

Systems Models Keep Submarines Mission Ready

BY TRACY GREGORIO

An important, yet often underappreciated challenge for undersea warfare is keeping submarine systems well-maintained and available. Every command has a budget for reliability, maintainability, and availability (RMA), but those resources are limited and need to be carefully allocated to keep warfighting systems mission-ready.

For decades now, maintenance planning has been performed by seasoned engineers who understand how component lifecycles and failure rates can affect their systems. This process of expert-driven failure modes and effects analysis (FMEA) is time consuming, expensive, and can take months to complete by veterans whose expertise is sorely needed elsewhere.

Additional time is also needed to evaluate changes using the Risk Management Framework (RMF), to identify cybersecurity vulnerabilities that may degrade system availability.

Model-Based Approach.

To address this challenge, a model-based system engineering (MBSE) approach is starting to automate failure mode analysis, facilitating more efficient RMA planning. This shift provides additional time for design optimization, refinement of reliability predictions, and comprehensive analysis of casualty reporting. The result is better mission-readiness for our fleet, while consuming fewer resources.

Reliability analysis is important to ensure that a warfighting platform has no single point of failure across its many components. Between a ship's tight spaces and funding limitations, it's impossible to go to sea with spares for

everything.

One organization using this new MBSE approach is the Undersea Communications & Integration Program Office, PEO C4I / Program Manager, Warfare (PMW 770). Their Program Manager, Captain David Kuhn explained, "If spares are not available, we have to plan for alternate ways of accomplishing a mission, even if it's less stealthily. To ensure we optimize our ability to change parts and/or have redundant paths for missions, we build forecasts based on how often parts are used. If a component fails early and there is no spare on board, it could be a mission kill."

The MBSE models enable program managers, like Kuhn, to create forecasts better and faster, while tying together different engineering disciplines and stakeholder communities. "Engineers specialized in systems design, cyber, and reliability each have their own approach," said Kuhn. "They need different views and have historically used different models. Now they use the same model, each getting the views they need, and enabling analysis that just couldn't be done before."

Confidence in Outcomes

These consolidated models enable analysis and simulation on a fully validated data set that increases confidence in predicted outcomes. Kuhn illustrated the value of this analysis by describing a recent upgrade needed to improve system monitoring through the addition of passive data taps. "What normally would have needed 60 or 90 days we accomplished in a couple weeks, letting us quickly deploy the upgrades to the fleet."

The models also enable green or less experienced engineers to address critical maintenance planning elements. "MBSE helps new people coming on to look at a failure diagram and understand it faster and more accurately," notes Kuhn. This MBSE approach is being used by engineers adapting systems

to field on the new classes of submarine to plan and optimize their maintenance schemes. This approach will ensure that component failures don't interfere with the platform's most important mission threads.

"The hull designs of the new sub class have an impact on how we design and maintain our antenna systems," explained Kuhn. "Through the MBSE model, we saw how a change in one subsystem increased tensions in another. While each element was meeting its defined requirements, the model showed that failure risk increased. While we might have eventually caught the issue, the model helped us see it easily and early in the design cycle."

The MBSE model also generates the reports and views needed to get system changes through the RMF approval process. Kuhn, explaining the practical consequences, stated, "We use the model to assess RMF compliance faster and with more accuracy, in part by eliminating the possibility of 'fat finger' data re-entry errors. Our team says they can complete RMF diagrams in a third of the normal time."

That is a huge time-saver for engineers, and a safety net against errors. The system uses the following key components:

1. A digital model of the warfighting platform is created to replicate all components, connections, and system functionality. This model is capable of simulating every system operation, effectively capturing the interactions between various components. It also illustrates their relationship with the officers and sailors who are responsible for the operation and maintenance of the system.
2. The model is populated with reliability data from COTS manufacturers and field experience, generating reliability diagrams correlated to mission threads.
3. Engineers use the model to simulate planned maintenance or upgrades and test operational threads for mission

success, reviewing different alternatives for impacts on mission readiness.

4. The models export field-level instructional resources directly into interactive electronic technical manuals (ITEMs). This reduces the cost and time needed to give sailors up-to-date information for their individual hull, so they can maintain mission readiness and quickly respond to unexpected failures.

This approach is not limited to the latest-generation submarines. Maintenance planners are constantly dealing with obsolescence replacement.

“Our C4I systems make heavy use of commercial off-the-shelf servers and hard drives that go obsolete in as little as four years,” said Kuhn. “The models help us identify where one change drives a companion change in another system. For instance, we might need to make a firewall change for data to flow properly. We have to replace those elements quickly without waiting for a major availability cycle that might be five years out. We can’t afford for our systems to be the reason a sub is not out at sea.”

Transition Challenges

There are challenges in moving to a new approach in terms of the tools and skillsets needed by the workforce. Comparing MBSE transition challenges to those encountered during the shift to Computer-Aided Design (CAD), Kuhn said, “Just as we had to transition from engineers with drafting expertise into those who could work in CAD, now we need engineers that know how to use MBSE tools. It’s not as easy as opening Microsoft Word, but it can be done. The real key will be changing entire processes to adapt to the MBSE models. Using the same old processes, but just layering on the new tools will not be effective. It requires a cultural change, just as happened

when we went from pencil drafting to CAD.”

This approach can improve the maintainability of any sea-going platform with integrated MBSE models that span engineering disciplines, cyber, RMF compliance, and reliability. It doesn't happen overnight, but can make an impact, one model and one command at a time.

