Naval Surface Warfare Center

Carderock Division

Year in Review

2016

Year in Review 2016

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Capt. Mark Vandroff

Commanding Officer
Naval Surface Warfare Center, Carderock Division

Capt. Mark Vandroff assumed command of Naval Surface Warfare Center, Carderock Division on Sept. 8, 2016. He is the 37th commander to lead the organization since its founding as the Experimental Model Basin in 1898. As commanding officer, Capt. Vandroff leads more than 2,000 employees who provide the Navy a broad range of technical support specializing in hull, mechanical and electrical engineering.

Capt. Vandroff graduated from the U.S. Naval Academy in 1989 with a B.S. in physics. While at the Naval Academy, he participated in the Voluntary Graduate Education Program. In December 1989, he graduated from The Johns Hopkins University with a Master of Science in applied physics.

His first sea tour was the pre-commissioning crew of USS Arleigh Burke (DDG 51), where he served as Auxiliaries Officer, Damage Control Assistant, First Lieutenant, and CIC Officer. He also served in USS Gonzalez (DDG 66) as Weapons Officer and Combat Systems Officer.

His initial Engineering Duty Officer (EDO) tour was at SUPSHIP Pascagoula as the AEGIS Test Officer. Additional EDO tours include AEGIS Shipbuilding Combat Systems, Test and Trials Division Head; Director of Surface Combatants in the Office of the Assistant Secretary of the Navy (Research, Development and Acquisition); Director of Fleet Introduction, Testing and Requirements for the LPD 17 Class Amphibious Dock Transport ships; Executive Assistant to PEO SHIPS; and Deputy Program Manager for LPD 17 Class Amphibious Dock Transport Ships (PMS 317B).

From May 2011 to August 2016 he served as Major Program Manager for the DDG 51 Shipbuilding Program (PMS 400D).

His awards include two Legion of Merit, four Meritorious Service Medals, three Navy Commendation Medals and two Navy Achievement Medals. The programs he has led have been the recipient of some of Department of Defense's highest awards for acquisition excellence, including the 2011 Secretary of the Navy's Competition Excellence Award and the 2012 David Packard Award.

Dr. Tim Arcano

Technical Director
Naval Surface Warfare Center, Carderock Division

Dr. Joseph T. (Tim) Arcano Jr., a member of the Senior Executive Service since November 2011, was appointed as the Technical Director (TD) for Naval Surface Warfare Center, (NSWC) Carderock Division in May 2013. As the technical director, he leads more than 2,000 employees who provide the Navy a broad range of technical support specializing in hull, mechanical and electrical engineering.

Prior to his assignment as the NSWC Carderock Division TD, Dr. Arcano served as the director of the National Oceanic and Atmospheric Administration (NOAA) Office of Ocean Exploration and Research (OER) from November 2011 to May 2013. In this capacity, he was responsible for advising NOAA and the U.S. Department of Commerce in the field of ocean exploration, research and advanced technology development.

Prior to his assignment at NOAA, Dr. Arcano served as Corbin A. McNeill Endowed Chair in Naval Engineering at the U.S. Naval Academy, and as Deputy Chief of nuclear safety at the U.S. Department of Energy (DOE). He also served as Technical Director and Technical Authority (Ship Design Manager) for the Virginia-class Submarine Program, as Technical Authority for advanced submarines at Naval Sea Systems Command (NAVSEA) and as a Program Manager on technical staff at the Defense Nuclear Facilities Safety Board. For the National Science Foundation, he served as a member of the Replacement Human Occupied Vehicle (HOV) Oversight Committee, overseeing the development of the replacement for the HOV ALVIN.

Dr. Arcano served for 30 years of active and Reserve commissioned service in the Navy as an engineering duty officer qualified in submarines, as a salvage diving officer and as an acquisition professional. Active-duty tours included serving as the senior ship superintendent for the last overhaul of USS Gato (SSN 615) at Portsmouth Naval Shipyard and ship design manager for the conversion of USS Memphis (SSN 691) as the Navy's research and development submarine. He also commanded five Reserve units, including: a Joint Reserve Unit for the Director, Defense Research and Engineering and a Navy Reserve Unit for Director of Ocean Engineering, Supervisor of Salvage and Diving, USN. He retired as a Navy captain.

