

Changing Polar Region Presents New Challenges and Opportunities for Navy, Coast Guard, Industry



Coast Guard Cutter Storis (WAGB-21) transits past West Seattle on its way to its temporary homeport at Coast Guard Base Seattle, Oct. 3, 2025, after its August 2025 commissioning in Alaska. The cutter is the Coast Guard's first polar icebreaker acquired in over 25 years, but more icebreakers are on the way. Credit: U.S. Coast Guard | Petty Officer 3rd Class Daylan M. Garlic-Jackson

By Erika Fitzpatrick, Seapower Correspondent

The U.S. military and allied nations are ramping up their strategic offensive and defensive capabilities in the Arctic to confront an expanding presence from adversaries such as China, Russia, Iran and North Korea, said Vice Admiral Doug

Perry, U.S. Navy Commander of Joint Force Command Norfolk, at Sea-Air-Space on Monday, April 20.

“We have to acknowledge that is not a situation we want to allow to continue, to the detriment of free nations and certainly [of] the United States,” Perry said during a polar issues panel moderated by [Dr. Abbie Tingstad](#), professor of Arctic Research at the Center for Arctic Study and Policy at the U.S. Coast Guard Academy.

The Arctic polar region is primarily ocean, surrounded on its edges by the eight member states of the Arctic Council: Canada; the Kingdom of Denmark, which includes Greenland and the Faroe Islands; Finland; Iceland; Norway; the Russian Federation; Sweden; and the United States, where Alaska includes a 1.5-million-square-mile exclusive economic zone in its surrounding waters.

Council decisions are achieved in agreement with six “permanent participants” that represent Aleut, Arctic Athabaskan, Gwich’in, Inuit, Saami, and Russian Indigenous people, who have inhabited the Arctic for millennia and are about 10% of the 4 million Arctic residents.

The Arctic in the last four decades has warmed three times faster than the worldwide average, according to a 2024 Arctic Council report, by its Arctic Monitoring and Assessment Programme. The has led to new concerns, collaborations, and potential conflicts among Arctic nations, all touched on by the Sea-Air-Space panelists.

For instance, Russia is revitalizing assets throughout the high north, including air bases; granting oil and gas rights to China; and refilling liquid natural gas tankers that are now built for the Arctic’s northern sea route. Although some of the Russian Federation’s long-range aviation is focused elsewhere, Perry said its northern fleet is “large unimpacted by the Ukrainian fight.”

A More Arctic NATO

Those are emerging threats, Perry said, but on the plus side: “Also what has changed in the last couple years is that Finland and Sweden joined NATO.”

With the exception of Russia, Perry works directly with these and other Arctic nations in his other role as the director of the U.S. 2nd Fleet Combined Joint Operations from the Sea Centre of Excellence (CJOS COE), established in May 2006. Representing 13 nations, CJOS is the only such center based in the United States and one of 27 NATO-accredited COEs worldwide to collaborate on maritime-based joint operations.

Perry said Arctic allies and partners in his geography under NATO are shoring up defenses against new Russian capabilities; increasing domain awareness and readiness through synchronized, scheduled exercises; and providing deterrence through an enhanced presence in the region.

Cooperation is key because it’s an “ugly endeavor” to operate ships, icebreakers and submarines in the harsh Arctic climate “all the time,” Perry said, adding that it’s not feasible to operate foot patrols across Greenland and Canada. “It’s not achievable and it would be really expensive.”

But allies must be a regular show of force in the region. “That’s where the missiles are going to fly – they’re going to fly over the polar region,” Perry said, “whether they’re coming from North Korea or China or Russia, and so we need to understand how to defend against that.”

Icebreakers on the Way

And “the icebreakers are coming,” said an excited Vice Admiral Nathan Moore, deputy commandant of Operations at the U.S. Coast Guard. “For us in the Coast Guard, that is something that we have not been able to say – well,

ever.” Two of three planned heavy icebreakers, being built at “world record speed,” should be operational in fiscal 2028.

This bigger fleet – including 11 Arctic Security Cutters – expands USCG patrol capabilities amid a 37% rise in U.S. Arctic maritime traffic, including of foreign military vessels traversing the area. “There’s a lot of icebreaker capacity coming,” Moore said. He added that allies have broadened their focus beyond search and rescue and pollution response to safety and sovereignty.

USCG still has to designate Arctic-trained personnel to command the new vessels and figure out how to supply, maintain and sustain the fleet in the remote region. For instance, Dutch Harbor, on Alaska’s Amaknak Island in Unalaska, is seven or eight days away by sea from the deep waters of the high north.

That’s why it’s essential to maintain relationships with allies, who operate deep water ports and bases the United States needs to use, Perry said.

Although there are challenges, the United States and partner nations still have immense knowledge that positions them well to compete in the region, said retired Navy Vice Admiral Bill Merz, a former submarine commander who is now senior vice president of Aerospace and Defense Technologies at Oceaneering.

“It’s a fascinating place to operate,” Merz said of the Arctic, teaming with life and spectacular visuals above and below the ice. But the operational environment is ever-changing and dangerous, he said, describing a cacophonous riot of crashing and shifting floes of varying thicknesses in areas that are almost impossible to map.

Leverage the Magic

Allied Arctic nations can partner with industry to gain even

more intelligence of the region. The U.S. oil and gas industry, he said, has unparalleled experience operating on the ocean floor for long stretches, including with uncrewed vehicles that can function without human intervention for months. "So, there's a lot of magic there," he said.

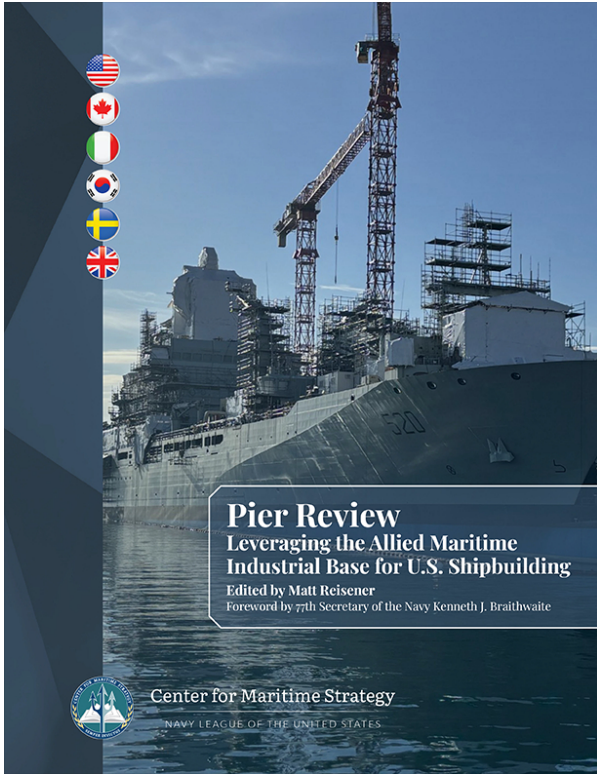
He conceded that China's Navy is disciplined and will be a regional player eventually. "But I tell you, they got a lot to learn," Merz said. "There's a difference between showing up at the Arctic and living and sustaining yourself in an environment where ... communications are horrible, navigation's tough" and there's very little, if any, infrastructure.

