



This Week in Undersea Warfare History:

March 29, 1944 | USS Haddo (SS 255) torpedoes and sinks Japanese army cargo ship Nichian Maru in South China Sea.

March 30, 1944 | USS Stingray (SS 186) sinks a transport ship near Saipan.

March 31, 1945 | USS Morrison (DD 560) and USS Stockton (DD 646) sink the Japanese submarine I-8, 65 miles southeast of Okinawa.

April 01, 1893 | Navy General Order 409 establishes the rate of Chief Petty Officer.

April 02, 1943 | USS Tunny (SS 282) sinks the Japanese transport No.2 Toyo Maru west of Truk.

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Congress looks to rein in Biden's war powers

Jordain Carney, The Hill, March 30

HII-General Dynamics team win option to build tenth US Navy submarine

Not Attributed, Naval Technology, March 30

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Not Attributed, Military and Aerospace, March 30

Newport News-Electric Boat team wins \$2.42 billion contract for additional Virginia class sub

Dave Ress, Daily Press, March 29

Navy takes key step toward potentially integrating long-range hypersonic weapon on surface combatant

Jason Sherman, Inside Defense, March 26

CBO: Navy Still Needs Bigger Workforce to Dig Out of Submarine Maintenance Backlog

Mallory Shelbourne, USNI News, March 26

USS Bremerton submarine, in its waning days, turns 40

Josh Farley, Kitsap Sun, March 28

Virginia: The Missile Packed Submarine Built to Fight China in a War

Peter Suci, National Interest, March 29

USS Greeneville arrives at Portsmouth Naval Shipyard for overhaul

Not Attributed, New Hampshire Union Leader, March 28

Navy unveils new Submarine Universal Modular Mast Maintenance Tower

WAVY staff, WAVY, March 31

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Revealed: China's New Super Submarine Dwarfs Typhoon Class

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China's growing firepower casts doubt on whether U.S. could defend Taiwan

Dan De Luce and Ken Dilanian, NBC News, March 27

Taiwan to buy new U.S. air defence missiles to guard against China

Yimou Lee, Reuters, March 31

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Tony Bertuca, Inside Defense, March 31

Russia stages fresh military drills in the Arctic

Not Attributed, Agence France-Presse, March 30

North Korea says Biden administration took wrong first step over latest missile test

Hyonhee Shin, Reuters, March 27

North Korea accuses UN of double standard over missile firings

Hyung-Jin Kim, Associated Press, March 28

U.S. eyes additional UN action on North Korea after missile tests

Matthew Lee, Associated Press, March 30

Iranian Leaders Split on Return to U.S. Talks

Sune Engel Rasmussen and Aresu Egbali, Wall Street Journal, March 27

Satellite image shows renewed activity at North Korean nuclear lab

Andrea Mitchell, Dan De Luce and Abigail Williams, NBC News, March 30

Iran Says Sanctions Could Force Shutdown of Nuclear Power Plant

Arsalan Shahla, Bloomberg News, March 29

South Korea capable of intercepting N.K. short-range missiles – defense ministry
Not Attributed, Yonhap News Agency (South Korea), March 30

Japan PM Suga still willing to meet North Korean leader Kim – spokesman
Not Attributed, Kyodo News (Japan), March 30

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Jason Scott, Bloomberg News, March 31

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Dan Gouré, Real Clear Defense, March 27

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U.S. Undersea Warfare News

Congress looks to rein in Biden's war powers

Jordain Carney, The Hill, March 30

Congress is wading into a messy fight over President Biden's war powers after years of ceding authority to the White House.

The legislative effort is blurring political lines by testing the balance of power between two branches of government and creating strange bedfellows, with hawkish Republicans who disagree with Biden's policies wary of attempts to limit presidential authority on the issue.

Proponents of change are hoping Biden's ascendancy, after serving for decades in Congress, and shifts in public opinion in the decades since earlier military authorizations by lawmakers will provide a boost of momentum after years of stalemate.

"I think we're overdue. ... We are so far past the scope of what any member serving in '01 or '02 imagined," said Sen. Chris Coons (D-Del.), who serves in Biden's old Senate seat. "I think it's important that we take this up, debate it and pass something."

Congress is looking at three previous authorizations for the use of military force (AUMFs): the 1991 measure for the Gulf War, the 2001 bill passed days after the 9/11 terrorist attacks and 2002 legislation passed for the Iraq War.

The biggest challenge, lawmakers acknowledge, will be how to handle the 2001 authorization. It was approved by Congress just days after Sept. 11, 2001, to go after terrorist groups behind the attack. But it's since been stretched to cover military operations in 19 countries, including against groups that didn't even exist on 9/11.

"What the replacement looks like, what are the contours of it, that's going to be the tricky part of that and the more difficult part," said Sen. Bob Menendez (D-N.J.), the chairman of Senate Foreign Relations Committee.

Sen. Todd Young (R-Ind.), a member of the panel, agreed that the 2001 AUMF should be "rewritten" but that it would be hard to do.

"The administration seems open to revisiting some of these things, but admittedly the '01 AUMF is going to be much more challenging than ditching the '02 and the '91," he said.

The Biden administration has signaled it's open to revamping the military authorizations, sparking optimism among those on Capitol Hill who want Congress to reassert itself on foreign policy after increasingly yielding to the executive branch in recent decades.

White House press secretary Jen Psaki said in a statement that the administration was "committed to working with Congress to ensure that the authorizations for the use of military force currently on the books are replaced with a narrow and specific framework."

Menendez and Sen. Tim Kaine (D-Va.) say they are in early discussions with administration officials about

rewriting the 2001 authorization. Kaine, who noted that he had already talked with national security adviser Jake Sullivan, predicted that they would sit down after the current two-week recess to talk about what the administration's red lines might be.

"The first thing I'm trying to do is talk to the White House about any 'thou shalt' or 'thou shalt not,'" he said. "We're going to have to find, definitely, an accord. Because there's different points of view."

But trying to repeal the 2001 authorization could spark pushback from both sides — with the executive branch and Republicans wary of taking potential military options off the table and Democrats wanting new restrictions.

Sen. Ben Cardin (D-Md.) said the 2001 authorization has been "misused" and was no longer "functional."

"You're going to have to get ... the president to take on White House counsel to do what's right because White House counsel will tell a president, 'Why do you want to limit your options?'" he said.

Progressives view a sunset on the 2001 rewrite, where it would automatically expire unless Congress acted, as a must-have. They also want stricter guardrails on where the authorization can be used and what terrorist groups it should cover.

But reining in the 2001 bill could be anathema to some Republicans.

Sen. James Inhofe (Okla.), the top Republican on the Senate Armed Services Committee, questioned the need for a debate, saying, "We don't need to do that." And Sen. Lindsey Graham (R-S.C.) told The Washington Post that he thought the debate about previous authorizations could "incentivize the rise of terrorism."

Democrats acknowledge they are likely to get pushback from Republicans but are hoping that they'll be able to pick up at least 10 GOP votes in the Senate on a 2001 rewrite.

Cardin said there would be "significant Republican opposition" but that he thought there could be support for a "reasonable" authorization.

"I think we're now so many years into this war that the American public, I think, is reflecting a view that's having an impact on the traditional views of some of the members of the Senate," he said about the war on terror.

In a sign of shifting sentiments, Rep. Tom Cole (R-Okla.) said he was "coming around" to the idea of putting a hard expiration date on any new authorization.

"I think there's got to be some way where Congress renews these things," he told WBUR's "On Point."

Sen. Mike Rounds (R-S.D.) added that he thought it was "appropriate to review" the previous authorizations, even though he wasn't sure if he would support the end result.

“I think time has a lot to do with it. ... We’re getting past the point where the original request, and the reason for the original request, needs to be revisited. ... I’m not sure after we revisit, I would agree” to changes, he said.

To help work their way up to a fight over the 2001 authorization, lawmakers are setting their sights on an easier, but still significant target: repealing a 1991 authorization for the Gulf War and a 2002 authorization for the Iraq War. The House Foreign Affairs Committee voted late last week to repeal the 2002 authorization, with two Republicans joining Democrats on the panel.

In the Senate, a bipartisan group spearheaded by Kaine has introduced legislation to repeal the 1991 and 2002 authorizations. Menendez indicated that he intends to take them up “sooner rather than later” but declined to give a specific timeline.

“We’re going to look at two of the previous AUMFs that I think there might be more common agreement that can be repealed,” he said. The House passed a repeal of the 2002 AUMF in the past two years, but the bills went nowhere in the GOP-controlled Senate. Democrats already have the support of four GOP senators, meaning they only need six more to overcome a filibuster.

“My strong suspicion is that we’ll find at least 10. ... My hope would be significantly more in number than that,” Young said about GOP support for repealing the 1991 and 2002 authorizations.

Murphy added the efforts to repeal the 2002 authorization was Congress getting its “feet wet when it comes to dealing with AUMFs.” Biden’s ascendancy to the presidency sparked new hope that Congress and the White House could finally tackle the perennial debate about what to do about the decades old authorizations, given Biden’s long tenure in the Senate, where he served as chairman of Foreign Relations Committee for years.

Coons, a close ally, predicted Biden would be a president “most likely to welcome congressional action in this area.”

But there are complications. Biden’s pledge to have all 2,500 U.S. troops out of Afghanistan is already facing skepticism. The U.S. withdrawal is supposed to be contingent on the Taliban meeting certain benchmarks including breaking with al Qaeda, but top military officials say Taliban leaders are not adhering to the agreement.

And there have been broader tensions between the Democratic-controlled Congress on military authorization after Biden launched a strike in Syria against Iran-aligned militias last month. The administration rankled lawmakers who felt they weren’t properly notified, and Democrats signaled after a briefing last week that they still disagree about the administration’s argument that the strike fell under Biden’s Article 2 powers.

“I am still in search of more answers,” Menendez said, calling it an “ongoing debate” between Congress and the White House. Congress is wading into a messy fight over President Biden’s war powers after years of ceding authority to the White House.

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Here's what's in Biden's infrastructure proposal
Murphy added that the administration has “broader definition of their legal authority,” signaling that it was a discussion lawmakers needed to tackle along with the military authorizations.

“We have to redo the AUMFs. ... The new problem is that administrations aren’t looking to the AUMFs but just continuing to expand their Article 2 authority. I think the disagreement here is whether they have the Article Two authority,” Murphy said.

“I think we should solve the AUMF problem,” he added, “but that doesn’t address the broadening jurisdiction.”

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HII-General Dynamics team win option to build tenth US Navy submarine

Not Attributed, Naval Technology, March 30

The US Naval Sea Systems Command has awarded a contract to construct the tenth Block V Virginia-class submarine with Virginia Payload Module (VPM).

General Dynamics Electric Boat (GDEB) is the prime contractor for the Block V Virginia-class programme.

The approximately \$2.42bn fixed-price incentive modification to a previously awarded contract will see GDEB continue to subcontract with Huntington Ingalls Industries – Newport News Shipbuilding (HII-NNS).

In December 2019, the US Navy awarded a \$22bn contract to the shipbuilding team for the construction of nine new Block V Virginia-class submarines. This contract included an option for one additional Block V submarine with VPM.

The latest contract modification exercises the option for the new submarine. It brings the cumulative face value of the contract for Newport News to \$9.8bn.

So far, HII's Newport News and GDEB have built and delivered 19 Virginia-class submarines.

HII Newport News Virginia-class submarine construction vice-president Jason Ward said: "We are pleased that Congress supported the restoration of funding for the tenth Virginia-class boat in Block V.

"We look forward to building and delivering the final boat of the block that maintains production at two submarines per year and continues to stabilise the industrial base."

Construction of the yet to be named submarine is expected to start in early 2024.

Work under the contract will be carried out throughout the US and other areas outside of the country.

Delivery of the first Block V submarine is expected to take place in fiscal year 2025.

Earlier this month, HII launched the US Navy's newest Virginia-class multi-mission nuclear-powered submarine Montana (SSN 794).

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Secretary of the Navy visits Norfolk Naval Shipyard

Michael Brayshaw, NAVSEA, March 26

NORFOLK NAVAL SHIPYARD, Portsmouth, Va.,

-- Acting Secretary of the Navy Thomas W. Harker visited Norfolk Naval Shipyard (NNSY) March 17.

During an activity-packed afternoon, Harker met with NNSY's senior leaders, toured facilities and spoke with shipyarders working to deliver strategic naval assets back to the Fleet.

Alongside Shipyard Commander Captain Dianna Wolfson and Nuclear Engineering and Planning Manager Jeremy Largey, Harker visited the waterfront to receive updates on the shipyard's availabilities. These include the aircraft carriers USS George H.W. Bush (CVN 77) and USS Harry S Truman (CVN 75); two Los Angeles Class submarines, USS Pasadena (SSN 752) and USS Toledo; and USS San Francisco (SSN 711), undergoing conversion to a Moored Training Ship to train the next generations of Fleet operators.

"I'm really thrilled to be here with you all," said Harker while meeting with members of the Pasadena project team to discuss the boat's undocking. "There's an opportunity to make improvements in our depot level maintenance processes that will increase our ability to deliver ships on time and on budget, and acquire lessons learned to drive future changes that will serve as an example for everyone else."

During this engagement, Wolfson and Harker discussed the Vice Chief of Naval Operations concept of "Get Real, Get Better" to candidly examine and discuss problems to implement lasting solutions. Harker pledged

to do his part to help the project teams working to deliver assets like Pasadena back to the Fleet to execute their missions. "As you identify problems and barriers to success in your work, there are people across the enterprise asking how they can remove those problems now and for the future," said Harker. "We're looking across naval leadership at the things we can put in place to knock down those barriers."

During his visit, Harker also observed progress as part of the Shipyard Infrastructure Optimization Program, a 20-year, \$21 billion undertaking for refurbishing the nation's four public shipyards with modernized equipment, improved workflow and upgraded dry docks and facilities. One of NNSY's biggest SIOP projects is its Production Training Facility opening later this year, a \$64.7 million state-of-the-art facility combining classrooms and mock-up areas, housing education and application under one roof. An even bigger project is the \$200 million renovation of the shipyard's century-old Dry Dock 4 to support Ohio, Virginia and Columbia Class boats. This renovation entails replacing the dry dock walls, floor and caisson, upgrading mechanical and electrical equipment and completely restoring the pumpwell.

During the visit, Wolfson detailed NNSY's implementation of its new Strategic Framework to focus on four areas of improvement aligning to the shipyard's mission and supporting Navy priorities. These areas, referred to as pillars of the framework, are Infrastructure, Dependable Mission Delivery, People Development, and

Process Improvement and Innovation. “With our focus geared toward these specific areas in our framework, we should see significant results in safety, quality, delivery, cost, and with a workforce that is invested,” said Wolfson.

“It was both a great honor and privilege to host Secretary Harker,” said Wolfson. “Allowing him the opportunity to see our path forward as an organization verified we’re working on the right things in America’s

Shipyards. While showing Mr. Harker our efforts of increasing productivity through investment in people and improving business processes, this visit also demonstrated to our shipyard team how much our work is valued by the highest levels of leadership in our Navy.”

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Submarine Group Two Welcomes New Commander **Staff, Submarine Force Atlantic Public Affairs, March 26**

Submarine Group Two held a change of command ceremony at Naval Support Activity Hampton Roads, March 26.

Rear Adm. Brian L. Davies relieved Rear Adm. James P. Waters as Commander, Submarine Group Two.

Adm. Christopher W. Grady, commander, U.S. Fleet Forces Command, praised Waters for his leadership and success over the past 18 months.

“You fostered an elite culture that is capable of fighting and winning decisively against any potential for a Fourth Battle of the Atlantic, should that come to pass,” Grady said. “Your team has led the way on innovative tactical techniques and procedures that increased multi-domain forces under ASW to face those peer competitors.”

Waters thanked the command for their dedication and hard work.

“It is clear that no one of us is capable of conducting this mission alone,” Waters said. “We do this as a team of teams, and I am deeply grateful to our Navy for the privilege of serving with a superb team of professionals

within, around, and above Submarine Group Two. I was inspired every day by the dedicated and innovative work of my entire task force.”

Waters’ next assignment is as Director, Military Personnel Plans and Policy Division, N13, Office of the Chief of Naval Operations.

While assuming command, Davies highlighted what an honor it is to lead Submarine Group Two.

“I look forward to joining the Submarine Group Two team,” Davies said. “I am honored to be your new commander.”

Submarine Group Two executes integrated multi-domain undersea warfare to advance the art of theater undersea warfare providing our nation fully aware, fully informed, and fully connected undersea warfare forces to remain ready to dominate the warfighting spectrum from great power competition to conflict.

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Navy ship building and shipboard electronics strive to do more with less **Not Attributed, Military and Aerospace, March 30**

NASHUA, N.H. - In late April 2020, Navy leaders started an order-of-magnitude shift in their surface warfare vision by awarding a \$795 million contract to Fincantieri Marinette Marine Corp. in Manitowoc, Wis., for detail design and construction of the first ship of a new class of guided-missile frigates. The contract contains an option for nine more ships. In October, the Navy announced that the new frigates would be the Constellation class, with lead ship Constellation (FFG 62) to be delivered in 2026. The Navy plans to build 20 ships.