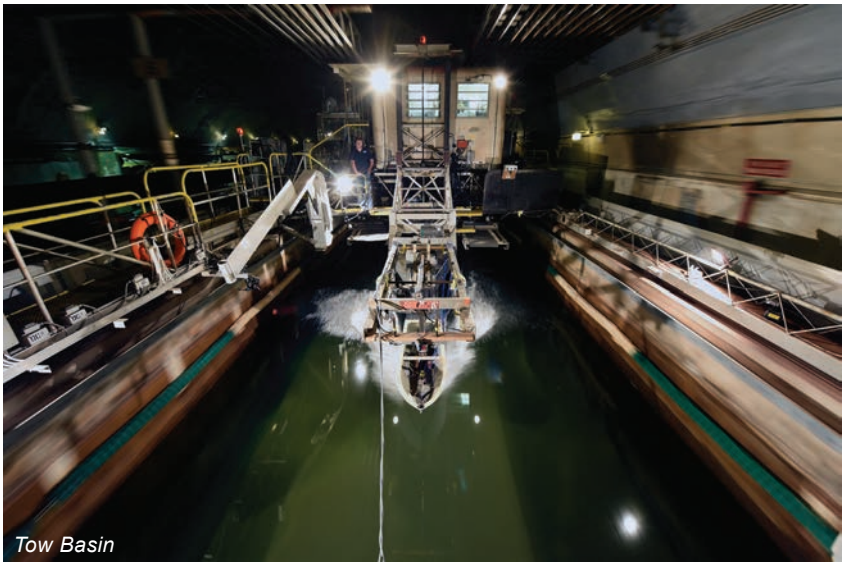
He earned a Bachelor of Science degree in ocean engineering from the U. S. Naval Academy; a Master of Science degree in mechanical engineering and an Ocean Engineer degree from the Massachusetts Institute of Technology; a Master of Science degree in national resource strategy from the National Defense University Industrial College of the Armed Forces; and a Ph.D. in civil and environmental engineering from the University of Maryland. He is a graduate of the Harvard University John F. Kennedy School of Government Senior Executive Fellows Program and a member of the Tau Beta Pi Engineering Honor Society, the Sigma Xi Scientific Research Society and the Phi Kappa Phi honor society. He is a Fellow of the American Society of Mechanical Engineers as well as the Society of Naval Architects and Marine Engineers and is a licensed Professional Engineer in Maryland.

His personal awards include the Defense Superior Service Medal, Legion of Merit (two awards), Meritorious Service Medal (two awards), Navy Commendation Medal (five awards) and Department of the Navy Meritorious Civilian Service Award.

Command Profile

Naval Surface Warfare, Carderock Division is the Navy's center of excellence for ships and ship systems. For over 100 years, Carderock has helped preserve and enhance the nation's presence on and under the seas. Carderock is the full-spectrum research and development, test and evaluation, engineering and fleet support organization for the Navy's ships, submarines, military watercraft and unmanned vehicles with insight into new concepts and technologies for the Navy fleet of the 21st century. The Division's expertise spans more than 40 disciplines, from naval architecture and marine engineering to electrical and mechanical engineering to computer engineering and physics.

Carderock specializes in ship design and integration; environmental quality systems; hull forms and propulsors; structures and materials; signatures, silencing systems, and susceptibility; and vulnerability and survivability systems.



Tow Basin

Most of the work is concentrated at one major site: our headquarters in West Bethesda, Md. Carderock Division's unique laboratories, modeling and simulation facilities, at-sea assets and large-scale, land-based engineering and test sites at seven locations across the country contribute to the full-spectrum nature of our mission.

Navy and maritime communities have come to depend on our expertise and innovative spirit in developing advanced platforms and systems, enhancing naval performance, reducing operating costs and addressing the Navy's evolving mission.

Carderock Division will continue to solve challenging engineering problems to meet future fleet needs in the following areas: new hull forms, unmanned vehicles, all-electric warships, increased stealth, improved survivability, reduced manning, human systems integration and high-speed ships.

Mission

To provide full-spectrum research and development, test and evaluation, analyses, acquisition and fleet support for the Navy's ships, ship systems and associated Navy logistics systems. Specific emphasis is to provide the core technical capabilities required for the integration of surface and undersea vehicles and associated systems, to develop and apply science and technology associated with naval architecture and marine engineering and to provide support to the maritime industry.

Vision

To be the Navy's trusted partner for identifying and providing world-class, innovative and cost-effective solutions for advanced ship and ship systems, for providing technical solutions to the warfighter and to keep our fleet at sea.