"That understanding is a tremendous advantage that we have and that we need to take advantage of," he said. "And as we bring industries and the navies together, that's a powerful partnership."

Maritime Industrial Base in Crisis, New CMS Report Finds

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However, many of the United States' maritime allies are

experiencing similar challenges to their domestic shipbuilding industries and have adopted creative approaches to solving them. The United States must utilize the experience, knowledge and resources of its allies to develop the best strategy possible for building a stronger, more resilient MIB.

Accordingly, the Center for Maritime Strategy conducted a study of America's allied maritime industrial base to examine how five American allies (South Korea, Italy, Canada, Sweden and the United Kingdom) build commercial and naval ships, how they support their shipbuilding industries and what lessons America can learn from its allies about how to revitalize its MIB.

Each country faces similar shipbuilding challenges to America but has taken a different approach to addressing them. Although South Korea and Italy have successfully maintained strong commercial and naval shipbuilding sectors, Canada and the United Kingdom have largely allowed their commercial sectors to atrophy while primarily focusing on warship construction, while Sweden has seen both sectors significantly diminish and maintains only marginal naval shipbuilding capabilities. Many of America's allies have successfully maintained strong MIBs by streamlining the process for designing and building ships. Among the countries studied, the most successful nations at sustaining strong commercial and naval shipbuilding industries have found ways to minimize late-stage design changes, build a greater variety of ships based on a common design and establish a shipbuilding culture which emphasizes delivering ships on time and under budget.

Similarly, the study illustrates how government investments in their MIBs can set their shipbuilding industries up for success, including by training the next generation of skilled tradespeople and supporting greater supply chain resilience. America's most successful shipbuilding allies

have also heavily invested in integrating new technology into their shipyards, fully embracing automation, digitization and artificial intelligence to support their work – often with strong government support for these efforts.

America can build a stronger, more capable MIB by partnering with and learning from its allies. Accordingly, this study provides recommendations for how America can apply these insights to support its MIB while embracing greater multilateral maritime cooperation.

CMS and speakers from the allied nations in the report will host a panel discussion on the new report on Tuesday, April 21 from 3:30-4:30 p.m. in the Cherry Blossom Ballroom.

Recommendations			
<p>Reforming the Design and Build Processes</p> <ul style="list-style-type: none"> • Design, then bend: Only begin vessel construction once the design is 100 percent complete to avoid disruptions. • Make VCMs the norm: Use vessel construction managers (VCMs) to oversee all government shipbuilding projects to streamline production and design processes. • Embrace modularity: Creating common designs to be used across multiple types of ships could reduce delays in the design process and increase interoperability. 	<p>Embracing New and Emergent Technologies</p> <ul style="list-style-type: none"> • Digitize, automate, and get “smart”: Integrate automation, digitization, and AI in shipyards to empower—not replace—the existing workforce. • Build ships to sail, engineer them to last: Increase operability by incorporating condition-based maintenance (CBM) in ship design to reduce the unpredictability of maintenance and repairs • Cross the digital divide: Embrace digitization by allocating Shipyard Infrastructure Optimization Program budgets to digitization, consulting mariners to address their needs, building worker trust in digital systems, and avoiding disrupting essential shipbuilding processes. 	<p>Increasing Allied Cooperation</p> <ul style="list-style-type: none"> • Leverage maritime alliances: Expand opportunities to collaborate with allies on shipbuilding, modeling existing frameworks like AUKUS, MASGA, and OCCAR. • Build a “bridge” over troubled waters: When American yards are at capacity, construct the initial ships in a multi-vessel purchase in allied ports while simultaneously investing in U.S. shipyards to eventually onshore construction. • Use allied ports in a storm: Engage U.S. maritime allies to provide drydock and port access to the U.S. Navy, especially those with maritime infrastructure in the Pacific. • “All hands on deck” for skilled labor: Supplement the domestic shipbuilding labor pool with high-skilled migrants from allied countries. 	
<p>Ensuring On-Time Delivery</p> <ul style="list-style-type: none"> • Incentivize success: Offer financial incentives (but not punitive fees) for on-time and on-budget delivery of ships. • Small blocks stack just as well as large ones: Order ships in smaller blocks to allow greater flexibility in design and capabilities and avoid cascading delays across larger block buys. 	<p>Training Current and Future Shipbuilders</p> <ul style="list-style-type: none"> • Educate, empower, lead: Expand shipbuilding apprenticeship opportunities and increase support to trainees. • Engineer the future of naval architecture: Expand existing and create new naval architecture and marine engineering programs to address labor shortages. 	<p>Strengthening U.S. Supply Chains</p> <ul style="list-style-type: none"> • If you need it, print it: Increase additive manufacturing capabilities and training opportunities to mitigate supply chain gaps and reduce overreliance on sole-source manufacturers. • Build supply chain contingencies: Reduce supply chain vulnerabilities in a conflict by developing contingencies which identify alternate sources and lean on dependable allies. 	<p>Revitalizing Commercial Shipbuilding</p> <ul style="list-style-type: none"> • Chart a collaborative course: Facilitate collaboration across government and industry to strengthen America as a competitor in the commercial shipbuilding sector. • Shared insight, collective impact: Share best practices to encourage cooperation among U.S. and AMIB companies to strengthen the shipbuilding industry.

Read the full report [here](#).

Q&A: Fincantieri Marine Group CEO George Moutafis



Fincantieri Marine Group CEO George Moutafis, right, tours company facilities. (CREDIT: Fincantieri Marine Group)

In February 2026, Fincantieri Marine Group (Booth 1223) issued the following release:

“As you may have seen in NAVSEA’s press release, the U.S. Navy tapped Fincantieri to build four of the first wave of Medium Landing Ships (LSMs) for the Marine Corps. Our \$1B investment over the last 18 years to create concurrent production lines across our Wisconsin system of shipyards has positioned us to be a prime player in the American shipbuilding renaissance. This announcement represents a good start of follow-on workload, part of the framework agreed with the Navy to

ensure stability following the announcement in November. Details are still being worked out between us and the Navy, and we will communicate any developments, as soon as they solidify. Our intent is to quickly build as many vessels as the Navy will trust us with, in the LSM class and other classes that our armed forces require, to contribute to our nation's needs."

Fincantieri Marine Group CEO George Moutafis later discussed the LSM program's vessel construction management (VCM) concept with Senior Editor Richard R. Burgess.

The Vessel Construction Management concept proved successful with Philly Shipyards and its National Security Multi-Mission Vessel (NSMV) program. What advantages and disadvantages do you see with the VCM concept?

MOUTAFIS: Advantages: I trust our Navy wants to see whether this mechanism can deliver quality vessels fast, by streamlining oversight and creating unity of effort. Such benefits can be achieved if the concept is applied in its intended form:

A key aspect is to empower the VCM to make decisions on construction, favoring schedule, without compromising quality and without seeking constant guidance or approval from the Navy. When combined with a complete and final design and a commercial-type relationship between the VCM and shipbuilders, this can be truly powerful and harness efficiency in decision-making and speed.

So, overall, this concept is aimed at simplifying things. From that vantage point, this approach aligns perfectly with our goal of fast serial production of naval vessels, and we are ready to continue our partnership with the Navy and help them test this concept.

Disadvantages: More than disadvantages, it will be key for all parties involved (the Navy, the VCM, the shipbuilder(s) to

embrace the concept, draw the relevant lines and collectively ensure we do not fall into mishaps of the past that might jeopardize what this concept is trying to achieve.