The frigate award addressed long-simmering tensions within the service, among defense analysts, and in Congress aroused by the littoral combat ship (LCS) program. The Constellation class, called FFGX since it started in 2017, represents a huge retreat from the thinking behind the LCS, which has divided Navy planners for nearly 20 years.

The LCS was conceived in 2001 as a multi-mission ship to back up the Navy’s new “From the Sea” strategy

that stressed close-to-shore “littoral” operations in the U.S. Navy’s front-line Virginia-class fast attack submarines are prime candidates for electronics technology insertion and upgrades.

The U.S. Navy’s front-line Virginia-class fast attack submarines are prime candidates for electronics technology insertion and upgrades. The Navy funded design of two ship types, a conventional destroyer-like design called Freedom (with odd hull numbers), by Marinette Marine and a trimaran, the Independence variant (even hull numbers), by Austal USA. Separately developed “packages” of surface and anti-submarine warfare and mine countermeasures sensors and weapons would enable the ships to conduct all three missions.

Since the program started in 2004, both teams experienced serious cost overruns and delays. LCSs have had expensive system failures. Both hull types were criticized as poorly designed, under-armed, and unsurvivable in combat. Despite improvements, the

criticism persists, and the Navy continues to build the ships.

In January Rear Adm. Casey Moton, program executive officer for unmanned and small combatants, acknowledging the problems, said the ships would get a “lethality upgrade” that includes a new common combat management system and the naval strike missile built by Kongsberg Gruppen in Kongsberg, Norway, teamed with Raytheon Technologies Corp. Missiles & Defense segment in Tucson, Ariz.

Funding constraints

Meanwhile, persistent funding constraints have caused serious fleet-support problems. The Navy’s fiscal year 2021-2023 Business Operations Plan reported in October that “the Navy was challenged by a combination of high-tempo operations and a reduced fleet size. These factors resulted in a maintenance backlog and reduced readiness.

The funding shortfalls and maintenance backlogs developed as China threatened U.S. interests in the Pacific. The Secretary of Defense Annual Report to Congress on military and security developments by the People’s Republic of China, released last September, said “the PRC has the largest navy in the world, with an overall battle force of approximately 350 ships and submarines, including over 130 major surface combatants. In comparison, the U.S. Navy’s battle force is approximately 293 ships as of early 2020.”

Intelligence sources also have cited aggressive operations by Russia’s navy worldwide. The New York Times reported that in August 2020 three Russian ships entered the U.S. economic zone in the Bering Sea and ordered U.S. fishing vessels to leave the area. The Coast Guard advised the American vessels to comply. The Washington Institute, a foreign policy think tank, reported late last year that Russia has added ships, including the guided-missile cruiser Moskva, to its 10-ship Mediterranean Fleet.

In mid-January Chief of Naval Operations Adm. Michael Gilday released his 2021 Navigation Plan, declaring that “We are engaged in a long-term competition that threatens our security and way of life.” He announced that the Navy will “execute a tri-service maritime strategy” with the Marine Corps and Coast Guard based on four priorities—readiness, capabilities, capacity, and sailors.

Gilday said that strategy means retiring older assets: “To remain ahead of our competition we will divest ourselves of legacy capabilities that no longer bring sufficient lethality to the fight. This includes divestment of experimental LCS hulls, legacy cruisers, and older dock landing ships. It also includes divesting non-core Navy missions like Aegis ashore.”

Shipbuilding

The new Business Operations Plan cites the need for a new 30-year shipbuilding plan and a long-range maintenance and modernization plan. The plan aims at a fleet of 355-ships within 10 years, a target established by a 2016 Navy Force Structure Assessment and adopted by the 2018 National Defense Authorization Act.

The Navy continues to build two variants of the littoral combat ship, but will divest older ships. Shown here is the Independence-variant Gabriele Giffords (LCS 10).

Navy officials have said the new force structure will consist of fewer cruisers, destroyers, and amphibious-assault ships, and more frigates and LCSs. The 355-ship goal does not include unmanned surface or undersea vehicles operated from manned ships.

In 2019 the Navy initiated a new future force-level goal called “Battle Force 2045.” Last October then-Defense Secretary Mark Esper revealed that the goal of Battle Force 2045 is 500 manned and unmanned ships, including the 355 manned ships by 2035. That fleet could include as many as 50 to 60 amphibious ships to support Marine Corps operations, and six light aircraft carriers.

The Navy 2021 budget request sought \$19.9 billion for seven new ships: one Columbia-class ballistic-missile submarine (SSBN); one Virginia-class attack submarine (SSN); two Arleigh Burke-class destroyers; one FFGX; and two salvage/rescue ships — four fewer ships than the 11 requested for 2020. The \$19.9 billion requested is \$3.9 billion less than the amount sought in 2020, when Congress actually approved \$24 billion for shipbuilding.

The 2021 five-year shipbuilding plan calls for 42 new ships — 13 fewer than the 55 sought in the 2020 five-year plan, and 12 fewer than in the 2020 30-year plan.

The 12-ship Columbia-class of SSBNs is billed as the service’s number-one acquisition program. In early November the Navy awarded a \$9.5 billion contract to General Dynamics Electric Boat for construction and testing for the first two boats, Columbia (SSBN 826) and Wisconsin (SSBN 827). The award pays all construction costs for Columbia and advance procurement, advance construction, and engineering for Wisconsin.

Ballistic missile submarines

The new class will replace the older Ohio-class boomers, with Columbia scheduled for delivery in 2027, and to enter active service in 2030. The Navy says the Columbia class will be built with a “life-of-ship” reactor that allows shorter maintenance periods to enable the Navy to meet its requirement with the 12 subs versus 14 Ohios.

The Knifefish unmanned underwater vehicle from General Dynamics is to be an important component of Navy integrated counter-mine systems

The Knifefish unmanned underwater vehicle from General Dynamics is to be an important component of Navy integrated counter-mine systems

Also in November Electric Boat awarded a \$2.2 billion contract to Huntington Ingalls Industries for design and construction of six module sections of Columbia and Wisconsin, with delivery of the first in November 2022 and the final module in January 2028.

The frontline surface combatant program remains the Arleigh Burke-class (DDG-51) Aegis destroyer, with 68 ships now at sea. The Navy is building new Flight III Burkes, designed around a new SPY-6(v) air-defense radar, new weapons, and mechanical and electrical upgrades.

Huntington is building the first and third Flight III ships, Jack H. Lucas (DDG 125) and Ted Stevens (DDG

128), and has contracts for five more. General Dynamics Bath Iron Works is building Louis H. Wilson (DDG 126) and in December started fabrication work on William Charette (DDG 130). Bath has four Flight III ships under contract.

The two yards are finishing the Flight IIA construction, with DDG-121 and DDG-123 at Huntington Ingalls. Bath is building DDGs 122, 124, and 127.

The Navy will field three Zumwalt-class (DDG-1000) destroyers for land attack and air defense. In October Zumwalt conducted a successful live test launch of an SM-2 air-defense missile from its Mk 57 vertical launch system. The ship will start fleet service this year. Michael Monsoor (DDG 1001) is going through testing at San Diego. General Dynamics Bath is building Lyndon B. Johnson (DDG 1002).

LCS builders Fincantieri Marinette Marine and Austral USA continued to stamp out new ships. In June the Navy took delivery of Independence variant Oakland (LCS 24) and in August christened Savannah (LCS 28). In October Austal laid the keel for Santa Barbara (LCS 32), the 16th Independence type. That month Mobile (LCS 26) completed an acceptance trial in the Gulf of Mexico.

Austal also is building LCS 34 and will start work on two more ships this year. In August Minneapolis-Saint Paul (LCS 21) completed an acceptance trial. In November Fincantieri Marinette Marine launched LCS 25 and soon will deliver LCSs 27, 29, and 31.

Amphibious assault ships

In July Huntington Ingalls administratively commissioned the America-class amphibious assault ship Tripoli (LHA 7). The yard is building Bougainville (LHA 8) and The three Zumwalt-class (DDG 1000) destroyers will be capable of anti-air and anti-land operations. The three Zumwalt-class (DDG 1000) destroyers will be capable of anti-air and anti-land operations. is under contract to build LHA 9.

The four-America-class ships replace five Tarawa-class LHAs, now all decommissioned. The America-class ships, which would support F-35B fighter aircraft, use the same propulsion system as the last Wasp-class amphib Makin Island (LHD 8), a combination of two gas turbine engines and two auxiliary motors for low-speed propulsion. The Navy is considering building an additional LHA to replace the Bonhomme Richard (LHD 6), which was decommissioned after being damaged in a fire last July.

Huntington Ingalls also is building four 684-foot-long San Antonio-class (LPD 17) amphibs, LPD 28, LPD 29, LPD 30 and LPD 31. In 2018 the Navy started an LPD Flight II program of 13 ships starting with LPD 30 to bring the class to a total of 26 ships. The company has delivered 11 San Antonios.

Flight II ships LPDs 30 and 31 will have relatively the same capabilities as the Flight Is but cost less. Flight II would replace the Flight I composite mast with a steel one.

CRS reports that the 50 to 60 amphibious ship force envisioned for Battle Force 2045 could include a new 28-to-30-ship class of amphib called the Light Amphibious

Warship or LAW. The LAWs would be smaller and less expensive than the LHA/LPD/LHD ships.

The Navy-Marine Corps team is strengthening the ability to move men and materiel through replacement of its fleet of 91 105-ton landing craft, air-cushion (LCACs), which ride on an air-filled fabric skirt. Textron Marine Systems delivered two new Ship-Shore Connectors (SSCs) last fall.

The SSCs will be built with fly-by-wire steering controls, new composite materials to eliminate corrosion, an improved skirt to reduce drag, and Rolls Royce M7 gas turbine engines — a variant of the V-22 Osprey aircraft engine. The SSC will be able to haul 75-ton payloads, or 145 Marines, at 35 knots. Like the LCACs, the SSCs will deploy from welldecks of all the big-deck amphibious ships.

Weapon systems

In December the Navy awarded Raytheon Missiles & Defense an \$82.7 million contract for new options on production support and systems integration for the SPY-6(v) air and missile defense radar — the centerpiece of the DDG-51 Flight III rebuild and the foundation of the fleet's new ballistic missile-defense architecture.

For the Flight III Burkes, the Raytheon-built SPY-6(v) will replace Lockheed Martin's SPY-1(v) phased-array radar now aboard all the Burkes and Ticonderoga-class (CG 47) cruisers.

Raytheon says the use of gallium nitride (GaN) semiconductor technology for the new radar's transmit-receive modules will permit huge increases in signal2103 Ma Esr P06 processing speed. The company says the faster processing will enable the 360-degree coverage necessary to detect high-speed ballistic and anti-ship missiles. The greater processing speed also permits fabricators to use less of it, achieving major weight and cost savings.

The Flight III ships will get a (v)1 variant, consisting of 37 radar assembly modules. In November, Huntington Ingalls had installed two of four SPY-6(v) arrays on the deckhouse of Jack H. Lucas (DDG 125).

In October Raytheon delivered a SPY-6 live test array to the Navy's Combat Systems Engineering Development Site (CSEDS), near Lockheed Martin's Moorestown N.J., facility, which produces the Aegis combat system computer software programs.

The combat system is the architecture of computer hardware and software that controls shipboard weapons and sensors. The Aegis system, in numerous versions, is aboard all the Burkes and Ticonderogas.

Advanced sensors

When the live array arrived at CSEDS, Capt. Phillip Mlynarski, commanding officer of the Aegis Techrep team, said "we're ushering in a new age of advanced sensor technology and a leap forward in combat power and lethality ... we are integrating game-changing technology and cutting-edge combat system algorithms to sharpen the tip of the sword."

The new test array will be integrated with the Aegis Baseline 10 program, developed specifically for the Flight IIIs.

Other SPY-6(v) configurations are the Enterprise Air Surveillance Radar (EASR), which will be fielded throughout the surface fleet. America-class LHAs and Nimitz-class aircraft carriers will get an EASR SPY-6(v)2 — a rotating radar with nine radar modules — for cruise missile and anti-air and anti-ship defense and air-traffic control.

A (v)3 system, with three arrays, will go aboard Ford-class carriers and Constellation-class frigates. The system scales up to a (v)4, with four array faces and 24 radar modules for the BMD and cruise-missile and airborne defense missions for backfit to fielded Burke DDGs.

In July Raytheon won a \$125 million contract for options for low-rate initial production for four EASR (v)2 units and two (v)3s. Bougainville (LHA-8) and will be the first (v)2 ship followed by John C. Stennis (CVN-74), Richard M. McCool Jr., (LPD-29), and Harrisburg (LPD-30). The (v)3s are set for John F. Kennedy (CVN-79) and Constellation (FFG-62).

An engage on remote exercise last November provided critical validation of the SPY-6(v) and Aegis interface for ballistic missile defense. The U.S. Missile Defense Agency, the Program Executive Office for Integrated Warfare Systems, and Navy labs collaborated to launch an SM-3 block IIA missile from the Burke destroyer John Finn (DDG-113) to destroy an ICBM target near Hawaii. The ship used Aegis baseline 9.C2.0K to pass the targeting data to the missile from the Army's Reagan Test Site on Kwajalein Atoll in the Marshall Islands.

New radar

The SPY-6(v) is the linchpin for a longer-term initiative to develop a single combat system for the surface fleet by using advanced software and hardware to enhance sensor responsiveness and weapons lethality.

2103 Ma Esr P07Lockheed Martin Rotary and Missile Systems has moved ahead with two major sensor initiatives, the high-energy laser with integrated optical-dazzler and surveillance (HELIOS) and SPY-7 radar. The company delivered a production HELIOS to the Surface Combat Systems Site at Wallops Island, Va., in December for Navy testing. The laser, officials say, is ready for integration with ship combat systems. Unlike a missile system or gun, the laser draws on ship power and never “runs out” of ammunition.

Lockheed Martin says the SPY-7 potentially could backfit to fielded DDGs and other Navy surface combatants and those of Canada, Japan, and Spain, which use Aegis. The SPY-7 solid-state GaN technology is derived from the company's development of the Missile Defense Agency's long-range discrimination radar (LRDR), to be installed at the Clear Air Force Station, Alaska.

Navy and industry officials are discussing plans for a surface combatant combat systems engineering agent (SCCSEA) for the Burkes, Ticonderogas, Constellation-class FFGs, and LCSs and Australian, Japanese, Norwegian, South Korean, and Spanish Aegis ships.

A SCCSEA would oversee the engineering needed for definition, design, systems integration, testing, and support for combat systems. A 10-year SCCSEA contract could

commence when current combat systems contracts expire. Lockheed Martin now acts as CSEA for Aegis and for the LCSs and Constellation-class combat systems and the ship self-defense system aboard carriers, LHDs, and LPDs.

Computer consoles

To support new combat systems the Navy is taking delivery of computer consoles, displays, and peripheral equipment (CDP) built by Leonardo DRS under a five-year contract, potentially worth more than \$460 million. The award follows deliveries of similar equipment under an earlier Common Display System contract.

The CDP equipment includes consoles, thin-client displays, and peripherals that run “software agnostic” programs in support of open-architecture combat systems aboard several ship classes.

Shipboard weapon system development moved forward in December with a \$145 million Naval Air Systems Command award to Raytheon for 90 full-rate production Block V ship-and submarine-launched Tactical Tomahawk missiles. Also in December the company and the Navy conducted two flight tests of the new Block V Tomahawk from the Burke destroyer Chafee (DDG 90).

The company is developing a Block V(a) variant for a maritime strike capability and a Block V(b) with a programmable warhead for more accurate land attack. Both will be deployed in 2021. Raytheon is managing a Tomahawk modernization program to extend the Tomahawk service life by 15 years.

Raytheon also is building components of the Cooperative Engagement Capability (CEC) — a system of computers and sensors that generate a single composite track of airborne targets, enabling CEC-equipped ships to operate as an integrated air-defense network. CEC processors and antennas are aboard most Aegis DDGs, CGs, and the E-2CB Hawkeye surveillance aircraft. In September 2020 the company won funding for contract options for CEC design-engineering support.

Shipboard electronic warfare

Northrop Grumman won a new production contract last fall for new Block 3 units of the SLQ-32(v)7 shipboard electronic warfare system under the Surface Electronic Warfare Improvement Program (SEWIP) — a phased upgrade of the Navy's old SLQ-32 with involvement of several companies. The new award is for Block 3 production for the Burkes. SEWIP Block 3 adds an active electronic attack capability to the system.

In a related effort Lockheed Martin, prime for the Block 2 SEWIP work, in October awarded Cobham Advanced Electronic Solutions a \$50 million contract for antenna array panel assemblies for the Block 2 system.

On the undersea warfare front, Raytheon Technologies in December won a \$26.7 million award for production options for the Mk 54 Mod 0/Mod 1 lightweight torpedo common parts kits for the Belgian, Netherlands, and New Zealand navies. Northrop Grumman builds the nose arrays for both the Mk 54 lightweight torpedo and the Mk 48 heavyweight torpedo.