Advanced Navigation opens high-tech robotics manufacturing facility

Producing state-of-the-art AI-driven technologies for autonomous systems

September 2023, Global - [Advanced Navigation](#), the world's most determined innovator in artificial intelligence (AI) for robotic and navigation technologies, has unveiled a new high-tech robotics facility for autonomous systems based at [UTS Tech Lab](#) in Botany, New South Wales (NSW), Australia.

The facility will scale up the manufacturing of Advanced Navigation's world-first AI navigation systems for GPS-denied environments, including its digital fiber-optic gyroscope (DFOG) technology, [Boreas](#).

Advanced Navigation is one of only four companies in the world with the capability to manufacture strategic grade fiber-optic gyroscopes. This technology empowers reliable navigation for marine vessels, space missions, aerospace, defense, autonomous vehicles and flying taxis. The company deploys its unique AI-based physics algorithms to solve complex challenges earth-

bound and beyond.

Strengthening Australia's sovereign capabilities

Xavier Orr, Advanced Navigation CEO and co-founder, said, "There is a critical need to improve Australia's economic complexity and sovereign capabilities. A key step is to build our industrial capacity in high-tech, as well as drive knowledge exchange and propel collaborative initiatives between government agencies, academic institutions and industry leaders."

State-of-art robotics manufacturing for autonomous systems

There is a seismic shift across the landscape of sovereign manufacturing, driven by advanced technologies like AI, automation and precision engineering. In the context of autonomous systems, the importance of precision and reliability is non-negotiable.

Adopting a vertical integration framework, the facility houses equipment and processes for automated manufacturing utilizing machine learning. This guarantees the delivery of reliable, durable and high-quality navigation systems.

Collaborating with UTS academics and community

In addition to the manufacturing capability, the facility will be home to extensive research collaborations between Advanced Navigation and the University of Technology Sydney (UTS). This will expedite the commercialization of several socially impactful technologies, including:

- [Light Detection, Altimetry and Velocimetry \(LiDAV\) system](#) – LiDAV delivers precise three-dimensional velocity and altitude information relative to the lunar surface, enabling complex autonomous landing procedures and confident exploration on the moon. The technology is set to board US-based space systems company Intuitive

Machines' Nova-C lander as part of NASA's ongoing Commercial Lunar Payload Services (CLPS) program.

- [Cloud Ground Control](#) – A revolutionary cloud-based solution that allows pilots and mission planners to remotely command and control a swarm of uncrewed vehicles across air, land and sea through a web browser. By enabling real-time video feed, and telemetry, and easy access and management of captured data, Cloud Ground Control provides full remote visibility and situational awareness in search and rescue, emergency response and disaster relief operations.
- [Guiding visually impaired passengers](#) – As part of the NSW Small Business Innovation and Research (SBIR) program, Advanced Navigation has developed an indoor positioning technology to support members of the visually impaired community navigate safely inside underground train stations.

Professor Andrew Parfitt, Vice-Chancellor and President of UTS, said, *“UTS is pleased to be working with Advanced Navigation to tap into critical growth areas, including AI, robotics and space technologies.*

The collaboration between UTS's global research leaders in autonomous systems technology and Advanced Navigation's exceptional team of scientists and engineers, utilizing UTS Tech Lab's cutting-edge facilities, highlights our commitment to developing sovereign capabilities for defense and space.

We look forward to deepening and expanding our collective capabilities with Advanced Navigation to accelerate the production of high-impact innovations.”

Bolstering societal demand for STEM roles

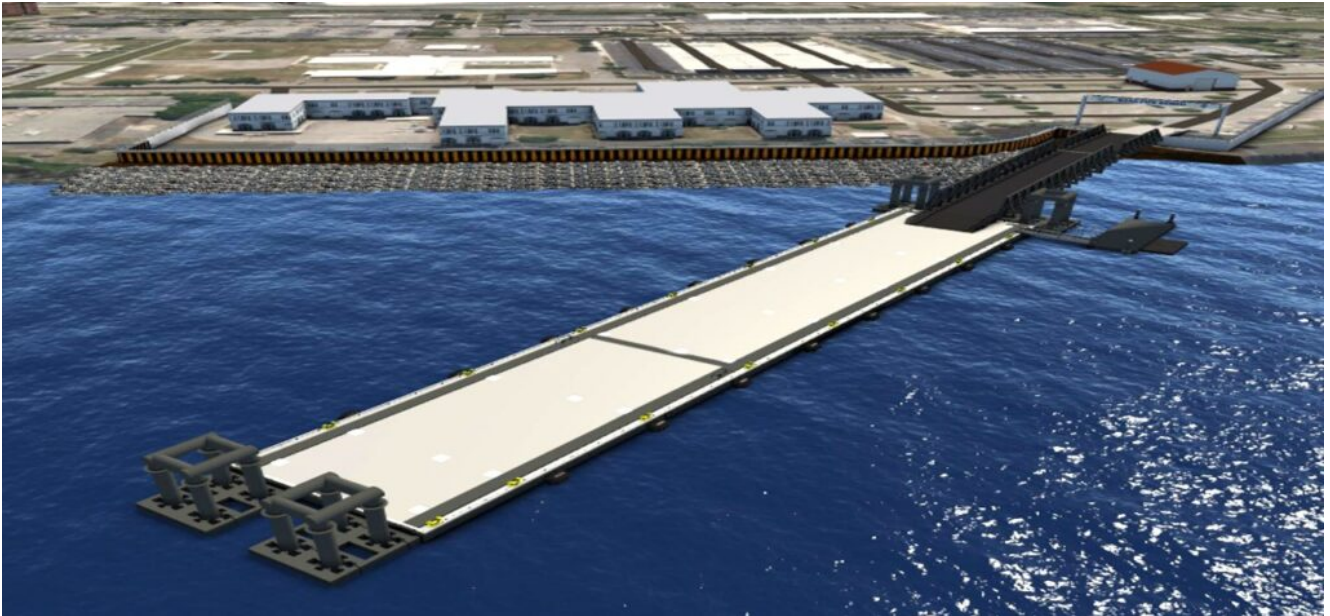
The facility appeals to the Federal Government's ongoing commitment towards building a science, technology, engineering and mathematics (STEM) workforce. It is set to drive

