (driven in part by standard watchkeeping systems), the crew complements of foreign ships are typically smaller, reflecting standard deployments of 11 months at sea vs. about 7 months on US flag vessels.

32 The non-binding minimum monthly salary for mariners that the International Labor Organization agreed to is $666 (effective January 2024), while Americans earn about $2,600 (using an average minimum wage of $15 per hour). ILO News, "ILO Body Adopts New Minimum Monthly Wage for Seafarers," International Labor Organization, May 18, 2022, https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_845493/lang--en/index.htm.

33 I calculated incremental vessel operating costs using a Maritime Administration study. *Comparison of US and Foreign-Flag Operating Costs* (Washington, DC: US Department of Transportation, 2011), https://www.maritime.dot.gov/outreach/publications/comparison-us-and-foreign-flag-operating-costs.

34 Incremental vessel capital costs are based on the proportion of capital and operating costs to total costs. Reeve & Associates and

TZ Economics, *Impact of the US Jones Act on Hawaii* (Washington, DC: American Maritime Partnership, 2020), 6, https://www.americanmaritimepartnership.com/wp-content/uploads/2020/07/Jones-Act-Hawaii-Report-Final-Copy_07212020.pdf.

35 If we include upstream and downstream supply chain costs, it would, of course, dilute even further the effect of shifting from an American to a foreign ship on total supply chain costs and, in turn, retail prices.

36 Bureau of Transportation Statistics, *Transportation Statistics Annual Report 2023* (Washington, DC: US Department of Transportation, 2023), 1–29, https://doi.org/10.21949/1529944.

37 "Waterways System," Waterways Council Inc., accessed April 1, 2024, https://waterwayscouncil.org/waterways-system.

38 American Waterways Operators, "The American Tugboat, Towboat and Barge Industry," fact sheet, accessed April 1, 2024, https://www.americanwaterways.com/sites/default/files/AWO%202023%20fast%20facts.pdf.

39 Mike Schuler, "Record Year for Largest Container-on-Barge Network in the US," gCaptain, March 15, 2024, https://gcaptain.com/record-year-for-largest-container-on-barge-network-in-the-u-s.

40 *Inland River Guide 2024* (St. Louis, MO: Waterways Journal Weekly, 2024).

41 *Tugboat and Towboat Manufacturing in the United States from 2017–2023* (Miami: Amadee and Company, 2019), available online from Research and Markets, https://www.researchandmarkets.com/research/8nmw6v/united_states?w=5#product--toc.

42 "Maritime Zones and Boundaries," National Oceanic and Atmospheric Administration, March 26, 2024, https://www.noaa.gov/maritime-zones-and-boundaries.

43 This has led to the need for precise definition to clarify whether particular activities constitute "transportation." Further, special legislation that Congress enacted in the 1970s created an exception that allows foreign-owned vessels (but not US-owned vessels) to employ foreign workers whom they do not compensate in accordance with US laws to compete with US workers in the EEZ. As a result, there are a variety of what many see as loopholes, both in the Jones Act and in US economic sovereignty, that allow foreign vessels and foreign workers that are exempt from most US laws to perform a large share of the work within the sovereign territory of the US EEZ. I discuss this in section IV below.

44 Tim Colton, "US Builders of Small Vessels," Shipbuilding History, accessed April 1, 2024, shipbuildinghistory.com/shipyards/small.htm.

45 For example, Edison Chouest Offshore, chouest.com; Hornbeck Offshore Services, hornbeckoffshore.com; and Harvey Gulf International Marine, harveygulf.com.

46 Jennifer McDermott, "The United States Has Its First Large Offshore Wind Farm, with More to Come," Associated Press, March 14, 2024, https://apnews.com/article/orsted-offshore-wind-new-york-south-fork-climate-cbb9360388d91be1368dd91ba35aa384.

47 Maura Healey and Kim Driscoll, "MassCEC, City of Salem, and Crowley Announce Agreements for Salem Offshore Wind Terminal," Executive Office of Energy and Environmental Affairs, Commonwealth of Massachusetts, February 23, 2024, https://www.mass.gov/news/masscec-city-of-salem-and-crowley-announce-agreements-for-salem-offshore-wind-terminal.

48 "Launch Ceremony Held for A-O-S' New Jones Act CTV," MarineLink, March 17, 2024, https://www.marinelink.com/news/launch-ceremony-held-aos-new-jones-act-512294.

49 "Crowley and Esvagt JV to Build US SOV to Service Dominion's Wind Farm," Maritime Executive, January 17, 2023, https://maritime-executive.com/article/crowley-and-esvagt-jv-to-build-us-sov-to-service-dominion-s-wind-farm.