Northrop Grumman tested the first industry-built prototype of a “very lightweight torpedo,” (VLWT) based

on a Navy design developed by Penn State's Applied Research Lab. Northrop Grumman funded the VLWT research. The Penn State design is based on a compact rapid-attack weapon (CRAW) program funded by the Office of Naval Research. Barber-Nichols Inc. of Denver has built a stored chemical-energy propulsion system for the VLWT.

Unmanned Systems

Navy leaders in 2020 pushed to implement concepts spelled out in the service's March 2018 Strategic Roadmap for Unmanned Systems, which consists of three components: a medium unmanned surface vehicle (MUSV); a large USV or LUSV, and an extra-large unmanned USV, the XLUUSV.

In September the Navy awarded six contracts, roughly \$7 million each, to Huntington Ingalls, Lockheed Martin, Bollinger Shipyards (Lockport, La.), Fincantieri Marinette Marine, Austal USA, and naval architect Gibbs & Cox for studies of the LUSV. The companies will develop specifications and requirements, aiming at a design and construction contract. Capt. Peter Small, manager of unmanned maritime programs at NAVSEA, said that the studies "will allow the Navy to harvest the learning from our land- and sea-based prototyping efforts ... to refine requirements for an affordable, reliable, and effective LUSV."

L3/Harris Technologies Maritime Systems unit will deliver a prototype MUSV in early 2023, company officials say. The Navy awarded the company \$35 million in July to act as MUSV systems integrator and to build one MUSV with options for eight more. The Navy says the MUSV will be a pier-launched self-deploying modular surface vessel capable of autonomous navigation and provide intelligence and situation awareness data.

Dave Zack, Maritime Systems president, says the MUSV will be a modified version of a commercial-crew vessel built by Incat Crowther for resupply of oil rigs. Swiftships will built the vessels.

In other unmanned systems work, in July General Dynamics Mission Systems won a \$13.5 million award for support work for the surface mine countermeasures UUV (SMCM UUV) also called Knifefish. The Knifefish vehicle when fielded, will provide volume and bottom mine-hunting in a tactical environment. The work includes engineering support, test and evaluation, and system upgrades.

Textron Systems received a May contract worth \$20.7 million for engineering support for the Unmanned Influence Sweep System (UISS). Operating from the LCSs, the UISS conducts mine countermeasures sweeping and targeting for acoustic and magnetic mines.

In August four companies won orders to support the unmanned surface vehicle Mk-18 Family of Systems. Advanced Acoustics Concepts LLC, Arete Associates, Northrop Grumman Systems, and Peraton Inc. will provide trade and test and verification studies, and other deliverables. The Navy says the Family of Systems includes systems that comprise the future unmanned surface fleet in such areas as payloads, non-payload sensors, mission support systems, vehicle control systems, among others. In a related effort, Hydroid Inc., of Pocasset, Mass., won a \$39 million contract for production support for the Mk-18 system.

In December Northrop Grumman Systems won a \$22 million award for options for sustainment for the MQ-8 Fire Scout helicopter-like unmanned aerial vehicle, which takes off and lands on surface ships. A newer Fire Scout, the MQ-8C next-generation UAV is based on the Bell 407 helicopter. The company received an award in June for production and delivery of three MQ-4C Triton long-range high-altitude UAVs and ancillary main operating bases and a forward operating base. The Triton provides intelligence, surveillance, and reconnaissance over wide ocean areas.

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Newport News-Electric Boat team wins \$2.42 billion contract for additional Virginia class sub

Dave Ress, Daily Press, March 29

Newport News Shipbuilding and partner General Dynamics Electric Boat won a \$2.42 billion contract to build a Virginia-class submarine that the Trump administration had wanted to drop.

The contract is in the form of a modification to the 2019 award of a \$22 billion contract to build nine Virginia-class submarines. It is for a 10th submarine in the "Block V" program and increases Newport News' share of that multi-boat contract to \$9.8 billion.

Construction on the 10th Block V submarine is expected to begin in early 2024.

Late last year, Congress rebuffed a Trump administration plan to drop a long-planned tenth Block V boat. Congress set a total of \$4.6 billion for fiscal 2021

spending on Virginia-class submarines, which includes \$2.3 billion above the administration's request to pay for work on a second submarine.

"We look forward to building and delivering the final boat of the block that maintains production at two submarines per year and continues to stabilize the industrial base," said Jason Ward, Newport News' vice president of Virginia-class submarine construction.

Newport News and Electric Boat have teamed up to build and deliver 19 Virginia-class submarines to date.

Under their partnership, Newport News builds the sail, bow, stern, crew quarters and common spaces and some weapons compartments.

The two yards have so far alternated final assembly and delivery of Virginia-class submarines.

But because of the larger share of work assigned to Electric Boat in the two yards' partnership building Columbia-class ballistic submarines, Newport News is taking on a more Virginia-class sub work.

That increased share means Newport News will deliver six of the 10 Block V boats. More than 4,000 Newport News employees work on Virginia class boats.

"We worked very hard to secure submarine funding in the latest funding bill," said Sen. Tim Kaine. "This announcement ensures the strength of our submarine fleet and the stability of Newport News's shipbuilding workforce."

Rep. Elaine Luria, D-Norfolk, vice chair of the House Armed Services Committee, said she was proud to work

with colleagues to overturn the decision not to build a 10th boat.

"The jobs created by this project will strengthen our local economy while bolstering our national defense infrastructure," she said.

Rep. Rob Wittman, R-Westmoreland, the ranking Republican on the Seapower subcommittee, said a bipartisan coalition of over 110 House Members worked to full fund this additional attack submarine.

"The Virginia-class submarine brings the strike, intelligence, surveillance, reconnaissance, and antisubmarine warfare capabilities needed to prepare for great powers competition," he said.

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Navy takes key step toward potentially integrating long-range hypersonic weapon on surface combatant

Jason Sherman, Inside Defense, March 26

The Navy is asking industry for ideas on integrating a long-range hypersonic strike weapon on a destroyer, eyeing a three-pack load, in a key step toward potentially adapting the Conventional Prompt Strike for DDG-1000 Zumwalt-class ships and potentially the DDG-X, the planned follow-on large surface combatant.

On March 18, the Navy Strategic Systems Programs office published a marketing research notice seeking industry feedback on steps necessary to implement a fiscal year 2021 statutory mandate that the service ready plans for integrating CPS, originally developed for the submarine fleet only, for the DDG-1000 class of destroyers.

The Navy is looking for a prime program manager and systems integrator to "[p]rovide technical leadership, integration, coordination, and system engineering across the CPS program for successful integration of the Conventional Prompt Strike weapon system onto the Zumwalt-Class destroyers platform," the notice states.

The FY-21 defense spending law moved \$15 million from the CPS program account to the destroyer line. Originally designed to provide naval surface fire for Marines during forcible entry operations, the Navy in 2017 shifted its thinking about how to use the DDG-1000, focusing on strike missions.

Lockheed Martin is developing a large-diameter -- 34.5-inches -- two-stage booster for the Navy and Army variants of a hypersonic boost-glide vehicle; the Navy's program of record, CPS, calls for fielding a submarine-launched variant in its non-nuclear-armed Ohio-class boats beginning in 2025 and Virginia-class subs in 2028.

The Navy has made no policy decision to integrate CPS into its surface fleet. It is executing a study that could take up to two years to finalize to inform a future policy decision. If a decision to go forward is taken, the hypersonic weapon would be integrated during a scheduled major yard overhaul, according to a service official.

The solicitation seeks expertise in "Weapon Control System design, development and test of existing CPS [weapon system] for Zumwalt-class destroyer platform."

Engineering development would include system architecture, subsystem, component and test requirements development as well as design analysis and design integration.

"Increase current industrial base capability for Navy and Army Long-Range Hypersonic Weapon," the notice states.

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CBO: Navy Still Needs Bigger Workforce to Dig Out of Submarine Maintenance Backlog

Mallory Shelbourne, USNI News, March 26

The Navy still has major challenges in digging out of its longstanding submarine maintenance backlog even after growing the workforce at the public shipyards, according to a Congressional Budget Office report.

In a report about submarine maintenance released on Thursday, the CBO found that the Navy still faces a

backlog after farming out some maintenance on its attack submarines to private yards, adding personnel to the workforce and seeking process improvements at the public yards.

"Despite the increased number of shipyard workers and the anticipated improvements in productivity, CBO projects

that the demand for maintenance over the next few decades will exceed the supply of labor in most years,” the report reads.

“That is because the Navy’s submarines require more days of labor for overhauls than the Navy has planned. As a result, the shipyards will not be able to complete future overhauls on schedule,” it continues. “The 2020–2021 coronavirus pandemic has caused additional delays because it has affected productivity at the shipyards; CBO projects a 5 percent decrease in shipyard productivity in 2020 and 2021 as a result.”

The service for years emphasized its goal of having 36,100 personnel working across its four public yards, which perform maintenance on the Navy’s nuclear-powered vessels, as a way to address its maintenance woes. According to a Fiscal Year 2020 report from Naval Sea Systems Command about the service’s maintenance plans, the Navy reached this objective in FY 2019.

But according to CBO, the Navy may need to consider growing the workforce once again to cut down the maintenance backlog that continues to plague the service.

“CBO projects that the Navy will experience maintenance delays throughout the next 30 years because the demand for labor will exceed the shipyards’ supply of it in 25 of the next 30 years,” the report reads. “CBO projects a 4.6 percent annual shortage in labor, on average—that is, the Navy will need 295,000 more days of labor than the shipyards can supply. That amount is roughly equivalent to falling behind each year by the number of shipyard workers to conduct the maintenance work the yards are tasked with, and the work required during each maintenance overhaul on the nuclear-powered ships has grown.

“Those factors have increased the number of days nuclear ships spend in the shipyard and the number of days of labor that are required to complete their overhauls,” according to the report. “Overhauls have exceeded the number of days of labor scheduled for overhauls by 13 percent to 26 percent, depending on the ship’s class.”

Responding to the report, NAVSEA commander Vice Adm. Bill Galinis said the Navy welcomes ideas on how to address the maintenance backlog.

“Naval Sea Systems Command’s top mission priority is delivering combat power to the fleet through the on-time delivery of combat-ready ships, submarines, and aircraft carriers,” Galinis said in a statement to USNI News. “We appreciate any thoughtful suggestion that helps us enable this goal.”

While the report does not provide suggestions, the CBO included four possible ways the Navy could address the logjam. The first is for the service to do a better job of how it predicts maintenance schedules and then ship deployments.

“Option 1 would not speed the completion of maintenance but would lessen the impact of delays by enabling operating forces to better plan deployments around maintenance,” CBO writes. “The operating forces have goals for the number of attack and ballistic submarines to be deployed at all times. Those deployment goals could be prioritized and adjusted further in advance if

the actual timing and duration of maintenance conformed more closely to deployment schedules.”

To address the issue with maintenance planning, NAVSEA is evaluating how it could use its Perform to Plan (P2P) initiative – which utilizes data to determine the best approaches to planning availabilities – for submarine and aircraft carrier maintenance.

The second possibility is to grow the number of personnel in the public yards. While the Navy’s long-stated goal was 36,100 shipyard workers, CBO estimates that the service now has approximately 37,000 employees working at the four public yards and notes the service could up that number to 39,500 to tackle the delays.

Meanwhile, the third route would see the Navy farming out some of the work to the private shipyards, something the service has already started to do with the Los Angeles-class attack submarines.

“Options 2 and 3 would add capacity so that the anticipated demand for maintenance would be equal to capacity, on average, over the next 30 years,” according to CBO. “Either option would cost about the same amount, CBO estimates. The only difference between them is whether the work would be performed in public or private shipyards.”

The Navy is currently assessing whether it can speed up the timeframe for its Shipyard Infrastructure Optimization Plan – a proposal to revitalize the infrastructure in the public shipyards – amid concerns from lawmakers that the original 20-year timeline is too long. House Armed Services seapower and projection forces subcommittee ranking member Rep. Rob Wittman (R-Va.) has argued the service should opt to move some submarine maintenance to the private yards so the Navy can properly balance recapitalizing the public yards’ aging infrastructure with the service’s maintenance responsibilities. Meanwhile, Galinis recently told lawmakers that the buildup of the submarine fleet means the Navy will likely need to utilize the private yards for submarine maintenance in the future.

The last solution is for the Navy to decrease its number of nuclear-powered ships, a path the service is unlikely to take as it pursues a larger fleet.

“Option 4 would reduce demand by adjusting the size of the fleet to match the Navy’s maintenance capacity. That could be accomplished by retiring older submarines ahead of the current schedule or by purchasing fewer new submarines. The magnitude of savings would depend on how the option was implemented,” the report says.

“Savings in maintenance or procurement would be offset, in part, by increases in the costs of disposing of retired ships,” it continues. “Although the submarine fleet would be smaller, the same number of submarines might be available in peacetime because fewer submarines would be awaiting maintenance. However, the Navy’s ability to surge its submarine force during wartime would be reduced.”

The costs associated with tackling the maintenance backlog would vary greatly, based on which course of action the Navy pursues.

Option 1 should have a very small cost and could benefit the operational fleet's planning. Increasing capacity under Options 2 and 3 would cost about \$275 million per year," the report reads.

"Option 4 could save between \$1.6 billion and \$16 billion in procurement costs over 30 years (depending on whether the Navy forgoes refueling existing submarines or purchasing new ones) and \$250 million to \$290 million per year in operating costs."

The CBO says the Navy could opt for any mix of the four courses of action in the report but notes the service is likely to still face maintenance delays.

"Even if one or more of the options are pursued, CBO projects that maintenance delays will continue, through the 2020s for Options 2 and 3 because it takes several years to hire and train workers at and through the 2020s or 2030s for Option 4, depending on whether the Navy reduces fleet size sooner by retiring old submarines or later by building fewer new submarines," according to the report. "In the meantime, delays will continue, pushing a wave of unfinished work into the future."

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USS Bremerton submarine, in its waning days, turns 40

Josh Farley, Kitsap Sun, March 28

BREMERTON - Capt. Chris Lindberg was just shy of his 6th birthday when the fast-attack submarine USS Bremerton was commissioned. Today, he is the commander in charge of the boat's last crew, overseeing its inactivation and decommissioning in a dry dock at the Puget Sound Naval Shipyard.

"It's the culmination of 40 years of the Bremerton supporting our national security," said Lindberg, a veteran of the submarine force. "She's served her country well and it's time to complete her last mission."

The venerated vessel, which turns 40 on Sunday, will live on through the 1,500 crew members that served on board, Lindberg said.

"We are decommissioning the Bremerton but not the crew," he said. "We'll carry on the Bremerton's spirit."

There's also a chance that a piece of the venerated submarine — its sail — could become a landmark in the city for which the boat is named. The Bremerton-Olympic Peninsula Council Navy League, a booster organization, has expressed interest in keeping the sail to be placed at a park in town.

Bremerton Mayor Greg Wheeler said that while the financial effort to save the sail will have to "be community-driven," he wants to see if there's a way the city can help.

Wheeler has a new spot for the sail he believes would give it visibility and help an underutilized park. He likes the idea of placing it in the ground at the city's World's Fair-created Roto Vista Park, just off of the Warren Avenue Bridge's southeast corner. Wheeler noted that planned pedestrian improvements on the nearby bridge could pair well.

"If done correctly, this could be a beautiful setting," Wheeler said.

In the meantime, the Bremerton remains in a dry dock, where crews from the Puget Sound Naval Shipyard are

removing valuable equipment and paring down its size, as they prepare it for long-term storage in nearby waters. In a few years, it will again go into the dry dock to be dismantled, and its reactor will be removed, packaged, and sent to the Department of Energy's Hanford site where it will sit for the next millennia.

The inactivation process not only removes valuable equipment from the submarine — around 260 parts and pieces — and pares down its overall size, but it gets the vessel ready to bob long-term in waters near the shipyard. It can take decades before the submarine is ultimately taken back into dry dock to be sawed into small pieces for recycling.

Rodney Peeler, the shipyard's project superintendent, was born and raised in the area. His father and grandfather, both Navy veterans, also worked in the shipyard.

"Now, as I grow close to retirement, I find myself being the project superintendent for the decommissioning of my hometown namesake, USS Bremerton," he said. "It is an honor."

The Bremerton's inactivation process costs about \$46 million.

The Bremerton is among the entire Los Angeles class of more than 60 submarines that are trickling into Sinclair Inlet, home to the only place in the world that dismantles and recycles them.

The Bremerton's decommissioning ceremony is planned for May 18 in Keyport, but details about whether the public can attend have not been finalized because of the COVID-19 pandemic.

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Virginia: The Missile Packed Submarine Built to Fight China in a War

Peter Suci, National Interest, March 29

Last week, the United States Navy awarded a \$2.42 billion contract modification to General Dynamics' Electric Boat subsidiary to build an additional Block V Virginia-class submarine equipped with the Virginia Payload Module (VPM). The deal was awarded by The Naval Sea Systems Command in Washington D.C.

The original contract that was awarded in December 2019 was for nine boats with an option for a tenth. With this added submarine, the total cost of the contract with prime contractor Electric Boat will be \$24.1 billion, a net increase of \$1.89 billion for the full contract.