employment in robotics, manufacturing, photonics, mechatronics and mechanical engineering and other fields.

Chris Shaw, Advanced Navigation CEO and co-founder, said, “Our new facility will help drive rapid growth in Australia’s STEM industry. Determined to be the catalyst of the autonomy revolution, we are commercializing technologies that are key to addressing some of humanity’s biggest challenges. We are honored to partner with UTS, who has a reputation for supporting multidisciplinary research and opening access to next-generation technologies.”

Advanced Navigation was founded on a culture of research and discovery. Powered by a deep curiosity to apply ground-breaking technologies to uncover and explore new frontiers, the company is ultimately extending human capabilities to build a more resilient and sustainable future with safer outcomes, on and off planet.

NOAA awards contract for renovations to research ship pier in North Charleston, SC



[Release from NOAA](#)

David Hall, David.L.Hall@noaa.gov, (301) 427-7761

September 21, 2023

NOAA has awarded \$59.8 million to Manson Construction Company to renovate the agency's pier facility in North Charleston, South Carolina. The pier is integral to safe and efficient research ship operations in the area, with work expected to be completed in 2026.

The renovations will include demolishing and building a new pier that includes shoreside power for ships, as well as a warehouse, sea wall and living shoreline, and other supporting infrastructure. Reconstruction of the pier and other facility upgrades will allow NOAA ships [Ronald H. Brown](#) and [Nancy Foster](#) to once again have a designated place to dock and better accommodate research missions in the Atlantic. Both ships are homeported in Charleston.

"Many of NOAA's investments in infrastructure over the next several years are made possible because of funds from the Inflation Reduction Act," said NOAA Administrator Rick Spinrad, Ph.D. "Projects like this one to replace an aging

NOAA facility along with other efforts to improve our supercomputing capacity and strengthen NOAA's hurricane hunter fleet would not be possible without this historic funding."

The design and construction of the pier and supporting infrastructure is funded in part by the [Inflation Reduction Act](#) – a historic \$3.3 billion investment to help communities, including tribes and vulnerable populations, prepare, adapt and build resilience to weather and climate events in pursuit of a climate-ready nation. The act also supports improvements to weather and climate data and services, and strengthens NOAA's fleet of research airplanes and ships.

"Our ships cannot efficiently complete their critical work without safe and reliable shoreside infrastructure," said NOAA Corps Rear Adm. Nancy Hann, director of [NOAA Marine and Aviation Operations](#) and the [NOAA Commissioned Officer Corps](#). "Investing in our infrastructure ensures that NOAA can meet essential at-sea data collection requirements for the economic security, public safety and national security for many years to come. This award comes on the heels of our [ribbon-cutting ceremony in Ketchikan, Alaska](#), for our new facility there and I am grateful for these facilities to support our ships."

This contract was awarded following a request for proposals that was open January–May 2023.

NOAA's fleet of 15 research and survey ships are operated, managed and maintained by NOAA Marine and Aviation Operations. The fleet ranges from large oceanographic research vessels capable of exploring the world's deepest ocean, to smaller ships responsible for charting the shallow bays and inlets of the U.S. The vessels support a wide range of marine activities, including fisheries surveys, nautical charting and ocean and climate studies. NOAA ships are operated by NOAA Corps officers and civilian professional mariners.

Crowley, BWXT Debut Nuclear Power Generation Vessel Concept



[Release from Crowley](#)

(JACKSONVILLE, Fla.; Sept. 20, 2023) – Global shipping and energy supply chain leader Crowley has teamed with nuclear power leader BWX Technologies, Inc. (NYSE: BWXT) through a memorandum of understanding for a ship concept that has the potential to generate alternative, zero-carbon emission energy for defense and disaster needs by including a microreactor on board.

The new memorandum of understanding with BWXT's Advanced Technologies subsidiary will allow both companies to jointly

pursue and develop opportunities relative to the design, engineering and development of new shallow-draft hull ships that will supply small-scale nuclear energy to shoreside locations. The new ships would feature the latest technology available for factory fabricated microreactors, readily deployed into a shipyard configuration for ease of installation on the vessel. The onboard power plant would supply energy to shore facilities, such as military bases in remote island locations, backup utility grids after disasters, and provide power in other scenarios where traditional electricity sources are damaged or not possible.