50 Adrijana Buljan, "Dominion Confirms First US Wind Turbine Installation Vessel Will Be Completed Later Than Planned," Offshore Wind, November 9, 2023, https://www.offshorewind.biz/2023/11/09/dominion-confirms-first-us-wind-turbine-installation-vessel-will-be-completed-later-than-planned.

51 Adrijana Buljan, "Maersk, Edison Chouest Offshore Partner to Build Feeder Vessels for Maersk's WIV Jack-Up," Offshore Wind, March 15, 2024, https://www.offshorewind.biz/2024/03/15/maersk-edison-chouest-offshore-partner-to-build-feeder-vessels-for-maersks-wiv-jack-up.

52 Eric Priante Martin, "Founding Fathers, Prohibition and US Protectionism: Why the Jones Act Isn't What You Think," TradeWinds, March 18, 2024, https://www.tradewindsnews.com/tw/founding-fathers-prohibition-and-us-protectionism-why-the-jones-act-isn-t-what-you-think/2-1-1609792.

53 *Rewriting the Future*, section III, "Assessment of Military and Economic Concerns."

54 US Maritime Administration, *The Economic Importance of the US Private Shipbuilding and Repairing Industry* (Washington, DC: MARAD, 2021), 11, https://www.maritime.dot.gov/sites/marad.dot.gov/files/2021-06/Economic%20Contributions%20of%20U.S.%20Shipbuilding%20and%20Repairing%20Industry.pdf.

55 The referenced report includes a separate breakout of revenues from commercial vs. military shipbuilding and repair. The employment data I provide here assumes that direct and total job creation for commercial vs. military shipbuilding and repair is proportional to revenues. The job types run the gamut from architects and engineers to a variety of blue-collar production workers. US Bureau of Labor Statistics, "Occupational Employment and Wage Statistics, National Industry-Specific Occupational Employment and Wage Estimates: NAICS 336600—Ship and Boat Building," May 2022, https://www.bls.gov/oes/current/naics4_336600.htm.

56 As the name implies, Congress designed the Construction Differential Subsidy (CDS) program to provide US shipbuilders with a

government subsidy that would make up the difference between US and foreign construction costs. It included very weak incentives for US shipbuilders to contain costs to remain internationally competitive.

57 A series construction program would have enabled US shipyards to move up the learning curve for particular ship types, leveraging technology and process improvements to offset labor and regulatory cost disadvantages with the goal of becoming internationally competitive. As I summarize below, the shipbuilding component in the New MSP program that I recommend in my prior report would be based on that concept.

58 The depth of study required to become a licensed mariner is apparent in the course catalog of one of America's top maritime universities, which shows more than 30 separate disciplines and hundreds of course offerings. See *College Catalog 2023–2024* (New York: SUNY Maritime College, September 2023), appendix C, https://www.sunymaritime.edu/sites/default/files/2024-01/College%20Catalog%202023-2024%20v3a.pdf.

59 American merchant mariners in World War II also perished at a higher rate than any other military service. Congress recently recognized them with the Congressional Gold Medal. Terri Moon Cronk, "WWII Merchant Mariners Receive Congressional Gold Medal," DOD News, May 19, 2022, https://www.defense.gov/News/News-Stories/Article/Article/3037882/wwii-merchant-mariners-receive-congressional-gold-medal.

60 For example, US flag commercial ships may be more valuable than foreign-owned flag of convenience ships in resisting quarantine, blockade, and other gray zone tactics.

61 "Shipping and World Trade: Global Supply and Demand for Seafarers," International Chamber of Shipping, July 2021, https://www.ics-shipping.org/shipping-fact/shipping-and-world-trade-global-supply-and-demand-for-seafarers.

62 Nearly all American mariners sailing in international commercial trade work on vessels that receive support from US government programs.

63 See note 9 and *Rewriting the Future*, section V.

64 Ben Werner, "Test of Ready Reserve Force Exposes Need for Newer Ships, More People," USNI News, January 16, 2020, https://news.usni.org/2020/01/16/test-of-ready-reserve-force-exposes-need-for-newer-ships-more-people.

65 46 U.S.C. § 8103. Unlicensed crew members who are not US citizens must be green card holders, aliens lawfully admitted for permanent US residence.

66 Linda Poon and Phil Kuntz, "Hundreds of 'Fracture Critical' US Bridges Are in Poor Condition," *Bloomberg*, April 29, 2024, https://www.bloomberg.com/news/features/2024-04-29/hundreds-of-fracture-critical-us-bridges-are-in-poor-condition?srnd=citylab&sref=boE5Wq9G.