Nasdaq reported that General Dynamics has substantially reduced the cost as well as the delivery time of the Virginia-class boats from eighty-four to just sixty-six months, while also improving mission capability and ship construction quality. The defense contractor is also one of only two companies in the world that is equipped to build nuclear-powered submarines, and as such General Dynamics has enjoyed a dominant position as a navy contractor.

"The 17,000 shipbuilders of Electric Boat are pleased to receive the award for the tenth Block V ship and are ready to meet the generational challenge of building the Virginia and Columbia classes concurrently," Kevin Graney, president of General Dynamics' Electric Boat said in a statement that was also posted to Facebook. "We are grateful for the continued support of our federal delegation, who strongly advocated for this important funding."

According to the Department of Defense (DoD), Electric Boat will continue to work with Huntington Ingalls Industries' Newport News Shipbuilding division on the construction of the submarine. Contract work will occur in Virginia, Rhode Island, California, Connecticut, Maryland,

Arizona, Pennsylvania and other areas within and outside the U.S. through February 2030 according to Govconwire.com. The United States Navy has been focused on strengthening its naval power by upgrading its fleet of missile submarines in response to potential threats from near-peer adversaries including China.

The Virginia-class nuclear-powered cruise missile attack submarines were introduced in the mid-2000s as a replacement to the Cold War-era Los Angeles-class submarine line, thirty of which have already been retired. Three of the Virginia blocks were focused heavily on cost-efficiency improvements: Block II slashed roughly \$300 million worth of program costs, introducing a more efficient production process; the eight Block III subs incorporated a new bow design including a new sonar array and large diameter vertical payload tubes, and Block IV brought reduced maintenance periods and lowered total ownership costs to boost the program's sustainability well into the coming decades.

The Block V submarines feature the VPM, an 84-foot section of the boat that will serve as an undersea vertical launcher for missiles. Each VPM on the Block Vs provides the capacity for 40 cruise missiles. Additionally, with advancements in hypersonic missile technology, the Virginia-class's larger launcher will be well suited to host such weapons once they are deployable. The boats can also host the new version of the anti-ship Maritime Strike Tomahawk, a part of the Block V upgrade that will begin being delivered to the service later this month.

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USS Greeneville arrives at Portsmouth Naval Shipyard for overhaul

Not Attributed, New Hampshire Union Leader, March 28

The USS Greeneville arrived at Portsmouth Naval Shipyard for a scheduled overhaul on Friday. The Los Angeles-class fast attack submarine has more than 140 crew members. It returned from its last deployment on Sept. 11, having covered nearly 50,000 nautical miles, according to a news release from the Portsmouth Naval Shipyard.

The submarine measures more than 360 feet long and weighs more than 6,900 tons when submerged. It was

commissioned a U.S. Naval warship at Norfolk Naval Base on Feb. 16, 1996.

The work at the Portsmouth Naval Shipyard will include scheduled maintenance as well as several system upgrades and modernization, the news release said.

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Navy unveils new Submarine Universal Modular Mast Maintenance Tower

WAVY staff, WAVY, March 31

NORFOLK, Va. (WAVY) — Navy held a ribbon-cutting ceremony Wednesday unveiling the new Submarine

Universal Modular Mast (UMM) Maintenance Tower onboard NAVSTA Norfolk.

Officials say attendance for the ceremony was limited due to ongoing COVID-19 safety protocols.

The new 55 foot tall, 1,300 square-foot tower was built by Norfolk-based Tazewell Contracting Officials say it will have a major impact in servicing the Navy's modern, state-of-the-art Virginia and future-class nuclear-powered fast-attack submarines.

The contract was awarded in May of 2018 and construction finalized in January of 2021.

Prior to the project, Joint Base Pearl Harbor-Hickam and Naval Submarine Base New London were the only two sites in the Navy that could perform repairs and maintenance to the UMM, which is an integrated system that houses the submarine's periscope, antennas and sensors.

International Undersea Warfare News

Revealed: China's New Super Submarine Dwarfs Typhoon Class

HI Sutton, Naval News, April 1

For decades the Russian Navy's mighty Pr.941 Typhoon Class submarine has been the largest ever built. And size is relevant, both for political messaging as well as military reasons. Giant submarines can have greater stealth (due to space for quieting), greater survivability, and can operate for longer.

But the Typhoon's reign is over. The Chinese Navy's (PLAN – People's Liberation Army Navy) latest submarine is even larger.

Launched earlier today at the Bohai Shipyard in Huludao, China, the new submarine is believed to be the Type-100 'Sun Tzu' class. The timing, together with its type number, appear to refer to the 100th year anniversary of the Chinese Communist Party (CCP).

The vessel is approximately 210 meters (690 feet) long and about 30 meters (100 feet) across. This compares to a paltry 175 meters (574 feet, sources vary) and 23 meters (75 feet) for the Typhoon Class. Although figures for the new submarine's displacement are not known, it is almost certainly greater than the 48,000 ton Typhoon.

To put this into perspective, the new super submarine is three-to-four times the size of the U.S. Navy's Ohio class boomer.

And while the Ohio class carries 24 ballistic missiles, the Chinese submarine can carry 48. The Typhoon class only carried 20 although that was partly a political decision. This undoubtedly makes the new class the most heavily armed in the world. It is possible that some of the missile silos will be used for carrier-killing anti-ship ballistic missiles.

In the bow are at least 8 Intercontinental nuclear-powered nuclear-armed hydrosonic torpedoes. These weapons are similar to the Russian Navy's Poseidon weapon. These have an effectively unlimited range and will

be very hard to counter with current weapons. Its development, so soon after Russia moved forward with Poseidon, suggests that Poseidon has been exported. Or that some degree of a technology transfer has taken place.

The shift to a massive submarine may hint, like Typhoon, at an Arctic role. China regards itself as a Near-Arctic country and may intend to use the ice cap to protect its at-sea nuclear deterrence.

Despite being the largest submarine in the world, its dimensions are just within the boundaries of Suezmax. This means that it is still small enough to squeeze through the Suez Canal. This will be critical as China increasingly looks to the Mediterranean as the frontier with Western powers.

On the back is an open hangar which is about the same size as a special submarine previously identified. The 'sailless' submarine (it's official designation is not known) has been built in Shanghai. Possibly its purpose is to be carried by the Type-100.

One potential use for this is to provide layered self-defense for the host submarine. Another possibility is that it is for severing undersea internet cables in times of war. It has been suggested that this tactic could be used to bring about the immediate collapse of Western economies.

The new submarine is expected to be the centerpiece of a massive military parade in Beijing as part of the CCP's 100 years celebrations in July. More than anything, this previously unreported submarine is a sign of the changing times. April 1st 2021 will go down in history as the start of a new era in submarines.

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China's growing firepower casts doubt on whether U.S. could defend Taiwan

Dan De Luce and Ken Dilanian, NBC News, March 27

WASHINGTON -- China's massive arms buildup has raised doubts about America's ability to defend Taiwan if a war broke out, reflecting a shifting balance of power in the Pacific where American forces once dominated, U.S. officials and experts say.

In simulated combat in which China attempts to invade Taiwan, the results are sobering and the United States often loses, said David Ochmanek, a former senior Defense Department official who helps run war games for the Pentagon at the RAND Corp. think tank.

In tabletop exercises with America as the "blue team" facing off against a "red team" resembling China, Taiwan's air force is wiped out within minutes, U.S. air bases across the Pacific come under attack, and American warships and aircraft are held at bay by the long reach of China's vast missile arsenal, he said.

"Even when the blue teams in our simulations and war games intervened in a determined way, they don't always succeed in defeating the invasion," Ochmanek said.

A war over Taiwan remains a worst-case scenario that officials say is not imminent. But China's growing military prowess, coupled with its aggressive rhetoric, is turning Taiwan into a potential flashpoint between Beijing and Washington — and a test case for how the U.S. will confront China's superpower ambitions.

The outgoing head of the U.S. military's Indo-Pacific Command, Adm. Philip Davidson, warned senators this month that the U.S. is losing its military edge over China, and that Beijing could decide to try to seize control of Taiwan by force by 2027.

"We are accumulating risk that may embolden China to unilaterally change the status quo before our forces may be able to deliver an effective response," the admiral told the Senate Armed Services Committee.

"Taiwan is clearly one of their ambitions. ... And I think the threat is manifest during this decade, in fact, in the next six years."

U.S. intelligence analysts have warned for more than a decade that China's military strength was progressing at a dramatic pace, and that America's superiority was evaporating in the Pacific, Defense officials told NBC News. Only now has the message finally hit home, with simulated battles driving home the point.

"You bring in lieutenant colonels and commanders, and you subject them for three or four days to this war game. They get their asses kicked, and they have a visceral reaction to it," Ochmanek said. "You can see the learning happen."

Twenty years ago, China had no chance of successfully challenging the U.S. military in the Taiwan Strait, and Pentagon planners could count on near total air superiority and the ability to move aircraft carriers close to Taiwan's eastern coast.

But a more prosperous China has invested in new naval ships, warplanes, cyber and space weapons and a

massive arsenal of ballistic and cruise missiles designed to undercut the U.S. military's sea and air power.

"When you look at the numbers and ranges of systems that China deploys, it's pretty easy to deduce what their main target is because pretty much everything they build can hit Taiwan. And a lot of stuff they build really can only hit Taiwan," said David Shlapak, a senior defense researcher at the RAND Corp. think tank who also has worked on war-gaming models involving China.

Every generation of Chinese missiles has "longer and longer ranges on them," said one senior Defense official, and the missiles present a growing dilemma for the U.S. in how to penetrate the area around Taiwan, the official said.

Sowing doubts

Even if China refrains from direct military action on Taiwan, U.S. officials and analysts worry that Beijing could eventually force Taipei to buckle through steady military and economic pressure that creates a perception that the U.S. can't guarantee the island's defense.

"At some point does China have enough military capability to push the Taiwanese into some sort of settlement, where you never get into a fight, but it's just that threat hanging over the head of Taiwan?" the Defense official said.

If China succeeded in subjugating democratic-ruled Taiwan, it would send shockwaves through America's network of alliances, and cause other democratic governments in Asia to doubt Washington's reliability and strength, officials and experts said.

China views the self-governed island as part of its own territory and has never renounced the possible use of force to bring it under Beijing's control. China's political leadership sees reunification with Taiwan as a core objective, and Beijing's actions and statements have grown more assertive in recent months.

When contacted by NBC News, China's embassy in Washington pointed to recent comments from foreign ministry spokesperson Zhao Lijian, who accused the United States of adopting a Cold War mentality and overstating tensions over Taiwan.

"By exploiting the Taiwan question to exaggerate China's military threat, some people in the United States are actually looking for excuses to justify the increase of the U.S. military expenditure, expansion of its military power" and interference in regional affairs, the spokesperson said.

"The United States should abandon the Cold War zero-sum mentality, view China's development and national defense development objectively and rationally, and do more things that are conducive to mutual trust between China and the United States and regional peace and stability," he said.

Starting in June, China started regularly flying fighter jets and bombers across the median line in the strait separating mainland China and Taiwan, and into Taiwan's

Air Defense Identification Zone (ADIZ). The flights have forced Taipei to scramble its fighter planes to intercept the Chinese aircraft.

The Chinese military flights are part of a campaign of pressure tactics designed to wear down Taiwan's small air force, the Defense official said, adding: "From Taiwan's perspective, there's a level of fatigue associated with this."

Taiwan has reported a series of aviation mishaps in recent months, raising questions about whether China's encroachment was having an impact on Taiwan's air crews. Two Taiwanese fighter planes crashed on March 22 in the third such incident in six months.

The U.S. Navy, meanwhile, has sent guided-missile destroyers through the Taiwan Strait three times since Biden took office, and the U.S. Air Force flew B-52 bombers to a base in Guam last month to "reinforce the rules-based international order in the Indo-Pacific region."

The United States is committed by law to providing Taiwan with the means to maintain its self-defense, and successive presidents have approved arms sales to the island, including F-16 fighter jets and Patriot missile batteries.

But Ochmanek and other analysts argue that Taiwan — and the United States — need lower-tech weapons to fend off a potential Chinese invasion, and that big-ticket items like fighter jets and Patriot missiles will prove useless in the event of a Chinese assault.

"They've invested a lot of money in Patriot missiles. Those Patriot missiles are going to die in the first few hours of the war," Ochmanek said. The same goes for fighter jets on the runway targeted by potential Chinese missile salvos, he and other experts said.

Ochmanek argues Taiwan should invest in mines, drones and mobile anti-ship and anti-aircraft missiles that could slow a Chinese amphibious and airborne invasion, providing precious time for U.S. help to arrive.

Although senior military officers mostly agree that Taiwan and the U.S. need to adapt to the risks posed by China, it's not clear if Congress or the Pentagon would be ready to give up purchasing more fighter jets or other expensive hardware to free up money for alternative weapons.

"We are acutely aware of the threat posed by China's military build-up, as well as its aggressive behavior in Taiwan's vicinity," said a spokesperson for Taiwan's mission in Washington, the Taipei Economic and Cultural Representative Office in the United States.

"These actions threaten peace and stability across the Taiwan Strait, and are part of a broader pattern of Chinese attempts to intimidate countries in the Indo-Pacific region," it said.

"Taiwan has increased our defense spending commensurate with these challenges," the spokesperson said, and the island has plans to bolster investments into "asymmetric capabilities."

U.S. military officers in the Pacific say the Pentagon needs to shift more weapons and resources to Asia and transform its mindset to take on China. Without a change in U.S. weapons and tactics, the American military could find itself at a disadvantage in Taiwan and across the Pacific, potentially undermining the confidence of allies and partners that look to Washington as a counterweight to China, Defense officials said.

"If we make no changes in posture, then absolutely, you're going to find a future where we're simply outmatched," a second Defense official said.

"You can't just maintain the same static line of forces that we have currently assigned, particularly west of the International Date Line. That will not do the job."

The Pentagon declined to comment.

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Taiwan to buy new U.S. air defence missiles to guard against China

Yimou Lee, Reuters, March 31

TAIPEI -- Taiwan has decided to buy an upgraded version of Lockheed Martin Corp's Patriot surface-to-air missile, the air force said on Wednesday, as the island bolsters its forces to guard against a rising threat from China.

Chinese-claimed Taiwan has complained of repeated incursions by China's air force in recent months into the island's air defence identification zone, as Beijing seeks to pressure Taipei into accepting its sovereignty.

Taiwan's Air Force told Reuters it had decided to buy the Patriot Advanced Capability 3 (PAC-3) Missile Segment Enhancement (MSE) missiles, with deliveries to start in 2025 and deployment the following year.

The Air Force did not disclose how many missiles Taiwan was planning to buy, citing the sensitivity of the matter.

"These purchase plans were made based on the threat from the enemy," an Air Force spokesman told Reuters, adding it will continue to "boost defence capacity".

The spokesman said the Air Force is "cautiously optimistic" about the progress of the purchase.

Taiwan's Defence Ministry, in a report to parliament seen by Reuters, said the decision to obtain the newer Patriots was made during a 2019 meeting with the United States during the previous administration of U.S. President Donald Trump.

U.S. President Joe Biden's government has not announced any Taiwan arms sales since taking office in

January, though it has pledged its "rock solid" commitment to the democratically-governed island.

U.S. arms sales to Taiwan always anger China, which has demanded they stop.

In July, China said it would put sanctions on Lockheed Martin for involvement in a \$620 million upgrade package for existing Patriot missiles Taiwan operates.

China has announced similar sanctions before on U.S. companies for Taiwan arms sales, though it is unclear what form they have taken.

Smith pushes technology and foreign partnerships to counter China **Tony Bertuca, Inside Defense, March 31**

House Armed Services Committee Chairman Adam Smith (D-WA) made the case yesterday for pursuing deterrence, rather than dominance in the U.S.-China security relationship, noting his support for upgrading U.S. weapon systems and expanding arms deals with foreign partners.

"If we go to war with China, we've failed," he said during a virtual event hosted by the Meridian Institute.

The United States, Smith said, should be "strong enough to deter what we don't want China to do," but avoid an arms race that would be "a recipe for disaster."

"What deterrence means is: China, don't invade Taiwan because the price you're going to pay for that isn't worth it," he said. "We can build our systems along that line . . . without having to obsess over dominance."

Smith said leaning on emerging technologies like artificial intelligence is key.

"Overall, the fact that the Department of Defense needs to do a better job of adjusting to a new, technologically based warfare is absolutely true," he said. "We've got to figure out how to build our systems better, more quickly and more effectively."

Smith, a critic of the F-35 Joint Strike Fighter program, said the committee is focused more than ever on ensuring DOD is standing up adequate command and control systems for U.S. weapons.

Russia stages fresh military drills in the Arctic **Not Attributed, Agence France-Presse, March 30**

Russia was holding fresh military exercises on Tuesday in the Arctic, a territory of growing importance for Moscow as it vies for regional dominance with rivals including the United States.

Tensions between the West and Russia have led both sides to beef up their militaries in the remote High North, an area believed to be rich in natural resources and where melting ice has opened up new shipping routes.