The new vessel concept envisions a 378-foot ship that pulls from the logistics and marine capabilities of Crowley, a longtime operator with in-house vessel design by its Crowley Engineering Services, and the nuclear capabilities of BWXT, a leading supplier of nuclear components, fuel and services to the U.S. government at the highest levels of safety and security for more than 60 years. Both Crowley and BWXT are based in the United States and have been in business for more than a century.

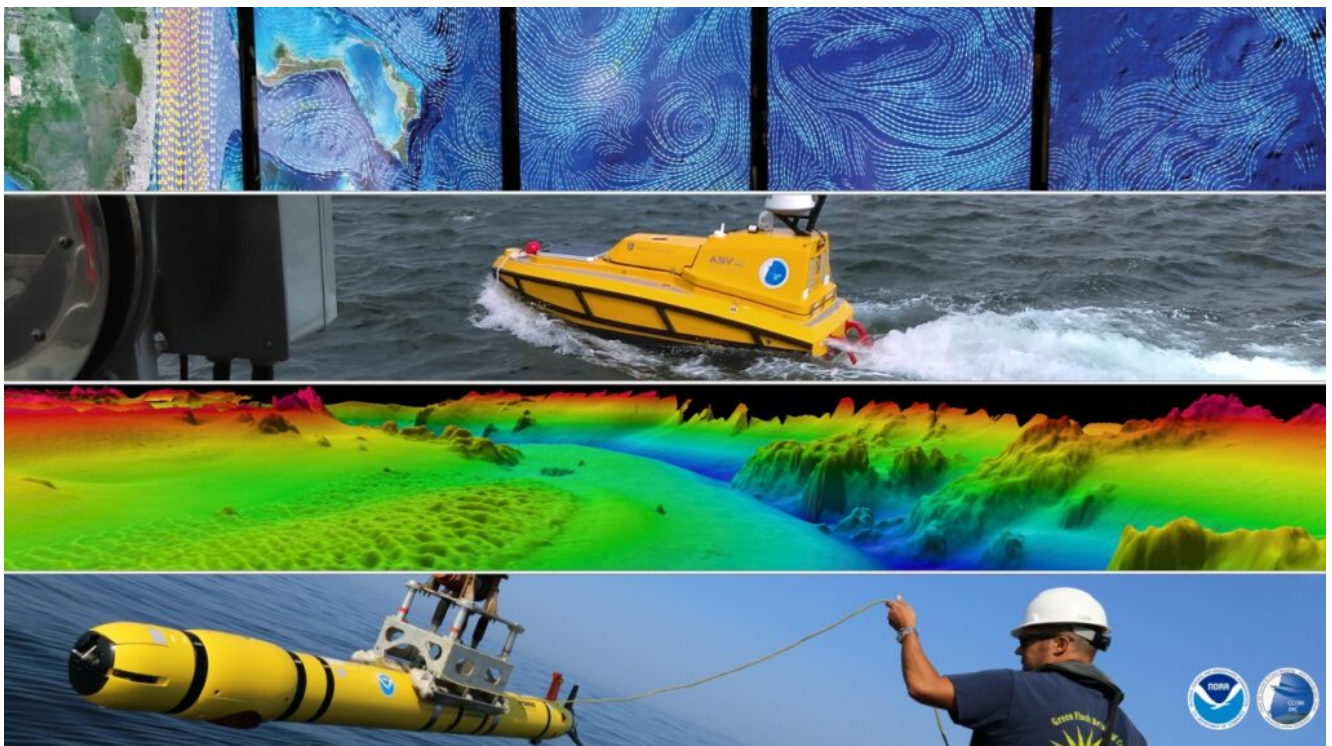
“Our cooperation with BWXT will move Crowley for the first time into the nuclear energy sector, a key part of our commitment to sustainable, alternative energy sources. This concept supports the U.S. Department of Energy’s goal of maintaining U.S. leadership in nuclear energy technology as well as many the U.S. Department of Defense’s strategic goals for operational energy,” said Shiju Zacharia, senior vice president and general manager, Crowley Government Solutions.

This new vessel concept pairs traditional propulsion while carrying a modular reactor between 5 and 50 megawatts that can be activated upon arrival at the destination and be deactivated and transported after the power supply is discontinued. Buoyed power delivery cables will enable the ships to deploy energy connections to shore. Shallow draft hulls allow the vessels to maneuver to strategically deliver

power for military activities or if disasters limit harbor access.

“We are excited to work alongside Crowley to leverage our ongoing reactor development and demonstration programs, advancing nuclear technology into new and novel markets to deliver zero carbon emissions energy generation to strategic locations,” said Joe Miller, president of BWXT Advanced Technologies LLC.

New ocean mapping center expands NOAA, University of New Hampshire partnership



By NOAA Communications, September 19, 2023

NOAA and the University of New Hampshire (UNH) are expanding a

24-year ocean and Great Lakes mapping partnership through the creation of a new Center of Excellence for Operational Ocean and Great Lakes Mapping.

“NOAA and UNH have a long history of collaborating to advance the latest technologies and tools to map our ocean, coasts and Great Lakes – a cornerstone of the blue economy,” said Rick Spinrad, Ph.D., NOAA Administrator. “Our continued partnership on the Center of Excellence will help build a workforce ready to tackle the mapping challenges of the future, and further our understanding of our changing ocean and coasts.”