67 Qiao Liang and Wang Xiangsui, *Unrestricted Warfare: China's Master Plan to Destroy America* (Beijing: People's Liberation Army Literature and Arts Publishing House, 1999).

68 46 U.S.C. § 50501. For vessels used in domestic trade, the law does not permit noncitizens, by contract or any other means, to control more than 25 percent of the vessel's equity.

69 49 U.S.C. § 40102.

70 For example, a 2015 study by the Department of Homeland Security found that within a few weeks of closure of the Poe Lock connecting Lake Superior and Lake Huron, "nearly 100 percent of the North American appliances, automobile, construction equipment, farm equipment, mining equipment, and railcar production would shut down." Craig S. Gordon and Marilee Orr, *The Perils of Efficiency: An Analysis of an Unexpected Closure of the Poe Lock and Its Impact* (Washington, DC: Office of Cyber and Infrastructure Analysis, US Department of Homeland Security, 2015), https://www.remi.com/wp-content/uploads/2021/08/DHS-OCIA-The-Perils-of-Efficiency-An-Analysis-of-an-Unexpected-Closure-of-the-Poe-Lock-and-Its-Impact.pdf.

71 Roberts, *Rewriting the Future*, 38–45.

72 Thousands of containerloads of cargo jammed marine terminals in San Juan shortly after Hurricane Maria struck Puerto Rico in 2017. Blocked roads, downed power lines, and a lack of cellular service severely hampered distribution of those supplies to sites across the island. A few weeks earlier (following Hurricanes Harvey and Irma), some two dozen American tankers stood offshore of Florida awaiting Coast Guard clearance to reenter ports and deliver their cargoes. Temporary Jones Act waivers in both cases provided no relief to those the hurricanes affected.

73 The only example in my experience occurred in the aftermath of Hurricane Katrina in 2005. That hurricane knocked the Colonial Pipeline, the normal mode for transporting petroleum products from Gulf Coast refineries to the mid-Atlantic, offline for several days. The American tanker fleet at that time did not have enough capacity to meet the demand to move product from the Gulf to tank farms on the East Coast, and the industry did not object to a temporary Jones Act waiver.

74 The notion that bilateral reciprocity would produce fair economic trade-offs for US offshore companies and workers in the offshore development industry was badly flawed from the start, as few if any Americans work in foreign offshore development markets.

75 "Cassidy Introduces Bipartisan American Offshore Worker Fairness Act," press release, Office of Senator Bill Cassidy, February 17, 2022, https://www.cassidy.senate.gov/newsroom/press-releases/cassidy-introduces-bipartisan-american-offshore-worker-fairness-act.

76 Of note, the GATT provisions apply only to the US build requirement and not to the requirement that only vessels registered in the US provide domestic shipping services (maritime cabotage). As I discussed above, the latter requirement confirms economic sovereignty over transportation services that companies provide within the domestic economy and territory of the US and is not, in

my view, inconsistent with GATT/WTO principles.

77 "General Agreement on Tariffs and Trade 1994," World Trade Organization, section 3 (a), https://www.wto.org/english/docs_e/legal_e/06-gatt_e.htm.

78 "General Agreement," section 3 (b).

79 The most recent statement was the following: "The United States confirms that the conditions that created the need for this exemption continue to exist, including the US Navy's reliance on commercial shipyards for day-to-day maintenance of naval and surge-fleet vessels. It also remains critical for US shipbuilders to build commercial ships for trade in order to ensure the maintenance of a viable industrial base to meet future US naval requirements. In short, the United States has the same need as it had in 1994: to maintain its shipyards' readiness to build and maintain naval vessels." World Trade Organization, "Minutes of the Meeting Held in the Centre William Rappard and in Virtual Format on 6 and 7 March 2023," WT/GC/M/203, May 25, 2023, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/GC/M203.pdf&Open=True.

80 Paul Lewis and Katie Donahue, *Waterborne Competitiveness: US and Foreign Investments in Inland Waterways* (Washington, DC: Eno Center for Transportation, 2022), https://enotrans.org/eno-resources/waterborne-competitiveness-u-s-and-foreign-investments-in-inland-waterways.

81 Arthur Herman, *Freedom's Forge: How American Business Produced Victory in World War II* (New York: Random House, 2012).

82 Niharika Mandhana, "China's Shipyards Are Ready for a Protracted War. America's Aren't," *Wall Street Journal*, February 13, 2024, https://www.wsj.com/world/china/chinas-shipyards-are-ready-for-a-protracted-war-americas-arent-d6f004dd.

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