The Russian military on March 20 launched massive Arctic manoeuvres near Alexandra Land, part of the Franz

The United States, like most countries, has no official diplomatic ties with Taiwan, but Washington is bound by law to provide the island with the means to defend itself.

Washington has been pushing Taiwan to modernise its military so it can become a "porcupine", hard for China to attack.

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"If the enemy is able to shut that down? No matter how many big, fancy, expensive platforms you have, they are not going to work if you don't have a secure command and control system," he said. "That's going to be a huge focus of how we try to figure out how we spend scarce resources going forward."

Additionally, Smith said the United States has to figure out a more "balanced" approach to foreign arms sales that honors human rights, but also expands the availability of U.S. weapons to trusted allies and partners.

"It's a huge challenge," he said. "Striking that balance is very difficult."

Smith said U.S. policy should "vary from country to country." For instance, he said he believes the United Arab Emirates has addressed concerns related to its role in the war in Yemen, while Saudi Arabia has not.

Smith said the United States also puts itself in a "trap" by making it difficult to sell arms to foreign countries while simultaneously warning them not to buy from China or Russia.

"My big emphasis is partnerships," he said. "One of the biggest things that the rest of the world wants from us is our military hardware. We have got to figure that out."

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Josef Land archipelago, that are expected to include more than 40 separate drills.

On Monday, the defence ministry announced the beginning of command exercises by the Northern Fleet that would continue over "several days".

The exercises include tests of Pantsir-S1 anti-aircraft systems, in-flight refuelling of a MiG-31 fighter jet and jamming the controls of drones simulating an attack.

Last Friday, the drills saw three nuclear-powered submarines break ice and surface simultaneously and also

featured a nuclear submarine firing a torpedo from beneath the ice.

President Vladimir Putin praised the Arctic exercises on Friday, saying the Russian military had proven its ability to operate even "in harsh northern environments".

Retired Russian admiral Viktor Kravchenko told the Interfax news agency that the exercises were to send a "signal to our foreign friends -- the Americans".

Kravchenko said last week that drills would remind the United States it has competition in the region and to show that Russia has "been here for a long time."

Russia is one of five Arctic nations staking their claims in the region, and Moscow has beefed up its military presence there, reopening and modernising several bases and airfields abandoned since the end of the Soviet era.

Moscow has built a military base on the remote Kotelnny Island, part of the New Siberian Islands in the eastern Arctic, and there are other installations including on the Franz-Joseph Land archipelago.

Russia has also deployed its state-of-the-art S-400 air defence systems there.

The United States in February sent strategic bombers to train in Norway as part of Western efforts to bolster its military presence in the region.

For the first time since the 1980s, the US Navy deployed an aircraft carrier in the Norwegian Sea in 2018, and then several other vessels in Russia's economic zone in the Barents Sea the following year.

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North Korea says Biden administration took wrong first step over latest missile test

Hyonhee Shin, Reuters, March 27

SEOUL -- North Korea said on Saturday that the administration of U.S. President Joe Biden had taken a wrong first step and revealed "deep-seated hostility" by criticising its self-defensive missile test.

North Korea on Friday said it had launched a new type of tactical short-range ballistic missile. Biden said the test violated U.N. Security Council resolutions but he remained open to diplomacy with Pyongyang.

Ri Pyong Chol, secretary of the North's ruling Worker's Party's Central Committee, said the test was self-defensive against threats posed by South Korea and the United States with their joint military exercises and advanced weapons.

"We express our deep apprehension over the U.S. chief executive faulting the regular testfire, exercise of our state's right to self-defence, as the violation of U.N. 'resolutions' and openly revealing his deep-seated hostility," Ri said in a statement carried by the official KCNA news agency.

Biden's remarks were an "undisguised encroachment on our state's right to self-defence and provocation," he said, adding Washington might face "something that is not good" if it continues to make "thoughtless remarks."

"We are by no means developing weapons to draw someone's attention or influence his policy," Ri said.

"I think that the new U.S. administration obviously took its first step wrong."

He accused the Biden administration of "exploiting every opportunity" to provoke Pyongyang by branding it as a "security threat."

The test came just days after U.S. Secretary of State Antony Blinken vowed to work to denuclearize North Korea and criticized its "systemic and widespread" human rights abuses during a visit to Seoul with Defense Secretary Lloyd Austin.

North Korea has also slammed the South Korea-U.S. military exercises which ended last week, even though they

were repeatedly scaled back to facilitate a restart of denuclearization talks with Pyongyang.

Ri said Washington insisted on a "gangster-like logic" to be able to bring strategic nuclear assets to South Korea and test intercontinental ballistic missiles at its convenience, but ban North Korea from testing even a tactical weapon.

"We know very well what we must do," he said. "We will continue to increase our most thoroughgoing and overwhelming military power."

The White House, which said its North Korea policy review was in the "final stages," declined to comment. The State Department did not immediately respond to a request for comment.

When asked earlier about the launch and whether it would affect the policy review, department spokeswoman Jalina Porter again condemned the test as "destabilizing."

"North Korea's unlawful nuclear and ballistic missile programs constitute serious threats to international peace and security," she told a regular news briefing.

"I can't underscore enough that the president and his security team are continuing to assess the situation and one of our greatest priorities right now is ensuring that we're on the same page as our allies and partners."

Kim Dong-yup, a professor at Kyungnam University in Seoul, said Ri's remarks meant North Korea would potentially ramp up military tension in the coming months by developing and testing advanced weapons.

Washington's Center for Strategic and International Studies said in a report on Friday that commercial satellite imagery showed North Korea has continued to produce uranium concentrate, used to build nuclear weapons, over the past eight months, though it has not tested any bombs since 2017.

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North Korea accuses UN of double standard over missile firings

Hyung-Jin Kim, Associated Press, March 28

SEOUL, South Korea -- North Korea on Monday accused the United Nations of a “double standard” over its reaction to the North’s recent missile launches, warning it of a serious consequence.

Last week, North Korea fired two short-range ballistic missiles into the sea in a defiance of U.N. resolutions that ban such launches by North Korea. The U.N. Security Council subsequently adopted a resolution to renew the mandate of U.N. experts monitoring sanctions against North Korea.

Some experts say North Korea's missile launches, the first of their kind in a year, were aimed at applying pressure on the new U.S. government of President Joe Biden.

“It constitutes a denial of sovereignty and an apparent double standard that the UNSC takes issue, on the basis of the U.N. ‘resolutions’ — direct products of the U.S. hostile policy toward (North Korea),” senior North Korean Foreign Ministry official Jo Chol Su said in a statement carried by state media.

Jo said it “doesn’t make any sense” for the U.N. council to take issue with only North Korea’s missile launches, while not doing anything on similar weapons

tests by other countries. He said such a “double standard will invite more serious consequence” but didn’t elaborate.

Observers say North Korea could test-fire longer-range missiles in coming weeks.

At Friday’s meeting of the committee monitoring sanctions and North Korea, where all 15 Security Council members are represented, U.N. diplomats said a significant majority expressed concern at Pyongyang’s latest violations of council resolutions banning ballistic missile launches. They said the Security Council is likely to hold a closed discussion on the missile launches this week.

Past short-range missile launches by North Korea typically drew U.N. Security Council condemnations, but not fresh sanctions on the country. North Korea was slapped with toughened U.N. sanctions in 2016-17 following its provocative run of missile and nuclear tests aimed at acquiring the capability of launching nuclear strikes on the U.S. mainland.

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U.S. eyes additional UN action on North Korea after missile tests

Matthew Lee, Associated Press, March 30

WASHINGTON -- The Biden administration said Monday it's looking at “additional actions” that the United Nations might take to respond to North Korea’s recent missile tests.

U.S. Ambassador to the United Nations Linda Thomas-Greenfield wasn’t specific about what those actions might entail, but noted that the UN Security Council had met last week and renewed the mandate of experts who monitor sanctions against the North. The council is also expected to hold closed-door discussions on North Korea on Tuesday.

“We’re looking at additional actions that we might take,” Thomas-Greenfield said of the U.S. and others Security Council members.

Meanwhile, President Joe Biden’s national security adviser Jake Sullivan will be meeting in Washington soon with his counterparts from Japan and South Korea to discuss North Korea strategy as the administration finalizes a review of how to approach the country. Secretary of State Antony Blinken, who recently returned from Tokyo and Seoul, said the three countries are united in dealing with the challenges posed by Pyongyang.

“What we’re seeing from Pyongyang in terms of these provocations does nothing to shake the resolve of our three countries along with allies and partners around the world to

approach North Korea from a position of strength in order to diminish the threat that it poses to the region and beyond,” Blinken said.

On Monday, North Korea accused the UN of a “double standard” over its reaction to the launches, which violate UN sanctions, warning of serious consequences.

Last week, North Korea fired two short-range ballistic missiles into the sea in a defiance of U.N. resolutions that ban such launches by North Korea. Some experts say North Korea’s missile launches, the first of their kind in a year, were aimed at applying pressure on the Biden administration.

Past short-range missile launches by North Korea have typically drawn U.N. Security Council condemnations, but not fresh sanctions. North Korea was slapped with toughened U.N. sanctions in 2016-17 following its provocative run of missile and nuclear tests aimed at acquiring the capability of launching nuclear strikes on the U.S. mainland.

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Iranian Leaders Split on Return to U.S. Talks

Sune Engel Rasmussen and Aresu Egbali, Wall Street Journal, March 27

TEHRAN -- To talk or not to talk. Iran's political leaders are divided over how to respond to U.S. President Biden's overture to start negotiations aimed at reviving an international agreement that puts limits on Tehran's nuclear ambitions in exchange for sanctions relief.

The split, reflecting disagreements about how long Iran can withstand the economic damage inflicted by sanctions and political jockeying ahead of presidential elections in June, has made it hard to predict when and under what conditions Iran would be willing to meet with the U.S., diplomats say.

President Hassan Rouhani has said publicly that Tehran should be willing to return to the strictures of the nuclear accord either all at once or in steps, as long as the U.S. first lifts at least some of the economic penalties it has imposed.

More conservative opposition politicians, who control the nation's parliament, argue that Washington must lift all sanctions imposed by the Trump administration before Iran resumes compliance with 2015 multination deal known as the Joint Comprehensive Plan of Action, or JCPOA.

"The Americans didn't hold any talks with us before leaving the JCPOA, so no talks are needed for their return," said Abolfazl Amouei, a prominent conservative lawmaker.

"Iran needs to get something but it isn't clear what that something is," said a senior European diplomat in Tehran.

In February, Iran rejected a European Union invitation for informal talks with the U.S.

While Iran's political system excludes anyone who isn't supportive of the Islamic Republic's main tenets, or who doesn't profess allegiance to its supreme leader, the political spectrum and public debate is relatively broad.

Iranian Supreme Leader Ali Khamenei, who has the final say on matters of national security, hasn't taken sides

in the domestic dispute but recently said Iran isn't in a hurry to return to talks with the U.S. He said Iran would resume its commitments in the accord when the U.S. lifted all sanctions.

Mr. Rouhani has accused a "minority of saboteurs" of thwarting efforts to get sanctions lifted, saying they were committing "treason." He has said that while Iran is ready to return to compliance -- as long as Washington takes the first step -- he suggested his opponents will want to delay any deal with the U.S. until after the presidential elections in June, where a quick diplomatic win and sanctions relief might boost his allies.

Mr. Amouei said the impact of U.S. sanctions has softened as Iran's economy recovers. The International Monetary Fund predicts Iran's economy will return to 3.2% growth in 2021, following a 5% contraction in 2020, on the back of expanded oil sales and a stronger domestic industry.

He said Iran is looking for sanctions relief in three main areas: oil exports, access to funds for oil sales and international banking transactions. Without such moves, he said, he sees no point in meeting.

President Biden says he intends to rejoin the 2015 nuclear deal if Iran rolls back its breaches of limits in the accord. A senior Biden administration official said the U.S. is open to taking a step that would relax sanctions even before meeting Iranian officials.

"We've made clear that withdrawing from the JCPOA was a mistake, that maximum pressure was a failure," the official said. "But this needs to be part of a process in which Iran also takes steps to reverse its nuclear decisions."

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Satellite image shows renewed activity at North Korean nuclear lab

Andrea Mitchell, Dan De Luce and Abigail Williams, NBC News, March 30

Satellite images show renewed activity at a North Korean nuclear facility, suggesting that Kim Jong Un's regime is preparing to start or has already started reprocessing plutonium for nuclear weapons, experts say.

The commercial satellite photos show steam or smoke rising from a small building at the Yongbyon Radiochemistry Laboratory and from an adjacent thermal plant. The lab reprocesses spent fuel rods to extract plutonium for nuclear bombs.

The photos, released by Maxar Technologies and the Center for Strategic and International Studies, were posted on the think tank's website, Beyond Parallel.

Previous satellite imagery had shown other signs of activity at the thermal power plant in recent weeks. The head of the International Atomic Energy Agency, Rafael Mariano Grossi, this month cited signs of activity at the

Yongbyon facility and another site, calling the nuclear work a clear violation of U.N. sanctions.

The latest activity suggests that North Korea has launched is preparing to launch a new effort for nuclear reprocessing, said Victor Cha, Korea chair at the Center for Strategic and International Studies, who was a senior national security official in the George W. Bush administration.

The move and two rounds of missile tests in recent weeks are a political maneuver by Kim to challenge President Joe Biden's administration and South Korean President Moon Jae-in, Cha said.

"It is a series of escalations. I think it's pretty calculated. They're ratcheting up pressure as they had done to President Trump and to President Obama," Cha said.

The moves are "nothing new with regard to North Korea, but this is happening fairly early on in the administration," he said. The White House, the State Department and the Defense Department did not immediately respond to requests for comment.

After the Biden administration presented a united front with allies in Asia, including Japan and South Korea, and took a tough line in talks with China, "I think North Korea feels like it has to respond," said Cha, who is also a professor of government at Georgetown University.

To further escalate, North Korea could fire off longer-range missiles, conduct a nuclear test or launch an intercontinental ballistic missile, possibly from a submarine, Cha and other experts said.

North Korea has not conducted an intercontinental ballistic missile test since late 2017. After a period of high tensions, the Trump administration pursued diplomacy with Pyongyang. Talks between Trump and Kim in Hanoi, Vietnam, in 2019 ultimately collapsed with no agreement.

The U.N. Security Council held a closed-door meeting about North Korea on Tuesday, but the discussions produced no immediate outcome. The U.S. ambassador to the U.N., Linda Thomas-Greenfield, said Monday that "we're looking at additional actions that we might take here in New York."

North Korea has made a string of provocative moves and statements in recent weeks. As the U.S. and South Korea carried out computer-simulated joint military exercises, Kim Yo Jong, the sister of North Korea's leader, warned Washington on March 16 against "causing a stink."

Days later, North Korea launched a pair of short-range cruise missiles into the Yellow Sea. Senior Biden administration officials said at the time that the cruise missile tests were at the low end of the scale in terms of what the regime could do to raise tensions.

Then, last week, North Korea fired two short-range ballistic missiles in violation of U.N. resolutions. Kim's sister on Friday called South Korean President Moon "a parrot raised by America."

At his first news conference last week, Biden said the U.S. would consult with its allies and respond if the regime chose "to escalate."

White House press secretary Jen Psaki said Monday that Biden had no plans to meet with Kim.

"I think his approach would be quite different, and that is not his intention," Psaki said.

Rear Adm. Michael Studeman, director of intelligence for U.S. Indo-Pacific Command, said this month that recent North Korean nuclear activity could be designed to gain leverage with the U.S. to try to secure relief from punishing sanctions.

"We have our eye on this. And it is deeply concerning where North Korea wants to go," Studeman said at a virtual event. If North Korea has started reprocessing, "then that could put us into a different level of tension with Korea going into 2021," he said.

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Iran Says Sanctions Could Force Shutdown of Nuclear Power Plant

Arsalan Shahla, Bloomberg News, March 29

Iran said its only nuclear power plant could stop operating this year as the country struggles to keep the unit running because of sanctions.

The Bushehr nuclear power station is "facing the risk of shutdown" because U.S. banking restrictions have made it difficult for the Islamic Republic to transfer money and procure necessary equipment, Mahmoud Jafari, a deputy at the Atomic Energy Organization of Iran, was quoted as saying by the semi-official Iranian Students' News Agency.

"Currency fluctuations and problems related to banking sanctions have complicated efforts to meet the reactor's operational and maintenance costs and make payments to Russian contractors," Jafari said.

Bushehr, developed by Russia and operational since 2011, is one of the oldest civilian nuclear power plants in the Middle East and is not regarded by the United Nations atomic watchdog as a proliferation threat. Most of Iran's electricity is produced from natural gas.

Russia has signed an agreement to build two more 1-gigawatt nuclear reactors on the site of the existing reactor in a deal Iran said is worth \$10 billion.

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South Korea capable of intercepting N.K. short-range missiles – defense ministry

Not Attributed, Yonhap News Agency (South Korea), March 30

SEOUL -- South Korea has the ability to intercept North Korea's short-range ballistic missiles, the defense ministry said Tuesday, after the North conducted a series of missile tests in recent weeks. On Thursday, the North fired two short-range ballistic missiles into the East Sea, the first

in about a year, just days after the country fired two cruise missiles into the Yellow Sea.