“The University of New Hampshire’s world-class Center for Coastal and Ocean Mapping and Joint Hydrographic Center has led the way for more than two decades in ocean mapping, helping ensure safe marine transportation and understanding coastal hazards. This leadership is affirmed by NOAA locating a new Center of Excellence for Operational Ocean and Great Lakes Mapping on UNH’s campus. With this \$8 million NOAA grant I helped secure, New Hampshire’s ongoing research and training programs will remain ahead of the curve in this leading field,” said Senator Jeanne Shaheen, chair of the Senate Appropriations subcommittee that funds NOAA.

The Center of Excellence is funded through \$10 million in NOAA’s FY 2023 budget, and will complement existing research, technical expertise and advanced educational programs at the [NOAA-UNH Joint Hydrographic Center and UNH’s Center for Coastal Ocean Mapping](#). The Center of Excellence will focus on the following priorities:

- Delivering practical hydrographic training and fostering workforce development for ocean mapping operations.
- Providing technical expertise and systems support for NOAA’s mapping operations on an increasingly diverse set of platforms, including new ships and uncrewed survey vessels.

- Partnering with academia and industry to transition ocean mapping research to operations.

“Accurate and up-to-date maps of our ocean, coasts and Great Lakes are critical to maritime commerce, transportation and recreation, and directly support resilient coastal communities,” said Nicole LeBoeuf, director of NOAA’s National Ocean Service. “This new Center of Excellence will build on existing collaboration with UNH as we implement cutting-edge mapping technology and train the next generation of ocean and coastal mapping professionals.”

“NOAA’s Office of Coast Survey is excited to work with the University of New Hampshire as we develop and operate the Center of Excellence for Operational Ocean and Great Lakes Mapping,” said RDML Ben Evans, director of NOAA’s Office of Coast Survey. “This Center will amplify our efforts to transition research to operations, provide technical support to our fleet, and generate, develop and diversify our mapping workforce, all in collaboration with our academic, public and private sector partners.”

A portion of the funding will be used by UNH to construct a new, state-of-the-art ocean mapping facility that will serve as the focal point of a campus innovation hub to bring together academia, industry and government. The new facility will include office and instructional space, as well as a large, high-ceiling area with overhead cranes – known as a high bay – for storing, outfitting and staging bulky equipment and small vessels. Upon completion, the facility would provide a shared space for collaboration between NOAA staff from the Joint Hydrographic Center and Center of Excellence, UNH faculty and staff and ocean industry partners.

“The Center of Excellence will build upon our decades-long partnership with NOAA, as well as grow the critical research field of ocean and Great Lakes mapping, where we can engage

with industry leaders to develop and train the next generation of mappers,” said Marian McCord, senior vice provost for research, economic engagement and outreach at the University of New Hampshire. “NOAA will anchor UNH’s new mixed-use complex, The Edge, which will be the core of activity for faculty, students, industry and government to come together, share ideas and execute cutting-edge concepts. This breeding ground for innovation and invention will be a key player in providing economic growth for the town of Durham and growing the workforce in the state of New Hampshire.”

Ocean mapping data is the basis for researching, exploring and characterizing our nation’s ocean, coasts and Great Lakes in order to support maritime commerce, transportation and emergency response activities. Ocean and Great Lakes mapping provides foundational data for a wide range of key NOAA priorities, including modeling and forecasting water levels, currents, storm surge and tsunami inundation; fisheries habitat identification; marine protected area site selection and management; and environmentally sound offshore energy development. Learn more about NOAA’s mapping responsibilities through the [Office of Coast Survey](#).

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**Teledyne FLIR Defense
Demonstrates Groundbreaking**

UAV Vehicle Reconnaissance Technology at DSEI in London

Release from Teledyne FLIR

'Black Recon' tech concept will enable crews in fighting vehicles to autonomously launch and recover small drones for immediate, covert situational awareness without leaving the vehicle

LONDON, September 12, 2023 – Teledyne FLIR Defense, part of Teledyne Technologies Incorporated (NYSE:TDY), is showcasing a new technology concept at this week's DSEI conference in London that will allow crews to autonomously launch small drones operated from inside a military vehicle; perform reconnaissance, surveillance, and target acquisition (RSTA); and then recover the aircraft without ever having to leave the safety of the vehicle.

The Black Recon™ Vehicle Reconnaissance System (VRS) is a development program that features an entirely new micro-unmanned aerial vehicle (UAV) designed to withstand the rigors of traveling on infantry and other fighting vehicles. The system is built to provide continuous untethered reconnaissance at flight speeds that allow the UAV to work ahead of advancing vehicles, supplying valuable situational awareness even beyond line of sight.

Fitted inside a hardened launch box mounted to a vehicle, Black Recon's deployment system can launch up to three UAVs during a mission. When one returns, a unique cradle-arm autonomously recovers the drone using patented technology to precisely track, capture, and dock the UAV – day or night, even in poor weather. Drones are then automatically recharged for the next mission

With its thermal and visual payload, Black Recon delivers live imagery and targeting information to vehicle crews. Operators can use the system for a wide range of missions, such as assessing if terrain is passable, sweeping for mines and improvised explosive devices, or performing close-up inspection under bridges using onboard illumination. The system provides high precision RSTA and can perform GPS-denied operations.

“Black Recon represents a groundbreaking new capability and a force multiplier for warfighters to take on near-peer adversaries,” said Dr. JihFen Lei, executive vice president and general manager of Teledyne FLIR Defense. “The ability to launch and recover UAVs in seconds from a vehicle, without exposing the crew, will enable fighting units to maintain operational tempo and leverage the system when it’s needed most – in dynamic, uncertain, and complex environments.

