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Daily



Press

SUNDAY, OCTOBER 1, 2017

GROWTH INDUSTRY

Submarine surge: High demand from the Navy will ramp up shipyard's tightly choreographed production process with Connecticut partner



JONATHON GRUENKE/DAILY PRESS

A Newport News Shipbuilding employee walks through the Covered Module Assembly Facility as construction continues on a Virginia-class submarine Sept. 21.

A HARROWING NIGHT, AND INDOMINATABLE SPIRIT

First responders from Peninsula area discuss mission to storm-ravaged Puerto Rico

By SARAH J. KETCHUM
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When Newport News Fire Department Capt. Eddie Holloway woke up in San Juan on Sept. 20, he could feel the building moving from inside his 10th floor hotel room.

"I was actually swaying back and forth in the bed," he told the Daily Press Thursday after returning from a little more than a week

in Puerto Rico assisting with Hurricane Maria relief.

Holloway was one of 80 Hampton Roads-area first responders and civilians who deployed two days ahead of the storm with the Virginia Beach-based Virginia Task Force II.

Maria, the third hurricane to cause major destruction in less than a month, made landfall in

See MISSION/Page 7

WITH NEW, TIGHTER CAP, FATE OF REFUGEES IN VA. UNCLEAR

By KATE MISHKIN
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When Jo Anne Lyon heard this week that that Trump administration would slash the number of refugees allowed into the country starting Sunday, she said she was floored.

"I was stunned, absolutely stunned. Given all the countries

accepting refugees — I look at tiny little Lebanon that has a GDP (gross domestic product) that's small and they have over a million refugees," Lyon said. She's the founder of World Hope, a faith-based nonprofit in Alexandria that helps vulnerable communities around the world.

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INSIDE

NEW BREWERY

The \$1.4 million Billsburg Brewery is producing beer and plans to open at the end of October at the James City County Marina close to Jamestown Settlement. **Page 3 of News**

KENNEDY HOLDS CARDS

A divided Supreme Court could decide on partisan gerrymandering, gay rights and President Trump's travel ban — and one justice holds the deciding votes. **Page 18 of News**

DECADE OF DE-STRESSING

Spa of Colonial Williamsburg marks a milestone. **Page 1 of Good Life**

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By HUGH LESSIG
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NEWPORT NEWS — The future USS Montana is still a giant jigsaw puzzle at Newport News Shipbuilding, but the pieces are coming together.

Atop a raised platform where shipbuilders work in cramped spaces, the framework of the commander's wardroom is taking shape. When finished, it will be one of the few open areas of the ship, where sailors can attend briefings, eat meals and maybe sneak in a game of cribbage, the submariner's time-honored pastime.

The general outline of the galley is a short walk away. Shipbuilders have erected walls for the mess area, where future crew members will pile into a row of tightly fitted restaurant-style booths.

Showers and berthing areas — the bunks stacked three-high — are in various stages of construction.

The pieces are placed strategically throughout the Covered Module Assembly Facility (CMAF) at the Newport News yard, where Gerald Johnson is squeezing between narrow spaces.

"One of the things I've gotten excited about in my career is being able to see the construction from beginning to end," said Johnson, superintendent of Virginia-class submarines. "This is really amazing. You see something like this —

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Sub series

TODAY: A close look at the production process in Newport News.

MONDAY: Senior crew aboard USS John Warner discuss how their sub was built ahead of schedule.

TUESDAY: Sailors on the USS John Warner describe life of submariners.

More online

Go to dailypress.com to see video and a gallery of submarine photos

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JONATHON GRUENKE/DAILY PRESS PHOTOS

Above and below: Newport News Shipbuilding employees work on a Virginia-class submarine inside the Covered Modular Assembly Facility.

SUBS

Continued from 1

this is the galley under construction, and before we bring the freezer in, we have to slide all this equipment in.”

It's a busy place and promises to get busier. Aircraft carriers — also built at Newport News — are the most visible symbol of Hampton Roads' naval presence, and there is talk of expanding the fleet. But the most immediate growth industry for the region's defense community might be underwater.

Virginia-class fast attack submarines are in demand by the Navy and production is humming at two boats per year. The nuclear-powered vessels are built in a 50-50 teaming arrangement between General Dynamics Electric Boat of Groton, Conn., and the Newport News shipyard, a division of Huntington Ingalls Industries.