"South Korea has the ability and the posture to fully intercept North Korea's short-range missiles, including ballistic ones, with the South Korea-U.S. missile defense system," ministry spokesman Boo Seung-chan said.

Asked to comment on the difference in the missiles' flight range assessed by the South's military and that announced by the North, the Joint Chiefs of Staff (JCS) said they are thoroughly analyzing the projectiles based on information gathered from various sources.

Hours after Thursday's launches, the JCS said the projectiles flew around 450 kilometers, but the North's state media reported the next day the missiles "accurately hit the target set in the waters 600 kilometers off the east coast."

"We explained what was captured at an early stage after they were fired eastward," JCS spokesman Col. Kim Jun-rak said. "We are now thoroughly analyzing them with information gathered from all kinds of different sources. There is no reason to doubt our (detecting) ability."

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Japan PM Suga still willing to meet North Korean leader Kim – spokesman **Not Attributed, Kyodo News (Japan), March 30**

TOKYO -- Prime Minister Yoshihide Suga is still willing to meet with North Korean leader Kim Jong Un, the government's top spokesman said Tuesday, after the White House ruled out a summit between Kim and U.S. President Joe Biden in the near future.

The remarks by Chief Cabinet Secretary Katsunobu Kato apparently reflect Tokyo's hope for progress in efforts to secure the return of Japanese nationals abducted by North Korean agents in the 1970s and 1980s but could be seen as a break from Washington.

Suga had said after taking office last September he would inherit his predecessor Shinzo Abe's willingness to meet with Kim "without preconditions."

Asked at a press conference on Tuesday whether the offer still stands following the remarks from the White House, Kato said Suga "firmly maintains" the stance taken by Abe.

Biden has said the United States would "respond accordingly" if North Korea chooses to further raise tensions following last week's ballistic missile test, but also said the door remains open for "some form of diplomacy."

Responding to a reporter's question Monday on whether this includes "sitting" with Kim, White House Press Secretary Jen Psaki said, "I think his approach would be quite different, and that is not his intention."

The Biden administration is reviewing its North Korea policy after his predecessor Donald Trump's three summits with Kim failed to produce a deal amid disagreement on the level of sanctions relief Pyongyang should get for winding down its nuclear and missile programs.

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Australia Accelerates Missile Program With Its U.S. Ally **Jason Scott, Bloomberg News, March 31**

Australia is liaising with its U.S. ally to accelerate a A\$1 billion (\$761 million) program designed to create a sovereign guided-missile program, a move that could add to its friction with China.

"We will work closely with the United States on this important initiative to ensure that we understand how our enterprise can best support both Australia's needs and the growing needs of our most important military partner," Defence Minister Peter Dutton said in a statement Wednesday.

The announcement comes after Australia and the U.S. - - which have both had increasing tensions with China -- in November signed an agreement to develop and test hypersonic cruise missile prototypes, with long-range strike capabilities. The deal is under the nations' 15-year Southern Cross Integrated Flight Research Experiment (SCIFiRE) program, which studies hypersonic scramjets, rocket motors, sensors, and advanced manufacturing materials.

China has warned any country accepting the deployment of intermediate-range American missiles would face retaliation. In recent years regional tensions have ratcheted up as China's Xi Jinping and Russia's

Vladimir Putin have poured money into some of the world's most advanced missiles systems, while North Korean leader Kim Jong Un has been modernizing his arsenal designed to attack the U.S. and its allies.

In October 2019, Xi paraded through Beijing a variety of weapons intended to offset American advantages in any conflict, including the DF-17 missile with a hypersonic glide vehicle, which is designed to make warheads almost impossible to intercept.

"The Americans are looking to invest very large amounts of money in advanced missile technology, especially as they realize they are playing catch-up to a large extent" with China and Russia, said Paul Dibb, an emeritus professor in strategic and defense studies at the Australian National University in Canberra. "The Chinese have got nearly 2,000 theater ballistic missiles, some of them with ranges of up to 3,000 kilometers (1,865 miles) and capable of carrying a nuclear warhead."

Japan's Defense Ministry took steps toward a greater strike capability in 2017, when it allocated 2.2 billion yen (\$20 million) for an air-to-surface Joint Strike Missile. The fiscal year 2020 budget allocated 13.6 billion yen more for the cruise missiles, which can be mounted on F-35s.

'Unmistakable Message'

The U.S. intended to discuss deploying medium-range missiles with its Asian allies to counter the immediate threat of China's nuclear buildup, the Nikkei Asian Review reported in August. It cited Marshall Billingslea, U.S. special presidential envoy for arms control, as saying that a medium-range, non-nuclear, ground-launched cruise missile under development in the U.S. had the defensive capability that countries such as Japan will need.

Earlier this month, the head of the U.S. Indo-Pacific Command, Admiral Phil Davidson, said China's military executed a coordinated test launch into the South China Sea of its top anti-ship ballistic missile, which is capable of

attacking aircraft carriers in the western Pacific, in an "unmistakable message."

Dutton's department is selecting a strategic industry partner to operate the missile program's manufacturing capability, which could lead to export opportunities, he said. Wednesday's statement, which didn't directly link the sovereign guided-missile program with November's hypersonic cruise missile program announcement, cited estimates by the Australian Strategic Policy Institute think tank that Australia would spend A\$100 billion in the next 20 years on missile and guided-weapons purchases.

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Commentary

Hypersonic Weapons Really Matter to U.S. Deterrence of Russia

Dan Gouré, Real Clear Defense, March 27

Hypersonic weapons could dramatically change the balance of conventional military power between the United States and its major competitors, Russia and China. Russia is investing heavily in hypersonic systems and is on the verge of deploying a variety of strategic and theater systems. The U.S. started behind its great power competitors but is racing to catch up. Deploying its own set of hypersonic weapons may be the second most important military modernization effort the Department of Defense (DoD) undertakes over the next two decades, coming just behind the modernization of the strategic nuclear deterrent.

Hypersonic weapons fly at least five times the speed of sound but retain the capability to maneuver in the atmosphere. There are two basic varieties of hypersonic weapons. The first, a hypersonic glide vehicle (HGV), is launched aboard a ballistic missile into the upper atmosphere. The HGV then uses the ballistic missile's speed to skip along the upper layers of the atmosphere with much greater maneuverability than traditional warheads. The second, a hypersonic cruise missile, maintains continuous thrust using either rocket power and/or air-breathing engines to reach the desired speed. What distinguishes hypersonic weapons from current types of ballistic and cruise missiles is their combination of speed, maneuverability, and the portion of the atmosphere in which they operate (between 80,000 and 200,000 feet).

Going forward, hypersonic weapons are likely to play a major role in Moscow's military modernization efforts. They are a counter to current and prospective deployments of advanced air and missile defenses by the U.S. and its allies. Hypersonic weapons allow the Russian military to hold at risk critical U.S. and allied targets from the outset of a future theater conflict, possibly winning the war in the initial salvo.

Russian Defense Minister Sergei Shoigu went even farther, declaring that precision weapons, primarily hypersonic, would form a critical element of Russia's non-

nuclear deterrent: "The potential of the non-nuclear deterrent forces, primarily of precision weapons, is being strengthened. They will be based on hypersonic systems of various bases."

Russia is leading the world in deployed hypersonic weapons. It is developing multiple classes of hypersonic weapons. Uniquely among the great powers, Russia has developed a strategic nuclear hypersonic weapon. This is the nuclear-capable Avangard warhead, deployed on the RS-18 ICBM and, in the future, on the giant RS-28. The first Avangard equipped unit was declared operational in late 2019.

Russia also is developing at least two classes of theater-range hypersonic weapons: the ship-launched Tsirkon, with an estimated range of between 250-600 miles, and the aircraft-launched ballistic missile Khinzhal, which can be deployed on Russian fighters and bombers. The Khinzhal is assessed to have a range of approximately 500 miles. Both weapons are believed to be dual-capable, unlike U.S. theater hypersonic weapons currently in development.

Russian president Vladimir Putin may be looking at advances in military capabilities, particularly hypersonic weapons, to buttress his domestic political position. In a 2020 conversation with a leading Russian ballistic missile designer, Putin made clear the importance of the development of advanced weapons systems as a demonstration of Russia's great power status: for the first time in our contemporary history, Russia has the most cutting-edge types of weapons that are far superior to all earlier and current weapons in terms of their power, capability, speed, and, which is crucial, precision. Nobody else in the world has this type of weapons, at least at the moment.

Meanwhile, the U.S. sees its investments in hypersonic weapons as a way to address the progressing loss of precision deep strike capabilities created by Russian and

Chinese investments in Anti-Access/Area Denial (A2/AD) capabilities. Hypersonics will enable the U.S. military to rapidly respond to the initiation of hostilities, strike high-value targets from much longer distances, and offset the ability of Russia to conduct massed missile and aircraft strikes. As General John Hyten, Vice Chairman of the Joint Chiefs of Staff, observed, hypersonic weapons could enable “responsive, long-range, strike options against distant, defended, and/or time-critical threats [such as road-mobile missiles] when other forces are unavailable, denied access, or not preferred.”

Given this, the U.S. is making a serious investment in conventionally armed hypersonic weapons. A recent report by the Government Accountability Office estimated total Pentagon spending on hypersonics at \$15 billion over the next decade. This number is likely to rise as competition from Russia in emerging military technologies intensifies. The Army, Navy and Air Force each have one or more programs to develop and deploy a hypersonic weapon.

The Navy’s effort is a program called Conventional Prompt Strike (CPS), which will be deployed first on the most advanced versions of the Virginia-class attack submarine in the early 2020s. In the future, this system could be deployed on Arleigh Burke and Zumwalt-class destroyers as well as a new Large Surface Combatant.

For the Army, hypersonics are but one element of its long-range precision fires program. The Army is focused

on the Long-Range Hypersonic Weapon (LRHW), a mobile, canister-launched version of CPS, that will hold high-value targets such as air defense sites, military depots, and headquarters at risk at ranges of 1,500 miles or more. It would like to have an initial operating capability for the LRHW in 2023.

The Air Force is concentrating on an air-launched hypersonic weapon. The AGM-183A Air-Launched Rapid Response Weapon (ARRW), is a rocket-powered hypersonic boost-glide vehicle. It is believed to have a range of nearly 600 miles and is small and lightweight enough to allow multiple weapons to be carried on strategic bombers and tactical fighters. The Air Force is also reported to be developing the Hypersonic Attack Cruise Missile (HACM). The ARRW would be employed against the highest value, most time-critical targets, while the HACM would be deployed in larger numbers to attack a wide range of A2/AD targets.

The development and deployment of U.S. hypersonic weapons is vital to the maintenance of conventional deterrence of Russian conventional aggression in Europe or the Indo-Pacific region. Hypersonic weapons on land, in the air and at sea, will provide a powerful and credible counter to Russian investments in theater forces.

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Listen to America’s Top Commander in the Indo-Pacific and Fund the Pacific Deterrence Initiative

Mark Montgomery and Bradley Bowman, War On The Rocks, March 31

In his final appearance before the congressional armed services committees, the outgoing top American commander in the Pacific warned this month that a failure to devote additional military resources to the region risks inviting aggression from the People’s Republic of China. In a comment that should make Americans sit up and pay attention, Adm. Phil Davidson, the commander of U.S. Indo-Pacific Command, suggested that Beijing could attempt to attack Taiwan “in the next six years.”

To deter such aggression, Washington should fully support the Pacific Deterrence Initiative, a congressionally driven effort to ensure that Indo-Pacific Command has the capabilities it needs. More specifically, the Joe Biden administration should request, and Congress should provide, the authorizations and funding necessary to provide the additional region-specific resources detailed in Indo-Pacific Command’s annual Section 1251 Assessment. This assessment provides Congress an unfiltered picture of what the command closest to the threat from China needs.

One might assume supporting such an urgent request from the American commander closest to the most pressing threat would be a no-brainer. Decision-makers in the Pentagon, admittedly, confront the unenviable task of balancing finite resources with a plethora of expensive requests from all of the geographic combatant commands. Given the severity of the threat from Beijing, however, one

might assume urgent and repeated requests coming from the Indo-Pacific would carry more weight in Washington.

Unfortunately, too often, that would be a poor assumption. Despite a willingness to use the overseas contingency operations account — the main warfighting account with the least restrictions on its use — to fund a similar program in Europe, staff in the Office of the Secretary of Defense and the military services have persistently opposed using the same account to fund the Pacific Deterrence Initiative. That leaves only finite base-budget funding, which funds everything else the Department of Defense does, and the Office of the Secretary of Defense and the services are reluctant to divert that funding away from other programs. Accordingly, Indo-Pacific Command finds key Pacific Deterrence Initiative priorities perennially unfunded as the military balance of power in the Pacific continues to erode.

Absent intervention, this year will likely be no different. The military services will once again brush aside Davidson’s warning and Indo-Pacific Command’s assessment — failing to provide America’s servicemembers in the Pacific many of the capabilities they need to accomplish their assigned missions. Most problematically, that includes Davidson’s top unfunded request: vital additional air and missile defense protection for Guam.

To prevent such a mistake, Secretary of Defense Lloyd Austin should intervene to ensure his department's budget request supports the Pacific Deterrence Initiative. That, however, is unlikely. Accordingly, Congress will probably have to intervene once again to ensure capability gaps in the Pacific do not worsen. Either case will probably require the use of overseas contingency operations funding.

A Longstanding Challenge

The Barack Obama administration trumpeted a "pivot" to the Pacific but was unable to sufficiently improve U.S. military capabilities in the region. The late Sen. John McCain issued a prescient white paper in 2017 that highlighted the eroding security situation in the region and called for exactly the type of Pacific-specific posture that would later become the basis for the Indo-Asia-Pacific Stability Initiative in the 2018 defense bill and the Pacific Deterrence Initiative in the 2021 defense bill. The previous head of Indo-Pacific Command, Adm. Harry Harris, submitted similar requests in 2017 and 2018.

All the while, China has continued investing in the most significant military modernization in its history, and the balance of forces continues to erode for the United States.

The Donald Trump administration's 2018 National Defense Strategy brought belated and much-needed clarity regarding the priority of the threat from China. But the Pentagon has not yet transformed most of the research and development programs initiated during the last administration into programs of record delivered to forward-positioned forces in the Indo-Pacific. And, as military leaders will tell you, fielded capabilities — not research and development programs — are what deters aggression.

To be fair, successive annual Pentagon budget requests asked for congressional support for programs largely focused on China (and Russia). Those include, for example, Virginia-class submarine and F-35 fighter procurement programs, as well as B-21 bombers and hypersonic weapon research and development programs.

It was not coincidental that Congress eagerly supported these programs. These submarines, planes, and missiles are developed and built in the United States, and members of Congress are eager to keep those jobs in their districts and keep contractors and subcontractors happy. But less glamorous, but equally vital, investments related to overseas infrastructure, logistics, and training have no such constituency and often fail to garner sufficient support.

That is part of the reason why Indo-Pacific Command has again sounded the alarm in its assessments over the last two years. The military balance of power in the region continues to become "more unfavorable," the combatant command warned. The United States is accumulating "additional risk that may embolden adversaries to unilaterally attempt to change the status quo."

Congressional Impatience

The Pentagon's failure to provide Indo-Pacific Command much of the region-specific resources it requires to reverse the deteriorating security situation has regularly

forced Congress to add capabilities that the command needed.

Consider several examples from the 2019 budget. Congress added funding to increase Navy and Air Force procurement of long-range anti-ship missiles, the weapon both services tout as an exemplar of their commitment to preparing for conflict with China. Congress added funding for MK-48 heavyweight torpedoes, the Navy's most effective weapon against China's ships and submarines. Congress added air base prepositioning sets into the Air Force's budget to support the "agile combat employment" concept in the Pacific. And Congress added funding to the Army's budget to procure "gap filler" cruise missile defense systems (although it's important to note that American bases in the Pacific remain woefully unprotected from the cruise missile threat).

Nevertheless, it became clear to the leadership and staff of the Senate and House Armed Services committees that these ad hoc congressional "adds" were not enough. So, frustrated with successive Defense Department budget requests that paid insufficient attention to growing needs in the region, Congress used the 2020 defense bill to essentially go around the Pentagon and require an "independent assessment" from Indo-Pacific Command regarding the "activities and resources required."

When Indo-Pacific Command submitted the report to Congress in March 2020, the command did not pull any punches. The subsequent 1251 Assessment submitted to Congress earlier this year repeated many of the same concerns and requests. Both iterations provide an unfiltered picture of what the command closest to the threat from China still needs.

What the Warfighters Need

That is why it is worth taking the 1251 Assessment seriously and examining what Indo-Pacific Command is prioritizing.

As the most recent 1251 Assessment submitted last month makes clear, Indo-Pacific Command seeks more than \$27 billion in dedicated spending over the next five years. That amount is broken up into five areas. Two of the areas — lethality, which includes surveillance radars, air defense systems, and strike weapons; and posture, which involves base construction, upgrades, and prepositioning equipment — account for about 60 percent of the funding.

