NAVAL AVIATION NEWS
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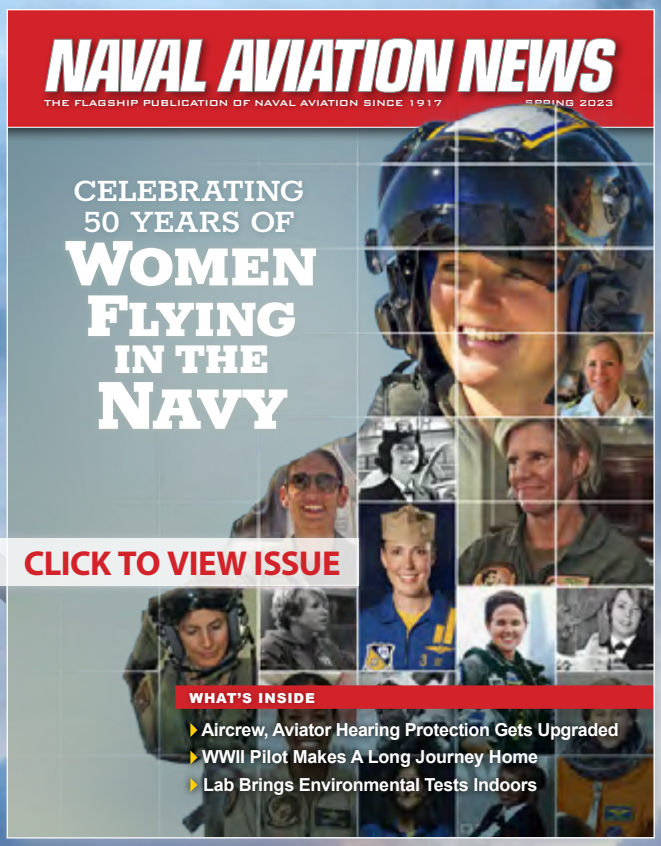
SPECIAL EDITION

2023 YEAR IN REVIEW

MILESTONES IN NAVAL AVIATION

Winter 2023



Spring 2023

Summer 2023

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NAVAL AVIATION NEWS

2023 Year in Review

Special Edition

EDITOR'S NOTE

Welcome to a special edition of Naval Aviation News, the 2023 year in review!

The future, present and past of Naval Aviation all took center stage at various times over the year's four issues, with training—particularly the service's efforts to create realistic, cost-efficient training through technological innovation—emerging as a common theme as well. Those threads are the focus of the articles included in the following pages.

The publication kicks off with a discussion of the Joint Simulation Environment, a state-of-the-art F-35 Lightning II training simulator located at the Naval Air Warfare Center Aircraft Division, Patuxent River, Maryland. With unparalleled capabilities, the JSE offered hyper-realistic training not even available on physical ranges. Also at NAWCAD, another flight simulator, using virtual and mixed reality, was used to train aviators on the CMV-22 Osprey, particularly in the intricacies of vertical takeoff and landing on aircraft carriers. Virtual and mixed reality also featured in Skyfall, a new parachute descent training system that earned the NAWCAD Commander's Award for Innovation in 2022.

Next, the Technology and Integration Center (A-TIC) Lab at Lakehurst allowed engineers to address technical and human factors in Aircraft Launch and Recovery Equipment before its installation aboard ship.

The issue switches gears to celebrate 50 years of women in Naval Aviation. A series of vignettes relates the experiences of aviators, support personnel and more.

Other notable historical events also took place during the year, to include 45 years of the F/A-18 Hornet, the identification of World War II aviator Frederick Schrader in "Daddy's Home," and lastly, the discovery of the Ommaney Bay, sunk in the Sulu Sea during World War II.

We hope you enjoy this special issue highlighting some of the more significant events of 2023.

—Dave Byrd, Editor, Naval Aviation News

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On the cover: *An F-35C Lightning II prepares to launch from the deck of USS Dwight D. Eisenhower (CVN 69).*
U.S. Navy photo illustration by Fred Flerlage; imagery by Andrew McMurtrie, courtesy of Lockheed Martin

The U.S. Navy's Oldest Periodical, Established 1917

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The world's largest aircraft carrier USS Gerald R. Ford (CVN 78) transits the Strait of Gibraltar, Jan. 5, 2024. The U.S. maintains forward-deployed, ready and postured forces to deter aggression and support security and stability around the world.

U.S. Navy photo by MC2 Jacob Mattingly

TWISTING METTLE: Joint Simulation Environment Gives F-35 Pilots A Threat They Can Learn From

By Rob Perry

A new training simulator at the Naval Air Warfare Center Aircraft Division (NAWCAD) is stressing out F-35 Lightning II pilots in a good way.

The Joint Simulation Environment (JSE) has been operational at NAWCAD, located at Naval Air Station Patuxent River, Maryland, for nearly two years. The simulator, which was installed inside an existing NAWCAD building, has drawn so much attention due to its ability to display near-peer fifth-generation threats in a virtual environment that training at the facility has been added to the syllabus for top tier pilots who train at the Navy Strike Fighter Tactics Instructor Course—better known as TOPGUN.

Built by NAWCAD for use across the Department of Defense, the JSE is a hyper-realistic simulation environment made up of both hardware—including cockpits, domed simulators with 4K projectors—and software to form a high-fidelity digital range used to train tactical pilots, and test new defense technology in near-exact virtual battlespaces. The idea to build the simulator came out of a need to fully test F-35 capabilities and pilots.

"There was acknowledgement across the DoD that our open air ranges where aircraft would normally fly operational test missions did not possess the complexity nor the density of the threat to fully stress an F-35," said Derek Greer, NAWCAD Integrated Battlespace Simulation and Test Department Head. "The thought was let's build a modeling and simulation environment where we can make it dense and complex to stress the F-35."

NAWCAD began developing JSE starting in 2016. As of 2023, "we just finished the operational test in September. In the process of building this high-fidelity simulator for operational test, we just so happened to create the world's best F-35 training simulator. That's why TOPGUN is here. They are here because our representation of the F-35 is really good, our representation of the threat is really, really good, and our representation of the environment, meaning the electromagnetic spectrum, is really good."

"We like to describe this as a digital range," said Blaine Summers, NAWCAD Joint Simulation Environment Director. "As opposed to our open-air, physical ranges, JSE is effectively a digital range where we can rapidly construct different threat presentations, different blue weapon systems and understand how they really hold up in full-scale global conflict. And we can do that on a digital range where we don't have to worry about loss of life or aircraft, or worry about our adversaries watching what we are up to."

"We really started positive momentum in January 2022," Greer said. "That is when the simulator sufficiently matured and we hosted our first training event which received out of this world rave reviews."

In addition to the aircraft themselves, a multitude of weapons equipped on the real-life aircraft are also being added into the JSE programming.

"We are building a foundation for next-generation weapon system integration," Summers said.

The JSE stands above other training simulators mainly due to its ability to replicate high-fidelity threat models that are provided by the intelligence community, which includes a model of an adversary aircraft and all of its sensors and weapons and can simulate ground threats. Greer said that the simulators ability to model the electromagnetic spectrum enables pilots to engage across all capabilities and challenges.

"[Pilots] are not used to flying against threats that shoot weapons," he said. "They are not used to flying against targets that detect an F-35 at ranges we would expect an F-35 to be detected at. They don't get that in flying [on a range] or in legacy simulators. We have made JSE match the intel [on our near-peer adversaries] to the best of our ability."

The JSE, with the assistance of Lockheed Martin, has the best representation of

U.S. Navy photo illustration by Fred Flerlage; imagery by U.S. Navy video & photos

the F-35, including handling, weapon and sensor systems.

"These pilots are experts," Greer said. "If there was something wrong, or something was off, they would tell us in two seconds."

More than 500 pilots have gone through the JSE since it became operational, Greer said. Among those pilots are the elite naval aviators that have been accepted to TOPGUN and the JSE hosted a group of students and instructors in October.

When TOPGUN instructors and students are in town for training, they perform more than 350 sorties, or simulated flights, through the JSE, Summers said.

"Their instructors would typically need a year to a year and a half in other places in order to get that throughput. The quantity of reps and sets they are getting is just phenomenal and that's where the learning is happening."

Lt. Cmdr. Zach "Jerry" Williams, a member of the TOPGUN training staff and an F-35 Fleet Training Officer, said pilots who come out of the simulator are unanimously "exhausted at the end."

"F-35 pilots have never trained in the fleet. They don't often train to a threat that can find them and shoot them," Williams said. "Our adversary aircraft [used on ranges] usually don't have modern sensors equipped that can track an F-35. We also don't have enough assets to train to. So, the students leave here with wide eyes because now they see a threat that can detect them, a threat that can shoot them. They then have to defend that threat or they try. When you go through an entire day and you see the 'killed' symbol on your screen over and over and over again and then you can go up to debrief and diagnose that exact moment where you were killed—that is a perspective changing experience."

Williams said he develops tactics for the F-35 and was able to work with the JSE team to introduce a specific threat into the simulator in order to confirm if a tactic he had developed would be successful against that specific threat and scenario.

"I can take the effects that I see here and confirm all the mission planning I've done. I can't actually replicate that threat in the real world, but I now have two sources confirming the same thing. And now I can say, 'I might be able to publish a tactic against that threat.'"

Williams said before using the JSE, he would take given information from the intelligence community regarding threat capabilities and discern what could be a response tactic.

"Here, I can validate it," he said. "It's better to validate against something rather than nothing."

"What really facilitates that learning is they go execute a mission and the digital range is of such fidelity that they get punished if they make mistakes because the threats are really good, like they would be in the real world," Summers said. "They literally walk upstairs to a debriefing room two minutes after the mission and they go talk about and watch the replay."

From there pilots have a chance to examine what they saw, what they did and what they could do better. After reviewing the scenario, they can go right back into the simulator and do it again.

"They wash, rinse and repeat day in and day out until they hone their tactics," he said.

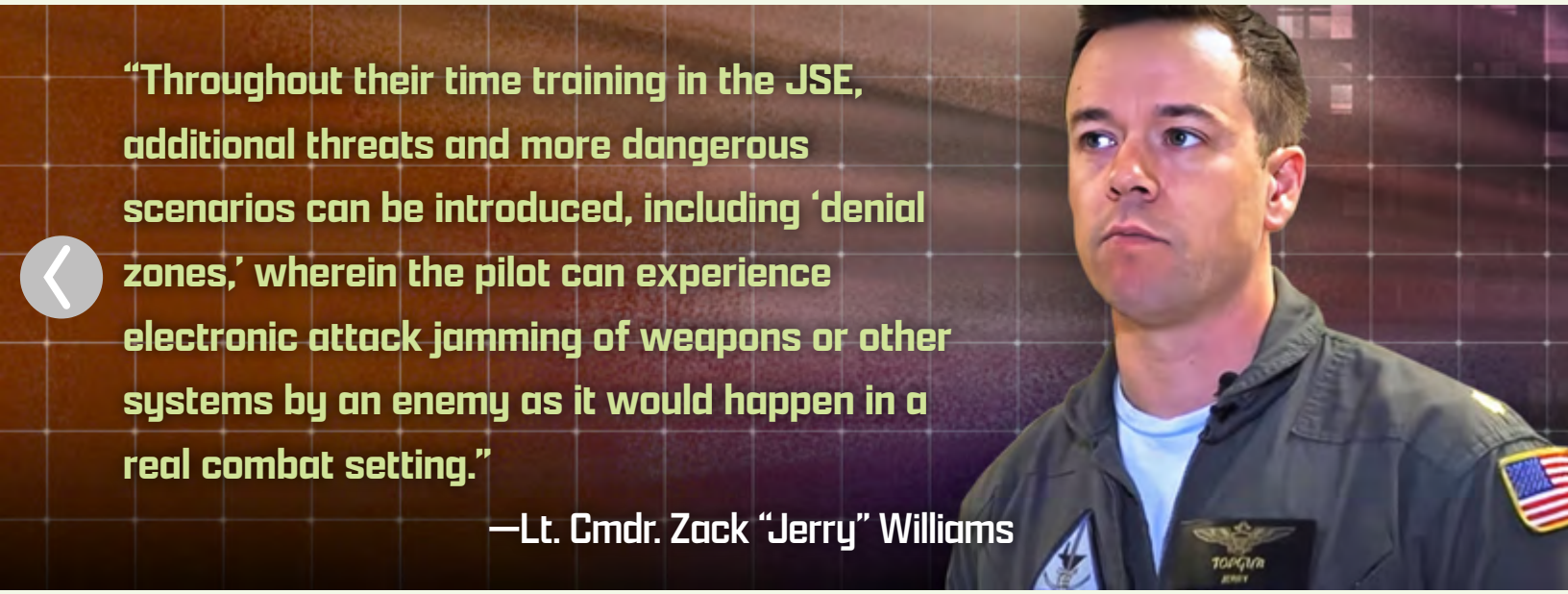
Throughout their time training in the JSE, additional threats and more dangerous scenarios can be introduced, including "denial zones," wherein the pilot can experience electronic attack jamming of weapons or other systems by an enemy as it would happen in a real combat setting.

Greer said instructors have the ability to more or less "drag and drop" new scenarios in front of students in a matter of minutes while in the simulator to introduce a new threat, or increase the difficulty of the enemy. He said that the JSE enables such a diverse training environment that a group of students could fly more than 50 missions in a week and never encounter the same scenario.

"Typically, they're getting new scenarios every single run," he said. "Sometimes if

"Throughout their time training in the JSE, additional threats and more dangerous scenarios can be introduced, including 'denial zones,' wherein the pilot can experience electronic attack jamming of weapons or other systems by an enemy as it would happen in a real combat setting."

—Lt. Cmdr. Zack "Jerry" Williams



performance was particularly poor in a certain run, they can go back and run it again and try to get better, but generally they are tweaking the threat laydown and presentation run to run to present a new challenge to the pilots."

The decision to bring pilots to NAWCAD for a week of simulator training while attending TOPGUN came around as a result of the Naval Aviation Warfighting Development Center (NAWDC) at Fallon, Nevada, which is also home to TOPGUN, not having a simulator environment capable of stressing F-35 pilots to the greatest of their abilities.

are currently collaborating to add the F-22 to the Air Force's own JSE, currently being built, and upgrade it to the marque standard of the JSE at NAS Patuxent River. This will allow Air Force pilots to receive the same level of training pilots are currently experiencing at the JSE. Integration is expected to be finished in early 2024.

Greer said the next step is incorporating the entire carrier air wing into JSE—F/A-18 Super Hornets and EA-18G Growler models are being integrated and the team is currently in the early phases of adding the E-2D Hawkeye platform to the simulator. The "North Star"

deployed for six or nine months and not practice at all and then, at any given time, be able to fight a near-peer adversary. It just doesn't work that way. It's very much muscle memory and constant training to keep the skills sharp."

A smaller, "light" version of the JSE is currently deployed aboard USS Carl Vinson (CVN 70), and Greer said they are working to make it better and integrate it with other platforms in the airwing and have a JSE deployed with the USS Abraham Lincoln (CVN 72) next year.

"We've leveraged lessons learned and expertise gained in developing JSE to rapidly

U.S. Navy photos

The Joint Simulation Environment (JSE) puts pilots in F-35 Lightning II cockpit "pods" and through scenarios in a simulation setting wherein they encounter enemies that can hunt them, find them and "kill" them. Due to the flexibility of the JSE, pilots can be pitted against increasingly dangerous hostiles they would encounter in the real world.

U.S. Navy photo illustration by Fred Flerlage; imagery from U.S. Navy video & photos

"We've had to travel with the class to different concentration centers, where there are simulated environments, and those training environments are fine for basic F-35 execution, for making sure that people can operate the aircraft safely, and have a basic concept and grasp of tactics," Williams said. "But those environments fell short in training in that graduate level teaching that we're trying to do—to find mission success in a more complicated environment. And so that's why we had to come here."

For the same reasons the Navy is using the JSE for training, the Air Force is also looking to use the technology to train pilots in the F-22 Raptor platform. NAWCAD and the Air Force

will be when the Integrated Training Facility at Fallon—which is moving to JSE architecture—has the ability to run scenarios with pilots flying different platforms in a single scenario as if they were deployed. The ITF at Fallon is where carrier air wing pilots go to train for two months prior to deployment.

Another important aspect of the simulator is its ability to be deployed aboard aircraft carriers, where F-35 pilots will be able to maintain their edge during long times at sea in a safe environment.

"The skills required to optimally use an F-35 require regular training to keep the skills sharp," Greer said. "[Flying an F-35] is not something that you can just go do and then be

close the F-35 training gap for CVN-70," Summers said. "Less than six months after funding showed up, we delivered that capability to support the F-35 squadron that is currently deployed."

"The first F-35C squadron, [Strike Fighter Squadron] VFA-147, deployed two years ago and had no F-35 trainer at all. The minute that carrier pulled away from the dock, the skills of those F-35 pilots started [degrading] and gradually continued [degrading] throughout the deployment. That's really bad for us, so we're trying to do something about it," Greer said.

Rob Perry is a writer/editor for Naval Aviation News.

Bringing the Virtual World into Reality

Manned Flight Simulator Integrates VR/MR Technology for CMV-22 Platform

By Rob Perry

U.S. Navy photo illustration by Fred Flerlage; photographic images provided by Todd Frantom

For decades, pilots have taken to flight simulators at Naval Air Warfare Center Aircraft Division's (NAWCAD) Manned Flight Simulator (MFS) to train, test software and equipment, experiment, develop flight envelopes and even investigate aerial accidents in a safe and inexpensive manner. As newer aircraft and technology are created, these simulators need to be upgraded to reflect these developments, as was the case with one of the Navy's newest aircraft, the unique CMV-22 Osprey.