Thrust areas

- Surface Ship Design
- Submarine Design
- Ship Design Tools
- Advanced Signatures
- Workforce Retention and Development
- Cybersecurity
- Rapid Prototyping and Experimentation
- Power and Energy
- Unmanned Systems
- Additive Manufacturing

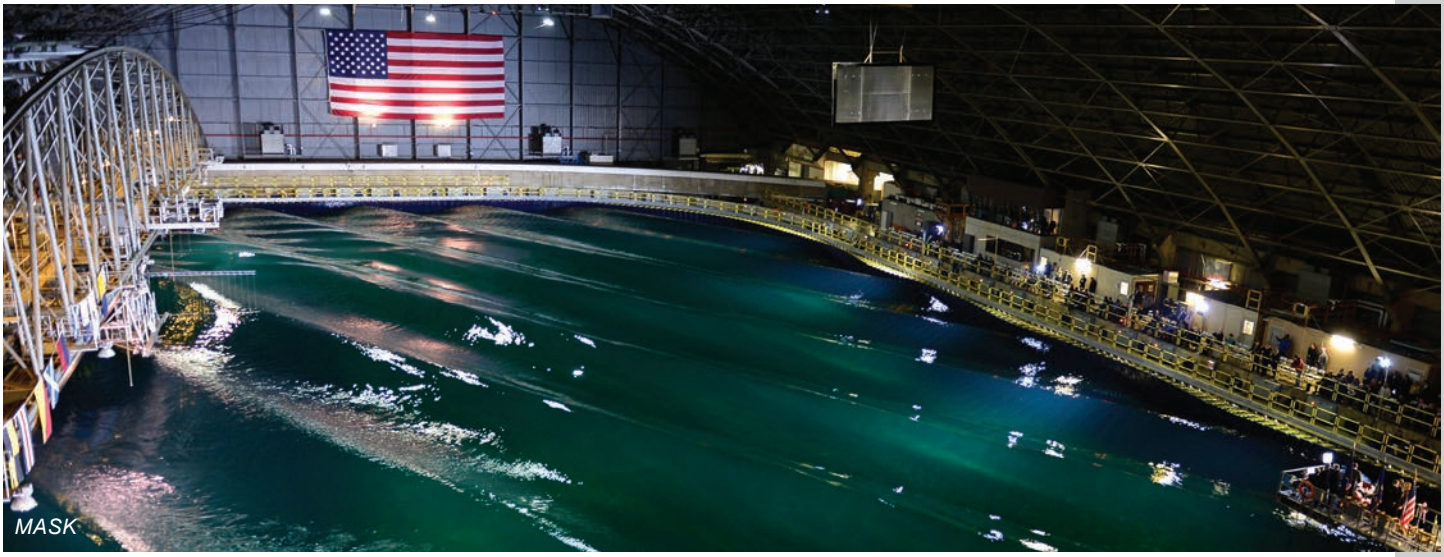
Technical capabilities


Stiletto

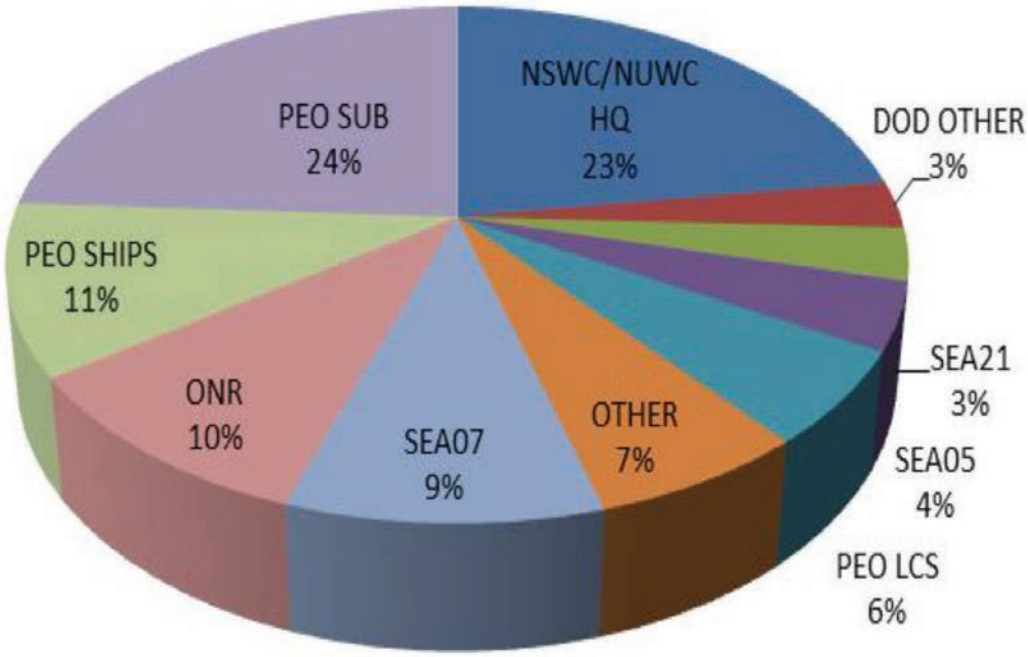
- Ship and Submarine Design and Integration
- Ship and Submarine Acquisition Engineering
- Ship and Submarine Systems Concepts, Technologies and Processes
- Combatant Craft and Expeditionary Vehicles
- Unmanned Vehicles Naval Architecture and Marine Engineering
- Hull Forms and Fluid Dynamics
- Propulsors
- Surface, Undersea, and Weapon Vehicles Materials and Manufacturing Technology
- Surface and Undersea Vehicle Structures
- Alternative Energy and Power Sources R&D
- Liquid Waste Management, Science and Systems
- Solid Waste and Hazardous Material Management, Science and Systems and Ships
- Surface, Undersea and Expeditionary Vehicle
- Vulnerability Reduction and Protection
- Surface and Undersea Vehicle Underwater
- Signatures, Silencing Systems and Susceptibility
- Surface and Undersea Vehicle Non-Acoustic Topside Signatures, Silencing Systems and Susceptibility
- Radiation Detection Technology Research and Management