The U.S. Navy has issued a request for proposal for a vessel construction manager to oversee the acquisition of the new Medium Landing Ship. This strategy is designed to maximize commercial practices to accelerate delivery, improve cost discipline, and expand the U.S. shipbuilding industrial base, with a contract award anticipated for mid-2026. (CREDIT: Naval Sea Systems Command)

With the VCM chosen as the LSM program management concept, what changes will Marinette have to institute to accommodate the concept?

MOUTAFIS: We are ready. In Wisconsin we have a system of yards where we have executed successfully programs for our Navy, for our Coast Guard, but also for commercial customers, under a variety of contractual setups.

We will wait to see the details of how the Navy will position itself towards the program and how the VCM will seek to exercise oversight and work with us. We are ready to adjust to whatever those requirements are.

At first glance, an oversight and collaboration similar to the one witnessed during the NSMV program and a “build-to-print” design, for now, appear to alleviate some demands in terms of administration and engineering, allowing us to swiftly get into what we do best: swift serial construction ... but it all remains to be seen.

What adjustments, if any, will be needed for your workforce as you shift from LCS production to the LSM?

MOUTAFIS: Using a “build-to-print” approach allows construction to happen quicker. Plus, it minimizes change and prevents extensive and time-consuming design iterations.

We will need to review all the technical details, but we do not foresee major adjustments to workforce. Our system-of-yards configuration ensures agility in the workforce, rendering them able to jump from Navy standards to commercial or ABS standards.

And with the right level of sustained demand signal, we will be able to improve efficiency and speed, which will be a win for all parties. Our system of yards can accommodate multiple parallel lines, almost concurrently.

How is Marinette fairing with the nationwide shortage of skilled shipyard workers?

MOUTAFIS: No doubt, shipbuilders and the related

trades remain in high demand. We have expanded our recruiting efforts over the previous few years, and we are blessed to say that our efforts worked. Last year alone we hired nearly 800 employees and improved our retention by 50%.

Our Wisconsin operations saw positive feedback on several new initiatives over the previous 18 months, aimed at stabilizing the workforce. Efforts like cash bonuses to incentivize employee retention and tax-free subsidized childcare had a positive effect on our employees and our operations.

In years past Marinette had difficulty in retention of shipyard workers because of housing shortages in the region. Has that situation been alleviated to any degree?

MOUTAFIS: Yes, there has been a concerted effort by the local communities and developers to expand the number of local housing options that closely align to our growing workforce and their families. We believe this is less of an issue given the development and community support over the last couple of years in Northeast Wisconsin.

Is Marinette continuing with cooperative relationships with community colleges for workforce development? What is your assessment of the cooperation?

MOUTAFIS: Yes, we are continuing and seeking to expand our network of such collaborations. We have a continuously growing relationship with Northeast Wisconsin Technical College to not only reinforce the need to up-skill current employees, but also to introduce new technologies and digital tools to attract the shipbuilders of the next generation.

Imagine a not-so-distant future replete with examples of shipyard welders leveraging cobots (collaborative robots) to weld in places where it's difficult for humans to easily work. That is the future of shipbuilding

and why we're equipping our employees with digital tools like exoskeletons for demanding and repetitive tasks and augmented and virtual reality that allows workers on the deckplates to communicate challenges directly to the engineering team using a wearable digital device.

Raytheon Doubled ESSM Production in 2025



An Evolved SeaSparrow Missile is launched from a Mk 29 launcher aboard USS Carl Vinson (CVN 70) in 2010. (CREDIT: U.S. Navy | Mass Communication Specialist 3rd Class Patrick Green)

By Richard R. Burgess, Senior Editor

Raytheon Missiles & Defense (Booth 911) doubled production of the Block II RIM-162 Evolved SeaSparrow Missile (ESSM) in 2025 as it addressed the increased demand from the U.S. Navy

and its partners in the NATO consortium, a company official told *Seapower*.

“Last year, we produced over 350 ESSM missiles, which more than doubled what we were able to deliver in 2024,” said Misty Holmes, vice president for the Shipboard Organization within the Naval Power division. Her portfolio includes the ESSM, the Rolling Airframe Missile and the Standard family of surface-to-air missiles. She noted Raytheon delivered the 500th Block II version of the ESSM last September.

“We’re continuing to increase production this year to deliver over 400 all-up rounds, and we have a North Star in terms of our production capacity to go beyond 700 per year to meet that increased demand signal and service the needs of all of our customers’ navies,” Holmes said.

The ESSM, which became operational in 2004, is a short-to-medium shipboard surface -to-air missile deployed on several classes on U.S. Navy ships, including many guided-missile destroyers, aircraft carriers and amphibious assault ships. The missile is designed to counter advanced, highly maneuverable threats, and features a warhead specifically designed to defeat hardened anti-ship cruise missiles. In 2007, a surface-to-surface/anti-low-velocity air threat capability was introduced on the missile. The missile was developed by a consortium of 12 NATO nations and has been acquired by Japan through direct commercial sales.

“I believe that gives ESSM a unique and a distinct advantage in today’s munitions programs over those that are solely developed and managed by one nation,” Holmes said. “The consortium is NATO’s largest and most successful cooperative weapons project, and it’s been together for over 15 years supporting international military industrial cooperation.

The Block II ESSM, which became operational in 2020, features an active guidance system in addition to semi-active guidance,

reducing the need for shipboard radar illumination.

“This particular capability does come with significant digital processing margin,” Holmes said, “[A]s we are focused on innovation, [we] can continue to upgrade this capability to keep it ahead of pace with the threat to ensure that we’re keeping our ships and our Sailors, both U.S. and international allies, safe and coming home.”

Recent conflicts in Ukraine and the Red Sea have spurred demand for such weapons as the ESSM, which was fired against Houthi missiles and drones during 2023 and 2024.

“I do see this as a multi-factor issue, Holmes said. “We are seeing increase in the defense budget across numerous of our customers largely in Europe as well as others due to the threats, the war in Ukraine, the realization of expenditures in the Red Sea and others. So, we are seeing that increased demand signal come in pretty globally.”

Holmes said Raytheon is focused on the increased demand signal.