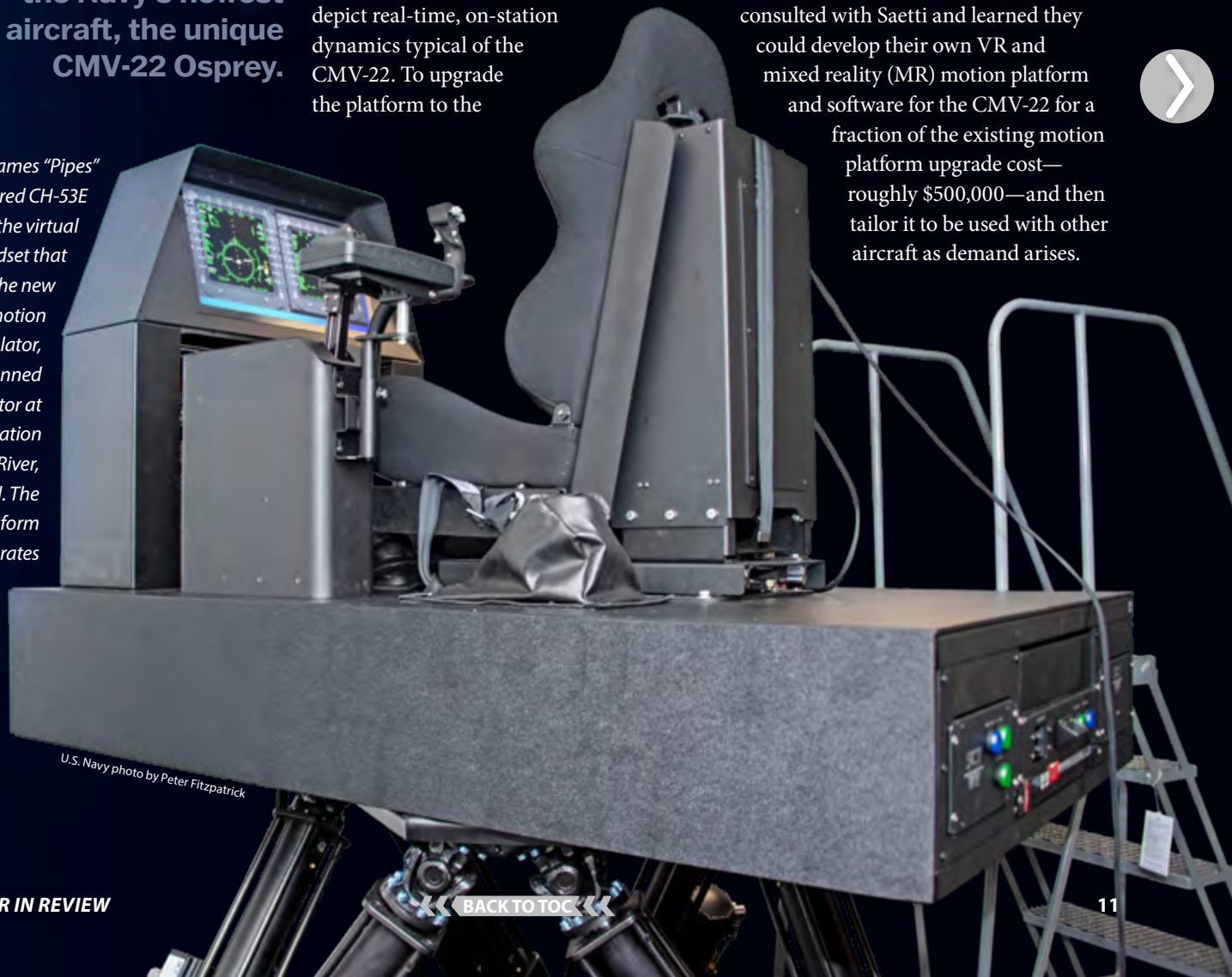
While the Osprey can land on an aircraft carrier in the traditional fashion via approaching the flightdeck and landing, its tilt-rotor capability allows it to also take off and land vertically on carriers and other ship classes, as would a helicopter.

But in practicing vertical take-off and landing (VTOL) procedures for the CMV-22 in a simulator situation, there was one main problem: Osprey pilots are used to looking down from the cockpit and seeing the deck of the ship or the landing zone. When in a traditional simulator, where the environment is projected on a large screen in front of and surrounding the cockpit, if the pilot looks down, all they see is the simulator floor.

In addition, the existing motion platform and projection simulator at Manned Flight does not quite have the feel and range of motion to accurately depict real-time, on-station dynamics typical of the CMV-22. To upgrade the platform to the necessary specifications, the engineers at Manned Flight working on the Dynamic Integrated Virtual Environment (DIVE) Program began consulting and troubleshooting, and found that the cost of upgrading the already aging platform would be upwards of $3 million and take a considerable amount of time to construct.

Up to this point, the DIVE program was sponsoring the integration of virtual reality (VR) and mixed reality (MR) technologies with aircraft flight simulators at Manned Flight Simulator; particularly helicopters and other rotaries. When the motion platform upgrade cost estimate was finalized, Dr. Umberto Saetti, currently at Auburn University in Alabama, coincidentally proposed a research project to use motion-based virtual reality (VR) simulators for aerospace research specifically for VTOL shipboard landing operations.

Robert Calvillo and Donald Gaublomme, aerospace engineers at NAWCAD, consulted with Saetti and learned they could develop their own VR and mixed reality (MR) motion platform and software for the CMV-22 for a fraction of the existing motion platform upgrade cost—roughly $500,000—and then tailor it to be used with other aircraft as demand arises.



Left, James "Pipes" Pritchard, a retired CH-53E pilot, displays the virtual reality headset that is part of the new mixed reality motion platform simulator, right, at Manned Flight Simulator at Naval Air Station Patuxent River, Maryland. The motion platform incorporates virtual and mixed reality technology for training by CMV-22 Osprey pilots.

U.S. Navy photo by Peter Fitzpatrick

James "Pipes" Pritchard, a Naval Air Warfare Center Aircraft Division flight engineer and former CH-53E pilot, operates the virtual reality/mixed reality motion platform simulator, operating software to simulate taking off and landing a CMV-22 Osprey from an aircraft carrier deployed at sea.

U.S. Navy photo by Todd Frantom

The virtual reality/mixed reality flight simulator at Manned Flight Simulator at Naval Air Station Patuxent River, Maryland, incorporates responsive manual controls and instrument panels as they would be seen by a pilot inside a CMV-22 Osprey.

U.S. Navy photo by Peter Fitzpatrick

U.S. Navy photo by Todd Frantom

Former CH-53E pilot James "Pipes" Pritchard operates the VR/MR simulator during a demonstration at Manned Flight Simulator at NAS Patuxent River, Maryland.

"At this facility, we can fit nine simulators in here. But, if we were able to pull out the display systems with projectors and put something like the [VR/MR platform] in, we can have several more motion-capable simulators. They are cheaper to maintain, have a smaller footprint and offer us more capability."

"There are many benefits to moving toward this virtual display," said Matt Mueller, the Division Head at Manned Flight Simulator. "The biggest benefit being that when you have a facility where you are trying to put more and more simulators in, the advantage of being able to make your footprint smaller is huge. At this facility, we can fit nine simulators in here. But, if we were able to pull out the display systems with projectors and put something like the [VR/MR platform] in, we can have several more motion-capable simulators. They are cheaper to maintain, have a smaller footprint and offer us more capability."

The new VR/MR motion platform sits in the center of what was once a cubicle office area at Manned Flight, a space that was repurposed more than 18 months ago once the COVID-19 pandemic hit and many workers were forced into telework capacity. The platform sits on the floor, with hydraulic pistons extending upward and attaching below the cockpit seat. An array of computer servers and equipment are tucked away in towers to the side of the room, powering the software and platform itself. To get into the pilot seat, one must climb a short ladder and be limber enough to maneuver into the seated position. Once situated, the pilot can don the VR headset, put their hands on the throttle and flight stick and toggle the foot pedals. After a brief calibration, the pilot can look around and see the insides of the cockpit, as well as the deck view of an aircraft carrier deployed at sea. Pilots can then practice take off and landing on the carrier, while others can observe what the pilot sees on a computer monitor only a few feet away.

"From stick to end-point, the goal in the simulation is to get the response to under 100 milliseconds. If you go over 100 milliseconds, then you can get motion sickness as, over time, the brain will notice there is a delay in when you told something to happen and when it is actually happening."

The installation of the newest platform began in earnest about 18 months ago, but the push to move toward VR capability began even earlier.

"About four years ago when we were at the tail end of our first virtual reality project, our crew chiefs said they really enjoyed the VR aspect and that's when we really started working on the mixed reality concept," Calvillo said. "We had pilots come in and put on the VR headset and they were essentially able to see outside the windshield of the real cockpit and see the virtual environment, but when they look inside the cockpit, they see the real world, their real hands and instrument panels. Everyone started to see that virtual reality and mixed reality had some really good potential, so we needed to expand on it further."

Calvillo said that's when the team realized that refurbishing the old motion platform would not accomplish the needs of the VR/MR environment and alternatives were explored.

While the CMV-22 cockpit motion platform is the only one currently being used, it has the capability to be modified to suit other platforms including the MH-60 Seahawk and the F/A-18. Calvillo said the F-35 Lightning II Joint Program Office has expressed interest in developing a VR/MR trainer with an existing spare cockpit in storage at Manned Flight. In addition, Calvillo said there has also been interest in creating a VR training space for landing signal officers (LSO) to use and perform their deck duties as if on a deployed ship in first-person virtual reality.

Jim Pritchard, a former Marine aviator who has experience flying CH-53E Super Stallion and other single main rotor/tail rotor helicopters, said all of his familiarity with the V-22 has been through virtual simulators at Manned Flight.

U.S. Navy photo

The traditional motion platform simulator is housed inside a large warehouse at Manned Flight Simulator at NAS Patuxent River, Maryland. This simulator projects imagery on a large screen enveloping 180 degrees in front and beside pilots and has been used by pilots for flight training, testing, accident investigations and more for decades.

The virtual reality headset worn by pilots in the VR/MR motion platform simulator allows pilots to see a carefully rendered aircraft carrier deck and moving ocean to give the feeling of the real thing for practicing take-off and landing maneuvers.

U.S. Navy photos by Todd Frantom

U.S. Navy photo by Peter Fitzpatrick

"I've been involved with virtual simulation and handling qualities studies for the past 15 years on all type/model/series [T/M/S] rotorcraft hosted by Manned Flight Simulator," he said.

Pritchard, the Flight Dynamics Rotary Wing Team Lead in the Aeromechanics Division with NAWCAD, first tested out the VR/MR platform in January and provided his feedback to the team, stating that the visual scene and ship models were rendered very accurately and believable.

"We generated a list of items necessary for further development," Pritchard said. "However, the overall assessment is very positive. This new technology has the potential to revolutionize modeling and simulation in the shipboard environment."

In comparing the current and frequently used motion platform simulators with immersive projector screens versus the newer VR/MR motion platform, Calvillo said there still is plenty of room for improvement with the new VR/MR equipment. For example, he said he is currently working with a Small Business Innovative Research effort to develop a higher resolution headset that would also be more ergonomic and cause less eye strain, which can be a byproduct of staring into the VR headset for an extended period of time.

"One of the limitations is head tracking and jitter update in the system, a key area that the industry in general—not just us—is trying to focus on," Mueller said. "If you keep your head relatively stationary, and you are not moving your head a lot, the visuals look pretty good. But if you were in a situation where you are moving around, reaching for knobs and your whole body is shifting along with your eyes, it can be harder for the visuals to stay in sync. So, you will notice a bit of a jitter, which takes you out of the simulation."

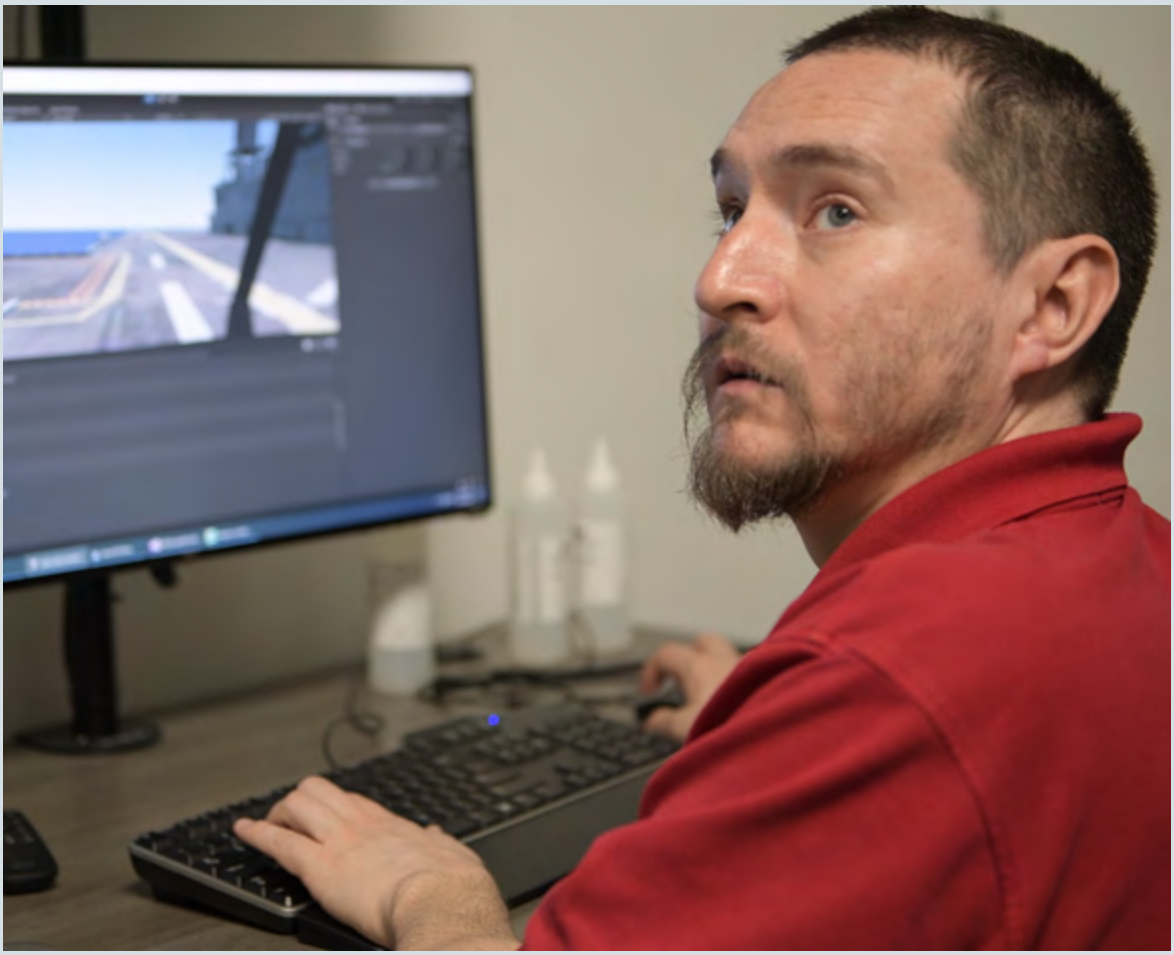
Calvillo also said latency in the software and the platform and control response are constantly being addressed.

"From stick to endpoint, the goal in the simulation is to get the response to under 100 milliseconds," Mueller said. "If you can stay under that, the human brain has a hard time perceiving the delay. If you go over 100 milliseconds, then you can get motion sickness as, over time, the brain will notice there is a delay in when you told something to happen and when it is actually happening."

The software currently uses the Unity 3D Game Engine, which is also used in the gaming industry. Calvillo said they have another team that is working to develop software using the Unreal Engine, another widely popular 3D game engine used throughout the gaming industry to render games for gaming consoles such as PlayStation, PC and Xbox.

"We're hoping the Unreal Engine can

"Regarding the larger scale naval fleet technology application, this unique simulator has the potential to provide high fidelity simulation for training, certification and currency, which would be a major breakthrough for Naval Aviation simulation."



U.S. Navy photo by Todd Frantom

Naval Air Warfare Center Aircraft Division Aerospace Engineer Robert Calvillo monitors a training session with the VR/MR motion platform simulator. Calvillo can see what the pilot sees on a desktop monitor, helping to gather data for each session.

address a lot of the limitations of Unity and also address a lot of the limitations of our existing image generator software capabilities for our traditional display systems," Calvillo said.

Calvillo said pilots who have tried the VR/MR headset have described some of the limitations of the headset, including not having as wide a field of vision as they would see in the real world.

"We're hoping with the newer headsets, when they come online, pilots will be able to fly like they would in the real aircraft as opposed to flying to the limitations of the headset," he said.

Pritchard said the difference between the standard simulators and the VR/MR platform is "significant."

"First of all is its adaptability," Pritchard said of the VR/MR platform. "Only a few hardware components need to be changed to accommodate the wide range of T/M/S air vehicles in Naval Aviation—the rest of the changes come in the form of software. Second is its increased fidelity. The standard cab simulator is limited in visual rendering; In the shipboard environment the air crew uses visual information very close to nadir as well as behind the beam; the MR headset is eminently capable of rendering that information to the air crew. And third is its flexibility. MR allows the engineers to display information in the best possible manner, either artificially or virtually or both."

While still working on improving the newest VR/MR motion platform simulator, Calvillo said the NAWCAD team is working to use VR in a Joint Simulation Environment—a scalable, expandable, high fidelity, government-owned, non-proprietary modeling and simulation environment to conduct testing on fifth-plus generation aircraft

About Manned Flight Simulator

The Naval Air Warfare Center Aircraft Division's Manned Flight Simulator facility provides high fidelity, hardware-in-the-loop flight simulation capabilities and expertise supporting Research, Development, Test and Evaluation (RDT&E) of Navy and Marine Corps aviation platforms.

In 1985, a few engineers and scientists introduced the idea of testing aircraft in a laboratory simulated environment before testing in flight, beginning with the F/A-18 Hornet mission computer. The goal was to save cost, schedule, and reduce risk. For 38 years supporting NAVAIR, MFS has been a center of excellence for aircraft simulation. Starting off with only two simulation cockpits, MFS is now home to nine high-fidelity cockpits and 10 simulation stations, including two six-degree-of-freedom motion base stations providing acceleration and deceleration cues to test pilots.

Today, MFS uses simulators for flying qualities and performance evaluations, avionics integration testing, flight test mission rehearsal, accident investigations, prototype evaluations, installed systems testing, and prototype simulator design. These simulation capabilities are a valuable complement to flight testing and provide quality-engineering results early in the acquisition lifecycle that reduces cost and schedule. As the Navy moves toward fielding more complicated aircraft weapons systems that use advanced networking and multi-ship targeting technologies, the capability to test them becomes much more difficult, if not impossible, with traditional test methods. MFS is at the forefront of developing these new capabilities and continues to be a vital part in the advancement of Naval Aviation.

U.S. Navy photo by Adam Skoczylas

Then Cmdr. Frank Weisser practices solo pilot maneuvers currently performed by the Blue Angels in F/A-18 Hornets in the F/A-18 Super Hornet simulator to understand the differences in how the two aircraft handle. The pilots control the variables in the simulator and then scrutinize the results.

and systems accreditable for test as a supplement to open-air testing. Calvillo said his team has been contacted to consult on VR/MR simulators for the CH-47 Chinook helicopter, as well systems for the Army, Air Force, Naval Sea Systems Command (NAVSEA) and even NASA.