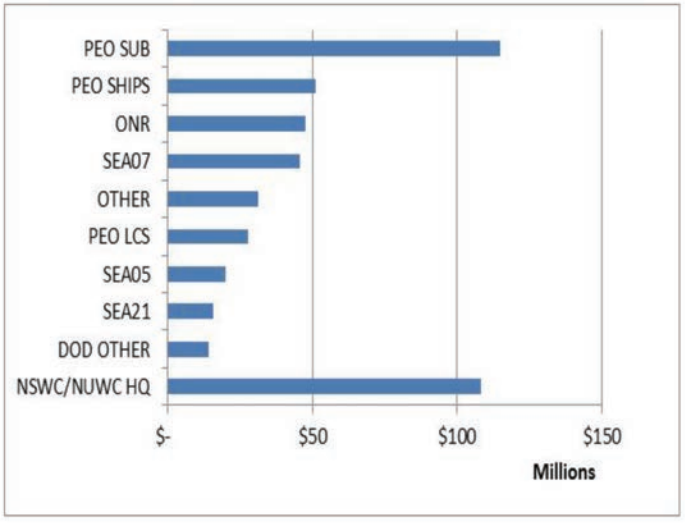
Major facilities

- Anechoic Flow Facility, West Bethesda, Md.
- David Taylor Model Basin, West Bethesda, Md.
- Deep Submergence Pressure Tank, West Bethesda, Md.
- Explosives Test Pond, West Bethesda, Md.
- Magnetic Fields Laboratory, West Bethesda, Md.
- Maneuvering and Seakeeping Basin (MASK), West Bethesda, Md.
- Ship Materials Technology Center, West Bethesda, Md.
- Structural Evaluation Laboratory, West Bethesda, Md.
- Acoustic Research Detachment, Bayview, Idaho
- Large Cavitation Channel, Memphis, Tenn.
- South Florida Ocean Measurement Facility (SFOMF), Fort Lauderale, Fla.
- Southeast Alaska Acoustic Measurement Facility (SEAFAC), Ketchikan, Alaska