Another big element (25 percent) is joint exercise funding, which includes significant spending on joint training ranges stretching from San Diego to Japan. The final two elements are modest requests for alliance integration (including capability development) and enabling forces (both logistics and information operations). A number of these requests mirror existing military service funding requests, so some of the \$27 billion is in the existing budget plan. However, as the 1251 Assessment demonstrates, some of the larger and most vital Pacific Deterrence Initiative expenditures, such as the Guam Defense System, are currently unfunded.

The Guam Defense System is a perfect example of how critical and fragile the Pacific Deterrence Initiative program is. The military requirement is to defend the

United States' largest airfield in the Pacific, numerous logistics and prepositioned stores, and a submarine base. But the national mission is even dearer: to defend approximately 170,000 U.S. citizens living in the sovereign U.S. territory.

The Guam Defense System will bring an integrated command-and-control system, surveillance radars, weapons launchers, and missiles to defend Guam. The heart of this system will be an Aegis Ashore naval fire-control system similar to what the United States has built in Poland and Romania. But the Guam Defense System will likely be expanded to control offensive-strike systems and to involve even more remote launchers and surveillance radars than currently planned (maybe scattered throughout the Marianas Islands). Eventually, the Guam Defense System will also include hypersonic missile defense capabilities.

Those expansions — necessary, in our view — will increase the cost above the initial \$1.7 billion price tag. The whole Guam Defense System effort could end up closer to \$3 billion.

Those inclined to balk at such a cost should consider that Indo-Pacific Command believes Guam to be the U.S. military's "most important operating location in the Western Pacific" — one the United States "must fight from" and "must also fight for." And it is the command's job to evaluate the military situation in and around Guam and provide the authoritative recommendation on the necessary response.

Critics of the Guam Defense System should also consider the lack of alternatives. Existing missile defense systems cannot handle the current or future threats facing Guam, and Navy ships can't cover all angles of attack to the island without a persistent deployment of three or four Aegis-equipped ships that are desperately needed elsewhere.

Despite all of this, absent congressional or White House intervention, when it submits its annual budget request this May, the Pentagon may once again fail to provide Indo-Pacific Command what it needs — including the Guam Defense System.

Austin or Congress to the Rescue?

How can this be?

The critical issue is how to pay for the Pacific Deterrence Initiative. It is certainly true that, as always, there are more combatant requirements than resources to address them. But, in this case, that explanation is not sufficient. A decisive factor is how the funding is categorized.

Here, the comparison to the similar European Deterrence Initiative, a plan to strengthen the U.S. military posture in Europe vis-à-vis Russia, is illuminating. Over the past five years, following Putin's aggression in Crimea, the Pentagon requested and Congress provided \$26.9 billion for the European Deterrence Initiative. This was possible because of the decision to use overseas contingency operations funds as the predominant source of program funding. Overseas contingency operations funds were, of course, initially intended for the execution of operations in Iraq and Afghanistan. But in practice, the overseas

contingency operations fund provided the budget space to meet U.S. European Command's requirements without forcing the services to forgo other needed programs.

Through some policy jujitsu, the Pentagon determined (and the Hill has not challenged the decision) that funding for U.S. European Command can come out of the overseas contingency operations account, but funds for Indo-Pacific Command cannot. Even as the consensus that China represents the preeminent threat solidified last year, the European Deterrence Initiative received \$5.9 billion in funding while programs supportive of deterrence in the Pacific received only \$2.2 billion — and that all from service budgets, not overseas contingency operations funds.

This is not to dismiss the serious threat from Moscow. But, if Beijing is indeed America's greatest threat, and the Indo-Pacific theater most important to U.S. interests, it is difficult to understand or explain the insistence on confining Indo-Pacific Command's needs to the base budget.

Perhaps it is because Moscow already invaded and annexed Crimea. Does Washington really have to wait to act until Beijing undertakes aggression toward Taiwan? It could save lives and money to instead act now to prevent that aggression in the first place by using overseas contingency operations funding to pay for the Pacific Deterrence Initiative.

Some suggest the mainland's threat to Taiwan is overhyped. But Beijing's growing military capabilities, aggressive actions in the seas and skies around Taiwan, and long-term strategic objectives suggest the burden of proof should be on those who claim China won't invade Taiwan. It is worth remembering that the 2018 bipartisan congressionally mandated National Defense Strategy Commission (that included Kathleen Hicks, the newly confirmed deputy secretary of defense) listed aggression in the Taiwan Strait as one of their top concerns. It is also worth remembering that one of the lessons of the Korean War is that the United States should not too quickly dismiss warnings from Beijing.

To address this growing threat, Washington should find a way to fund the Pacific Deterrence Initiative — and the only short-term answer is almost certainly the overseas contingency operations account. To be sure, using overseas contingency operations funds can have costs. It's often harder to predict and plan for life cycle maintenance funds for programs that use these more flexible funds compared to those funded from the base budget. But more important than all of that is the need to urgently provide America's warfighters what they require in light of the growing threat from Beijing. And, in the short term, unfortunately, drawing on the overseas contingency operations account may be the only way to get that done.

The Guam Defense System case study demonstrates that the Pentagon will not solve this resourcing problem for the Pacific Deterrence Initiative any time soon otherwise. The system's mission (air defense of land-based sites) is a traditionally Army mission; the principal site to be protected (Anderson Air Base) is an Air Force asset; and the only system that can conduct the mission (Aegis

Ashore) is a Navy system. This is a Goldwater-Nichols nightmare. The individual services' budgeting processes can't, or won't, tackle this problem.

Austin could remedy this. He could establish his office's leadership over the service acquisition systems and direct service payments into a designated fund to build the Guam Defense System, or the department could open up the Pacific Deterrence Initiative to overseas contingency operations funds for certain joint projects, such as the Guam Defense System. Unfortunately, given previous failures to gain Pacific-specific funding and the military services' desire to protect their existing programs, neither of those solutions is likely. As a new secretary of defense, Austin may be reluctant to buck entrenched bureaucratic inertia on the issue and may want to avoid any congressional criticism for the increased use of the overseas contingency operations account.

This means that, absent congressional intervention, the Guam Defense System will probably be "studied" instead of funded for the next year or two. As Washington dithers, Beijing will continue to field new missiles designed to target Guam, a threat Davidson warns will become particularly acute by 2026.

The Guam Defense System provides just one example of the funding challenges facing the Pacific Deterrence Initiative. The joint exercise programs, training and experimentation ranges, surveillance radars, and prepositioning supplies requests in the Pacific Deterrence

Initiative could also run into service objections. And without overseas contingency operations funding, top-down leadership, or congressional intervention, they too will be studied and delayed or shrunken as the Chinese threat grows.

The Pacific Deterrence Initiative is a good plan. It recognizes risks, establishes priorities, identifies opportunities, and proposes the allocation of finite resources. It lays out a blueprint whereby \$27 billion in targeted Pacific-specific investments over five years can play a potentially decisive role in securing America's interests. It signals to allies and partners, and to China, that the United States is prioritizing the competition in the Pacific and making the investments necessary for credible deterrence.

Forward-positioned servicemembers closest to the Chinese threat have clearly told Washington what they need to deter aggression.

The only question now is whether the Biden administration, the Pentagon, and Congress will finally listen and act. If they do, America can protect its interests and deter aggression, saving money and lives in the long run. If Washington once again ignores the command's warnings, Davidson's predictions may prove tragically prescient.

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Storm Clouds Ahead: Musings About The 2022 Defense Budget

Robert Work, War On The Rocks, March 30

It's that time of year when the president's annual budget is due to Congress, and with it, the annual update to the Pentagon's future years defense program. The program is a projection of the forces, resources, and capabilities needed to support Department of Defense operations over a five-year period. The future years defense program covers the current "year of execution" and the next four years. These five-year plans are typically delivered to Congress with the defense resources for the two previous fiscal years and force structure estimates for the three years following the program.

Normally, both the president's budget and the future years defense program would be delivered during the first week of February. But, in a transition between administrations, they are typically delayed as the incoming administration reviews the program developed by the outgoing administration and makes changes to it. This transition is no different — therefore, we should see the budget and defense program before May 1.

The coming update to the defense program promises to be more important than usual. It's been over three years since the National Defense Strategy established a long-term strategic competition with "revisionist powers" — particularly China — as the primary defense challenge facing the joint force. During this time, the services have all been developing new operational concepts and the

platforms and capabilities to support them. It's time to start seeing concrete changes in the defense program that should follow.

This is the first part of a short series that aims to frame the Fiscal Year 2022 (FY2022) defense program and to highlight and discuss some of the Department of Defense's biggest decisions regarding capabilities. None of these decisions will be easy — yet time's a-wastin'. They need to be made and the sooner, the better. The Department of Defense promised "the masterpiece" — the new joint force, reconfigured for competition with China and Russia — in the FY2020 program. However, we are still waiting for it. One hopes Washington won't lose another year as its competitors continue to chip away at America's conventional overmatch.

A Short Budget History

Before discussing the particulars of the FY2022 program, it helps to understand the backstory. The Budget Control Act of 2011, followed by the effects of sequestration in FY2013, completely disrupted the Pentagon's long-term program planning processes from FY2013 to FY2017. First, defense spending declined over half a trillion dollars relative to the FY2012 program. Second, the outyear budget forecasts continually changed as Congress sought to restore some of the cuts, primarily with short-term (e.g., two-year) "balanced budget

agreements.” And third, the department had to deal with successive continuing resolutions at the start of each fiscal year. The combination of all three things made future budget forecasts a continually shifting target and years of execution a constant struggle. Consequently, the future years defense program saw incessant change year over year.

One might have expected the big decline in defense spending to trigger a substantial reduction in U.S. force structure. However, one would be wrong. And if force structure didn’t appreciably decrease, one might then have expected the force to cut back on the frenetic operations and personnel tempo it had maintained since the 9/11 attacks. Nonetheless, it didn’t.

The result: a force that was too big for the budget allocated but too small to meet the demands laid upon it.

How could something like this happen? Even though the Pentagon and service chiefs often promise to shrink the force before the services go hollow on readiness, when it comes time to jump off that cliff, they are not inclined to do so (especially in the chaotic budgeting and planning environment of the Budget Control Act years). Congress isn’t inclined to do so, either — and the Pentagon has been unable to treat regional combatant commander requests for forces as “desirements” rather than “requirements.” So, the default answer for requests for forces is “yes.”

Regardless of the why and the how, this was a bad place to be, and two things inevitably occurred. First, readiness cratered. The Department of Defense was mostly successful in sending ready units on deployments. But, to make it so, the readiness of units at home station badly suffered in response. Moreover, the constant unconstrained demands of the regional combatant commands — and the Pentagon’s inability to say “no” to them — caused the definition for “ready” forces to gradually change to “available” forces. And most available forces were too often deployed in response to requests for forces. Consequently, the cupboard of forces immediately ready to respond to a contingency became increasingly bare.

Second, with the Pentagon unwilling to put force structure and deployment cuts on the table, it was forced to make program decisions it otherwise would have scrupulously avoided to stay within the budgeted top-line. For example, munition buys were cut, often to minimum sustaining production rates. Facilities maintenance was shaved as well. Ship maintenance availabilities and exercises were scaled back. The Army and Marine Corps ground modernization programs essentially disappeared. All of these things contributed to the overall decline in force readiness.

Then-candidate Donald Trump promised to “rebuild” the military. In practical terms, we witnessed something less than that — it was more of a rebalance. The increased defense spending on his watch (over what was expected in the 2016 future years defense program) allowed the department to bring its personnel, readiness, and investment accounts roughly into balance for the existing force structure. Moreover, Secretary of Defense James Mattis diverted money in FY2017, FY2018, and FY2019 to

restore the readiness deficit he inherited. Without question, the “Trump bump” improved forcewide readiness and allowed the Department of Defense to start repairing some of the damage to the program forced by the sequestration caps.

But the Trump bump did not provide the resources necessary for a major force structure buildup, which is what many people expected with a promised “rebuild.” During his campaign, Trump called for a 350-ship Navy, an Army with 540,000 personnel, an Air Force with at least 1,200 fighter aircraft, and a Marine Corps with 36 infantry battalions. After FY2020, once the program was brought back into a semblance of balance and readiness had stabilized, the department would have needed year-over-year budget increases of approximately 3 percent just to maintain the force structure levels the president inherited. This would cover the costs of inflation — running at approximately 2 percent — in addition to fact-of-life increases to the costs of military personnel as well as operations and maintenance, both of which consistently rise faster than the rate of inflation. To make good on Trump’s campaign promise for a larger joint force, the budget would have needed to increase at a rate of 3 to 5 percent year-over-year for a substantial period of time. Instead, defense spending fell 4 percent in real terms between FY2020 and FY2021.

So, here we are. The enacted FY2021 defense top-line came in at approximately \$705 billion. To avoid losing future buying power and reducing the force structure the United States now has, the future years defense program needs to be inflated by 3 percent, year-over-year. However, that isn’t likely to happen. It appears the best case is for future budgets with no real increase in buying power — that is, for FY2022 and out to hold at \$705 billion, inflated. Assuming an inflation rate of 2.4 percent, that would result in a FY2022 defense top-line of \$722 billion, with outyears inflated from there. A worse outcome would be for the FY2022 and subsequent years to hold at \$705 billion, uninflated. And the absolutely worst case would be year-over-year real declines in defense spending as called for by the progressive wing of the Democratic Party.

Now, a FY2022 topline of \$705 billion is nothing to sneeze at. That tops annual defense spending every year between FY1948 and FY2005. In other words, FY2022 spending at \$705 billion will be higher than at any time during the Cold War, including during the Korean and Vietnam wars. But an uninflated FY2022 budget of \$705 billion has at least 3 percent less in buying power than FY2021’s \$705 billion, and that yearly loss will likely be duplicated across the future years defense program. Even a FY2022 budget of \$722 billion, adjusted to account for inflation, is nowhere near enough to grow the services to the size and numbers called for by then-candidate Trump.

Bad news doesn’t get better with age. The United States cannot maintain force structure on flat defense budgets. Rather than reprising the ugly choices policymakers were forced to make after the Budget Control Act and sequestration, it would be better to make force structure and deployment cuts now, in the FY2022

program, and immediately divert the savings to modernization accounts. But if history is any indication, that will be a line the Pentagon and services will be reluctant to cross (except the Marine Corps, which has seen the light and made the hard choices necessary to adjust).

Giving up on visions of a much larger joint force is one thing, but modernizing the military America has and maintaining its current size is also hanging in the balance for a variety of reasons. First and foremost, when you are losing 3 percent buying power per year, service modernization accounts will face steady downward pressure that only increases over time. Second, the entire conventional portfolio — which includes the force structure modernization of the four armed services — will be under increased pressure because of the high costs to recapitalize U.S. nuclear forces. The last time the Pentagon needed to modernize its conventional forces at the same time it recapped the nuclear triad occurred during the Reagan defense buildup from FY1981 through FY1985. Annual defense spending over this time frame increased at an average of 7.3 percent in real terms. With such increases, the Pentagon did not have to trade conventional capability for nuclear forces. Unless something changes, that will not be the case this time. Congress and the Department of Defense will have to find a way to pay for nuclear capabilities within the existing top-line. And, unfortunately, the margins in replacement plans for the Ohio-class ballistic missile submarines, the Minuteman III intercontinental ballistic missiles, the air-launched cruise missile, the warheads to arm them all, and the associated nuclear command-and-control system have all been expended. The bill is coming due, with no more extensions possible.

The same goes for America's strategic sealift fleet, the key prerequisite for U.S. global power projection. Many of the ships are already more than three decades old, and they will begin to reach the end of their useful service lives in

the 2020s. They need to be replaced. Then there are the costs to stand up the new U.S. Space Force and provide the capabilities it needs. To pay for these plus the nuclear recap, the modernization of conventional forces will likely be the biggest bill payer. And all will make the competition for resources within a flat \$705 billion top-line extraordinarily intense among the military departments as they argue for their share of the remaining budget pie.

But wait, there's more! Encouraged by Mattis' calls for 3 to 5 percent annual growth through at least FY2023, service plans for modernization, recapitalization, and force structure growth were made on the hope of 3 to 5 percent year-over-year growth throughout the 2020s. Without that steady growth, capacity increases are infeasible. With flat budgets, whether inflated or not, competition for resources within the military departments will be as ruthless as competition for resources between them. One needs only to look at the program decisions made by the commandant of the Marine Corps to get a feel for just how ruthless things could get. Gen. David Berger made the difficult decision to shed tanks and other armored vehicles as well as towed artillery and jets and helicopters to pay for capabilities deemed more important in the future. That was a gutsy call that showed both vision and courage. The Army, Air Force, and Navy have yet to make similar decisions — at least on the scale likely necessary. Nonetheless, they are sure to be coming.

So, the first thing to look for is the FY2022 top-line. Will it remain flat at \$705 billion? Will it be inflated or uninflated? Or will it reflect a real decrease? Regardless, the competition within the program will be extraordinarily intense, and every program decision difficult.

Prepare for heavy weather!