“We continue to refine Black Recon’s technology and are excited about future applications, not only for the military but also other areas like law enforcement, border security, and critical infrastructure protection. We look forward to sharing the concept with industry partners during DSEI,” Lei added.

A Day to Remember

This is the anniversary of the 9/11 terrorist attacks on America, and on the world.

Once again, it is a day to reflect and remember. In fact, we who experienced the events of that day in any way must remember and share, lest we not forget. If you don’t know about what happened that day, then you must become educated,

and made aware of the events of that day in New York, Washington and Somerset County, Pennsylvania. It was an attack driven by hate, and an attack on all of us.

There is a saying that you die three times: when you take your last breath; when they cover your grave after your funeral; and when your name is uttered for the last time.

This is what I remember, and what I choose to reflect upon every year on this day. You will indulge me, I hope, because it is necessary for me to share this with others and share it every year on this day for as long as I can do so. It is the least I can do for a shipmate.

So, join me in saying his name: Michael Noeth.

*** Linseed oil:

Some things have an evocative smell.

When I was in command of the Naval Media Center in Washington, D.C., the executive officer of a ship based at Pearl Harbor – USS *Russell* (DDG 59) – called my staff at *All Hands* magazine in our Publishing Department. The XO had a Sailor aboard the ship who wanted to be a draftsman.

The “undesigned seamen” or SNs on a ship usually work in the deck force, chipping paint and handling lines. As they see what professional opportunities are available on board their ship, they can “strike” for a rating, like Radioman or Quartermaster. A “Striker Board” will convene and review the needs of the ship, and the desires of the individual. If the Sailor is squared away, has done a good job with the deck force and the ship needs a Quartermaster (QM), for example, he or she can strike for that rating, and becomes a QMSN.

Seaman Michael Noeth wanted to be a Draftsman. The DM rating was one of the smallest ratings in the Navy. There were very few of them compared to Gunner’s Mates or Machinist’s Mates,

and certainly none aboard a surface combatant. In fact, today the rating has been disestablished and the functions combined into the Mass Communications Specialist (MC) rating.

In this case, the executive officer wanted to do something good for his Sailor. And this was extraordinary, because USS *Russell* was about to depart on deployment. In spite of the fact that the ship was about to be on cruise for six months, the XO called us and asked if his Sailor could come and work with us to learn the DM rating so he would be prepared to take the DM test for Third Class Petty Officer. If he passed, he could become a DM3. If not, he could return to the ship and eventually strike for another rating. For our part of the deal, we had to cover his travel expenses. We said yes.

There are never enough Sailors in the Deck Force, especially on deployment, but the XO wanted to help a Sailor. So, SN Michael Noeth came to work for us in the Publishing Department at the Naval Media Center in Washington, D.C.

He was placed under the expert tutelage of our Draftsman First Class (DM1) Rhea Mackenzie. Seaman Noeth quickly made himself at home in a back corner of the *All Hands* magazine production spaces. And it was here he set up his easels, canvasses and paints. When I would come by – which was often, because I was always wandering around Building 168 to see all of the interesting stories and projects our people were working on – I could smell the linseed oil he used for his brushes long before I reached his work area. He would have various canvasses and illustrations in various stages of completion posted around his desk, as well as examples of artwork he admired or wanted to emulate.

As one of the 450 men and women of the Naval Media Center, he learned his trade from an experienced draftsman, created artistic content for *All Hands* magazine, and became a well-liked and contributing member of the command. At our Halloween party, he came in second place in our costume contest. He was

a dead ringer "Alex" from Clockwork Orange, and was topped only by an even more convincing Cruella Deville from 101 Dalmatians.

Whenever I got near his work area, I would be greeted by the smell of his linseed oil, and I knew I would be in for some kind of surprise. Seaman Noeth painted the cover for several issues of All Hands magazine (such as the one with a cut-out porthole that opened to an ocean panorama. To see him tackle these assignments was a joy, probably because he was enjoying his work, and appreciative of the opportunity. On my visits, I would see the many versions and sketches he was working on, and I could see it all come together with the finished product.

He took the advancement exam and passed it. As his six-month temporary assignment came to an end, his command allowed him to transfer to my command on a permanent basis as they did not have any billets for a draftsman, and we did. Soon, he moved on to other Navy assignments as a Draftsman, all because his ship wanted to give him a chance to realize his dream, and my command wanted to help him get there. We felt good about helping him attain his goal. But most of all, because he was a Sailor who deserved it.

He did, indeed, become a talented Navy illustrator and draftsman. He served aboard amphibious assault ship USS *Wasp* (LHD 1), and was later assigned to the Navy Command Center where he skillfully created briefings and presentations for Navy leadership. He was doing just that on September 11, 2001, when terrorists forced an airliner to crash into that building.

We must not forget. So, I choose to remember a bright, ambitious, creative young striker today, and whenever I smell linseed oil.

We will continue to speak his name.