MASK

Major customers and budget FY16



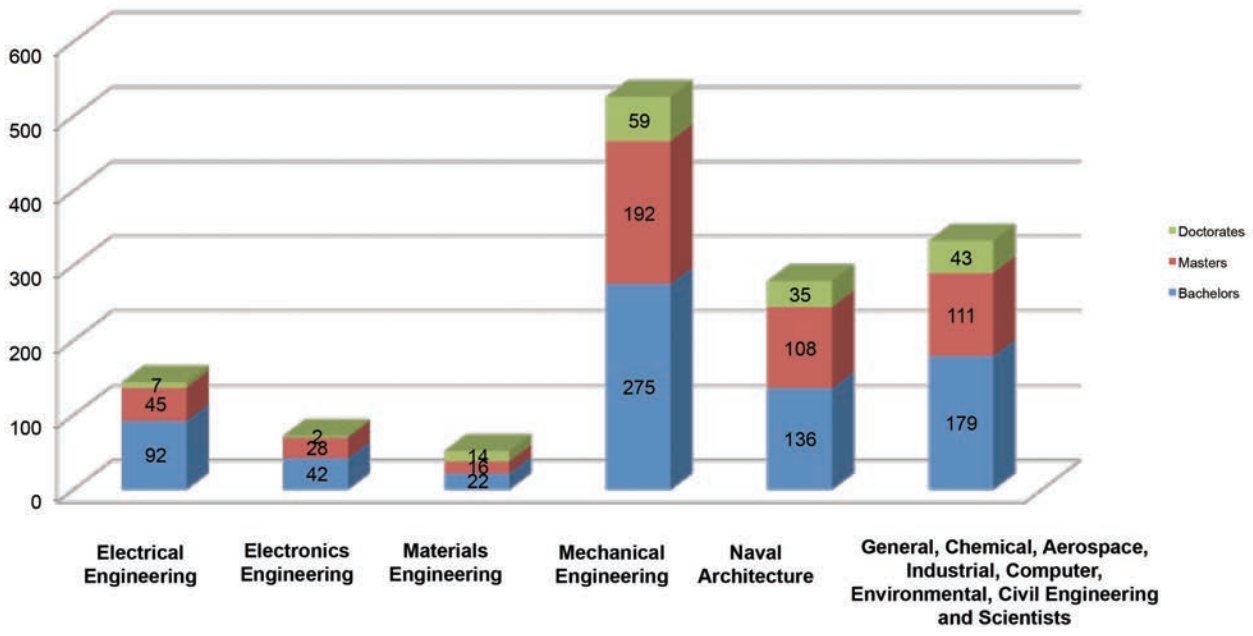


Business cost reimbursable and direct cite total:
$733 million

Reimbursable:
$566 million

Direct cite:
$167 million

Our workforce and engineers



Total employees:
2,143

Scientists and engineers:
1,416

Education:
Bachelors - 971
Masters - 603
Doctorate - 167

Command Profile

Acoustic Research Detachment
Bayview, Idaho

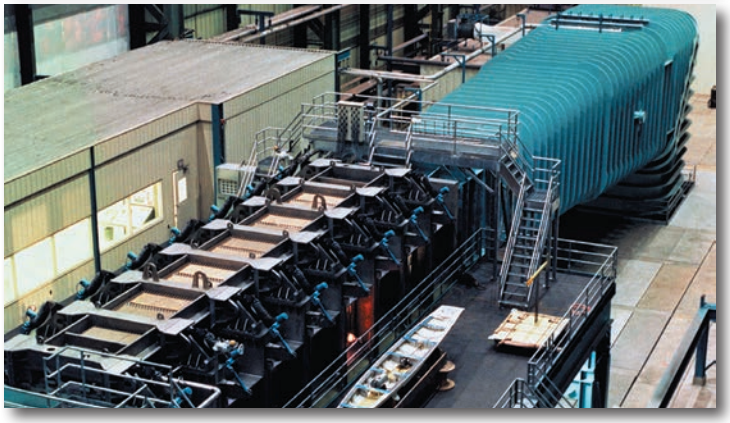
Norfolk Detachment Combatant Craft Division
Norfolk, Virginia

Southeast Alaska Acoustic Measurement Facility
Ketchikan, Alaska

Puget Sound Detachment at Naval Submarine Base Bangor
Bangor, Washington

South Florida Ocean Measurement Facility
Dania, Florida

Acoustic Trials Detachment
Cape Canaveral, Florida



Memphis Detachment
Dr. William B. Morgan Large Cavitation Channel
Memphis, Tennessee

Partnering with other labs for unprecedented 3-D printed naval asset

Representatives from Naval Surface Warfare Center, Carderock Division's Disruptive Technology Lab (DTL) and their DON and government partners printed the largest-ever additively manufactured (AM) naval asset, in collaboration with Oak Ridge National Laboratory (ORNL), July 25-Aug. 5, 2016.

The Big Area Additive Manufacturing (BAAM) test article is a 30-foot-long proof-of-concept hull print for the Optionally Manned Technology Demonstrator (OMTD) project using ONRL's BAAM machine, according to Garry Shields, director of the DTL.

Carderock AM Team demonstrates at Modern Day Marine Expo

Personnel from multiple Department of the Navy (DON) agencies, including Naval Surface Warfare Center, Carderock Division, teamed with the U.S. Marine Corps (USMC) to demonstrate 21 additively manufactured parts to explore the "art of the possible" during the Modern Day Marine (MDM) Expo at Marine Corps Base Quantico, Va., Sept. 27-29, 2016.