Mueller said the Joint Simulation Environment aims to set up entire facilities comprised of only mixed reality headsets: "no projectors or display systems as we see today."

"There are problems to solve, which is why we keep tackling them," Mueller said. "One of the big goals that we are shooting toward is to be able to have a facility of 30-plus simulators all flying in close proximity to each other.

"The advantages and the versatility you get with the VR headsets and the advances that are being made, I expect they will become the more accepted solution moving forward."

Pritchard said he sees the simulators as a cost-saving measure as well.

"Here at Naval Air Systems Command, one of our primary data products comes through flight test, which is resource intensive, both in cost and schedule. This motion platform with MR headset has the potential to augment, and in some cases even replace flight test, thereby realizing a significant cost savings in critical aspect of data collection," he said. "Regarding the larger scale naval fleet technology application, this unique simulator has the potential to provide high fidelity simulation for training, certification and currency, which would be a major breakthrough for Naval Aviation simulation."

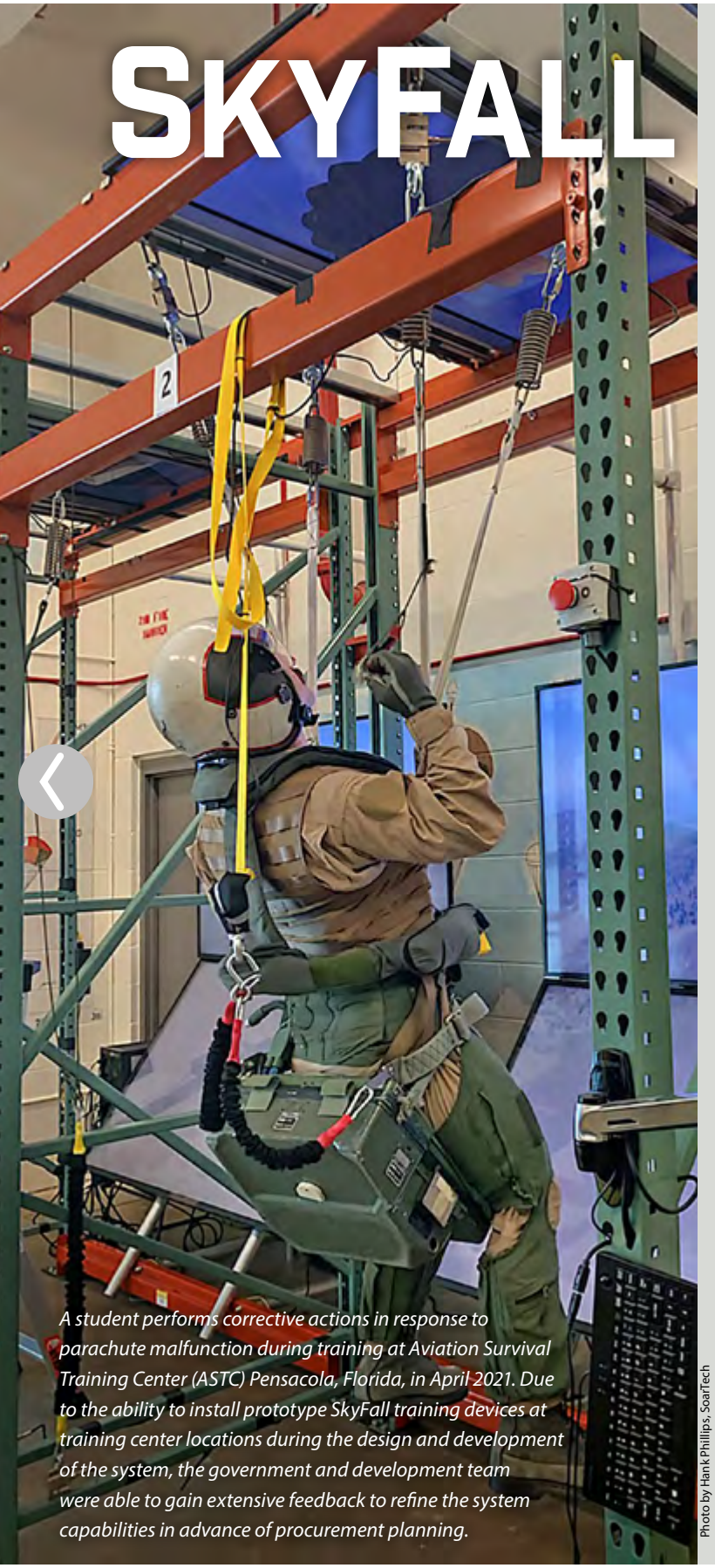
Rob Perry is a writer/editor with Naval Aviation News.

SkyFall Soars:

New Parachute Descent Training Offers More Realism, Durability

By Jamie Anfenson-Comeau and Angelika Robertson

A new parachute descent training system developed at the Naval Air Warfare Center Training Systems Division (NAWCTSD) is on its way to better help ensure naval aviators are better prepared for every real-life situation that could happen in midair.



A student performs corrective actions in response to parachute malfunction during training at Aviation Survival Training Center (ASTC) Pensacola, Florida, in April 2021. Due to the ability to install prototype SkyFall training devices at training center locations during the design and development of the system, the government and development team were able to gain extensive feedback to refine the system capabilities in advance of procurement planning.

Photo by Hank Phillips, SoarTech

The system, dubbed "SkyFall," will replace the legacy system—a virtual reality (VR) headset and harness in use for the past two decades.

"We're bringing it back to basics," said Lt. Cmdr. Jeremy Miller, NAWCTSD's Naval Aviation Survival Training Program Level III Integrated Product Team lead. "[SkyFall] offers more realism."

The Parachute Descent Trainer Procedure Transition Team was recently awarded a 2022 NAWCAD Commander's Award for innovation in the category of team acquisition support for their efforts in providing a novel, immersive training experience to replace the one currently in use.

The Navy has a requirement that naval aviators receive Parachute Descent Procedure Training to prepare them in the event of an ejection, but the current system, while state-of-the-art over 20 years ago, now seems outdated, utilizing a bulky headset and VR goggles. The headset limited the student's peripheral vision and had tracking issues. It was also very fragile, and replacement parts have become increasingly difficult to find over the years, hence the need for an alternative.

The development of SkyFall began in 2016. The team considered several approaches before determining that developing their own program would be more cost-effective.

"While there were alternatives, oftentimes they are aimed more towards recreational skydiving," said Beth Atkinson, senior research psychologist and Basic and Applied Training and Technology for the Learning and Evaluation Lab lead at NAWCTSD. "They had a lot of additional capabilities that aren't necessary in our context, and because of those additional capabilities, their price tag is a significant amount as well."

SoarTech, a software company that specializes in innovative artificial intelligence solutions, was awarded the contract to

develop SkyFall. Since 2016, SoarTech has collaborated with the PDP Trainer Transition Team to make SkyFall aligned with training objectives.

There are multiple variables to overcome during a parachute descent. For instance, parachute lines can tangle, or the wind can change direction, so much of the aviator's experience in this situation is uncontrollable. The aviator can affect many situations by controlling their harness and ejection equipment. SkyFall emulates this by displaying an open parachute on a screen above the student's head and giving them two to three minutes to identify their specific ejection fault, then fix the issue by adjusting the harness that is strapped to the student during the training. Two large-screen monitors facing the student represent the virtual environment the student is descending into.

SkyFall will also be able to simulate environments, such as jungle, desert, sea, and urban environments, as well as adverse weather conditions. Miller said that being able to simulate different environments, and adverse conditions, is an important part of the training.

"With this new technology, we can change the wind speed. Because wind can play a huge factor in trying to avoid a dangerous situation on the ground. We want them to avoid the trees, we want them to avoid buildings, things like that. We'd all like to eject on a beautiful day, go straight down, but we know the reality is, it's not going to be something like that," Miller said.

The openness of the training space allows the student to move while they are suspended from the risers in a harness. The process of getting students into SkyFall replicates the aviation life support system to include risers and a harness. For safety and ease of connecting the student to the device, a ladder is used and allows students to efficiently conduct training. SkyFall also produces the student's performance results automatically after the training ends for immediate feedback on their ability to achieve training objectives.

Photo by Brian Stensrud, SoarTech

A final production prototype configuration of SkyFall is completed at the contractor facility in Orlando, Florida, to support a joint testing event. This review of the test procedures and devices was completed ahead of government testing in preparation for a procurement contract in FY23.

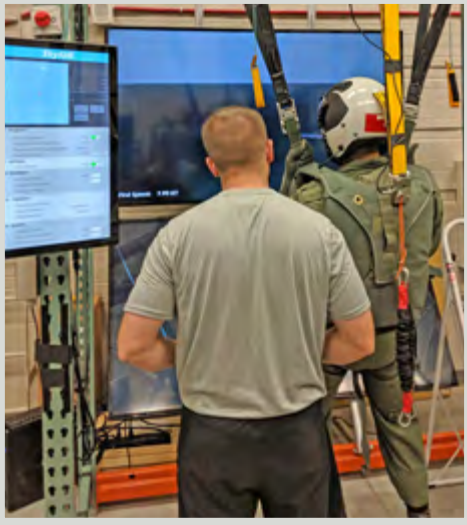


Photo by Brian Stensrud, SoarTech

A student performs corrective actions in response to parachute malfunction during training at Aviation Survival Training Center (ASTC) Pensacola, Florida, in April 2021. Due to the ability to install prototype SkyFall training devices at training center locations during the design and development of the system, the government and development team were able to gain extensive feedback to refine the system capabilities in advance of procurement planning.

"Having that capability where the instructor can see exactly what the student is referencing at the same time, instead of having to go off of the student telling them what they're seeing, and the instructor just having to take their word for it, just allows things to work better," Miller said.

The system is durable, and the reinforced screens minimize damage during use and prevent the need for repair and replacement of parts. The system can even be turned off and on without needing to be reconfigured for every class.

SoarTech has had multiple SkyFall prototypes present at Navy and Marine Corps facilities at Pensacola, Lemoore, and Miramar for several years, and as a result has received a wealth of feedback from end users—both instructors and students—and other stakeholders. The company anticipates system delivery to training sites in early Fiscal Year 2024.

Jamie Anfenson-Comeau is a communications specialist with Naval Air Warfare Center Aircraft Division. Angelika Robertson is a communications specialist with Naval Air Warfare Center Training Systems Division.

About the Naval Survival Training Institute

Naval Survival Training Institute (NSTI) is one of the six training detachments of the Navy Medicine Operational Training Command (NMOTC) and specializes in the field of aviation survival training for pilots and aircrew and encompasses eight Aviation Survival Training Centers (ASTC) and training sites spread across the United States. NMOTC is the Navy's leader in operational medical training in the fields of expeditionary, aviation, aviation survival, surface and undersea warfare, and special operations medicine.

A-TIC Lab Presents Ship-Based Experience in Training Environment

By Adam Hochron

During flight operations on an aircraft carrier, everything from the lighting to the readability of the monitors to the size of the work center matters, with no room for error. The Aircraft Launch and Recovery Equipment (ALRE) Technology Integration Center (A-TIC) at Naval Air Warfare Center Aircraft Division (NAWCAD) Lakehurst, New Jersey, is the only lab with ALRE shipboard representative equipment, including replica workspaces and shipboard Delta power.

These capabilities allow the engineers at NAWCAD Lakehurst to address technical and human factor considerations before installing the equipment on a ship. The lab also plays a pivotal role by recreating in-service issues reported by the fleet during deployments. In fact, every ALRE system must be qualified in the ATIC lab with production-level ALRE systems before installation on an aircraft carrier.

Established in 2019, the lab's personnel evaluate how everything from technology to new capabilities will fit in the ship's most critical and tightly crammed spaces. The lab recreates various work centers with several connected rooms, including Air Operations, Carrier Control Approach, Flight Deck Control and Primary Flight Control. These spaces all include production-level ALRE systems, including Aviation Data Management and Control System (ADMACS), Landing Signal Officer Display System (LSODS), Improved Fresnel Lens Optical Landing System (IFLOLS), Integrated Launch and Recovery Television Surveillance (ILARTS) and MORIAH Wind System, as well as a fiber connection to the Electromagnetic Aircraft Launch System (EMALS) and Advanced Arresting Gear (AAG) test sites.

"We're finding new uses all the time. Just having this kind of space we never had before, we're able to do things cheaper, faster, and get things out to the fleet quicker because we can do the work here," said Bob Meseroll, branch head for software and system-level test engineering. "The goal is to have as much as we can from the ALRE perspective fully verified and ready to go by the time we do the install on the ship."

Part of integrating the technology into the new ships and updating older ships is keeping the systems safe from cyber and physical threats. Meseroll said with patches constantly being developed for new threats, his team is running periodic tests to ensure that critical system updates do not negatively impact required system functionality.

Mechanical engineer Chris Brocco said staff can do human factor testing for everything from the video displays to the chairs and computer equipment. The lab staff also installed a pole similar to one found on a ship, presenting the real-life obstacle for the Sailors who need to see the various screens in the room.

The lab also has large video screens that replicate the windows of primary flight control on a ship. Brocco said this allows them to do simulations for various aircraft. Having the ability to replicate "real life" situations from the lab, he said, is beneficial for the people using the system on an actual ship or training before going out to sea.

"It's nice to see what you do here out there on the ship to see who's actually going to use it, see the Sailors that have to actually sit at the workstations and look at the MORIAH displays and to actually understand what they need to do every single day and hopefully make their lives a little bit easier," Brocco said. "You can get lost just doing drawings and everything here when you're building whatever. But to see it on the ship and know the Sailors actually use it is a much different thing."

Another critical component of A-TIC is its cyber unit. Thanks to the lab's addition of the Joint Mission Environment Test Capability Multiple Independent Levels of Security Network (JMN), the lab can connect ALRE and Support Equipment systems at Lakehurst to DoD locations nationwide, allowing for various tests without losing equipment or personnel. Last year, the lab was used for the joint cyber test event USS Secure 22-3, allowing for direct communication between the Aviation Land and Launch Enclave at Lakehurst and the SYY-1 Radar System at Naval Air Station Patuxent River, Maryland. The technology has also been used to train pentesters, or penetration testers, and the cyber security workforce at Lakehurst.

Key customers for the lab include the Aircraft Launch and Recovery Equipment Program Office, the Naval Air Traffic Management Systems Program Office, the Unmanned Carrier Aviation Program Office and Tactical Afloat Networks.

A-TIC was designed and built by Brocco and Michael Rosso and eventually handed over to the Prototype, Manufacturing and Test Department. Under the direction of SE & ALRE Test & Evaluation Division Head Robert DiGirolamo, the lab is also guided by Meseroll and lab manager Gene Rossi. They work closely with the Lakehurst ALRE programs to address all their testing, training and troubleshooting needs.

Adam Hochron is a communications specialist with Naval Air Warfare Center Aircraft Division, Lakehurst, New Jersey.