Please also see:

<https://allhands.navy.mil/Stories/Display-Story/Article/1839561/we-will-never-forget/>

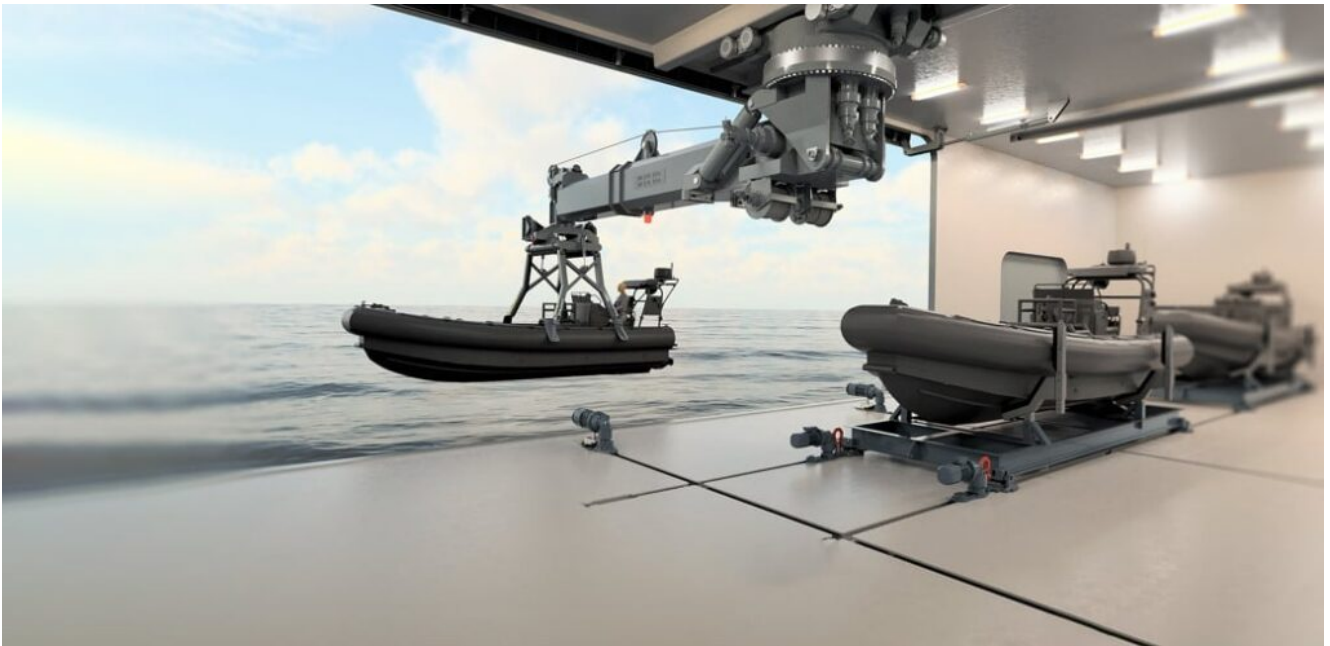
https://www.washingtonpost.com/wp-srv/metro/specials/attacked/victims/v_358.html

<https://pentagonmemorial.org/explore/biographies/dm2-michael-noeth-usn>



**Kongsberg Maritime Mission
Bay Handling System: Peerless
modularity meets fast-
changing mission**

requirements



[Release from Kongsberg Maritime](#)

Kongsberg Maritime, a global leader in marine technology and solutions, announces a ground-breaking Mission Bay Handling System for naval vessels

DSEI, London – 11th September 2023- With over 80 years of experience in providing cutting-edge solutions to the naval market, Kongsberg Maritime is setting a new standard in naval mission-sensitive versatility with its new Mission Bay Handling System.

The next-generation of surface combatants are poised to carry a diverse array of manned and unmanned off-board vehicles and modular mission packages. To meet these evolving demands, the Mission Bay Handling System has been designed to offer an adaptable and flexible integration solution suitable for a wide range of naval operations, both current and future.

The Mission Bay Handling System is a game-changer for naval forces worldwide, as it enables the efficient deployment and

recovery of both manned and unmanned crafts, with a vast range of hull types and propulsion configurations, from both sides of the ship. In today's rapidly changing battlespace, naval forces demand flexibility and multi-purpose ships. Thus, Kongsberg Maritime's Mission Bay Handling System is one key to transforming naval capability.

Robert Breivik, Kongsberg's Senior Sales Manager – Naval, emphasised the significance of modularity in naval operations, stating, "I speak to a lot of navies, and the one thing they all want is modularity. Navies want platforms that can easily be transformed to meet mission requirements, so the days of ships that are dedicated to a small range of tasks are over."

The global security landscape is evolving more rapidly than ever before, with urgent requirements in areas like underwater surveillance and monitoring of seabed utility assets like pipelines and cables. Modern ships must be multi-role, which means carrying a growing suite of newer, high-tech in-sea assets. The Mission Bay Handling System is designed to swiftly, safely, and effectively transport these assets, and where relevant their crews, to and from the hangar aboard the ship.

The system is suitable for a wide range of naval ships and is widely scalable to fit the size of the mission bay. It consists of three key elements:

Overhead Frame System: Using a standardised interface with the ship, this comprises rails and an 'interface unit' that connects to a wide range of interchangeable tools, enabling quick tool changes without altering the core of the handling system. It offers both single and dual rail systems, with capacities up to 12 tonnes.

The Frame System is fixed to the deck above the mission bay, allowing in-sea assets to be suspended and easily moved from their storage spaces.

Multi-Purpose Hangar Crane: Handles 10' and 20' ISO containers up to 15 tonnes, rotating through 360 degrees and extending to the water level. This crane excels in the rapid deployment and retrieval of daughter craft up to 10 tonnes.