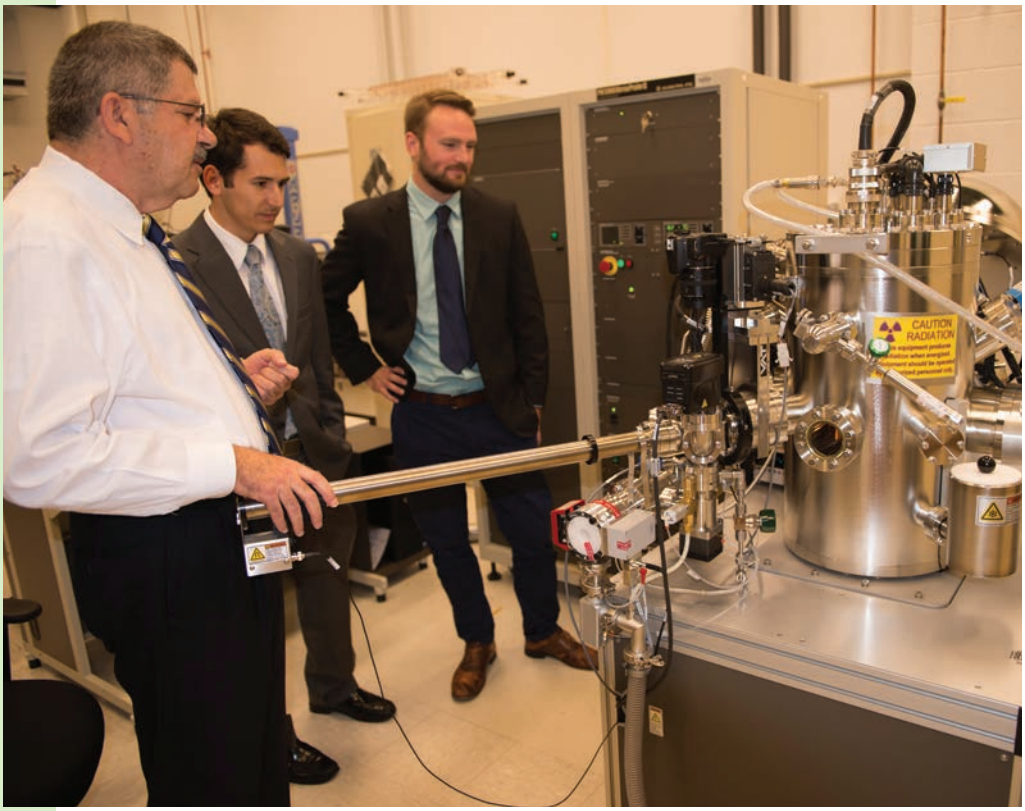
This demonstration, directed by Marine Lt. Gen. Michael Dana, deputy commandant for Installations and Logistics (I&L), and funded by I&L Department, showcased how this emerging technology can influence parts obsolescence risks, long lead times and early failure challenges. The I&L Department leveraged the DON additive manufacturing (AM) community and worked with the NAVSEA Technology Office and Carderock to plan and execute the project. Jonathan Hopkins (pictured right), a member of the Carderock AM team, serves as engineering manager to the USMC AM demonstrations and played a lead role in coordination for Modern Day Marine.

Sailors train on innovative Carderock-developed flight deck cleaning system aboard USS America

Six Sailors assigned to the amphibious assault ship USS America (LHA 6) trained in the operation and support of a new flight deck cleaning system with the help of engineers from Naval Surface Warfare Center, Carderock Division, Sept. 12-16, 2016.

The Mobile Cleaning, Recovery and Recycling System (MCRRS) is a shipboard, heavy duty, self-powered cleaning vehicle that utilizes water jet technology, integrated air recovery and waste-water recycling to clean, remove foreign object debris (FOD) and restore friction to non-skid surfaces. It has been in development by Naval Sea Systems Command (NAVSEA), Carderock Division and contracting firm Triverus, LLC with sponsorship from the Office of Naval Research (ONR) through a Small Business Innovation Research (SBIR) effort to replace existing flight deck cleaning methods.

The Carderock Ship-to-Shore Team (Code 634) leader, William Hertel, and key subject-matter expert, Tracy Harasti, have been heavily involved, since 2003, with the development of a cleaning technology and method capable of maintaining flight surface Coefficient of Friction, reducing FOD (e.g., micro-solids and liquid), is sufficiently intuitive to operate, be maintained by ship forces, and that integrates with mission requirements. This was the latest trip Harasti has made to train Sailors aboard an L-Class ship in the early stages of transitioning to the MCRRS. This low-rate initial production effort is a follow-on to prior developmental efforts that included initial deployment of the prototype MCRRS to the nuclear-powered aircraft carrier USS Ronald Reagan (CVN 76) in 2009.



Surface science facility gets new photoelectron spectroscopy microprobe

The Advanced Power and Energy Branch (Code 636) recently upgraded its Surface Science Facility with a VersaProbe II Scanning X-ray Photoelectron Spectroscopy (XPS) Microprobe, manufactured by Physical Electronics. XPS is a surface-sensitive measurement technique which provides elemental- and chemical-state information related to the near-surface region (about five nanometers deep) of a material.

From left: Dr. Azzam Mansour discusses the new VersaProbe II Scanning XPS Microprobe with Christopher Hendricks and Dr. Gordon Waller, Sept. 22, 2016.

Carderock engineers showcase NISE/219 ideas to Pentagon leaders

Carderock Division employees joined engineers and scientists from across the Naval Research and Development Establishment and present a pair of projects at the Naval Innovative Science and Engineering (NISE)/Section 219 Expo at the Pentagon on April 21, 2016.