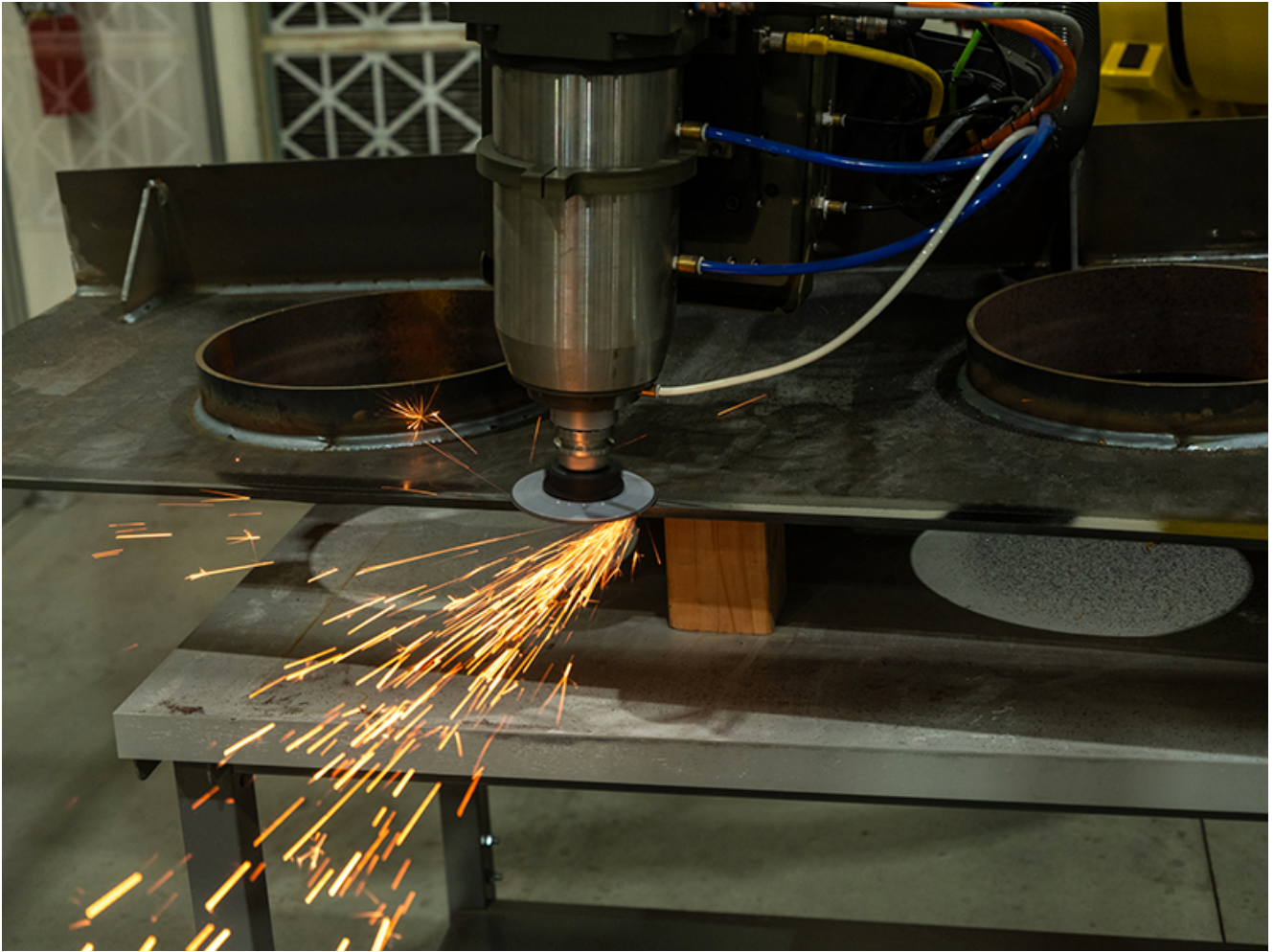
“This production really does showcase exceptional program performance that has been heavily supported by a very robust supply chain that’s been meeting and exceeding targets, and that supply chain is extremely diverse and global, she said. “Our suppliers, in ESSM’s case, are not just suppliers, there are partners, international industrial-based partners. Two areas that have been really big on this production are our industrial partners delivering on their contracts to make all those components ready for integration, and then the dedicated action by the Raytheon factory teams to improve throughput and remain focused on the goal that we have to meet and exceed our production targets. We’ve been working on test efficiencies, optimization and throughput to ensure we can continue to improve on our delivery.”

Is Raytheon working on a Block III ESSM? Holmes would only

say, “We are working on enhanced kinematics and maneuverability, things that will keep this weapon system ahead of the threat for the next few decades. But we’re eager to participate with the U.S. in the consortium in their next significant variant.

“We don’t sit back and rest on our laurels that what we’ve delivered is good enough,” she said. “We’re constantly adding capability to the suite of capabilities to make sure [that we are] staying ahead of the threat and those are investments we’re making in future ESSM capabilities as well in terms of funding new research and development ahead from government requirements.”

HII Moves Further into Physical AI for Shipbuilding



A GrayMatter Robotics technology performs autonomous grinding to an HII foundation project that used internal research and development funds.

By Brett Davis

Shipbuilding giant HII (Booth 923) has added another artificial intelligence partner to its shipbuilding program, taking another step toward adding “physical AI” to the process of constructing Navy ships.

In early April, the company announced it signed a memorandum of understanding with Carson, California-based GrayMatter Robotics to explore integrating GMR’s physical AI into shipbuilding operations, including for surface preparation, coating and inspection.

The companies will identify and potentially pursue future opportunities in four areas that include autonomous shipbuilding capability development; integration of GMR

technologies with other shipbuilding technology initiatives; workforce training to extend automation; and acceleration and scaling of unmanned system production.

“Our shipbuilding throughput was up 14% in 2025 and we are looking for an additional 15% increase in 2026,” said Eric Chewning, HII’s executive vice president of maritime systems and corporate strategy. “By working with new partners like GMR we can further augment our workforce and speed up U.S. Navy shipbuilding production.”

This follows on to a similar announcement from February, when HII signed an MOU with Ohio-based Path Robotics to incorporate physical AI for welding.

HII said much of the work that would be pursued by these companies currently is “hands-on and highly skilled,” but AI-driven technologies “offer promising opportunities to support these critical processes by reducing repetitive work and improving consistency to help accelerate delivery timelines and meet the U.S. Navy’s growing demand.”

Chewning said the introduction of physical AI is just one step of a series of actions HII is taking to improve shipbuilding, from increasing its supplier base to hiring and retaining new workers to making capital investments.

“And finally, what brings us here today, we are investing in new industry 4.0 technologies like digital engineering, additive manufacturing, enterprise AI and physical AI to drive overall shipyard efficiency,” he told reporters in a call about the announcement. “By working with new physical AI partners like GrayMatter Robotics and integrating them into our high-yield production robotics initiative, or HYPR, we can further augment the AI workforce and speed up the shipbuilding process by bringing automation into more areas of production.”

So far, shipyard automation remains limited to repeatable

Students with Science, Games and Fun



Kids raise their hands to answer a question during a Mad Science presentation

The annual STEM Expo kicked off Sea-Air-Space 2026 by giving students of all ages a look at the various technologies that underpin the maritime world of the sea services.

Attendees got examples of chemical reactions from Mad Science presentations, learned some of the principles of aerodynamics, saw how many marbles an aluminum foil boat could hold, and more, including getting a close-up look at welding to build ships.

STEM Expo sponsor HII featured a variety of exhibits at its booth, including the marble-carrying boats and welding systems. John Walker, 043 facilities manager at Newport News Shipbuilding, helped students work with an introductory

welding program.

“This introduces these kids to things that they’re probably not exposed to on a daily basis,” he said. “Even at the schools, they probably don’t talk a lot about welding, or fitting up steel, or even shipbuilding. So, STEM is very important to expose these kids to this type of technology and the things we do at the shipyard.”

The Navy League created the STEM Expo to give students interested in science, technology, engineering and math an opportunity to enjoy interactive workshops and hands-on demonstrations while accessing real-world career information.



Students are captivated by dry ice during a Mad Science demonstration at STEM Expo.

HII’s Buzz Donnelly, vice president of customer affairs and a former Navy carrier pilot and ship commander, said he has “spent a lot of time reaping the benefits of forums like this.” He said the STEM event is a great lead-off event for

local visitors and for Sea-Air-Space attendees from all over the world to share with their families.