The arrangement is unique in the defense industry — the two yards once faced off as rivals — and the Navy considers it a success. Generally, the boats have been delivered on or ahead of schedule and within budget parameters.

The Navy wants this assembly line to remain hot. That will be a challenge because of a different submarine project on the near horizon.

The Navy plans to build a new fleet of subs that carry nuclear ballistic missiles. It will order the first one in 2021, another in 2024, and one per year from 2026 through 2035, according to its 30-year shipbuilding plan for 2017. Eventually, the Navy wants a fleet of 12 of these Columbia-class boats.

Electric Boat will take on the majority of the Columbia-class work. As a result, Newport News will take on more Virginia-class work, tilting that 50-50 burden more toward Hampton Roads.

Production of Virginia-class subs will drop from two to one per year in years when the Navy orders a Columbia-class ship. But the Navy is pushing a scenario in which the two-per-year Virginia production remains constant. So in some years, the two yards might be pushing out three boats per year.

Why so many?

The Navy didn't build many submarines in the 1990s, and some older Los Angeles-class subs will be retired in the coming years. Even with continued production of Virginia-class subs, the overall size of the submarine fleet is projected to drop in the late 2020s.

A July 2017 Navy report says the submarine industrial base can handle added work, but it will be a challenge. A three-per-year procurement rate “is achievable and provides significant benefit to the Navy and the (Virginia-class) force structure,” the report states. “The major challenge will be the cost to procure additional attack submarines.”

Another challenge: Starting in



2019, Virginia-class boats will be getting bigger. The Navy plans to add a mid-body section called a Virginia Payload Module, about 83 feet long. It will contain four large-diameter vertical launch tubes that could fire Tomahawk cruise missiles or launch unmanned underwater vehicles.

Bob Meyer, Virginia construction director of Virginia-class submarines, said shipbuilders are already starting to climb the learning curve in anticipation of adding the extra section.

“It'll add excitement,” said Meyer with a laugh. “But because we have people already engaged in that, it's not a big surprise.”

Besides the Montana, the CMAF building contains portions of the future USS Hyman Rickover, the Vermont and the Oregon. Elsewhere in the shipyard, the Indiana is 94 percent complete. The Delaware is right behind it at 73 percent. Including early work, a total of seven or eight subs are in various stages of completion at any time.

“We've been fortunate to maintain pretty much a constant workflow. That's gets us in a very familiar routine of what we are doing,” Johnson said. Pointing to a berthing area, he said: “We take pride that these are the living quarters. This is where the captain and the crew will spend the majority of their time.”

Newer subs headed to Norfolk?

The growth of submarines isn't limited to the Peninsula. The Navy is eyeing improvements at Naval Station Norfolk to accommodate Virginia-class subs.

Of the 15 Virginia-class submarines delivered to the Navy, the most recent being the USS Colorado on Sept. 21, nearly all have been parceled out to Groton and Pearl Harbor, Hawaii. But that is changing.

The USS John Warner was the first Virginia-class boat ported at Naval Station Norfolk. This coming Saturday, the Navy will commission the submarine Washington into service at Norfolk, giving Hampton Roads two of the newer subs. The base is currently home to five of the older Los Angeles-class boats.

Todd Lyman, a spokesman for Naval Facilities Engineering Command Mid-Atlantic, said upgrades

will be needed. NAVAC is the command responsible for building and maintaining facilities, plus delivering utilities and services.”

“We will need to replace the current submarine pier, which was originally built in 1944,” Lyman said in an emailed statement. “While it is currently supporting the LA class submarines, to support more VA class, a replacement pier will need to be larger and include more modern utility systems than currently exist here. As more VA class are scheduled to homeport in Norfolk, the Navy will budget for the necessary infrastructure and those requirements will be passed to NAVFAC ...”

Complex schedules

The shorthand for the relationship between Newport News and Electric Boat goes something like this: Both yards build portions of a Virginia-class sub, then take turns in final assembly and delivery to the Navy.

In fact, it's much more complicated than that. If a submarine requires welders, pipe fitters, electricians and other trades, it also requires a choreographer.

Ultimately, construction of a Virginia-class sub comes down to four super modules: the two ends — bow and stern — plus two midbody sections. Assembling those giant pieces together requires precise coordination between the two yards.