Goals of the event included highlighting the science and engineering work performed at Naval Sea System Command's warfare centers via the NISE/219 authority and showcasing the scientists, engineers, facilities and equipment that can be leveraged to solve the Navy's toughest challenges, according to Anne Adams, assistant to the Naval Surface Warfare Center (NSWC) Chief Technology Officer.

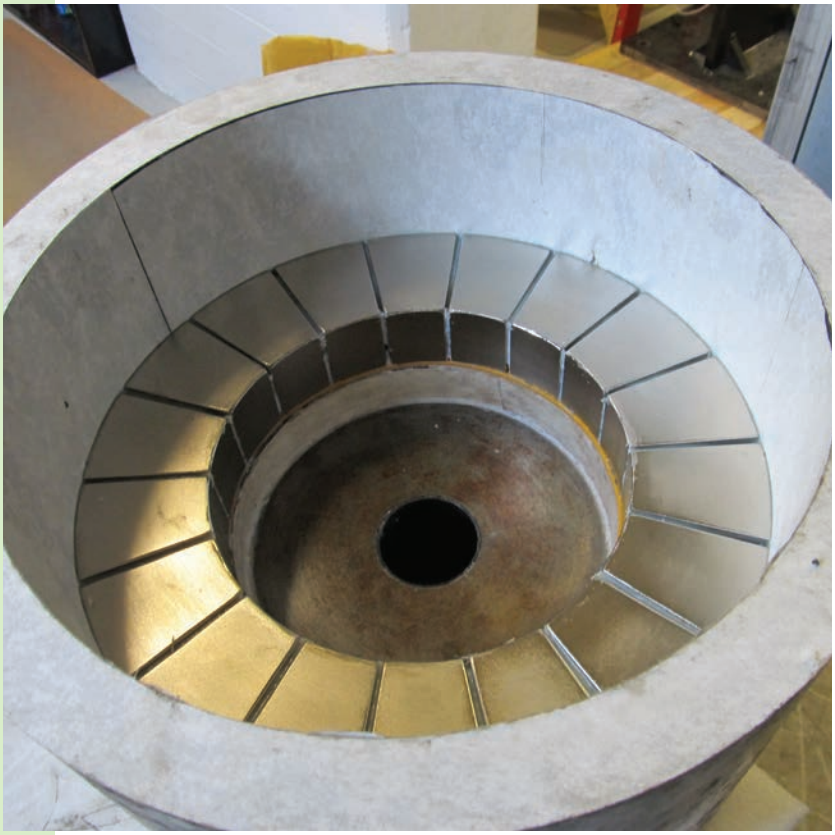
(Left) John Grimes (Code 8202) speaks with Capt. Mark Vandroff.

Carderock Division showcases innovation at 51st Sea-Air-Space Expo

Employees from Naval Surface Warfare Center, Carderock Division (NSWCCD) presented technological advances in additive manufacturing (AM) and other areas at Sea-Air-Space in National Harbor, Md., May 16-18, 2016.

This is the 51st year the Navy League has collaborated with the sea services and defense and maritime industries to present the nation's largest maritime defense expo. Carderock employees were on hand to man booths, while Dr. Tim Arcano, NSWCCD technical director, moderated an AM industry breakout session.

Arcano said the Department of the Navy (DON) has been experimenting with and exploiting AM for the past 20 years, and Carderock Division has embraced this technology with the opening of its Manufacturing, Knowledge and Education (MAKE) Lab, which provides training opportunities for scientists and engineers who want to learn about it and contribute their ideas. Arcano talked about the exciting possibilities for this technology to save time and money and enhance warfighting capabilities and how DON is actively working under the AM Implementation Plan to harness this technology.



New prototype enhances ship-testing capability at Carderock

A new 1,000-pound inertial actuator, the AMA1000, is giving engineers at Naval Surface Warfare Center, Carderock Division unprecedented capability in full-scale testing.

Dr. John Miesner, an engineer assigned to Carderock Division's Acoustic Signatures Technology Division, said the Navy has used actuators like the AMA1000 in a wet environment for many years, but the shakers, as they are called, were not capable of producing high forces at a broad range of frequencies until 2014. That is when the Carderock Division Shaker Lab developed a wet-capable shaker called the MA400 specifically for this purpose. The installed MA400s are performing well and produce about 400 pounds of force.

Dr. Miesner recognized that the MA400 design could be improved to produce 1,000 pounds within the same volume by replacing the rectangular magnetic laminations with axisymmetric components that better fill the cylindrical vessel. This also reduces the number of parts required and simplifies the manufacture and assembly of the shaker.