“It’s extremely important to what we need as a defense industry, because these are the future engineers, the future tradesmen and laborers, that our heavy labor-centric force structure depends on. Regardless of how much we modernize with technology, automation, robots and cobots, we still rely on the people,” Donnelly said.



An attendee gets up close and personal with a pair of virtual-reality goggles at STEM Expo

“Having these young folks here today to see how exciting all the different aspects are, from the shipbuilding to the missiles and aerospace industry, [and] medicines here, is just a real motivating opportunity for them to get them excited about all the things that we do in this industry, to get excited about school, and I know for certain we’re going to have some of them that come in and benefit our nation and this industrial base in the future.”

Exhibitors at the event, which was also sponsored by Smart Learning Solutions, included universities, defense-related government agencies, science organizations and others.

Navy Awards Marinette Marine \$30 million Contract toward Medium Landing Ships



Navy Awards Marinette Marine \$30 million Contract toward Medium Landing Ships

By Richard R. Burgess, Senior Editor

ARLINGTON, Va. – The U.S. Navy has awarded a contract to a shipbuilder for materials and engineering activities for the

first four Block 1 medium landing ships (LSMs).

“Marinette Marine Corp., Marinette, Wisconsin, is awarded a \$30,000,000 not-to-exceed undefinitized contract action for advance procurement of long lead time material and associated engineering and design activities in support of four Medium Landing Ship Block 1,” the Department of War said in an April 14 contract announcement.

Marinette Marine Corp. is a unit of Fincantieri Marine Group FMG), which also is building two Constellation-class guided-missile frigates for the U.S. Navy. The Naval Sea Systems Command obligated \$15 million of fiscal 2025 funds at the time of the contract award.

The Navy plans to procure 35 LSMs to support the Marine Corps' expeditionary advance base operations.

“Enhancing our maritime dominance depends on a modernized fleet and a strong industrial base, and today's contract helps with both – it reduces schedule risk and enables our shipbuilders to rapidly transition to ship construction,” said Secretary of the Navy John C. Phelan in a post on X that also announced the contract award.

“Work will be performed in Marinette, Wisconsin (46%); De Pere, Wisconsin (39%); and Kenner, Louisiana (15%),” the Department of War's announcement said. “Work is expected to be completed by September 2027.”

In December 2025, the Navy and Marine Corps jointly announced Damen Naval's LST 100 landing ship would serve as the baseline to field a “proven, non-developmental design – would serve as the baseline to help rapidly field LSM capability,” according to the Naval Sea Systems Command. “The LSM will fill the capability gap between smaller, short-range landing craft and the Navy's long-duration, multi-purpose amphibious warfare ships. It is essential for the maneuver and sustainment of Marine forces, providing the critical littoral mobility

required in contested environments. The program will deliver a 35-ship fleet that enhances expeditionary agility and supports the Marine Corps' concept of distributed maneuver and logistics."

Key points made in Fincantieri's follow-up email announcement included the following:

- The contract supports long-lead materials procurement and early engineering and production readiness activities, enabling a potential start of construction as early as Q4 2026.
- The LSM program is a foundational element of U.S. Navy and Marine Corps force design, with up to 35 vessels planned; FMG is designated to build at least the initial four.
- The award builds on more than \$800 million in U.S. shipyard investments by Fincantieri over the past decade, supporting long-term naval and industrial capacity.

**USS John P. Murtha to
Support NASA's Artemis II**

Mission



Sailors assigned to amphibious transport dock ship USS John P. Murtha (LPD 26) and NASA engineers prepare to release a crew module test article from the ship's well deck, Jan. 26, 2026. John P. Murtha is underway in the U.S. 3rd Fleet area of operations performing a just-in-time training in support of U.S. Space Command's human space flight recovery mission to retrieve NASA's Artemis II crew and spacecraft following their splashdown in the Pacific Ocean. (U.S. Navy photo by MC1 Jomark A. Almazan)

From Petty Officer 1st Class Jomark Almazan, April 6, 2026

SAN DIEGO – Amphibious transport dock ship USS John P. Murtha (LPD 26) is slated to serve as the recovery ship for the Orion spacecraft and its crew upon their return from the historic Artemis II mission.

The ship is named in honor of the late and long-serving Pennsylvania Congressman John P. Murtha.

“It is a fitting tribute to Congressman Murtha, who dedicated his life to serving our nation, that the ship bearing his name will be integral to this historic moment in space exploration,” said U.S. Navy Capt. Erik Kenny, commanding officer of John P. Murtha. “He was a champion for our military and a visionary. We are honored to carry on his legacy by supporting NASA and the Artemis II mission.”

The Artemis II mission is the first crewed flight of NASA’s Space Launch System (SLS) rocket and Orion spacecraft, sending four astronauts on an approximately 10-day journey that will take them beyond the Moon. This mission will mark humanity’s first crewed voyage to the vicinity of the moon in over 50 years.

Upon completion of their mission, the Orion capsule will splash down in the Pacific Ocean, where John P. Murtha and its crew will be prepared to recover the astronauts and the spacecraft.

The U.S. Navy’s amphibious transport dock has unique advantages, including a well deck, helicopter pad, onboard medical facilities, and communication capabilities needed to support the mission. The platform gives NASA the ability to recover the Orion space capsule and collect critical data to help ensure it’s ready to recover the astronauts and capsule during future Artemis missions.

MH-60S Sea Hawk helicopters from Helicopter Sea Combat Squadron (HSC) 23 will provide imagery support for NASA by tracking the Orion space capsule as it travels through Earth’s atmosphere. After splashdown, HSC-23 helicopters will recover the astronauts once they exit the capsule and bring them to the ship for assessment and then transport them to shore.

Explosive Ordnance Disposal Group (EODGRU) 1 will provide Navy divers to recover and transport the Orion space capsule from

the ocean to the ship's well deck. Navy divers are experts in mobile diving, salvage, towing, and open water, small boat operations. In addition to the Navy divers, EODGRU-1 will support the recovery mission with a dive medical team to assess and assist the astronauts following their exit from the capsule.

Artemis II is NASA's first crewed mission in a series of missions around and to the lunar surface where crew can build and test systems needed to prepare for the challenge of future missions to Mars. The mission launched from NASA's Kennedy Space Center in Florida, April 1, with four astronauts onboard.

The (Other) Manhattan Project: Forgotten Island Had Front-Row Seat to Military History



The base is all that remains of the once-grand House of Taga.
Photo Credit: Nicholas Monck

On a historical impact per square mile basis, few places on earth rival the island of Tinian. Almost completely forgotten today, this small, isolated speck of land in the Northern Mariana Islands – located about 125 miles north of Guam – has been the site of some of the most consequential events in human discovery, construction and annihilation.

Since first being inhabited 5,000 years ago, Tinian has served as a stopping point for explorers and a launch pad for invaders. Though now often relegated to a footnote in history, Tinian's story offers vital lessons to the U.S. Navy as it reorients for an era of great power competition and works to counter an increasingly aggressive China in the Indo-Pacific.