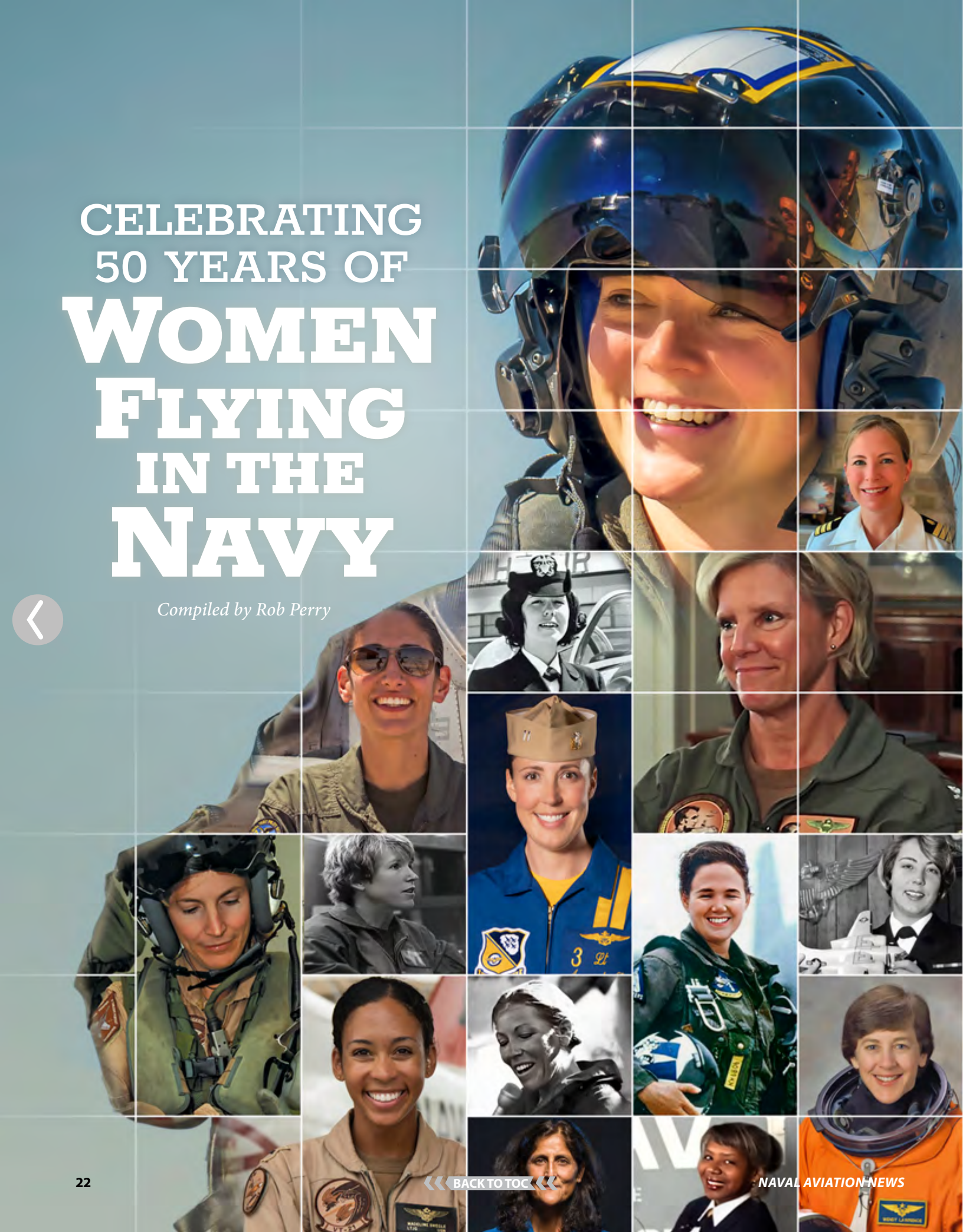
U.S. Navy photos by Adam Hochron

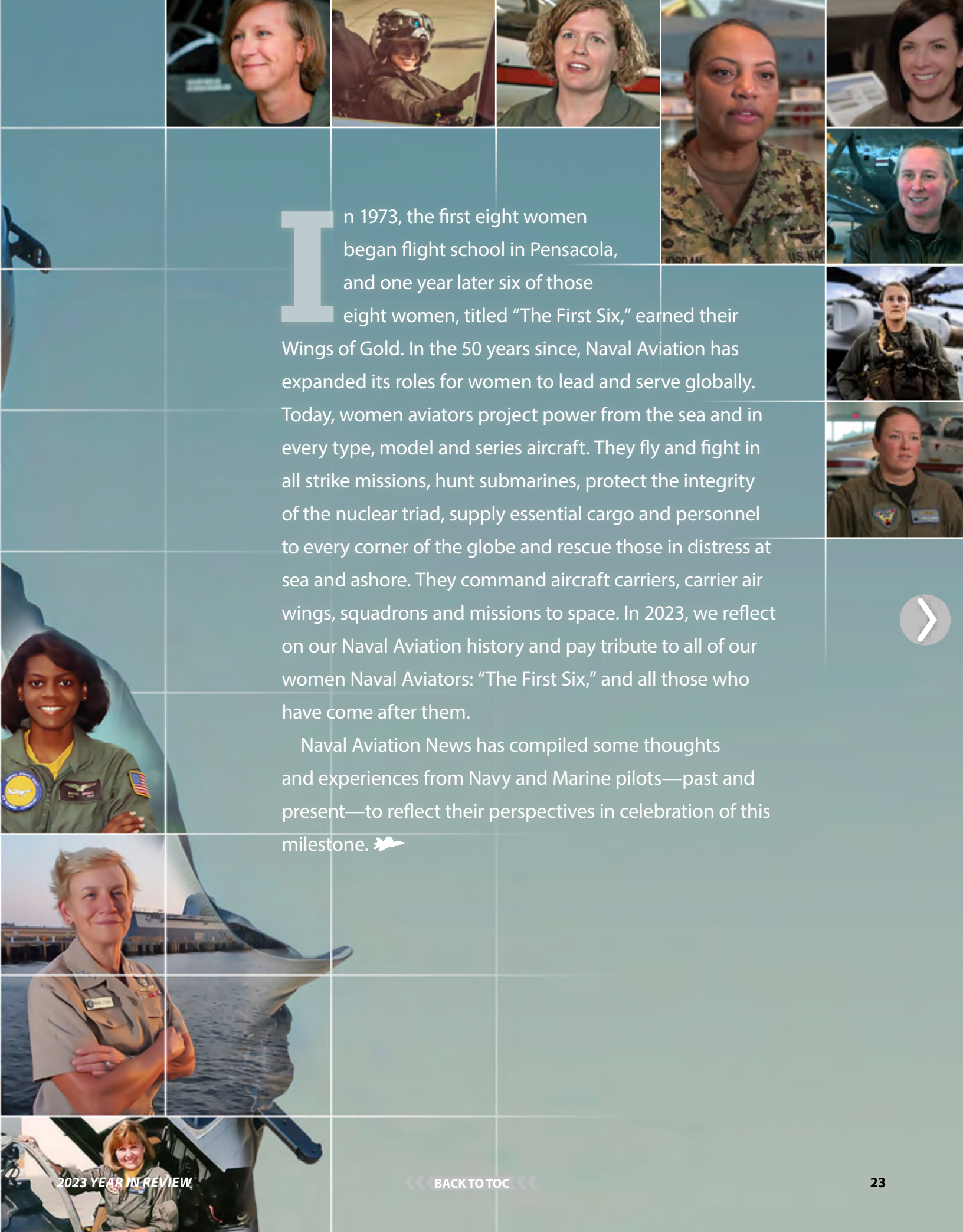
Kenny Beverly, right, and Matt Kasperavicius are part of the team from the Aircraft Launch and Recovery Equipment Technology Integration Center at Naval Air Warfare Center Aircraft Division Lakehurst, New Jersey. The lab provides Sailors and scientists an environment to recreate the technology and overall environment on an aircraft carrier and helps protect the fleet from cyber and physical threats.

The Aircraft Launch and Recovery Equipment Technology Integration Center at Naval Air Warfare Center Aircraft Division Lakehurst, New Jersey, provides Sailors and scientists an environment to recreate the technology and overall environment seen on an aircraft carrier. The lab also has a digital component used to keep ships safe from cyber threats in addition to physical threats.

CELEBRATING 50 YEARS OF WOMEN FLYING IN THE NAVY

Compiled by Rob Perry





In 1973, the first eight women began flight school in Pensacola, and one year later six of those eight women, titled "The First Six," earned their Wings of Gold. In the 50 years since, Naval Aviation has expanded its roles for women to lead and serve globally. Today, women aviators project power from the sea and in every type, model and series aircraft. They fly and fight in all strike missions, hunt submarines, protect the integrity of the nuclear triad, supply essential cargo and personnel to every corner of the globe and rescue those in distress at sea and ashore. They command aircraft carriers, carrier air wings, squadrons and missions to space. In 2023, we reflect on our Naval Aviation history and pay tribute to all of our women Naval Aviators: "The First Six," and all those who have come after them.

Naval Aviation News has compiled some thoughts and experiences from Navy and Marine pilots—past and present—to reflect their perspectives in celebration of this milestone.

CELEBRATING 50 YEARS OF WOMEN FLYING IN THE NAVY

Capt. Molly Boron, Navy

Current Naval Air Systems Command (NAVAIR) Inspector General; former program manager Aerial Target Systems Program Office; first female commander of P-8 Poseidon Squadron

U.S. Navy photo by Steven Kays

"My favorite part of being a naval aviator is the uniqueness of flying in the Navy. The tie to the ocean that we have, which is unique for maritime patrol in that we are not on the carrier. We are land based, but we very much support all Naval Aviation in keeping them safe from undersea threats, as well as the intelligence, surveillance and reconnaissance that we provide.

"What women bring to Naval Aviation is diversity. The presence of women in Naval Aviation, or any male dominated community, brings a different perspective in how that community functions, how they think, ways they look at problems and challenges.

"If we're only using half of the population to contribute toward a mission, a problem, a challenge, solving problems and challenges, we're missing out. So I think bringing in 50 percent of the population, giving them the opportunity to partake, to participate in the problem, in the mission, in the duty of serving our country, what we gain can't be quantified."

Capt. Karly E. Boettcher, Marine Corps

Current CH-53E Super Stallion pilot, HMH-464

U.S. Marine Corps photo

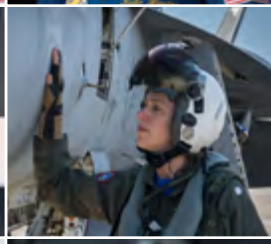
"The highlight of my career was achieving Helicopter Aircraft Commander. Being responsible for an aircraft, its crew, and its passengers is not something I take lightly, but it's the most rewarding experience I've ever had. A career highlight from a leadership standpoint was having the opportunity to speak at a Rolls Royce Convention for Women Engineers. It was eye opening to see all the experiences we had in common, and ways that we could inspire and lead each other even though we came from such different backgrounds.

"I am not a 'female pilot,' I am a Marine who happens to be an aviator. This profession is based on qualification, skills and the ability to perform. I bring the same potential, capability and skill as any of my peers, male or female, and I have progressed on par with my peers. Working in a male-dominated environment will inevitably create different experiences for women, many of which have personally shaped me as a leader.

"Naval Aviation is an integral part of our nation's defense forces. I also believe that Marines who serve, particularly in aviation, experience a different level of responsibility than most people do. Not only do we need leaders like this in the Marine Corps; we also need mature individuals to become leaders in the civilian sector."





Capt. Anneliese Satz, Marine Corps

Current member of Marine Fighter Attack Squadron (VMFA) 121, having served as Logistics Officer, Aviation Safety Officer, Quality Assurance Officer, Assistant Operations Officer; first female Marine to pilot the F-35B Lightning II

"Other than the pure joy of flying a fast and maneuverable aircraft, the best part of being an aviator is the opportunity to always get better. Becoming complacent will have negative consequences, so you always need to be learning or practicing your craft. Every pilot is in search of the perfect flight, knowing full well that no such thing exists. Although higher hours brings increased experience, no pilot is so good that they no longer have to strive to be better. Being in a community of like-minded individuals who are striving to be better pilots daily is also a great part of being an aviator. The ready room provides a sense of camaraderie found nowhere else. Although the people come from all over the country and have a diverse set of experiences, there is commonality found in the experiences of Naval Aviation.

"The aviation community needs the next generation of innovative and driven people to solve the problems we face today as well as those we will face in the future. You don't need a degree in the STEM fields in order to be successful in aviation. Rather, what it takes is an open and curious mind. Air Force and Navy fighter aviation are unique in that they are cultures that encourage and embrace brutal honesty. In the debrief after a flight there is no rank and no ego, only the desire to take away a few lessons learned and an improved skill set. I would recommend introducing yourself to as many new experiences as possible. Other than a few flights in general aviation, there is no single skill that will help you be a better naval aviator. Rather, an ability to adapt to new and novel challenges as well as the mental fortitude to accept criticism and improve from failure. The more people we have in our community who are interested in furthering the capabilities and strengths of Naval Aviation, the stronger we will be as a whole."

U.S. Marine Corps photos by Sgt. Ashley Phillips

CELEBRATING 50 YEARS OF WOMEN FLYING IN THE NAVY

U.S. Navy photo by Steven Kays

Lt. Cmdr. Maggie Doyle, Navy

Current Mission Control Station Military Installation Lead for the Unmanned Carrier Aviation Program Office; P-3 and P-8 Poseiden pilot; attended U.S Navy Test Pilot School; former test pilot with Air Test and Evaluation Squadron (VX) 20

"[To younger women thinking of a career as a Navy aviator] I think just do it, just get in there, just do your best, live your best life and, if you want to be an aviator, go and be an aviator. I think everything will just kind of fall in place. And then it's kind of that trend, you see more and more women being naval aviators then there's going to be more that follow because they can see you doing it and be like, 'hey, I can achieve this too.'

"I feel like the Navy just revolves around tradition with everything we do, but especially Naval Aviation. I think it just connects us to the past and where we come from. It just helps us go forward with a sense of purpose."

Capt. Kricket Harper, Marine Corps

Current CH-53K King Stallion pilot with Marine Heavy Helicopter Squadron (HMH) 461

Airframes Officer in Charge

"With the current state of the Marine Corps aviation, there are minimal resources and few flight hours to go around. This makes career progression a challenge. The best way I have found to promote growth with minimal assets is to help those who are flying to learn through their experience, and to recognize the importance of working hard to be ready when it's my turn in the seat. The failure or struggle of one pilot is the failure of the ready room, so focusing on that team effort maintains unit cohesion and helps everyone grow.

"I think that any community can improve by including differing viewpoints. We are all formed by

U.S. Marine Corps photo by Cpl. Adam Henke








different experiences and life events that shape our outlooks and decision-making processes. The inclusion of women, or any marginalized group, in the aviation community provides a unique viewpoint for problem solving, which will make the force stronger as a whole.

"'Train your replacement' is a common phrase used in Naval Aviation. The next generation are the replacements for the fleet. We must continue to inspire quality individuals to maintain and strengthen the force."

U.S. Navy photo by Steven Kays

Cmdr. Shannon "Hoov" Hoover, Navy

Current Maritime Patrol and Reconnaissance Aircraft Program Office Special Mission Aircraft Integrated Product Team Lead; P-3 Pilot; attended U.S. Navy Test Pilot School; former test pilot with Air Test and Evaluation Squadron (VX) 20

"Years ago, I was airborne, doing a night proficiency flight in a T-2 Buckeye over the Patuxent River, Maryland, at about 38,000 feet with one of my dear friends, another pilot, and we ended up experiencing explosive decompression and losing the canopy. It gets really loud in an airplane at 30,000 feet when you don't have a canopy and glass shards under the visor and in your eyes. So just bringing the airplane home, landing it safely and then being greeted on the runway by the maintainers who had sent us flying that night, who were genuinely concerned about our safety and glad to see us back. It ended up being a really defining moment for a multitude of reasons. Everybody corrals around you to just say, 'Hey, what happened? How can we prevent this from happening again? Did we do everything right? Could we have done anything differently? How can we ensure this never happens again?' The Navy had my back, my command had my back, our back collectively, and we were just going to figure it out and march along smartly when we had it figured out. In Naval Aviation, you spend 99 percent of your time with an expectation that everything is going to go according to plan. And then you prepare for that 1 percent or it's not going to go according to plan.

"One challenge was I flew very pregnant with my first daughter. As soon as I was able to and medically cleared to when I found out I was pregnant, I continued to do operational tests in the P-8 at VX-1. My command was on board with it. And I get to say to my little girl, 'You got a pretty impressive logbook.' And she likes to say she was a pilot in mommy's belly when she was a baby. I get to say, for many years from now, to my daughter that we've spent some time in the airplane together.

"I'm proud of the trailblazers that set the path in motion for me to be here, for us to be here now, I'm grateful. I think we just have to continue to forge ahead and continue to redefine what it looks like to be a naval aviator."

CELEBRATING 50 YEARS OF WOMEN FLYING IN THE NAVY

U.S. Marine Corps photo by Cpl. Sean Potter

Capt. Karah "Gobbles" Jaeb, Marine Corps

Current Sections Leader and Night Operations Instructor, CH-53K pilot with HMH-466

"Women bring themselves, their intelligence, their problem solving, their leadership, their motivation, their personality. Some of the best Marines I know are women. Some of the best mechanics I know are women. Some of the best pilots I know are women. Some of the best leaders I know are women. At any given point, women make up about 10 percent of my squadron. What does that tell you? That the women in our community are exceptional. We bring ourselves and by doing so we enhance our community.

"As a community we have made enormous strides forward regarding supporting women and mothers. Unfortunately, biases, subconscious or not, color how each of us interacts with the world. Everyone projects their personal situation, history, and background onto those around them. For many their mothers or spouses. I believe strongly in celebrating our forward progress. But we need to acknowledge that cultural change takes time, and we have a ways to go."

U.S. Marine photo taken by Cpl. Autmn S. Bobby

Capt. Whitley "Warhammer" Noel, Marine Corps

Current Flight Leadership Standardization Evaluator and CH-53E Super Stallion pilot, HMH-64, 2nd Marine Air Wing (MAW)

"I have a passion for teaching in and out of the cockpit. The ultimate goal is to train the next generation of Marine aviators to be better than my generation.

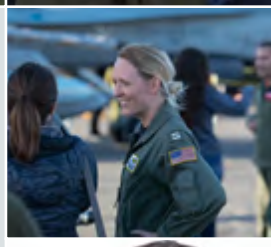
"Throughout my career, I have faced many challenges, some seeming insurmountable. The best advice that I can give to any Marine is to find a way to get to yes. I accepted a ground contract to have the honor of becoming a Marine officer, even though I've always known that I wanted to also be a pilot. I found a way to get to yes when I was at The Basic School and a competitive flight contract was being offered to my company. I fought for that spot and subsequently earned my wings.

"When our nation calls, we need to be ready. Eventually, my generation of naval aviators will be ready to retire. To whom can we pass the torch? Marine aviation provides so many unique opportunities to grow personally and professionally. It is the greatest decision that I ever made."










"The people are always the best part of being an aviator. Flying a crew-based aircraft means that every flight is a team effort. The crew chiefs, the other copilots and aircraft commanders, it's the people that make it both satisfying and fun."

Capt. Brianna Sirks, Marine Corps

Current Marine Air Group (MAG) 16 HQ Staff Secretary, MV-22 Osprey pilot, 3rd Marine Aircraft Wing

"I'm freshly to the fleet, but my single biggest career highlight was still the first time I flew the MV-22. Before stepping into the actual cockpit for the first time, we amass some 30 hours in the MV-22 simulators, but it doesn't prepare you for the enormity of sitting behind the controls in the actual cockpit. The aircraft is enormous, and you can feel that as you lift off and then transition to airplane mode. The first time I came off the ground and to a 20-foot hover felt like I was lifting the entire world.

"The people are always the best part of being an aviator. Flying a crew-based aircraft means that every flight is a team effort. The crew chiefs, the other copilots and aircraft commanders, it's the people that make it both satisfying and fun. Furthermore, as an assault support aircraft you're a significant part in any mission to insert troops or cargo. Knowing that you're the one in charge of safely transporting the men and women that are on the ground protecting our country is very awe inspiring.

"As a woman, I'm frequently in the minority of my squadrons, and at times have also been the only woman in the squadron. From a pure mentorship view, the younger enlisted women need someone that they feel comfortable coming to when they have concerns and someone to look up to, to show that it's not only men that can run the world. Beyond this, I've noticed that women frequently come up with different solutions to problems that arise because we offer a different perspective than what the other members of the room have.

"Naval Aviation is one of the most important foundations that our military stands on. Whether it's the jets and Cobras laying down fires to allow our troops to infiltrate an enemy zone, or the Ospreys and CH-53s bringing our men and women into that zone, we shape the battlespace. We need more men and women to be a part of the fight."

U.S. Marine Corps photo by Cpl. Sean Potter

CELEBRATING 50 YEARS OF WOMEN FLYING IN THE NAVY

Capt. Reilly Sullivan, Marine Corps

Current MV-22 Osprey pilot; VMM-261, MAG-26
Pilot Training Officer/Assistant Training Officer

"Last summer, I was able to fly in the Chicago Air and Water Show as a demonstration aircraft commander and was able to share my passion with other aviation enthusiasts. On deployments, I've been able to see some beautiful parts of the world: flying across the Mediterranean or along the coast of Sicily are memories I'll cherish.

"The best part of being an aviator is working with highly competent individuals and personalities to accomplish often daunting and difficult missions. The success of accomplishing these missions is made even better when it's done working with the younger pilots and aircrew, who I get to see progress and grow as aviators and Marine officers.

"All people can bring a unique perspective based on their strengths, weaknesses and upbringing to their work community. A successful team uses these different perspectives within the group to accomplish a goal. In some cases, women can provide a unique perspective.

"Do not let self-doubt or others deter you from your goals. There will be hurdles and obstacles in your life that you will have to face, but if you surround yourself with people who push you to do better and be better—people who believe in you—great things can happen."