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How the Biden administration can secure real gains in nuclear arms control

Sharon Squassoni, *Bulletin of the Atomic Scientists*, March 30

Less than two months into his term of office, President Joseph R. Biden signaled a renewed commitment to US arms control leadership. As expected, he extended the New START Treaty by executive action in his first week in office, securing a five-year cap on the number of deployed strategic nuclear weapons in the US and Russian arsenals. More surprisingly, the White House issued an Interim National Security Strategy Guidance in early March that planted arms control firmly in the Biden administration's national security strategy:

We will head off costly arms races and re-establish our credibility as a leader in arms control. That is why we moved quickly to extend the New START Treaty with Russia. Where possible, we will also pursue new arms control arrangements. We will take steps to reduce the role of nuclear weapons in our national security strategy, while ensuring our strategic deterrent remains safe, secure, and

effective and that our extended deterrence commitments to our allies remain strong and credible. And we will engage in meaningful dialogue with Russia and China on a range of emerging military technological developments that implicate strategic stability.

The phrase "Where possible" is an important caveat that suggests the Biden administration has not underestimated the difficulty of next steps in arms control. Strained relations with Russia or China constitute one hurdle but can be ameliorated by mending or building some fences. Different perspectives on how to achieve strategic stability, some of which are deeply embedded, constitute another obstacle. Still other hurdles are more structural in nature and might require eliminating fences erected between, for example, strategic and tactical nuclear weapons or nuclear and conventionally armed long-range precision missiles.

Despite warnings that the era of bilateral, quantitative reductions is over, and that nuclear arms control has entered a new and infinitely more complex phase, there is undoubtedly more to squeeze from US and Russian arsenals. Whether the Biden administration seeks to address some of the other barriers to sustainable arms control may matter less than whether it is able to impart a sense of urgency to arms control as a whole. Potential next steps in arms control with Russia or China in the short term, followed by some mid-to-long-term options for sustainable progress, are achievable.

POSSIBILITIES WITH RUSSIA. The extension of New START was necessary, useful, and timely—in the vernacular, a “no-brainer.” Presidents Biden and Putin should now seek a joint understanding to reduce deployed strategic nuclear warheads by a third.

While this seems like a significant reduction, it’s not. The US and Russia could easily lower the number of deployed strategic nuclear warheads within the context of New START. In fact, both Russia and the US in previous years dipped below the New START threshold of 1,550 deployed warheads. In 2018, Russia deployed 1,444 and the US deployed 1,350 nuclear warheads.

Drawing down to 1,000 or 1,100 deployed warheads has been discussed for at least a decade and was informally endorsed by the US Joint Chiefs of Staff in 2013. The most obvious approach would be to reduce warhead loadings on submarine-launched ballistic missiles or reduce the intercontinental ballistic missile (ICBM) force. Nothing in the treaty precludes either side from fielding forces below the agreed ceilings. A joint statement or memorandum of understanding between the two presidents could accompany the cuts without further legislative action.

New START verification measures could simply be applied to the lower limits. Launcher limits could remain the same unless both sides agreed to reduce those numbers. Arguably, if warheads are simply moved from deployed to active stockpile status, the gain is small. Reclassifying active stockpile warheads as slated for dismantlement, along with another agreement to place additional fissile material under International Atomic Energy Agency safeguards, could solidify gains. If both sides chose to move warheads into the dismantlement process, they could explore whether declarations were sufficient or monitoring measures are necessary. A joint technical working group could explore the feasibility of monitoring.

Limiting other types of deployed nuclear warheads—that is, nonstrategic nuclear warheads—is more problematic. Russia has repeatedly rebuffed US efforts to address nonstrategic nuclear weapons, in part because it has come to see them as compensating for conventional force deficiencies, a perspective similar to NATO’s during the Cold War. More importantly, Russia has never viewed the strategic-nonstrategic divide in the same way as the United States. It makes little sense to Russians in the European theater, where US nonstrategic nuclear weapons can threaten Russian territory. The enlargement of NATO has reduced important geographic buffers for Russia. Unless the United States is willing to trade something Russia

wants very much—for example, concessions on missile defenses—Russia is unlikely to agree to reductions. Russia might consider constraining its forces geographically, but likely in exchange for reciprocal measures on US nuclear weapons currently deployed in Europe.

More importantly, Russia’s deployment of ground-launched cruise missiles known as 9M729 missiles potentially threatens European capitals once again with intermediate-range, nuclear-tipped missiles. Once solved by the now-defunct Intermediate-Range Nuclear Forces Treaty, the category of intermediate-range missiles may once again be up for negotiations. Without admitting Russia’s violations of this treaty, Russian President Putin offered in October 2020 to hold off deploying 9M729 missiles in the European part of Russian territory in exchange for reciprocal restraint on the part of NATO, or at least until “US-manufactured missiles of similar classes appear in the respective regions.” The United States should pocket the moratorium with joint transparency measures and seek negotiations on a global treaty to ban both nuclear and conventionally armed ballistic and cruise missiles of that range.

POSSIBILITIES WITH CHINA. Although US and Chinese strategic nuclear forces are nowhere near parity, they are not immune from the kind of action-reaction cycles to which US and Soviet forces fell prey during the Cold War. To enhance the survivability of its forces, China has placed newer ICBMs on road-mobile launchers and is developing multiple independently targetable warheads to increase penetration through US missile defenses. The size of China’s nuclear arsenal to date has reflected its policy of minimal deterrence, but this is by choice, not necessity. Current speculation that China could double the number of warheads in the next decade assumes China is either harboring stocks of fissile material it has not declared or that it could produce, in short order, additional material. Unlike other states with nuclear weapons, China has never formally declared a moratorium on producing fissile material for nuclear weapons. The United States should encourage China to join the other permanent members of the Security Council (P-5) in a moratorium, along with a plan for eliminating fissile material stocks not in weapons (excluding civil, safeguarded stocks). At a minimum, this would provide assurance that China would not build up to US and Russian levels. The UK and France, with their many tons of plutonium, should join such a regime, whether immediately or in a second round. Addressing fissile material capabilities in a multilateral forum is necessary anyway, particularly to boost P-5 credibility at the upcoming 2021 Nuclear Non-Proliferation Treaty Review Conference, but also redirects Chinese deflection of bilateral and trilateral negotiations. Other potential collaboration with China could focus on getting North Korea to adhere to a production moratorium.

Is it possible to persuade China to overcome its reluctance to engage in any restrictions on its nuclear weapons program? The Trump administration’s gambit to expand bilateral strategic nuclear negotiations with Russia to trilateral negotiations predictably failed when the

Chinese refused to show up. Yet the US had made progress in engaging the Chinese slowly over time prior to the Trump administration, both bilaterally and in P-5 fora, on nuclear issues. The Biden administration should return to that kind of format, although no negotiations will result in the short term.

A US commitment to minimal nuclear deterrence (not to exclude deterrence of attacks on allies) could help, but measures to allay Chinese fears about US missile defenses would likely be necessary. As with Russia, China perceives US missile defenses as threatening the retaliatory value of its nuclear force. And with good reason: as early as 1967, the United States explained that its limited anti-ballistic missile system was designed to defend against emerging Chinese missile capabilities, even though China was not expected to field ICBMs until the mid-1970s.

Modest confidence-building measures could include talks on US and allied missile defense capabilities in East Asia in exchange for China adhering to The Hague Code of Conduct Against Ballistic Missile Proliferation without officially joining the effort.

APPROACHES WITH RUSSIA, CHINA, AND BEYOND. The Biden administration has noted it would address emerging technological developments with both Russia and China as they implicate strategic stability. Good candidates for discussion would be antisatellite weapons, hypersonic glide vehicles, artificial intelligence, cyberstability, and precision, long-range munitions. It is unlikely that the US would consider adding missile defenses into that particular equation, but any effort to consider asymmetrical tradeoffs could be helpful. In the best case, successful limits in areas that affect nuclear weapons—like space and cyber—could potentially make additional nuclear restraints easier to consider.

Long-languishing agreements and negotiations like the Comprehensive Nuclear Test Ban Treaty (CTBT) and a potential fissile material cutoff treaty still remain too important to neglect despite being, for now, too hard to accomplish. In the case of the CTBT, ratification by eight states (including the US, China, North Korea, India, Pakistan, Egypt, Israel, and Iran) is required before the treaty can enter into force. If limiting the arsenals of China and North Korea enhance US national security, then a treaty that bans additional nuclear tests and one that freezes (or even rolls back) production of fissile material for weapons are essential. These two treaties play to US strengths, especially since the United States tested more nuclear weapons than most other states combined and holds the lion's share of fissile material stocks with Russia. Putting these two treaties back at the top of the agenda with fresh enthusiasm could reap benefits for the United States.

TOWARD SUSTAINABLE ARMS CONTROL. If one or more new nuclear arms races are to be halted, the Biden administration will need to manage larger obstacles beyond the current political tensions. What follows are recommendations for confronting, rather than ignoring, the concerns.

Deconstruct divisions between the US, Russia, and China on missile defenses and their role in strategic

stability. The text of the New START Treaty explicitly referenced the importance for Russia to ensure the viability of its deterrent force against missile defenses. Yet, the 2010 Senate resolution expressing consent to ratify New START made clear the US commitment to building missile defenses, including a ten-page laundry list of layered protections for missile defenses. Both Russia's and China's nuclear modernization programs included new capabilities designed specifically to evade US missile defenses. It may be time to compromise on missile defenses.

No one believes a return to the ABM Treaty is likely or desirable, but simply repeating that US missile defenses are designed against smaller nuclear forces like those of North Korea or, potentially, Iran, is not a strategy. Given American ingenuity, the Russians and Chinese may find it hard to believe that a half-century and billions of dollars spent developing ballistic missile defenses has yielded little more than a capability to defend against small nuclear forces. If the evolution of nuclear forces is towards smaller, less vulnerable forces, then defenses become even more destabilizing and should be scrapped.

Understand what deep cuts look like. The point at which a multilateral nuclear arms control treaty becomes feasible is well below the level of 1,000 deployed nuclear warheads. Eventually, the United States needs to address the significant operational and political implications for land-based ICBMs in that scenario—simply put, it will need to reassess the perceived need for a triad of sea-, air-, and land-based nuclear weapons. Bureaucratic and political resistance will play as large a role as any arms control theory here and therefore, policymakers need to plan for in advance.

End the strategic and tactical divide between nuclear weapons. Whether this division is based on range or uses (strategic versus battlefield), it is unhelpful to perpetuate and in some ways, peculiarly American. Future agreements could seek ceilings that include both, something Russian experts like Sergei Rogov and Pavel Podvig have already suggested. China considers all of its nuclear weapons to be strategic, regardless of their range. Including all such weapons in a single category, however, elevates the problem of discriminating between dual-use launch vehicles, which can be used to deliver nuclear or conventional warheads. Simply counting them all as nuclear-armed may not be an attractive option.

Capture reserve stockpiles. Deployed warheads for both the United States and Russia represent a fraction of total warhead stockpiles. Both countries have thousands of nuclear warheads that are not deployed as well as thousands in the dismantlement chain. Addressing these stockpiles eventually will be necessary, regardless of what form the fissile material takes (warheads, pits, weapons-usable fissile material or blended-down fissile material). Nuclear archeology techniques can help make sense of these stockpiles.

Rein in missile proliferation. For decades, missile supplier controls under the now-35-member-state Missile Technology Control Regime focused on nuclear-capable missiles. The Hague Code of Conduct—now 143 countries

strong—cast a wider net in an effort to improve transparency about ballistic missile and space launch vehicle developments. However, key countries like China, North Korea, Iran, India, and Pakistan are missing from the mix. Apart from the landmark and now-defunct Intermediate-Range Nuclear Forces Treaty, which banned an entire class of US and Soviet missiles with ranges from 500 to 5500km, missiles have proliferated free of treaty restrictions. As seen in cases of nuclear proliferation (North Korea and Iran), it has been difficult to find a foothold for missile restrictions in the absence of any treaties or mandatory inspections. And yet missiles are threat multipliers. Major improvements in accuracy and guidance, along with problems discriminating between nuclear and conventional warheads, make missile restrictions necessary, if unpopular.

Consider cross-domain tradeoffs. US reliance on space and cyberspace to enhance its military effectiveness is well-known, as is its reluctance to limit freedom of action in those spheres. However, the US should consider more seriously how to use codes of conduct in space and cyberspace to preserve its advantages. Particularly since nuclear weapons are meant never to be used, tradeoffs in nuclear weapons may be able to secure advantages in other strategic spaces. Closing the door on traditional, linear reductions might create a new set of options for reducing nuclear risks across domains.

ARMS CONTROL LEADERSHIP. With serious health, economic, and governance challenges on the US

The China-Iran Axis

Staff, Wall Street Journal, March 30

Anyone who thought the world would warm to U.S. interests once Donald Trump left the scene has received a rude awakening in the last two months. The latest sign is the weekend's pact between China and Iran, an example of U.S. adversaries uniting to advance their strategic ambitions.

The two sides signed what they described as a 25-year "strategic partnership" that amounts to a significant deepening of ties. China will invest several hundred million dollars in a variety of Iranian projects, including nuclear power, ports, and oil and gas development. In return China will get a steady supply of Iranian oil. The two will also deepen their defense cooperation as China will transfer some military technology.

Apologists for the 2015 Iran nuclear deal are saying this doesn't add up to more than the status quo, and thus shouldn't interfere with renewed U.S. courtship of Iran. Don't believe them. This is a big deal that advances the strategic interests of both sides -- at the expense of the U.S. and stability in the Middle East.

The deal helps Iran dodge American sanctions, and the cash infusion will ease economic pressure on the ruling mullahs. Iran will have a long-time buyer for its oil exports that were reduced by U.S. sanctions. The foreign-exchange income, if that's how the payments are made, will finance

domestic policy front, it is hard to see major nuclear arms control agreements rising to the top of a crowded presidential agenda. After all, the five-year New START extension leaves room for the next president to negotiate a new treaty. It may also be politically easier to allow some nuclear modernization elements to fall prey to budgetary constraints rather than cancel them on principle or in exchange for Russian concessions. The Senate's hyperpartisan political environment suggests it may be difficult to win enough votes for consent to ratification of a new treaty.

In the current international climate, reestablishing leadership in arms control might be as simple as articulating goals, much as whispering "vermouth" over gin makes a credible dry Martini for some. President Obama won a Nobel Peace Prize in 2009 in part because he articulated a US commitment to nuclear disarmament that had not been seriously considered for decades. But President Obama specifically cautioned that the goal would not be reached quickly—"perhaps not in my lifetime"—and there seemed little urgency at the time. Today, more urgency is attached to arms racing than arms control. The United States, as the indispensable leader, must reverse this.

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the Islamic Revolutionary Guard Corps and proxy forces in Yemen, Syria and Iraq.

The countries will also form a Chinese-Iranian bank with the aim of evading the U.S. dollar dominance in world trade that gives U.S. sanctions their bite. Breaking the dollar's hold on global trade and finance is a major goal of Russia, China and Iran. China believes that U.S. fiscal profligacy is putting the dollar's role as the world's reserve currency at risk, and they want the Chinese yuan to replace it.

The deal expands China's influence in the Middle East, which it wants for access to energy and raw materials as well as to increase its economic sway. China has also been courting the Saudis and Gulf states with economic lures. As the shale revolution has made the U.S. less dependent on Middle Eastern oil, those oil exporters need access to the China market. If the U.S. is seen as unreliable, these countries can hedge their bets with China. American influence in the Persian Gulf is not a birthright.

The China-Iran tie also complicates U.S. strategic interests. President Biden and Europe want Iran to rejoin the 2015 nuclear deal, but an Iran backed by China is under less pressure to do so. The same goes for aiding their Houthi proxies who want to take over Yemen. China and

Russia can block any attempt to put more global pressure on Iran through the United Nations.

All of this shows the folly of believing that letting adversaries dominate their regions will have benign consequences the U.S. can ignore. American isolationists on the right and left want to grant Russia, China and Iran "spheres of influence" and have the U.S. retreat.

But the more powerful they become in their regions, the more these adversaries are likely to cooperate on a global scale to undermine American economic and security interests. Think Iran and Russia in Syria; or China and Russia evading United Nations sanctions to aid North Korea; or China and Russia working through Cuba to prop up Venezuela's regime.

President Biden and his team of liberal internationalists say they want to revive the "rules-based" international order that they think Mr. Trump dismantled. It's a pleasant fiction. That order was already eroding with the rise of these regional adversaries, who extended their influence with little American challenge during Barack

Obama's Presidency. The notion that the U.N. and other multinational institutions that include these adversaries are going to enforce global rules against their rogue allies defies experience. They will undermine those rules when it serves their interests.

The world is becoming more dangerous, never mind Mr. Biden's hopes. North Korea is again firing missiles, China is threatening Taiwan more aggressively, Iran is adding to its nuclear violations, and Russia continues to undermine U.S. purposes wherever it can. While Mr. Biden is preoccupied with "transforming" the U.S. economy, the world is also transforming -- and not in a good way.

If Mr. Biden wants to restore the rules-based global order, the U.S. and its allies will have to do it. They can start by dropping illusions about the designs of their adversaries.

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