One of the earliest oceanic landmasses to be inhabited, seafaring people, likely originally from Southeast Asia, traveled thousands of miles across the open ocean in outrigger

canoes and arrived in the Mariana Islands around 3000 BC. Their settlements on Tinian are some of the oldest prehistoric sites in the United States and its territories. The Portuguese explorer Ferdinand Magellan is believed to have spotted Tinian during his 1521 circumnavigation of the globe. Magellan elected to bypass Tinian and instead landed on Guam after spending nearly 100 days at sea. Because of a misunderstanding of the size of the globe, he had expected the passage from South America to Asia to take three or four days and his crew was dehydrated and starving when they finally reached the Mariana Islands. The crossing was so treacherous that Antonio Pigafetta, the expedition's official chronicler, wrote "I believe that nevermore will any man undertake to make such a voyage."

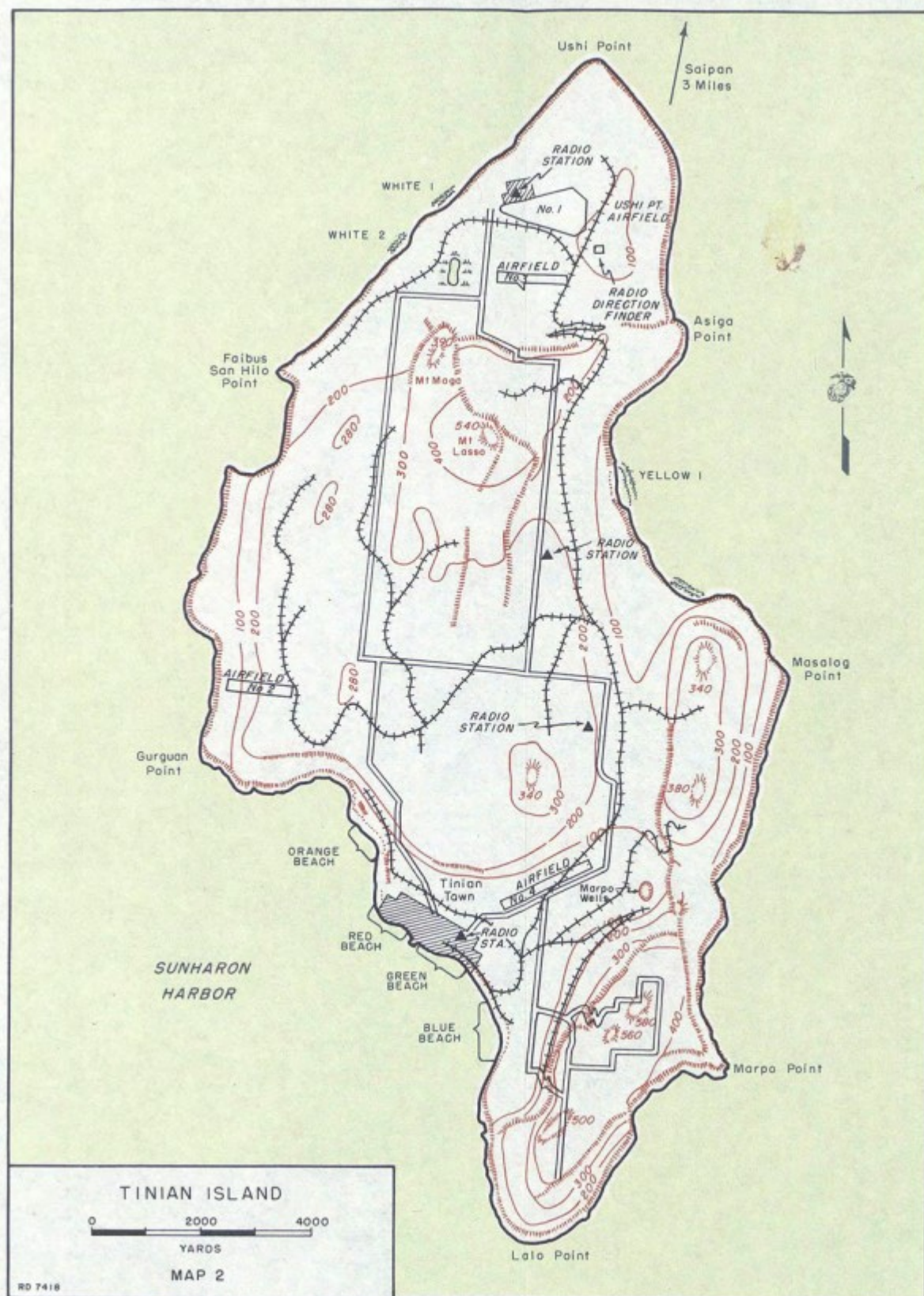
Despite the hardships of the initial voyage, Spanish explorers returned within five years and the 1529 Treaty of Zaragoza eventually placed the islands within Spain's sphere of control. Permanent Spanish settlement, however, did not begin until 1664, led by Jesuit priests and soldiers who arrived in Guam in 1668. Two priests traveled onward to Tinian, likely becoming the first Europeans to step foot there, but their presence inflamed tribal conflicts that forced a retreat five years later. Spain eventually secured the Mariana Islands in 1698 and forcibly removed the native population of the northern islands to Guam. Consequently, Tinian remained largely uninhabited for over a century, save for brief occupations by the crews of passing English warships in 1742 and 1765.

In April of 1898, following the sinking of the USS Maine in Havana Harbor, the U.S. declared war on Spain. The cruiser USS Charleston, under the command of Captain Henry Glass, was dispatched from California to Manila to support Commodore George Dewey's Asiatic Squadron in its attack on the Spanish-held Philippines. While resupplying in Honolulu, Glass received orders to detour to Guam and "use such force as may

be necessary to capture the port of Guam, making prisoners of the governor and other officials and any armed force that may be there. ... These operations at the Island of Guam should be very brief and should not occupy more than one or two days."

When Glass reached Guam on June 20, 1898, he found the island only lightly defended. The Spanish, unaware war had been declared, mistook his cannon fire on the fort at Santa Cruz as a military salute. Hopelessly outmatched, the Spanish governor surrendered without bloodshed the next day to two junior officers and four soldiers from the Charleston who had been sent ashore by Glass. The island was left under the authority of Francisco "Frank" Portusach, the only American citizen then residing in Guam, and the Charleston sailed onward to Manila.

While Spain ceded Guam to the U.S. in the Treaty of Paris, Tinian and the northern islands were left under Spanish rule in an apparent American oversight. Having lost the principal island, Spain saw little reason to keep the rump of its Micronesian possessions and quickly sold the lossmaking islands to Germany for 25 million pesetas (equivalent to \$160 million in 2026). Nonetheless, they continued under the local control of Spanish landowners and the number of German nationals throughout the entire Mariana territory never reached double digits.



Landing Beaches and Japanese development on Tinian by 1944.
 Image credit: U.S. Marine Corps
Japan Takes Over

At the start of World War I, Japan captured the German-held Marianas pursuant to a secret agreement with Britain.

Following the war, the League of Nations formally appointed Japan to manage the islands as part of the South Seas Mandate. Under Japanese administration, Tinian was transformed into "Sugar Island," featuring a massive sugar-plantation economy, 40 miles of railroad track and a mill capable of producing 1,200 tons of processed sugar daily.