Take the habitability module, which Johnson takes pride in. It includes the galley, mess and crew living spaces. Newport News is building it, and they'll ship it to Electric Boat, which will load it into one of the super modules and send it back. Newport News builds the bow section, but Electric Boat sends them a portion of it.

The back-and-forth barge traffic is further complicated considering the number of submarines under construction at one time, all in different stages of progress.

The idea, said Meyer, is having workers do the same job all the time.

“When we started off, we wanted to drive down cost,” he said. “So we've been sending them work, they've been sending us work, trading back and forth. So we get these four large super modules.”

The choreography has some

Virginia-class submarines

General information

Builder: General Dynamics Electric Boat Division and Huntington Ingalls Industries Inc. - Newport News Shipbuilding

Date deployed: USS Virginia commissioned Oct. 3, 2004

Beam: 34 feet (10.36 meters)

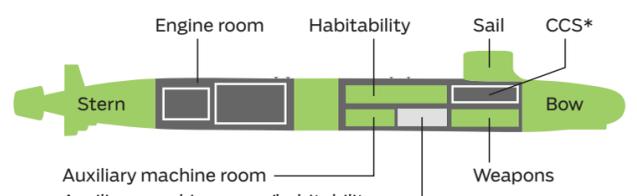
Displacement: Approximately 7,800 tons (7,925 metric tons) submerged

Speed: 25+ knots (28+ miles per hour)

Partners in building Virginia-class subs

Newport News Shipbuilding is teamed with General Dynamics Electric Boat to build Virginia-class submarines. Parts of the vessel that are built by each company:

■ Newport News Shipbuilding ■ Electric Boat □ Both



*CCS stands for Command and Control Systems module. It houses radar, sonar, fire control and related systems.

Source: Huntington Ingalls Industries

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Virginia-class ships

Vessel	Location, if available
USS Virginia (SSN 774)	Groton, Conn.
USS Texas (SSN 775)	Pearl Harbor, Hawaii
USS Hawaii (SSN 776)	Pearl Harbor, Hawaii
USS North Carolina (SSN 777)	Pearl Harbor, Hawaii
USS New Hampshire (SSN 778)	Groton, Conn.
USS New Mexico (SSN 779)	Groton, Conn.
USS Missouri (SSN 780)	Groton, Conn.
USS California (SSN 781)	Groton, Conn.
USS Mississippi (SSN 782)	Pearl Harbor, Hawaii
USS Minnesota (SSN 783)	Groton, Conn.
USS North Dakota (SSN 784)	Groton, Conn.
USS John Warner (SSN 785)	Norfolk, Va.
USS Illinois (SSN 786)	Groton, Conn.
Washington (SSN 787)	Norfolk, Va.
Colorado (SSN 788)	Completed and delivered to Navy

Ships under construction	
Indiana (SSN 789)	New Jersey (SSN 796)
South Dakota (SSN 790)	Iowa (SSN 797)
Delaware (SSN 791)	Massachusetts (SSN 798)
Vermont (SSN 792)	Idaho (SSN 799)
Oregon (SSN 793)	Arkansas (SSN 800)
Montana (SSN 794)	Utah (SSN 801)
Hyman G. Rickover (SSN 795)	

Source: U.S. Navy

DAILY PRESS

flexibility, but it's still a controlled dance.

“It has to be choreographed, because you don't want them getting large sections or modules that are sitting around and waiting, and Gerald (Johnson) doesn't want material getting in here early,” Meyer said. “It's really the essence of modular construction. It's getting the right components, the right pieces at the right time in the right sequence so they're ready for the next incremental phase of construction.”

The shipyard is hiring, and company leaders say they are conscious of how a new generation of shipbuilders tends to think. They're less about blueprints and more about computer tablets. The

Virginia Payload Module will be a “paperless” building process.

As a veteran shipbuilder, Meyer acknowledges that will be a big change for him.

“I have a love of the shipyard, so if we're going to look at where my shipyard needs to be in 10, 15, 20 years, we have to look at digital integrated shipbuilding,” he said. “It is the future.”

Justin Byrum, Virginia-class submarines program director, gives Meyer credit for pushing the new generation of technology, and grief for still carrying a flip-phone.

“It works,” Meyer shot back.

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