From left, Cpl. Jordan Trantham, Capt. Reilly Sullivan and Capt. Victoria Friday pose for a photo.

U.S. Marine Corps photo

Cmdr. Jocelyn K. Liberg, Navy

Current Time Sensitive Strike deputy program manager with the Direct and Time Sensitive Strike Weapons Program Office; F/A-18 Hornet pilot; U.S. Naval Test Pilot School graduate; former test pilot with VX-31

"I'm a third generation Navy attack aviator. I'm a second-generation Aerospace Engineering Duty Officer. My whole family in some capacity has been in service since 1948.

"A moment that stands out the most to me is one that happened at the very beginning of my career. I was an ensign and had just started in flight school. I went home and home at that time meant Key West, Florida, and my dad was stationed there. We ended up getting a chance to fly together. So, my first flight in my military logbook is a flight with my dad, and that also is his last flight as a Naval Aviator. Getting to fly together, and like,

U.S. Navy photo by Steven Kays





"We honor the generations that came before us, that brought about the changes that allow us to be here where we are now."

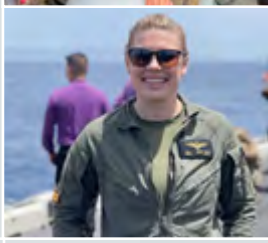
do the high fives and pass the torch was kind of the highlight of my career even 16 years later.

"The best part of being a naval aviator is being part of a community that has such intensely, intentional culture. You walk into a Naval Aviation ready room, and you know where you are. And if you don't, someone's going to tell you. The other thing is my kids think I'm cool. I know that that's short-lived and won't last forever, but right now they think what I do is pretty awesome.

"Women, like every group, come with a diversity of experience. We can't afford to solve our problems as a monoculture; we must include people of all backgrounds, of all genders, races, ethnicities, socioeconomic backgrounds, all of it. If we're going to solve the kinds of problems that we're facing right now, there is no room for exclusion of any group, whether we're talking about men or women or people of a different background.

"We're celebrating that women have been a part of the obligation for 50 years now. We're also celebrating that women have been allowed to fly in combat for the past 30 years. I was in kindergarten when that change came about in the Navy. It's exciting to think about the changes that are going to come in the next 30, the next 50, the next hundred years. We honor the generations that came before us, that brought about the changes that allow us to be here where we are now. But it's so exciting to think about the changes we haven't even imagined yet that my generation and the generation that follows will bring about for Naval Aviation."





Capt. Rebecca "Princess" Schmidt, Marine Corps

Current Aviation Safety Officer, CH-53E pilot with Marine Heavy Helicopter Training Squadron (HMHT) 302

"The crew concept of our aircraft is my favorite aspect of aviation. I do think anyone can be taught to fly, but not everyone is a good team player. The team is not just the pilots and aircrew, but it is also the maintainers and administrative personnel that allow us to do our job. Each member of the flight crew is critically important, and the coordination and environment created within the aircraft will either set the flight up for success or failure. Our crew chiefs are fantastic, and the coordination required to land in a confined area or pick up an external load is made possible by trust between the pilots in the cockpit and the aircrew in the cabin.

"Women bring different

Capt. Anasitasia Ioane (left), and Capt. Rebecca "Princess" Schmidt pose for a photo.

U.S. Marine Corps photo

perspectives and experiences that frame their communication and leadership styles. Having battled back through an endometriosis surgery and two postpartum recoveries, I come to the table with the experience of how to navigate the medical system and continue flying, as well as how to balance the unique demands of motherhood with aviation. These experiences have caused me to enter and exit the cockpit three times, which inherently means that I have had to put in the effort to regain my skillset with each comeback. Each time I do this, I find myself mentoring a new group of women. The example that is brought to aviation matters because now these women realize that it is possible. It may not look the same as their male counterparts if they choose to take care of their health and grow their family, but they will realize they are capable of more than they thought.

"Aviation is a unique career field that women are not routinely exposed to. There are skill sets and experiences to be gained from the next generation of women that will benefit the Navy and Marine Corps if they choose to make a career out of aviation, or it will benefit the civilian sector if they choose to take their skills and experience elsewhere. Either way, the perspective, experience, and leadership that the next generation of women will bring to the table will enhance the commands that they are a part of in and out of the cockpit."

Capt. Holly Shoger, Navy

Current program manager for the Naval Undergraduate Flight Training Systems Program Office; E-2D pilot; former VX-20 test pilot

"The best part [of being a naval aviator is] you get to go fly. It's something civilians don't get to do. You're entrusted with these aircraft that cost millions and millions of dollars. It's a lot of accountability and responsibility to have. It's unique. You don't get that everywhere.

"Women bring a different viewpoint. We all think differently. And I think it's a piece of diversity that we bring that if it were just an all-male workforce, it wouldn't be that way. And I've seen the workforce shift and evolve over time since I've come in as we have more females in the fleet. And I think it's a good thing. I think we have a healthier environment or balanced viewpoint out there rather than maybe a single mindset."

U.S. Navy photo by Steven Kays

"Naval aviators are parents, brothers, sisters, mothers and fathers. But we're also very dedicated to what we do, where we work. We work long hours and we put in a lot of time in service of our country."

U.S. Navy photo by Steven Kays

Cmdr. Sarah Abbott, Navy

Current deputy program manager for the F/A-18 & EA-18G Program Office; F-18 pilot; former test pilot with VX-9

"I started off at the U.S. Naval Academy and I was studying aerospace engineering. I think I was always excited about being an astronaut, if I could, or getting into aviation. I was around aviation as a child, and as a teenager I worked at a private airport. But as I progressed through my studies at the Naval Academy and got a chance to get out in the fleet and see what it was like, I just wanted to be out there. It looked exciting and it seemed like the way I really wanted to serve.

"I enjoy above anything the people that I serve with. I'm motivated by the people I serve with. You get up every day to do something with everybody around you, but of course, the aviation part of it is getting to fly a really cool aircraft and getting to do very challenging things and push yourself and really strive to be the best you can be at a very hard job.

"I think women bring talent. Everybody who does this job needs to be good at doing this job and they need to put the work in. And you're only here if you can do your job and do your job well. It's a high-risk organization and everybody needs to be on their game to do it. But I think women represent talent that's half the population. If you don't have a representative number of women, if your organization doesn't look like the population, we're missing out on a lot of talent and we're not giving everyone that opportunity they deserve.

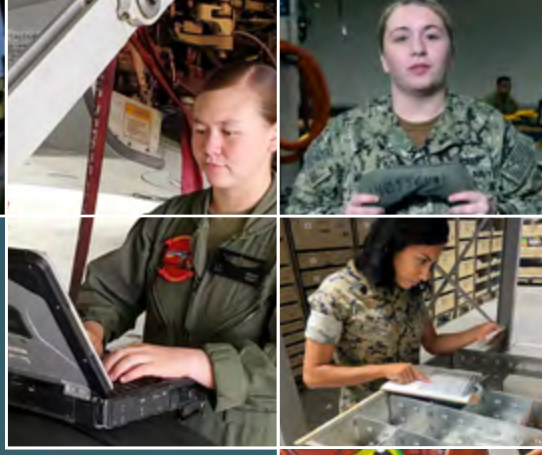
"Naval aviators are parents, brothers, sisters, mothers and fathers. But we're also very dedicated to what we do, where we work. We work long hours and we put in a lot of time in service of our country. And we are professionals. Every aspect of our job is professional. It's about learning. It's about being the best we can be in an aircraft."

CELEBRATING 50 YEARS OF

Women in Naval Aviation

Compiled by David Byrd

Aviation Boatswain's Mate (Handling) 2nd Class Jynishia Wilson poses for a photo onboard Naval Air Facility (NAF) Atsugi, Japan, Feb. 15.



Long before the Wright brothers powered their way into the skies of North Carolina in 1903, or Eugene Ely showed seven years later that an airplane could indeed take off from a ship, Navy women served in the nation's wars. During the Revolutionary War, women sailed on ships of the Pennsylvania Navy, and Maryland's warship Defence included Mary Pricely as a nurse. Mary Allen and Mary Marshall filled a similar role aboard the USS United States during the War of 1812. Women aided naval operations during the Civil War as lighthouse operators. The Navy established its Hospital Corps—first proposed 85 years before—during the Spanish-American War of 1898, using mostly male nurses, although four female students from Johns Hopkins University, and six more from the Daughters of the American Revolution nurses' register volunteered and served. Compelled by legislation, the Navy created a female nurses' corps in 1908; at the eve of U.S. entrance into World War I, their high performance led to their stationing at naval hospitals inside the country as well as overseas.

Photo courtesy of Cmdr. Sarah Abbott

Ethel Pearson, left, and Doris Miller pose in front of an aircraft at Floyd Bennet Airfield, New York, on July 22, 1944. Both women were members of Women Accepted for Volunteer Emergency Service (WAVES), which allowed women to enlist in certain aspects of Navy services. Pearson was the great aunt of Naval Aviator Cmdr. Sarah Abbott (featured in last quarter's Naval Aviation News). Abbott's grandmother, Julia Papai, was also a WAVE.

While the fastest growing segment of naval power in World War I was the flying corps, the 11,000 women that served for the Navy were only permitted in Naval Coastal Defense Reserve. That restriction would be eliminated in World War II.

Almost eight months after Pearl Harbor and the U.S. entry into World War II, President Franklin Roosevelt signed Public Law 689 establishing the Women's Reserve as a distinct branch of the Naval Reserve. Unlike WWI, the Women Accepted for Volunteer Emergency Service, or WAVES, could serve as officers. Thirty-eight unique ratings, or occupational fields, were available to officer and enlisted WAVES; most served in clerical, health care or storekeeper positions. Enlisted WAVES performed duties as machinist mates, parachute riggers, metalsmiths, aerographers mates and even pigeon trainers. In total, of the more than 100,000 WAVES that served in WWII, 23,000 executed aviation-related duties.

The Women's Armed Services Act of 1948 provided women the opportunity to serve as permanent members of the Army, Navy, Marine Corps and Air Force—albeit in limited-duty status. Navy women served during both the Korean War and Vietnam War eras in a number of roles. In 1972, Chief of Naval Operations Adm. Elmo Zumalt issued Z-Gram 116, the first salvo of equality that would increase opportunities for women in the service, eventually leading to women serving aboard ships, attending ROTC and the U.S. Naval Academy, becoming line flag officers and aviators.

The following vignettes feature the unsung heroes of Naval Aviation—the support team.

U.S. Navy photo illustration by Fred Flerlage; imagery by MCS2 Rafael Avelar and U.S. Marine Corps photo by Cpl. Calah Thompson

Cpl. Chloe Aldrich

Security Chief, Marine Aviation Logistics Squadron (MALS) 36

"I decided to join the military out of an aspiration from my father. I chose Naval Aviation specifically because I enjoy the exhilaration of aircraft, and it is rewarding to be a part of our airborne battle force.

"One day after returning from Underwater Egress training in Hawaii, I was flown with my peers to a remote field op. Having the opportunity to be in the field with my Marines and subordinates was not only an adventure, but it was a great honor to be promoted [to Corporal] by my command in this manner. I will forever hold that with me.

"The biggest struggle I've found was being myself. It can become difficult to implement your own values when so many others try to carve theirs into you. I've been graced with great knowledge from those before and beside me, but I've learned that the biggest step you can make for yourself is to be true to who you are. I have participated in [everything] I can get my hands on to be a better version of myself.

"I think women create the element of diversity and a different perspective. Where a woman may express grace, a man may express strength, and both may co-exist in harmony. Both benefit from each other's perspective.

U.S. Marine Corps photo

Sgt. Lukrecia Alonso

Mobile Facilities Maintenance Technician, MALS-24

U.S. Marine Corps photo

"I wanted to be the first generation in my family to join the U.S. military and to set an example for future generations. As a young girl, my favorite thing to do was watch airplanes fly; I would go to every airshow that I knew of. It did not matter whether I was watching military aircraft or commercial aircraft. From then on, I instantly knew I wanted to work on or as close as possible to airplanes.

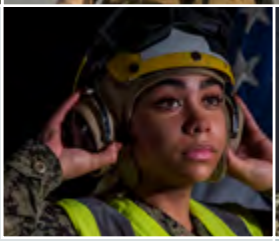
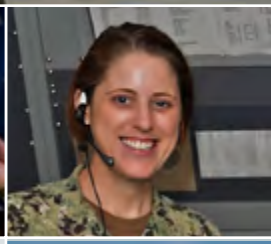
"There was a point in my career where I did not want to stay in the military because I felt like it was not letting me be the person I used to be before joining. Throughout the years I've learned that the strict rules and regulations only made me better as a person and as a leader.

"One of the greatest challenges I have experienced throughout my career was deploying to the East for seven months. Being away that long was stressful for my husband because he was alone with my 3-year-old son who was constantly asking for me.

"The inspiration comes from within, having a career within Naval Aviation has brought opportunities to enhance my career while the experiences have also made me into a more knowledgeable leader."






Lt. Cmdr. Amanda Lippert

Aeromedical Safety Officer, Naval Test Wing Atlantic

"My career started the way a lot of people's careers do. I was in college and it was getting pensive… it kind of started with a very vanilla goal to do the initial contract and see what it's and then get money for college, and never really intended to kind of fall in love with it the way I did. Here I am 23 years later.

"As an Aerospace Physiologist, it's been a pretty diverse career path. I served a lot of it with the Marine Corps and got to be a part of that journey as the Marines were declaring IOC [initial operational capability] for F-35B Lightning II and standing up their very first squadron out in Yuma, Arizona.

U.S. Navy photo by Steven Kays

"I was selected to be the first fellow at NASA. And for that fellowship, I was studying human performance in extreme environments. So, they kind of let me run with scissors a little bit and figure out what projects would be best for me to study, how I could leverage what I know already from Naval Aviation to support NASA and its missions but then also, more importantly, learn how NASA does things differently and bring that back to Naval Aviation at the end of the two-year fellowship.

"I am a huge proponent of just having a diverse population, whether that looks like women or whether it looks like others; it's good to have different approaches and different perspectives and thought processes. The more the more diversity that you have, the better, in my opinion."

Cpl. Juliana Carda

Air Traffic Control, Marine Aircraft Group (MAG) 13, 3rd Marine Air Wing (MAW)

"I decided to join the military right out of high school, I didn't know what I wanted to do. I also wanted a little bit of experience and to get out of my hometown.

"The person who inspired me the most to seek a career in Naval Aviation would be my dad. He started working on his pilot's license right when I was about to join the Marine Corps and it inspired me to learn more and choose a career that would challenge me.

"I am currently qualified on radar flight data, final control and approach high. A moment that really stands out for me is getting qualified on approach high; it's just an accomplishment that sometimes you're unsure that you're going to get and it's nice to see that when you put in the work you get the outcome you were hoping for. The greatest part about being ATC is that you really do make a difference and its rewarding to feel that way.

"Advice I have for the next generation in Naval Aviation is that it is what you make it. You will have good and bad days but, at the end of the day, it's very rewarding when you put in the work and get the outcome you wanted."

U.S. Marine Corps photo

U.S. Marine Corps photo

Sgt. Jocelyn Cerrato

Aviation Supply, MALS-24

"I was inspired to pursue a career in Naval Aviation by my dad who also served at a Marine Aviation Logistics Squadron. Though he did not work directly with aircraft, he always carried the upmost pride in his job and being a part of aviation.

"I joined the military because like many people, I came from a small town and wanted more than what it had to offer. When I was child, my parents would take us to air shows where I fell in love with the idea of being part of the aviation community in the military.

"The greatest part about being in Aviation Supply is watching our aircraft depart the flight line safely and successfully, knowing as a team in Aviation Supply, we helped make that happen. Another cool aspect is seeing our Marine Corps aircraft in movies and how they play an important role even behind the scenes. This really opens the big picture behind aviation importance.

"A major highlight in my career would be my deployment to Okinawa, Japan. This being my first deployment, I learned and explored so many new opportunities within my profession. This deployment had one of the biggest impacts in showing me the big picture behind each vital role we play in the aviation community individually and as a team.

"My advice for the next generation interested in Naval Aviation would be to always remember why you started that career. It's easy for things to become repetitive and seemingly old, but never forget why you started, and always remember your importance to the overall mission both individually and as a team.

"Women in the aviation community bring inspiration and confidence to other females by showing that as a female, you really can do anything you put your mind to."

Gunnery Sgt. Stephanie Guebara

Audit Branch Staff Non-Commissioned Officer-in-Charge, MALS-24

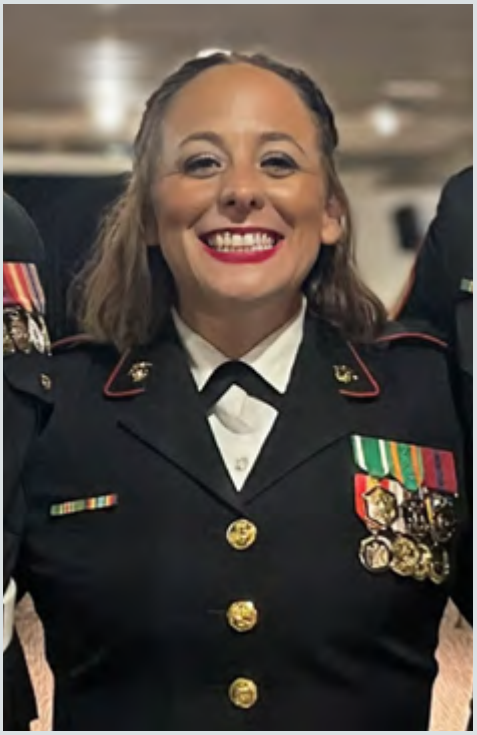
"I chose the Marine Corps because I knew college was not right for me at that time in my life. I chose Naval Aviation because my recruiter was an Aviation Supply Marine, and hearing his stories made me want to make my own. He told me how supply was a tight-knit community, and I have always appreciated people taking care of other people.

"The greatest part about being an Aviation Supply Marine is seeing how we directly affect the flight line.

"The highlight of my 18 years in the Marine Corps so far was being able to compete in the Combat Shooting matches in 2016. I was the only female to compete on Marine Corps Base Hawaii, and they asked me to shoot in the championship match in Quantico, Virginia, in May 2016. I was the only female to compete there as well. It was amazing to be outside of my comfort zone.

"Sometimes I find myself being an amazing Marine, taking care of business at work, taking care of my Marines and Sailors, but my family takes the back burner. Then other times, I find myself being an amazing mom, but the Marine side is lacking. What it really takes to be able to balance both worlds is a great support system.