"Through our extensive experience from a lot of similar systems we have developed for subsea, oceanographic and research ships, this crane is not only very capable, but it gives navies options. It can handle cargo in standard shipping containers, and switch to deploying subsea and surface craft, quickly and safely," adds Breivik.

Additionally, various **Auxiliary Equipment** is available to complement the two main handling systems: a Deck Skid System, containerised launch and recovery systems, cargo handling crane for containers, and an overhead auxiliary crane for lighter loads.

Key Benefits of the Mission Bay Handling System:

Clean Deck: No permanent tripping hazards or obstacles installed on the deck.

Modularity: Built from an interchangeable suite of flexible handling systems.

Adaptive: Designed to fit hangars with different dimensions and shapes.

Time and cost saving: Eases mobilization and demobilisation, eliminating costly rebuilds between each mission setup.

Kongsberg Maritime's Mission Bay Handling System represents a major step forward in mission capabilities. It offers unmatched adaptability, efficiency, and safety, ensuring that naval forces are prepared to meet the challenges of the modern maritime battlespace.

GA-ASI Poised to Begin LongShot Flight Testing Phase



[Release from General Atomics](#)

SAN DIEGO – 11 September 2023 – General Atomics Aeronautical Systems, Inc. (GA-ASI) is poised to begin the flight-testing phase on the Defense Advanced Research Projects Agency's (DARPA) LongShot program. Begun in 2020, General Atomics was competitively awarded a contract to develop DARPA's concept for disruptive air combat operations through demonstration of an air-to-air weapons capable air vehicle. The concept seeks to significantly increase engagement range and mission effectiveness of current 4th gen fighters and air-to-air missiles.

Over the last three years, GA-ASI has iterated on numerous vehicle designs to optimize performance and will complete the

design enroute to flight testing in 2024. The testing will validate basic vehicle handling characteristics and lay the foundation for follow-on development and testing.

“We are extremely excited to get in the air!” said Mike Atwood, Senior Director of Advanced Aircraft Programs at GA-ASI. “Flight testing will validate digital designs that have been refined throughout the course of the project. General Atomics is dedicated to leveraging this process to rapidly deliver innovative unmanned capabilities for national defense.”

Philly Shipyard Delivers the First National Security Multi-Mission Vessel (NSMV), Empire State



[Release from TOTE Group and Philly Shipyard](#)

PHILADELPHIA – September 8, 2023 –Philly Shipyard, Inc. (“Philly Shipyard”), the sole operating subsidiary of Philly Shipyard ASA (Oslo: PHLI), today delivered the *Empire State*, the first of five new purpose-built, modern training vessels for America’s state maritime academies. The U.S. Department of Transportation’s Maritime Administration (MARAD) new vessel program – known as National Security Multi-Mission Vessels (NSMVs) – was designed to provide world-class training for America’s future mariners and to support humanitarian assistance and disaster relief missions in times of need. This first vessel, *Empire State*, was delivered to MARAD and will serve SUNY Maritime College.

“We are beyond proud to deliver the *Empire State* today, our

first government newbuild in the history of Philly Shipyard.” said Steinar Nerbovik, President & CEO of Philly Shipyard. “We are honored to be trusted with this important project, and on behalf of all of our skilled workers, we are confident that the *Empire State* will provide a safe, reliable and state-of-the-art training platform for generations of future mariners.”

Philly Shipyard was awarded the contract to build the NSMVs by TOTE Services, LLC (“TOTE Services”), a U.S.-based company that was hired by MARAD to oversee the construction of the training vessels as the Vessel Construction Manager (VCM). The NSMV Program is the first government sponsored ship building program to utilize the VCM model. This model places the responsibility for the selection and oversight of the shipyard on a government contractor that utilizes commercial best practices to manage the project.

The next training vessel, NSMV II, destined for the Massachusetts Maritime Academy, is scheduled to be delivered in 2024. Meanwhile, the keel laying for NSMV III (Maine Maritime Academy) and steel cutting for NSMV IV (Texas A&M Maritime Academy) were recently completed. Construction of NSMV V (California Maritime Academy) will commence later this year with all vessels to be delivered by 2026.

“Today’s delivery of the *Empire State* is a historic moment for the American maritime industry made possible by the U.S. Government’s investments in our nation’s industrial base,” said TOTE Services President Jeff Dixon. “These investments are on full display as we look to build the next generation of domestic mariner training ships more cost effectively – and on schedule – using commercial innovation and best practices. We must also give credit to the dedicated and skilled workers at Philly Shipyard, whose tireless efforts in the face of unprecedented challenges helped make this milestone possible.”

The NSMV program is an important investment in America's shipbuilding industry, which supports nearly 400,000 U.S. jobs. Each NSMV will feature numerous instructional spaces, a full training bridge, and accommodations for up to 600 cadets to train in a first-rate maritime academic environment at sea. State maritime academies graduate officers who manage vessels that help keep cargoes and our economy moving. Many of these merchant mariners also support U.S. national security by crewing military sealift vessels.

Today's delivery of the *Empire State* marks the delivery of the first government ship built using the VCM contract model. This innovative approach enables shipyards to apply commercial best practices for design and construction to government vessels. There is growing interest in the VCM contract model and its potential applicability to government shipbuilding programs to reduce costs, accelerate delivery times, and build more vessels.

About Philly Shipyard