In the opening days of World War II, Tinian remained relatively peaceful and was not garrisoned by the Japanese military. By 1943, American military leaders recognized the strategic importance of capturing Tinian to establish heavy bomber bases for the strategic bombing of the Japanese home islands. This objective was incorporated into Operation Forager, a massive undertaking involving 535 ships and 125,000 combat troops. Before the invasion could begin, the U.S. Navy neutralized the Japanese fleet in the decisive Battle of the Philippine Sea, famously known as the "Great Marianas Turkey Shoot," where American pilots, submariners and gunners destroyed approximately 476 Japanese aircraft in two days.

Even with the Japanese fleet in shambles, Tinian still possessed formidable natural obstacles to a successful amphibious assault. The island was almost completely surrounded by cliffs ranging from six to 100 feet in height. Only one beach, near the main town in the southwestern part of the island, was large enough to support a full-scale landing. Two much smaller beaches in the north were judged too narrow to support a major invasion. The Japanese, once they belatedly realized the strategic vulnerability an American-held Tinian presented to their home islands, concentrated their defenses on the larger southern beach, fortifying it with mines and entrenched gun positions with interlocking fields of fire.

Following the Battle of the Philippine Sea, the Japanese on Tinian did not have to wait long for the expected invasion. The U.S. 4th Marine Division landed on Chulu Beach in Tinian's northwest corner on July 24, 1944. Before the landing, the decision to use the northern beaches was the subject of

fraught controversy between the Marines and Navy. Vice Admiral Richmond Turner, in charge of the Forager invasion fleet, believed them too small to support the invasion force and flatly refused to land troops on them. Marine Lieutenant General Holland Smith, who led the ground element, characteristically retorted, "You'll land any goddamned place I tell you to." The Marines won and Smith ultimately was vindicated. By Aug. 1, the island had been declared secure. Admiral Raymond Spruance, 5th Fleet commander, described the invasion as "probably the most brilliantly conceived and executed amphibious operation of World War II."

Even in the midst of the seven-day battle, Navy Seabees began developing Tinian for offensive operations. The island was roughly the shape and size of the island of Manhattan, so geographical place names were borrowed and streets were laid out similar to New York City's grid. The former Japanese townsite near the southwestern end of the island became "the Village" after Greenwich. The two major roads which ran the length of the island were named Broadway and 8th Avenue. A large undeveloped area in the center was called Central Park.

The Seabees constructed two massive runway complexes with six 8,500-foot runways, creating the world's busiest airfield by 1945. Between March and August 1945, daily bombing raids of more than 100 planes would be launched from the island. Tokyo, Osaka, Kobe, Nagoya and Yokohama would all be decimated by Tinian-based planes of the XXI Bomber Command. The greatest destruction, though, occurred on Aug. 6, 1945, when the B-29 Superfortress Enola Gay took off from Runway Able and dropped the first nuclear weapon used in combat on Hiroshima. Three days later, Bockscar, another B-29 bomber, would do the same to Nagasaki, killing a combined 200,000 people and bringing an end to the most devastating war ever waged.

Following Japan's surrender, the military rapidly withdrew from Tinian, turning the island into a ghost town virtually overnight. In 1977, the Northern Mariana Islands approved a

constitution and established itself as a commonwealth in “political union” with the U.S. The federal government maintained control of the majority of Tinian’s acreage via a lease agreement that made the land available for the military’s use. These days, the single gas station on the island closes early on Sunday afternoons and only a handful of passengers pass through the cavernous, partially abandoned, airport terminal each day.



The bomb pit that held the “Little Boy” bomb before it was loaded onto the Enola Gay. *Photo credit: Nicholas Monck*

Lessons for Today

Even as it continues to be reclaimed by nature, Tinian still offers pertinent lessons to today’s military leaders. A confrontation with the People’s Republic of China, much like Japan 80 years ago, will require a complex system of forward bases to stage equipment and personnel. American military planners have noted “the Chinese concept of defending along a

first island chain and a second island chain is eerily reminiscent of Japan's defensive strategy in World War II."

The difficulty of defending remote forward bases across the Pacific remains as true today as 1941. Just as the Japanese Combined Fleet was able to launch a surprise attack against Pearl Harbor and capture Guam, the Philippines and Wake Island in World War II's opening days, China's DF-26 intermediate-range "Guam Killer" ballistic missile and DF-ZF hypersonic missile threaten United States bases in Guam, Japan and South Korea. With thousands of missiles and aircraft capable of targeting Guam, completely blocking a surprise attack has been described as "infeasible." In the days, hours or minutes before an attack, high-value assets will need to be dispersed to survive the initial barrage of missiles. Once again, Tinian may prove essential to control of the battlespace in the Western Pacific.

In his April 2023 remarks to the House Armed Services Committee, Admiral John Aquilino, then-commander of U.S. Indo-Pacific Command, listed "distributed force posture" as his number one priority because it "supports all elements of the joint force, enables our ability to seamlessly operate with our allies and partners, and demonstrates U.S. commitment to a stable and peaceful security environment ... a widespread and distributed force posture west of the IDL [International Date Line] gives us the ability to more easily exercise and operate with our partners, increases survivability, reduces risk and sustains the force with a network of stores, munitions, and fuel to support operations in a contested environment." Expanding the Department of Defense's footprint on Tinian is a core component of fulfilling that theater mission.

The successful landing on Tinian also demonstrated the importance of integrated Navy and Marine Corps operations that included land, air and even long-range ground artillery components. Eight decades ago, strong inter- as well as intra-service operational capabilities were necessary to defeat the

Japanese. These cooperative capabilities remain essential to the Department of Defense's ability to project power across the Pacific. A small Marine unit equipped with long-range anti-ship missiles placed on Tinian or another Mariana Island could control thousands of square miles of waterspace, denying the Chinese Peoples Liberation Army Navy the ability to conduct blue water operations in the Western Pacific.

Much like WWII began with Japan's attempt to decapitate the U.S. Pacific Fleet, the next battle for control of the Indo-Pacific may start with attacks on critical naval installations in Guam, Okinawa and Japan. Building dispersed, survivable infrastructure in places like Tinian will be decisive in preventing a first strike from eliminating the U.S. Navy's ability to effectively operate in the South China Sea, the Sea of Japan or the Philippine Sea. In Europe, Russia's invasion of Ukraine has brought a return to trench warfare not seen for over a century. In the Pacific, an island-hopping campaign, much like Admiral Chester Nimitz's, Admiral William Halsey's, and General Douglas MacArthur's during World War II, may be required to secure supply lines to regional partners and maintain forward bases during the next conflict. Once again, Tinian could be the linchpin to American control of the Western Pacific.

Today, Tinian is virtually abandoned and difficult to get to. A skeleton of its former self, trees sprout through the roof of the old Japanese Communication Building, visitors can drive on the weed-strewn Runway Able, and only the foundations remain of the Army hospital's vast wards. The island has become a living legacy to the millennia of people who have gone before us and a haunting reminder of the human and environmental impact of war. The lessons Tinian offers – of exploration, human endurance, and sacrifice – aren't just for history books, but continue to offer value to today's, and tomorrow's, Navy.

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Military Law at the United States Naval Academy. He has previously been stationed in Hawaii and Guam. The views expressed in this article are those of the author and do not reflect the official policy or position of the U.S. Naval Academy, the Department of the Navy, the Department of Defense or the U.S. government. This article previously appeared in the February-March issue of Seapower magazine.