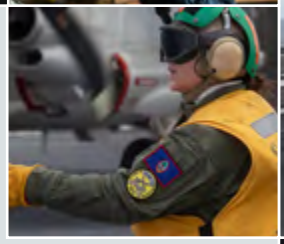
"Women bring balance to the aviation community. As women in the Marine Corps, we bring a different aspect to how to approach situations and how to get the job done. We think outside the box and bring a different flair to the community."



U.S. Marine Corps photo







Lt. Nidia Ortizmadrigal

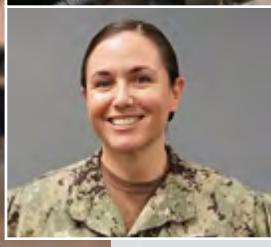
Aviation Maintenance Duty Officer, Commander, Naval Air Systems Command

"I'm originally from Nicaragua. I came to the United States in 2000, but I joined the Navy 2004. I definitely did not know much English. And definitely I learned a lot in the Navy. I had great peers that helped me throughout my career with that, and I also was able to gain my citizenship when I was in the Navy. So, to me, the Navy has helped me a lot.

"I have done seven deployments. I love to travel, and I have visited so many different places. So to me, that is a huge highlight because that was something that I was not going to be able to get if I just got a different job. And as an enlisted, as a maintainer, my biggest highlight there was that when I was able to actually fix the aircraft and see it actually fly, it was really rewarding. As an officer, being able to take care of my sailors and work together with other enlisted sailors, and that to me is really rewarding, it's one of the biggest highlights for me to be able to help.

"Women bring a different perspective, different view. I don't want to compare, but we definitely bring a perspective where we tend to think about everything else that is around the issue or the matter at hand. We don't just think black and white. We think about everybody else and everything around us."

U.S. Navy photo by Steven Kays

U.S. Marine Corps photo

Staff Sgt. Miriam Khattab

Aviation Supply, Wing Aviation Supply Management Advisory Team, 1st MAW

"I decided to join the Marine Corps on March 7, 2016, in Brooklyn, New York. I went from being a little girl scared to be anywhere near an aircraft to a Marine that was intrigued in all aspects of one.

"After becoming an Aviation Marine, I have learned so much about the importance of different types of aircraft and our role in keeping the parts for the aircraft on order and in perfect condition in order to complete the mission. I truly love what I do and am excited to continue this journey in the Aviation Supply community.

"An important moment that stands out to me is one conversation that would change my outlook on my Marine Corps career. I had a conversation with my Chief Warrant Officer in 2019 about my goals in the Marine Corps and how I would be able to achieve them. That conversation put into perspective that I would be better suited to achieve all of my goals if I were a Chief Warrant Officer myself. From that moment, I have strived to pursue the Warrant Officer route

to make an impact for the Aviation Supply Marines on a greater scale.

"Women in the aviation community have proven to be as resilient as men. From 1993 when the first female Marine aviator Karen Fuller Brannen became a strike fighter pilot, she proved that women can achieve the tasks that were only required of men in the aviation community. Today, women show a great amount of strength, control, and attention to detail. Women serve proficiently and capably in their field to proudly represent the Marine Corps.

"My advice for the next generation interested in a career in Naval Aviation is to always make sure that at the end of the day you know you did your best. It is your name that you are working for and you create your own reputation."

Staff Sgt. Shannon Kunz

UH-1Y Crew Chief, Quality Assurance Representative/Night Systems Instructor, Marine Light Attack Helicopter Squadron (HMLA) 167, MAG-29

U.S. Marine Corps photo

"I knew I was going to join the Marine Corps since I was in the sixth grade. I will forever be grateful to my recruiter for suggesting an aircrew contract. At the time, I had no idea what I was signing up for, but looking back, I wouldn't change a thing. If you had told high-school me that I would be instructing junior Marines in a helicopter at night on night-vision goggles while they are shooting a .50-caliber machine gun, I would not have believed you.

"I have been stationed in every Marine Aircraft Wing in the Marine Corps and have been lucky enough to see how the Marine Corps operates on the West Coast, East Coast and in Hawaii. I've been able to deploy twice for 11th Marine Expeditionary Unit and a Marine Rotational Force Darwin. To get where I am today has taken a lot of hard work, dedication and love of the Corps."

Capt. Deserine Price-Jordan NAVAIR Commanding Officer

"I started off as an enlisted in 1986. My recruiter at the time was saying, 'Hey, you qualify for this particular job as an air traffic controller.' I had never heard of it. Well, once I did some research, I realized how exciting that position was and I immediately signed up for it, went to the air traffic control school, and I started my career as an air traffic controller.

"I became the first female to be commanding officer of NAVAIR, as well as the first African-American to be promoted to captain in our community. So I had great mentors to help me and guide me through that career path.

"Some of the challenges that the enlisted face, officers oftentimes cannot relate. But because I came through those

U.S. Navy photo by Steven Kays

U.S. Navy photo by Steven Kays

struggles as an E-3, an E-4, being a single parent, you know, or the challenges with childcare. You know, the challenges of just trying to make ends meet was completely different at the deckplate level, at the enlisted level, than it is at the officer level. So I bring that in there.

"I think since aviation ever started, women have played a significant role in that. We continue to make all kinds of contributions and we see that women in Naval Aviation, whether or not you're the pilot, the NFO, the ground pounder fixing the aircraft or the logbook keeper, whatever it is. We bring those contributions just like our male counterparts. We bring so much to Naval Aviation to help keep it going and help to meet the mission and be ready for combat."

U.S. Marine Corps photo

Sgt. Doraly Tara

Aviation Ordnance, MALS-24

"The greatest part about being an aviation ordnanceman is the comradery. Ordnance is a tight knitted family that looks out for our own and takes care of each other.

"I've always strived to make myself someone dependable and to better myself by taking on responsibilities, completing courses and getting qualifications that are important to meet the mission. With the opportunity for training and mentoring, I believe I can get further and achieve more.

"Women establish a diverse environment by incorporating different leadership styles through a different mindset into the aviation community.

"It is important to inspire and encourage the next generation to pursue a career in Aviation because what you pass on to them is what they will continue to pass onto others. If you inspire them to be a great leader they will continue to take care of our community."

U.S. Marine Corps photo

Lt. Reece "Vamp" McKenzie

Flight Surgeon, Marine Medium Tiltrotor Squadron (VMM) 261 MAG-26; Department Head, Primary Care Clinic

"My grandmother instilled in me a strong sense of determination and the belief that you are able to achieve anything and everything that you set your mind to if you are willing to put in the work.

"I wanted to challenge myself, serve my country, and be a part of a team that is dedicated to making a difference in the world. I was drawn to Naval Aviation because of its rich history and tradition and the unique challenges and opportunities it presents, from flying off aircraft carriers to operating advanced weapons systems and engaging in complex missions around the world.

"As physicians, naval flight surgeons, specifically those entrusted with the care of Marines, have the best of both worlds. We oversee the medical care of a close-knit group of motivated men and women and the leadership of corpsmen whose real-time decision making could mean life or death on the battlefield while also having the pleasure of being a contributing part of the 'Ready Room' and participating in flights, mission planning and other operationally relevant tasking. There is never a dull day.

"As a woman of color, diversity has always been important to me, and I feel that all forms of diversity are essential. In the male-dominated field of aviation, women bring diversity of thought, of experience and of skill. We bring a fresh approach to problem-solving and decision-making, which can and has led to new innovations and safer practices in the industry. We drive progress and break down barriers, making the aviation community more diverse, inclusive and welcoming for all."

U.S. Marine Corps photo

Chief Warrant Officer Ashley Milner

Aviation Supply Warrant Officer, MALS-24, 1 MAW

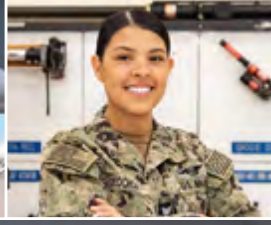
"I enlisted in the Marine Corps because I did not have many opportunities if I didn't leave home and I had a strong desire to do more with my life. I was pursuing a career path that aligned with my goals outside the military, which was accounting specifically. Luckily for me, the Aviation Supply specialty has several accounting and auditing facets to it.

"The greatest part about my job is getting to teach and train both junior Marines and leadership about Aviation Logistics and its application in real-world situations. It is a true privilege to watch your Marines develop into technically proficient and effective leaders within the community.

"Focusing on myself instead of what others thought of me was more important. Unfortunately, it had a lot to do with my gender above all else, but I can also say that the Marine Corps has made








significant shifts to correct these cultural issues in our ranks over my career's time.

"I cannot speak for all women in the Aviation community and can only speak of my own experiences. Just like not all men are alike, the same can be said of women. I have worked hard my entire career to see Marines as genderless, not male Marines and female Marines but just Marines. With that said, my attention to detail and ability to formulate and execute plans has significantly led to improvements in the units I have worked in. I have had the pleasure of leading Marines differently than some of my peers because of the compassion I am willing to display to them on a regular basis. The achievements I have made in my career have shown Marines around me that you can be a good Marine, and a good parent, and a good member of society.

"Not everyone can be a pilot and fly the aircraft, and it takes a lot of expertise to maintain and sustain those aircraft both in garrison and deployed."

U.S. Navy photo by Steven Kays

Capt. Laura Schuessler

Head, Aerospace Engineering Duty Officers and Maintenance Duty Officers Placement, Naval Air Station Patuxent River, Maryland

"When I was young—and by young, I mean eighth grade—I decided I was going to the Naval Academy. My dad had been an engineer at NASA, working on Voyager One and Voyager Two, and Cassini. So I'd been around that kind of thing. I grew up in the area, kind of a local girl in that area. You know, a local girl does well and wants to go to the school seven miles away.

"In command, the favorite moment was realizing that we were getting capability out to a joint response. So it was an urgent need and making sure that knowing that in this case it was another service not the Navy, but the Army, making sure that they had capability and the Air Force as well, so they could go do their mission—and protecting them, knowing that they were getting—that they might be getting fired at. And knowing that was really cool, knowing that we were delivering that capability super-fast.

"I enjoy this work, but being one of the few women going through, whatever you do, good or bad, is going to get recognized. We teach a lot of our 0-6s as you progress up in your ranks, more and more people are going to recognize you. But for the women, we're recognized nearly right away.

"I think some of the experiences that we've been through, through our careers, be that in an engineering field or a logistics or flying in the Navy, or working on an aircraft, or being a mom at home or helping in the community, we just—it's not to say that the men don't—but we have a different look upon that, and that's the value of what we're going to bring to the table."

U.S. Marine Corps photo

Staff Sgt. Allison Richardson

Senior NCO, Maintenance Administration, Marine Heavy Helicopter Squadron (HMH) 464

"I decided to join the military because I wanted to follow in my family's footsteps and serve my country. I have three brothers who served in the Marine Corps, one grandfather who served in the Navy, and another grandfather who served in the Army; out of all of them I am the only one to go into the aviation. The aviation side of the Marine Corps always interested me, and I wanted to pursue a career in a field that I would love.

"One of the challenges I have faced throughout my career is being a single mom in the military all while having a successful career. Being in the Marine Corps means at times you will have to be away from your family and there are sacrifices you must be willing to make. At the end of the day, I remind myself that I am doing this for my daughter to set the example for her as a woman and to provide for her to set her up for the future.

"Having a support system around you plays a key role; knowing you have people there for you throughout your career will truly will help you get through."

Cpl. Phoenix Silva Garcia

CH-53 Avionics Technician, MAG-29, Marine Heavy Helicopter Training Squadron (HMHT) 302

"Although my father envisioned a different path for me, he was my greatest inspiration in pursuing the Marine Corps and Naval Aviation. Many men in my family have served in different sectors of Naval Aviation and, while I was in my last year of high school, I realized my family's ties to the military and the community it provided us would be ending. I didn't want the tradition of Naval Aviation service to end, so I took it upon myself to be the first woman in my family to earn the title of Marine and pursue a military career.

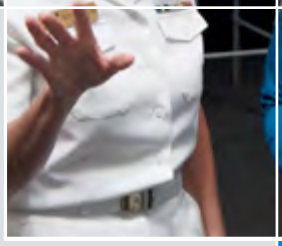
"I grew up on Marine Corps Air Station Miramar, California, and remember when my father would bring me to work with him if he had to work weekends. I would spend time with the Marines within the offices of the Marine Aviation Logistics Squadron (MALS) and accompany my father to the different squadrons and warehouses, and get to know the Marines there as well.

"Mentoring and teaching Marines how to become Avionicsmen and well-rounded individuals has been my greatest privilege and it's what drives my passion for this career.

"One of my biggest challenges I've faced so far is struggling at times to practice my trade as often as I'd like. I am involved in color guard, serve on the NCO Counsel, and work as the Single Marine Program representative for my squadron.







U.S. Marine Corps photo

At times, these commitments take me outside of the work center causing me to miss a less-frequent maintenance action, thus, losing that opportunity for hands-on learning.

"Women benefit the Aviation community by bringing a different approach to problem solving. May it be due to cultural factors or traditional roles, we have been raised to pursue issues calmly and with a unique sense of perspective. Traditionally women have held teaching roles in our society and tend to share what we've learned openly while displaying patience when it's needed most.

Sgt. Crystal Thung

Air Traffic Controller, MAG-13, 3rd MAW

"I decided to join the military for a new experience and to push myself out of my comfort zone. It was something I always thought about doing but never really thought I would do.

"My parents were both born outside of the country and English was their second language. They have made many sacrifices to allow me and my sister the opportunity to thrive and do what they couldn't. Growing up, making them proud has been a driving factor for me to always do my best at everything. Now that I'm older, of course, I still want to make them proud, but I also want to make myself proud, too.

"Being an air traffic controller is rewarding in the sense that I am positively impacting the safety and mission success of pilots, for both civilian and military. At first it was not a job I knew much about, but the more I learned and progressed in my career, the more I realized the importance of aviation safety.

"I could never imagine myself leading people, but now it's one of my favorite things. It's rewarding to see the Marines under my charge succeed.

"I believe it's more about the work you put in, not what a man can do that a women can't or vice versa."

U.S. Marine Corps photo

THE F/A

A New Generation of Air

Celebrating 45 Years of the Navy's First M

By Kaitlin Wicker

A Marine Corps F/A-18 Hornet assigned to Marine Fighter Attack Squadron (VMFA) 251 flies above the U.S. Central Command area of responsibility, Jan. 17, 2020. F/A-18s can be configured quickly to perform either fighter or attack roles through use of external equipment to accomplish specific missions. This capability gives operational commanders more flexibility in employing tactical aircraft in a rapidly changing battle scenario.

U.S. Air Force photo by Staff Sgt. Daniel Snider

-18: Dominance

ultirole Aircraft

Born out of necessity and innovation, the Navy's F/A-18 Hornet introduced a level of aircraft superiority that had not been seen before and set the standard for future development of next-gen fighters. Now, celebrating the 45th anniversary of its first flight Nov. 18, the original strike fighter aircraft is affectionately referred to as the "Legacy."

Appropriately coined, the nickname encapsulates not only the cutting-edge capabilities of the aircraft at the time, but its place in history as the first in its class that would pave the way for future aircraft platforms.

Before the creation of the Legacy Hornet, the Navy's fighter air wing consisted of multiple aircraft, each with a specific skill set and mission. The arrival of the F/A-18 Hornet ushered in a generation of carrier-capable, multirole fighter aircraft that were all-weather and attack, designed for traditional strike applications and close air support without compromising fighter capabilities.

"It showed a great understanding of what a strike fighter mission requires," said Cmdr. Tim Tuschinski, Integrated Product Team Lead for Radar/Fighter Electronic Warfare in the F/A-18 and EA-18G Program Office. "It allowed pilots to move quickly and efficiently between the air-to-air combat mission and the air-to-ground mission; it's the flip of a switch."

The Hornet cut its teeth during Operation Desert Storm, proving its lethality and versatility. Pilots could engage adversary fighters in the air and take out ground targets during the same mission. The aircraft's survivability and easy repair only proved to further solidify its role as the preeminent aircraft in the carrier fighter air wing.

This aircraft was born at Naval Air Systems Command (NAVAIR) and developed to be a strike fighter.

"It's fast. When you slick this thing up, it flies like a bat out of hell," Tuschinski said. "It paved the way for the multi-mission platform aircraft that we see with the Super Hornet, the F-35 [Lightning II] and the next generation fighters."

Originally created by McDonnell Douglas and Northrop Grumman, the versatility of the aircraft came from its avionics, cockpit displays, excellent aerodynamics and its capability to carry a variety of weapons. It was built for pilot interface with a hands-on throttle and stick incorporation, as well as a digital cockpit.

"The most rewarding missions were the ones when we were able to locate and neutralize high value assets to keep our guys on the ground safe," said Tuschinski when reflecting on his time in the cockpit.

Today, the Legacy Hornet is no longer the preeminent strike fighter in the carrier air wing; that role has been passed along to its offspring, the Super Hornet. The Navy retired its last remaining legacy aircraft in Spring 2023. However, the Hornet remains a

workhorse for the Marine Corps and the militaries of several allied nations.

"We're poised to continue sustaining this platform, keeping it lethal and survivable until its sundown," Tuschinski said. "It's going to continue its mission for the Marine Corps."

Tuschinski flew the Legacy Hornet for 15 years and supported missions in Iraq during Operation Iraqi Freedom. His squadron provided close air support for troops under fire and completed pre-strike missions to set up ground troops for success. He now works in the program office, leading the team focused on radar and electronic weapons for the F/A-18 and the EA-18G.

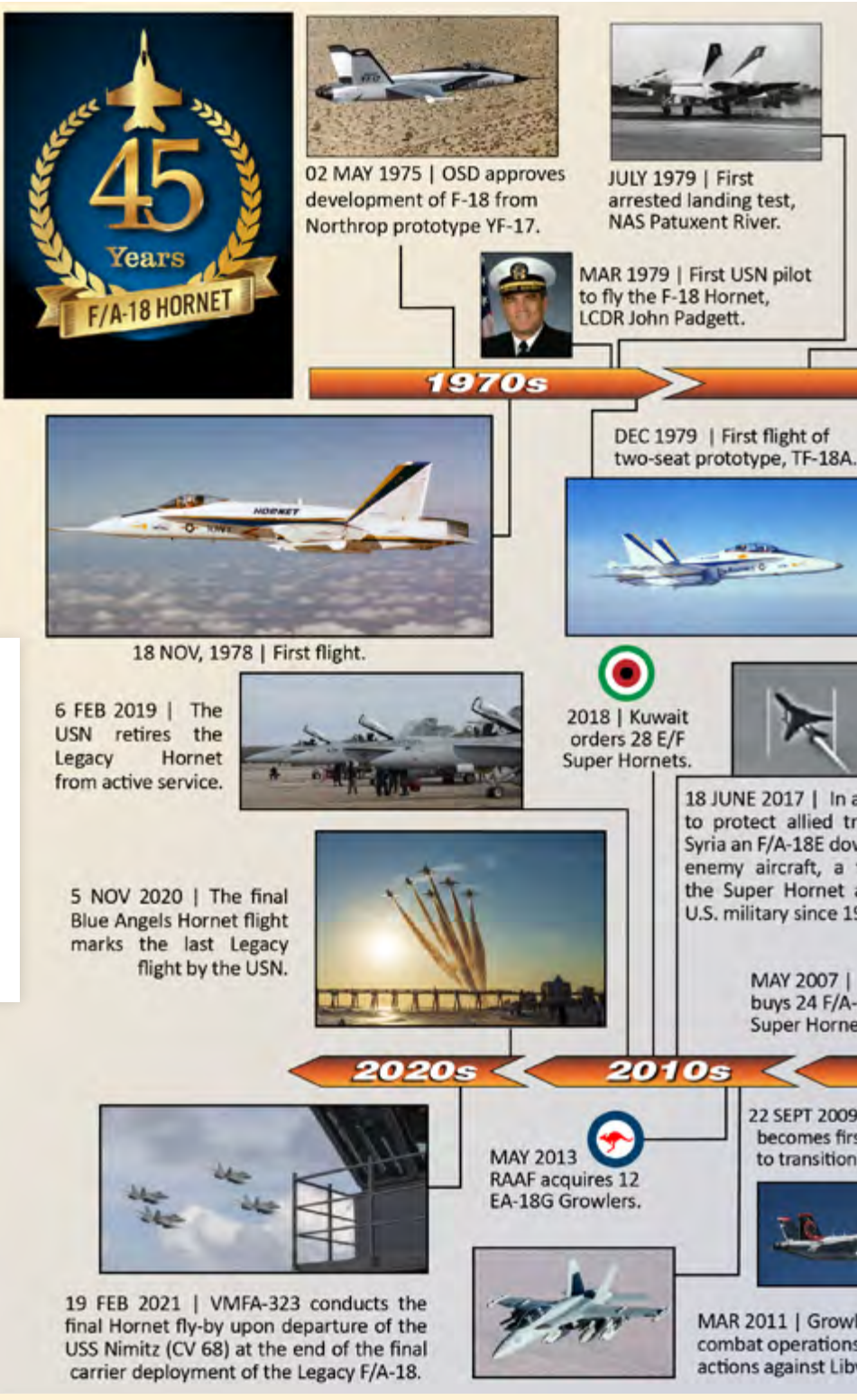
This year not only marks the 45th anniversary of the Legacy Hornet's first flight, but also the 50th anniversary of the establishment of the program office. For a half-century, the men and women of the program office have provided critical capabilities, cradle to grave, for the Hornet, Super Hornet and Growler.

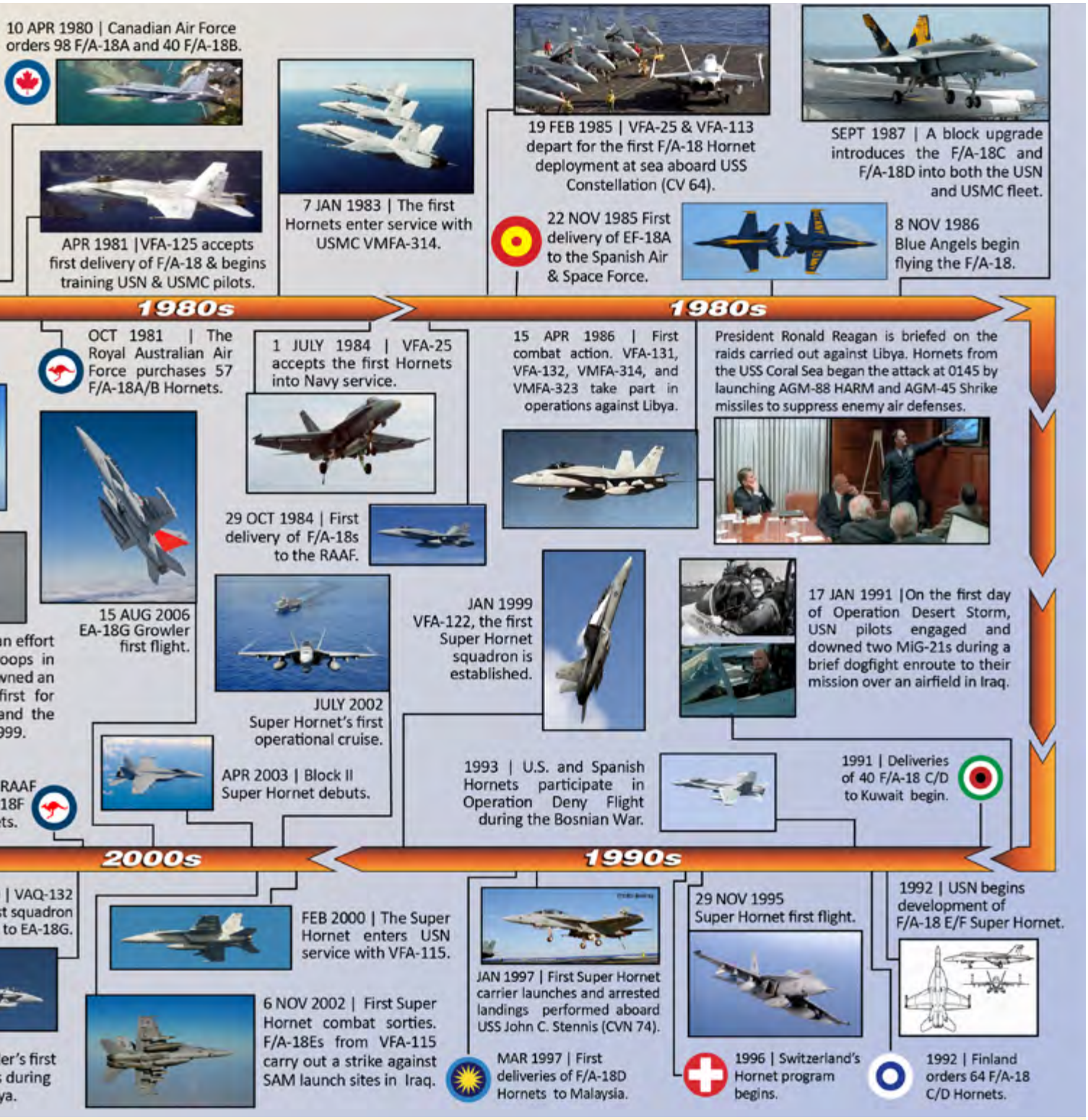
"Our team continues to move fast and take risks to support, sustain, and advance the fleet," said Capt. Michael Burks, program manager. "The technologies and capabilities that we develop are reliable, maintainable and upgradable, allowing constant improvement, so that we can best support the Sailors and Marines in the fleet."

The Hornet was just the beginning and set an expectation for fighter/attack aircraft that continues today. Over the past decade the Navy fully transitioned from use of the Hornet to the Super Hornet. This includes its use by the Blue Angels. The F/A-18 family of aircraft has surpassed 11 million flight hours. Through initiatives like Service Life Modification, the Super Hornet will be the numerically predominant aircraft in the carrier fighter air wing into the

Acronym Key:

AGM—Air to Ground Missile
CV—U.S. Aircraft Carrier
CVN—U.S. Aircraft Carrier Nuclear Propulsion
NAS—Naval Air Station
OSD—Office of the Secretary of Defense
USN—United States Navy
USMC—United States Marine Corps
VFA—Strike Fighter Squadron
VMFA—Marine Fighter Attack





Timeline courtesy of the F/A-18 & EA-18G Program Office

mid-2030s and will provide significant combat capability for the air wing into the 2040s.

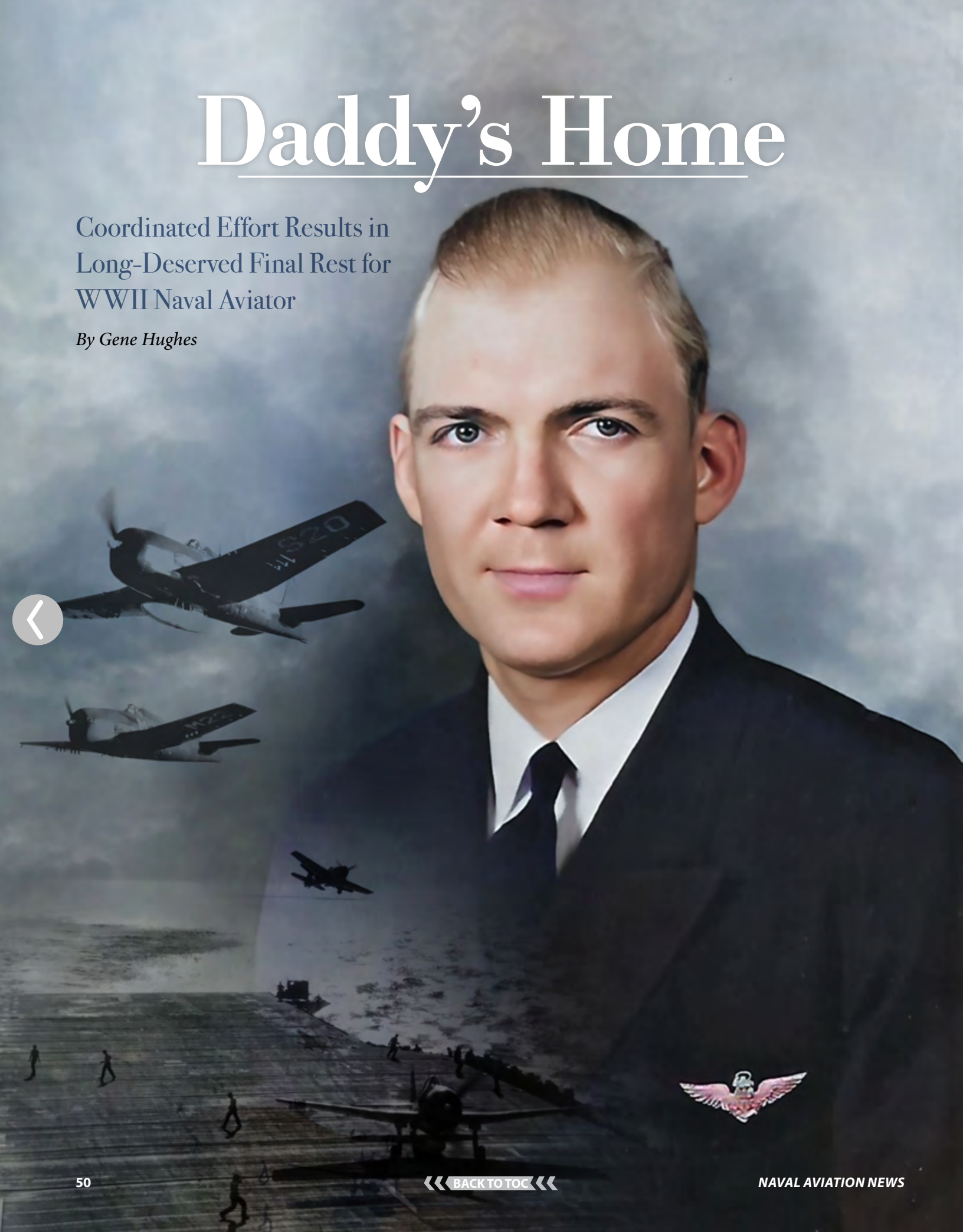
"It is a privilege to be at the helm of this esteemed, dedicated workforce," Burks said. "The program office continues to ensure responsiveness, innovation, expertise, professionalism and priority when addressing the needs of our warfighters and the challenges facing our international partners; that legacy continues."

Kaitlin Wicker is a strategic communications specialist for the F/A-18 & EA-18G Program Office.

Daddy's Home

Coordinated Effort Results in Long-Deserved Final Rest for WWII Naval Aviator

By Gene Hughes



Before shipping out aboard USS Hornet (CV 12) in the summer of 1944, Frederick Schrader purchased teddy bears for daughters Judy and Barbara, knowing his deployment would prevent him from spending Christmas with his family. The Navy Commander, Naval Academy graduate and aviator, husband and father of two would not return—until nearly 80 years later.

On Oct. 13, 1944, Schrader, then commander of Carrier Air Group (CVG) 11, was lost when his F6F-5 Hellcat fighter, belonging to Fighting Squadron (VF) 11, was shot down during an attack on Toko Seaplane Base on Formosa (now Taiwan). The Hornet was one of 17 carriers taking part in the Battle of Formosa, Oct. 12-15. According to his wingman, there was no sign of a parachute or that Schrader had been able to exit the aircraft before it crashed. Because he crashed in enemy territory, no rescue attempt was possible.

"I had just had my second birthday on Sept. 18 and, at that point, had not seen him for several months prior because he was at sea," Barbara said. "Our family consisted of my mother, Lucile, and my older sister, Judith and I. We were living in Long Beach, California, at that time. When my mother received the telegram on Oct. 30 that his plane had been shot down and he was presumed dead. She gave us the bears."

Born in Carbondale, Illinois, on March 12, 1913, Schrader grew up in Lawrenceville, Illinois, participating in sports and met a young girl named Lucile. While attending the United States Naval Academy, the 6-foot-3-inch "Fritz" was a member of the rowing crew, played football and boxed.

Photo courtesy of National Archives via Steve Ginter

VF-11 Grumman F6F-5 Hellcats getting ready to launch off USS Hornet (CV-12) with VT-11 TBMs and VB-11 SB2Cs start engines for a raid on Nansei Shoto on 10 October 1944.

Photo courtesy of Naval History and Heritage Command

Fighter Squadron Eleven (VF-11) pilots are briefed in their ready room, probably during USS Hornet's (CV 12) cruise through the South China Sea. Note mascot dog, wearing VF-11's "sundowners" emblem, held by pilot in left foreground.

U.S. Navy photo illustration by Fred Flerlage; imagery provided by U.S. Navy and Naval History and Heritage Command (NHHC)

"Following her husband's loss, Lucile kept his memory alive by telling her daughters about him and their time together."

According to the Academy's 1935 yearbook, "with the fairer sex he gets along fine, although his real attraction is back in Illinois." He would propose to Lucile, a replica of his class ring serving as the engagement ring. Schrader would graduate 35th in a class of 442.

Commissioned in June of 1935, he served in a variety of billets on USS New Mexico; Naval Air Station (NAS) Pensacola, Florida; USS Ranger (CV 4); USS Idaho; and NAS Alameda, California. His squadrons included Fighter Squadron (VF) 4, Observation Squadron (VO) 3, commander of Scouting Squadron (VS) 2D12, and Fighter Squadron (VF) 3 before becoming the commander of CVG-11.

Photo courtesy of Barbara Canavan

Midshipman Frederick Schrader escorts Lucile Coleman during June Week festivities at the United States Naval Academy.

As CAG, Schrader commanded 40 Hellcats, 25 Helldivers and 18 Avengers, for a total 83 aircraft.

The War Diary of the Hornet contains the following entry for Oct. 13, 1944:

"Strikes continue on the morning of the 13th against substantially the same objectives on Formosa. The same airfields were hit again, and more planes destroyed. The destruction of the facilities at Heito and Reigaryo was continued. … the day was marred by the loss of the Air Group Commander Frederick Schrader by (anti-aircraft) fire. He was shot down while leading a strafing attack and his loss was a serious one since his leadership and work with the Air Group had been outstanding."

The night before his final flight, Schrader spoke with one of his Helldiver fliers, Lt. j.g. Edwin "Big Ed" H. Wilson.

"Just last night he said, 'tomorrow is my eldest daughter's birthday and I am out to get her a good present,'" Wilson later wrote in his war journal. "Tough, as he was a pretty good gent."

Keeping the Memory Alive

Following her husband's loss, Lucile kept his memory alive by telling her daughters about him and their time together.

"My mother described my father very lovingly," Barbara said. "She had wonderful memories of him from when they met in high school and their youth fellowship meetings in Lawrenceville. She described him as very tall, a good and loving husband and father, and very good to her when he was on shore. They had a very good, but short life together."

Barbara described occasionally watching 8mm home movies, bits of which now survive on a CD. She knew who he was, that he graduated from the Naval Academy, and learned of him listening to family stories.

"As an early teenager, I used to climb up into our attic storage area and go through the box of his things—pictures, books, letters, but by then we did not have much as most had been destroyed (including photos of Schrader and his daughters) in a basement sewer flood years before," she said.

The family moved back and forth between California and Illinois twice between 1944 and 1947, when Lucile made the move to Illinois a permanent one. Barbara said that at the time of her father's death, it

Photo courtesy of Barbara Canavan

Judith and Barbara Schrader, daughters of Cmdr. Frederick Schrader.

was expected that she would place the girls with their grandparents in Illinois and make a new life for herself.

"Instead, she chose to work and support my sister and me, and I love her so much for that," she said. "My mother never remarried, and she wore and treasured her Naval Academy engagement ring her entire life."

However, Schrader's story had not ended with his death. His body was recovered by Japanese forces in the area, taken to a local headquarters and inspected for possible intelligence value. He was buried as an "unknown" in Formosa. After the war, the American Graves Registration Service was tasked with investigating and recovering missing American personnel. They searched Formosa for a year, but none of the remains recovered could be positively identified as Schrader.

Eventually, all the remains were repatriated to the National Memorial Cemetery of the Pacific in Hawaii in 1949, and that same year, Schrader was declared non-recoverable.

Years passed. Judy and Barbara grew up, and their father's service and love of country grew with them. Judy married a Navy officer who taught at the Naval Academy early in his career, while Barbara wed an Air Force officer. Each had children of their own, and there are several grandchildren and great-grandchildren.

Lucile died in 1984, never knowing that her beloved Fritz was actually buried in Hawaii in 1949. Her ashes were placed in the ocean off the coast of Hawaii, the closest the family could get to where they thought his remains still were—Formosa.

In 2009, both Judy and Barbara's families began

Cmdr. Frederick R. Schrader, Commander of Carrier Air Group (CAG) 11, USS Hornet (CV 12), was flying this Grumman F6F-5 Hellcat. Bu. No. 58192, when he was shot down while leading a strike on Formosa on Oct. 13, 1944. After graduating from the U.S. Naval Academy in 1935 and after going through flight training, he was designated a naval aviator in 1940. This Hellcat was not necessarily his assigned aircraft as CAG but he was flying it when he was lost while strafing a Japanese seaplane base. His call sign would have been "Ginger 8," using the aircraft's assigned squadron number.