‘Let Foreign Yards Build U.S. Navy Auxiliary and Service Ships Now’



Military Sealift Command's newest fleet replenishment oiler, USNS Lucy Stone (T-AO 209), slides down the rails, and into the San Diego Bay, following its christening at the General Dynamics NASSCO shipyard in San Diego in 2024. *Photo credit: Military Sealift Command Pacific | Sarah Cannon*

There is much current discussion about having [foreign shipyards build U.S. Navy warships](#) as a way to increase production and fleet numbers. That sounds good on paper, but if the target is combatant ships, then there will be significant challenges.

First, U.S. Code (10 USC 8679 of 1993 states, "no vessel to be constructed for any of the armed forces, and no major component of the hull or superstructure of any such vessel, may be constructed in a foreign shipyard," unless a presidential waiver in the interest of national security is granted. Even with such a waiver in hand, every nation builds ships to their own standards and reaching commonality, even among close allies, has been historically difficult. The recent Constellation-class frigate debacle exemplifies some of the difficulties that foreign shipbuilders have faced in getting a ship to the U.S. Navy standard, even when such ships are being constructed in the United States. And few if any recent foreign built surface combatants have been actually tested in combat.

Fortunately, there is a U.S. market where foreign shipbuilders can immediately have impact, and that is the long list of badly needed auxiliary and service vessels that the U.S. Navy has also neglected building over the last 40 years; to include tenders, repair ships, hospital vessels, icebreakers and command ships. Building these units will allow foreign shipbuilders to develop the necessary experience to later compete for other U.S. Navy designs but the challenges with combatant warships will persist.

National standards for warship construction vary, and even relatively close allies such as those in NATO have experienced

challenges in creating common warship designs. Several attempts have been made over the last 60 years to create a common frigate design which all NATO nations might embrace.

The first of these began with a [1968 working group](#) to build a common antisubmarine warfare frigate for the alliance. There were numerous arguments, however, over what systems the NATO frigate would incorporate, and which nations would provide them. The proposed "Type 70" NATO frigate became eight different national designs, with Belgium, the United Kingdom, France, West Germany, the Netherlands, Denmark, Italy, and the United States all pursuing different specifications. The 1990s saw another attempt to create a common NATO frigate, which also foundered on differing weapons outfitting and missions. Begun in January 1988, eight nations (U.S., U.K., Spain, France, Italy, Canada, Germany, and the Netherlands,) again tried to combine their national frigate requirements. The United States dropped out early in the process, with the U.S. Surface Combatant Force Requirement Study stating there was no need for a new U.S. frigate design, leaving the FFG-7 Oliver Hazard Perry class to soldier on into the 2010s. The British, French and Italians formed the "Horizon" program that ultimately produced air defense destroyers rather than low-end frigates, with the British breaking off of the group to produce what ultimately became the Type 45 destroyer.

Learning Priorities and Concepts

Getting navies to agree on common components is hard, and even when one navy buys another navy's ship, with a supposedly agreed design, the results can still be mixed. In the early 1990s the U.S. purchased the Italian navy's Lerici-class coastal mine hunter design, which became the Osprey class in U.S. service. While there is anecdotal evidence the ship's Voith Schneider propeller system, a major change from the Italian parent design, was not well received by U.S. Navy Sailors and officers, the ships were built and commissioned as planned and served well until retired (with less than 10

years' service in some cases) in the mid-2000s to make way for the planned mine warfare capabilities of the littoral combat ship.

The problems of the Constellation-class frigate, and its alleged 85% deviation from its Italian/French FREMM design, are well known and need not be belabored. The FREMM has been a very successful design for the Italian, French, Tunisian and Algerian navies, but the vast number of changes imposed on the design by the U.S. Navy hints at the very different idea of what elements of ship design characterize a U.S. frigate. U.S. Naval Sea Systems Command (NAVSEA) representatives would need to monitor every step of design and construction as they do for ships built in the United States. It would take time for each side (foreign shipbuilder and NAVSEA) to learn the other's priorities and operating concepts. The practicalities of that level of oversight are likely to make current standards impossible to guarantee.

Classification would be another issue even with a presidential waiver to build overseas in hand. Will large numbers of foreign shipbuilders need U.S. background checks and/or security classification to work with a U.S. surface combatant build? If no, would large numbers of U.S. workers need to move to foreign yards, probably with appropriate language expertise to work within an unfamiliar foreign shipyard environment? Such special considerations would need advanced coordination before any shipbuilding takes place and are likely to involve increased costs. Overlay the complexities of Union acquiescence and the difficulties fall into sharper focus.

The habitual relationships developed during associations between U.S. shipbuilders and the U.S. Navy contribute to generally a smooth building organization, notably in mature U.S.-design aircraft carrier, submarine, destroyer and amphibious vessel building programs. Regardless of other shipbuilding challenges with the littoral combat ship and the Constellation-class frigate, U.S. warships have performed to

design in naval combat in the Red Sea and other parts of the globe.

While there has not been sustained, high end naval warfare since 1945, few navies other than the United States Navy have engaged in anything approaching World War II combat. U.S.-built ships such as the Perry-class frigates Stark and Samuel B. Roberts, and the Arleigh Burke-class destroyers Cole, Fitzgerald and John S. McCain, all suffered significant battle or collision damage and survived to be repaired and rejoin the active fleet. Expert U.S. Navy damage control provided by well-trained, brave, and resolute U.S. Navy Sailors contributed to the saving of all these ships, but so too did their robust construction and durability in operations. Any foreign-built, U.S. Navy combatants would need to equal these high standards. Could they?

Hybrid Methods

This is not to suggest foreign yards could not make contributions to U.S. warships. There are some hybrid methods through which vessels can be partially built in foreign shipyards and then moved incomplete to a U.S. naval or civilian shipyard for final outfitting of government-furnished equipment. Australia's Landing Ship, Helicopter Dock (LHD) Canberra class of two ships (Canberra and Adelaide) were built as a joint project between Navantia shipbuilding (Spain) and then-Tenix Defence (now part of BAE Systems) from 2007-2015. Navantia produced the hull of the ship and associated machinery up to the flight deck, while BAE systems completed what was termed the "Australianization" of the ships and its supply chain systems after the hulls were moved from Spain to Australia via heavy-lift vessel.

Sweden similarly had its new intelligence gathering ship HSwMS Artemis partially built in the Polish Nauta shipyard, but the vessel was delivered earlier than planned due to business issues within the Polish yard and finished by Sweden's only

naval yard operated by Saab Kockums, with assistance from Polish shipworkers working at the Swedish yard. While this was not the intended plan to complete the vessel, it is an example of primary construction by a foreign yard that was finished in the vessel's own flag state.

These examples illustrate the challenges of building combatant ships of any navy in a foreign shipyard. It's not "mission impossible," but there are enormous challenges to overcome before such construction can take place. In the meantime, the United States Navy has significant requirements for its long-neglected service fleet and combat logistics force that can be met by foreign shipyards. The U.S. has purchased logistics vessels from other nations in the past, and much of the construction of tenders, repair ships, hospital vessels, and command ships could, like the Australian LHD vessels, be built largely in foreign yards and then outfitted as U.S. or Military Sealift Command ships in U.S. shipyards. Those ship types are good starting points for foreign yards seeking U.S. navy – specifically Military Sealift Command – business.