The Sundowner Squadron Insignia

"Sundowner" was a term from the age of sail, alluding to a hard-working sailor or captain who toiled until the day was done. In World War II, the term had obvious Pacific Theatre implications, as VF-11's primary duty was downing Japanese "suns."

From "VF-11/111 'Sundowners' 1942-95," by Barrett Tillman with Henk van der Lugt, Osprey, 2010. Thanks to Tony Holmes for help with obtaining the squadron insignia and aircraft profile artwork.

Sundowner insignia and aircraft profile illustrations by Tom Tullis, courtesy of Osprey Publications

Photo courtesy of George Retelas

Barbara Canavan, daughter of Cmdr. Frederick Schrader, displays 'Teddy,' the stuffed bear her father gave to her before departing aboard USS Hornet (CV 12).

a search for information about Schrader, using the internet and available records. They were able to put together a timeline of his life, including duty assignments, ships he served on and his promotions.

Soon others would also be looking into the life and location of Cmdr. Frederick Schrader.

Research and Discovery

In 2018, USNA graduate and Naval Aviator Matt Robins, himself the product of a Navy family, began conducting research into the fate of a naval relative. His father and maternal grandfather had both served as carrier-based naval aviators, and both had connections to Schrader—his grandfather during World War II (including Formosa, where Schrader was lost), and his father during Vietnam. Ironically, both served aboard USS Hornet.

As a carrier-based Naval Flight Officer, Robins served in an E-2C Hawkeye squadron attached to Carrier Air Wing Eleven (CVW 11) which traces its lineage back to CVG-11, Schrader's last command.

Researching his own family eventually led Robins to an article about ongoing efforts to identify World War II MIAs, and the approximately 8,000 sets of unidentified remains—due to lack of forensic analysis—believed to be American service members buried in national cemeteries around the globe.

Through the Freedom of Information Act and assistance of private researchers, Robins was able to obtain case files from ARGS documenting their recovery of fallen Americans from sites around Taiwan following World War II.

"The first of these case files that I began researching—designated Unknown X-136—documented the recovery of remains believed to be a U.S. Navy fighter pilot shot down over Taiwan in October 1944," he said. "This file contained numerous intriguing details such as the date (13 October 1944), location (Toko Seaplane Base), circumstances (shot down by anti-aircraft fire), and, perhaps most importantly, the passage that the unknown aviator was 'believed to be an Annapolis graduate.'"

The Annapolis detail greatly reduced the number of possible candidates—during World War II, only four USNA graduates were lost over Formosa. The details reminded Robins of a passage from a book he had recently read. Pulling it from the shelf he confirmed the passage—how on Oct. 13, 1944 while attacking a seaplane base on Formosa, an F6F Hellcat from CVG-11 was shot down by anti-aircraft fire.

The pilot was listed as Cmdr. Frederick Rutherford Schrader, USNA Class of 1935.

Establishing an identity for Unknown X-136 was promising, but Robins knew that to build

support for the case, he would have to create a list of American aviation casualties over and around Taiwan during the war, which had never been done, but would strengthen the circumstantial case that Unknown X-136 was indeed Schrader.

It was during the compilation that Robins encountered researchers and filmmakers George Retelas and Tim Hampton, descendants of World War II servicemen who had, interestingly, served on CVG-11 at the same time as Schrader. All three were also volunteers at the USS Hornet Museum in Alameda, California.

"My wife's great-uncle flew with Schrader while onboard the Hornet," said Hampton, CVG-11 historian. "He was shot down as well and declared missing in action. His aircraft went down over the open ocean with little chance of recovery. Helping bring Schrader home has been the opportunity to help bring closure to my family as well."

"Helping solve this MIA case has been an unbelievable experience," Retelas said. "When I first set out to do this documentary, I never knew it could lead to something so special. Serving those who have served was my chance to give back. I know my grandfather is smiling from above."

For the next four years Robins, Retelas and Hampton examined historical records, contacted the Schrader family, and provided the Defense POW/MIA Accounting Agency (DPAA) with forensic details of the case. Eventually, it was announced that the remains designated Unknown X-136 would be exhumed for formal identification.

"Research by DPAA staff in 2022 concluded that X-136 could be potentially linked to two casualties from WWII, Cmdr. Schrader and another pilot, Ensign Henry Ptacek," said Dr. Gregory Berg, lab case manager for DPAA's scientific analysis directorate. "The X-136 remains were exhumed from NMCP on Aug. 11, 2022, and assigned the accession number CIL 2022-193.

According to Berg, the remains were somewhat poorly preserved, but they were in good enough condition to allow DPAA scientists to estimate sex, age, stature and note antemortem (before death) anomalies and perimortem trauma (at the time of death). So, overall, they were harder to work with than our average case, but they were not so poorly preserved that we could not affect an ID."

"The recovery and return of Cmdr. Frederick Schrader's remains is a testament to the solemn vow our nation makes to bring all of our heroes home," said Adm. John Aquilino, Commander, U.S. IndoPacific Command. "As a fellow naval aviator, I am humbled by his sacrifice and honored to play a small role in Cmdr. Schrader's return to the United States."

"Every identification is special to DPAA because it's the ultimate fulfillment of our nation's sacred obligation to the missing service member and his family," said DPAA Director Kelly McKeague. "In the case of Commander Schrader, research by a former naval flight officer led DPAA to pursue disinterment of a set of remains buried as a World War II Unknown. His identification is especially gratifying for his 80-year old daughter and a 99-year old chief petty officer for whom Commander Shrader was the air group commander."

The Lone Survivor

Today, Radioman 2nd Class Richard Miralles, now living in Sacramento, California, is the lone survivor of Schrader's CVG-11.

"It feels kinda lonely," he said. "I'm very happy to hear our Air Group Commander has been found, and I want to say thank you to Admiral Aquilino for

Photo courtesy of George Retelas

Radioman 2nd Class Richard Miralles, the lone survivor of Cmdr. Frederick Schrader's Carrier Air Group 11 aboard USS Hornet (CV 12), sits in an SBD Dauntless.

"On Oct. 3, 2022, Barbara received word from the Naval Casualty Office that DPAA had formally identified the X-136 remains as being those of her father."

U.S. Air Force photo by Staff Sgt. David Owsianka

U.S. Navy Sailors assigned to Navy Region Hawaii and the Defense POW/MIA Accounting Agency (DPAA) move a casket toward a hearse during an interment at the National Memorial Cemetery of the Pacific, Honolulu, Hawaii, April 13, 2023.

A U.S. Navy Sailor assigned to Navy Region Hawaii and the Defense POW/MIA Accounting Agency (DPAA) plays Taps during an interment ceremony.

all the help he gave us. Without him, we wouldn't have been able to do this in time."

On Oct. 3, 2022, Barbara received word from the Naval Casualty Office that DPAA had formally identified the X-136 remains as being those of her father.

"I got strong hints before I knew for sure, because I had been working and sharing information with the CVG-11 Research Group from the USS Hornet for a couple of years. I knew we had zeroed in on a very possible match. When I attended the DPAA Family Member Update in Denver on Sept. 10, I was told that Unknown X-136, whose remains had been buried at the Punchbowl in 1949, had been disinterred for comparison with my father's records. From the many smiles, everyone seemed fairly sure that there would be a positive outcome.

"It was a time of very high elation and yet great sadness as my sister was not getting to share this wonderful news with me," she said.

Judy had slipped into a coma and was not expected to survive. She died Oct. 1, never knowing her father had been found. As the newly designated next of kin for the family, Barbara waited for the official call from Navy Casualty, which came two days later. The family visit was scheduled for Jan. 11, 2023.

"Chief Yeoman DeShannon Beaty and our Casualty Assistance Calls Officer Cmdr. Jon Harbough came to our house and spent a good deal of time going through and completing all of the official paperwork and answering all of our many questions," Barbara said. "We are very thankful for all the help and friendship Chief Beaty and DPAA provided during this process."

A Military Legacy Continues

Schrader's great-grandson, Lt. Josh Patton, who is Judy's oldest grandson and the son of a retired commander, is also a USNA graduate and naval aviator, currently serving aboard USS John C. Stennis (CVN 74).

"I have been aware of my great grandfather and his story since I was very young," he said. "However, I did not understand the magnitude of his service until I was in high school and began contemplating

the Naval Academy. The only reason I had ever even heard of the Naval Academy was because of him. I will never forget walking into Memorial Hall on a Navy Football recruiting trip and seeing his name. It was an incredible experience.

"It feels like closure and feels like his story is finally settled. I am also incredibly sad as my grandmother Judy passed away only weeks before they confirmed his remains. I know that would have been an incredible amount of closure for her that she never got. He died on her birthday when she was a little girl and that was very hard on her. She was able to carry his story to us and I am so thankful that I can be a part of his legacy."

Patton will soon separate from active duty June 1, but will continue his service with Training Squadron (VT) 35 Squadron Augment Unit as a reservist.

"I have always felt proud, but also very sad that I was never able to meet him," he said.

Final Rest

Ever since her father's loss, Barbara's bear, "Teddy," has remained a beloved reminder of her father.

"Teddy has been a treasured part of my life—he represented my father to me, was a part of my childhood dreams of finding my father, and a comfort when I was sad or hurting," she said. "For years he wore a bow tie of my father's until it disintegrated from wear and old age. He made it through all of my own family's military moves."

As the family gathered in Hawaii at the National Memorial Cemetery of the Pacific on April 13, Schrader, at long last, received his final resting place. Where once there was a number, there is a name. Teddy, adorned with the gold wings of a naval aviator, was also there, a symbol of the undying love between a daughter and a father once lost, but now found.

"I am very pleased to hear they were able to identify Cmdr. Schrader," Miralles said. "It makes me feel good that they can put his name on there now instead of 'unknown' and give him a proper burial."

Retelas' documentary film, "Eleven," features 11 WWII veterans from Air Group 11 as they share stories with the grandson of one of their comrade-in-arms. It can be found at: **https://www.ElevenTheMovie.com/**

Gene Hughes is a member of the public affairs office for Navy Personnel Command.

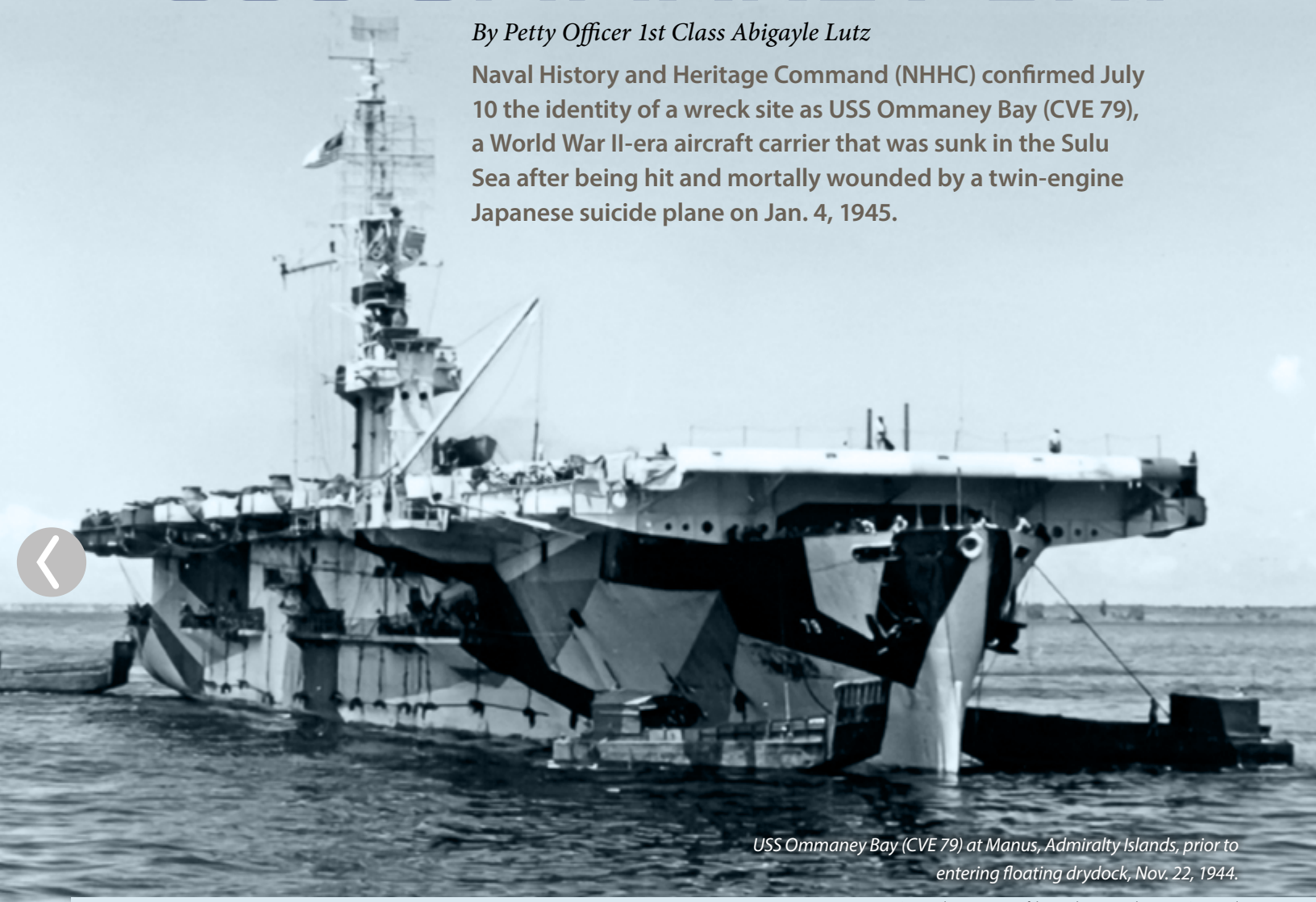
U.S. Air Force photo by Staff Sgt. David Owsianka

Barbara Canavan, daughter of U.S. Navy Cmdr. Frederick Schrader, is given a U.S. flag during an interment ceremony by Rear Adm. Paula Dunn, Vice Chief of Information.

WRECK SITE IDENTIFIED AS WWII CARRIER
USS OMMANEY BAY

By Petty Officer 1st Class Abigayle Lutz

Naval History and Heritage Command (NHHC) confirmed July 10 the identity of a wreck site as USS Ommaney Bay (CVE 79), a World War II-era aircraft carrier that was sunk in the Sulu Sea after being hit and mortally wounded by a twin-engine Japanese suicide plane on Jan. 4, 1945.



USS Ommaney Bay (CVE 79) at Manus, Admiralty Islands, prior to entering floating drydock, Nov. 22, 1944.

U.S. Navy photos courtesy of the Naval History and Heritage Command

NHHC's Underwater Archaeology Branch (UAB) used a combination of survey information provided by the Sea Scan Survey team and video footage provided by the DPT Scuba dive team, to confirm the identity of Ommaney Bay. This information correlated with location data for the wreck site provided to NHHC in 2019 by Vulcan, LLC (formerly Vulcan, Inc.).

"Ommaney Bay is the final resting place of American Sailors who made the ultimate sacrifice in defense of their country," said NHHC Director Rear Adm. (ret.) Samuel J. Cox. "It is with sincere gratitude that I thank the Sea Scan Survey team: Mick Stefurak, Neil "Snake" Krumbeck and Joe Brothers for confirming the location of this wreck site. We would also like to thank the team of Australian divers from DPT Scuba: David Tipping, Chris McCran, Aimee McCran, Samir Alhafith, Heeman Lee and John Wooden for their deep diving expertise and assistance identifying the Ommaney Bay. This discovery allows the families of those lost some amount of closure and gives us all another chance to remember and honor their service to our nation."

The Japanese kamikaze crashed into Ommaney Bay's starboard side, releasing two bombs and causing severe damage. A series of explosions were caused by one of the bombs that entered the flight deck and detonated below, among the fully-gassed

Above, USS Ommaney Bay (CVE 79) burning in the Sulu Sea, off Luzon, on Jan. 4, 1945, during the Lingayen Operation after being hit by a Kamikaze. A destroyer is standing by with fire hoses ready. Below, a series of explosions were caused by bombs from the Kamikaze entering and detonating below the flight deck among the fully-gassed aircraft in the forward third of the hanger deck.

About the NHHC UAB

The NHHC UAB is responsible for setting policy and managing the U.S. Navy's nearly 3,000 shipwrecks and over 15,000 aircraft wrecks. They hold maritime archaeological and conservation expertise and are equipped to conduct research on sunken military craft; manage a conservation and curation facility that stabilizes, analyzes and houses a collection of artifacts recovered from sunken military craft; and engage in an expansive array of public outreach efforts, including partnering with the diving community.

NHHC, located at the Washington Navy Yard, Washington, D.C., is responsible for preserving, analyzing and disseminating U.S. naval history and heritage. It provides the knowledge foundation for the Navy by maintaining historically relevant resources and products that reflect the Navy's unique and enduring contributions through our nation's history and supports the fleet by assisting with and delivering professional research, analysis and interpretive services. NHHC comprises many activities, including the Navy Department Library, the Navy Operational Archives, the Navy art and artifact collections, underwater archeology, Navy histories, 10 museums, USS Constitution repair facility and the historic ship Nautilus.

aircraft in the forward third of the hanger deck. The second bomb exploded close to the starboard side after rupturing the fire main on the second deck and passing through the hanger deck.

The order to abandon ship was given as the possibility of stored torpedo warheads exploding at any moment increased. A total of 95 Sailors were lost, including two personnel from an assisting destroyer who were killed when the torpedo warheads on Ommaney Bay finally went off.

Ommaney Bay received two battle stars for her World War II service.

The wreck of Ommaney Bay is a U.S. sunken military craft protected by U.S. law and under the jurisdiction of the Department of the Navy. While non-intrusive activities, such as remote sensing documentation, on U.S. Navy sunken military craft are allowed, any activity that may result in the disturbance of a sunken military craft must be coordinated with NHHC and, if appropriate, authorized through a relevant permitting program. Most importantly, the wreck represents the final resting place of Sailors who gave their lives in defense of the nation and should be respected by all parties as a war grave. For more information on Ommaney Bay, go to **https://www.history.navy.mil/research/histories/ship-histories/danfs/o/ommaney_bay.html**

Petty Officer 1st Class Abigayle Lutz is a mass communications specialist with Naval History and Heritage Command.

NAVAL AVIATION NEWS

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