Advancements in biofouling control R&D offer increased capability to Navy vessels

Engineers and scientists at Naval Surface Warfare Center, Carderock Division have been studying commercial advancements that have the potential to improve hull and propeller coatings, thereby reducing the formation of biofouling and lengthening the intervals between cleanings.

Carderock capabilities showcased at Washington Navy Yard

Naval Surface Warfare Center, Carderock Division was featured during a technical demonstration day at Naval Sea Systems Command (NAVSEA) in the Humpreys Building in the Washington Navy Yard, March 23, 2016.

Subject-matter experts (SMEs) represented nine of Carderock's areas of expertise through posters, videos and more interactive forms of display.

Rear Adm. Moises DelToro, commander of Naval Undersea Warfare Center (NUWC), delivered the Naval Surface Warfare Center (NSWC) 101 brief. DelToro emphasized that within the NAVSEA structure, NSWC and NUWC are designed to be collaborative counterparts. This is reflected not just at the leadership level, where they share a senior executive, but across their capabilities.

Following DelToro's brief, Carderock Commanding Office Capt. Rich Blank and Technical Director Dr. Tim Arcano presented an overview on Carderock Division and the warfare center's capabilities.

The educational presentations also included SMEs from each of Carderock's three technical codes briefing their areas of expertise. Brian Heidt covered submarine design, Dr. Paul Shang covered advanced signatures and acoustics and Jeff Hough presented the brief on surface ship design.

Across the displays and discussions, there was the theme of interest and investment in developing the upcoming naval engineer. In their presentation, Blank and Arcano discussed the lifecycle of an engineer, noting that it can take 20 to 25 years for an engineer to progress to full professional competence and development. A career for a Carderock engineer does not start at the entry level, they stressed, but with the outreach efforts that happen before they come to the base for their first internship or job.

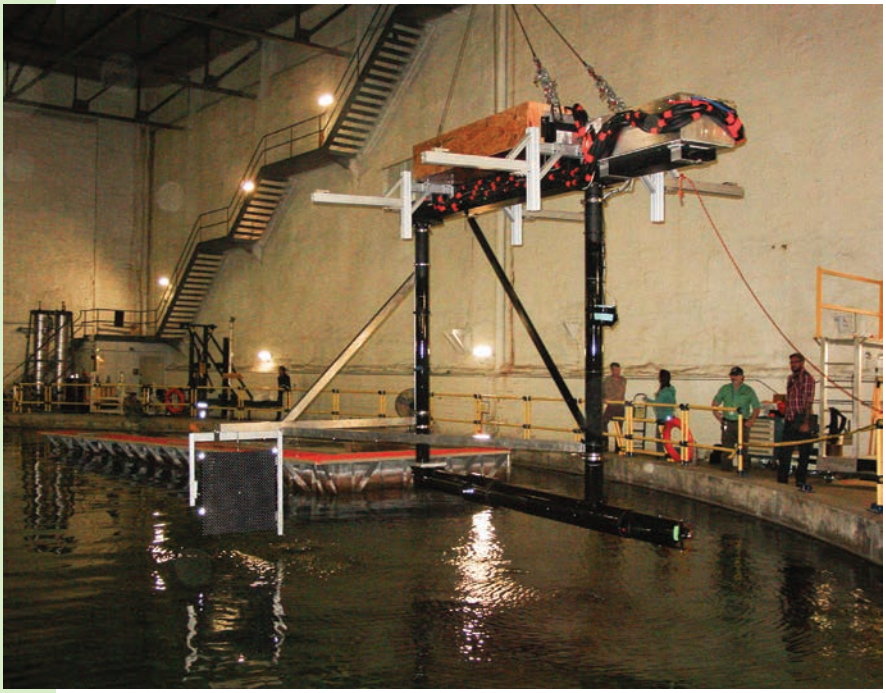
Carderock supports third shot of shocks trials for LCS 6

Naval Surface Warfare Center, Carderock Division employees supported the third and final shot of the Full Ship Shock Trial (FSST) of USS Jackson (LCS 6), July 16, 2016. Carderock personnel had significant roles in the planning and execution of the test, which was a major milestone for the Littoral Combat Ship program.

Prior to the test, Carderock personnel from three divisions from the Survivability, Structures, Materials and Environmental Department began the careful and difficult preparations to ensure the shock trial was safe and successful. The purpose of FSST is to validate the operational survivability of new-construction ships after exposure to underwater shock. Three tests were scheduled for the ship, and each test was conducted with a 10,000-pound explosive charge placed at various stand offs to the ship.

While the Navy will continue to assess the results for several months, the final test appears to validate the ability of the aluminum trimaran to meet operational objectives after exposure to underwater shock. This is a significant milestone for the LCS program and Independence-variant warships.

The Carderock team did extensive analysis with computerized prediction models and the live full-ship shock trials validate their results.



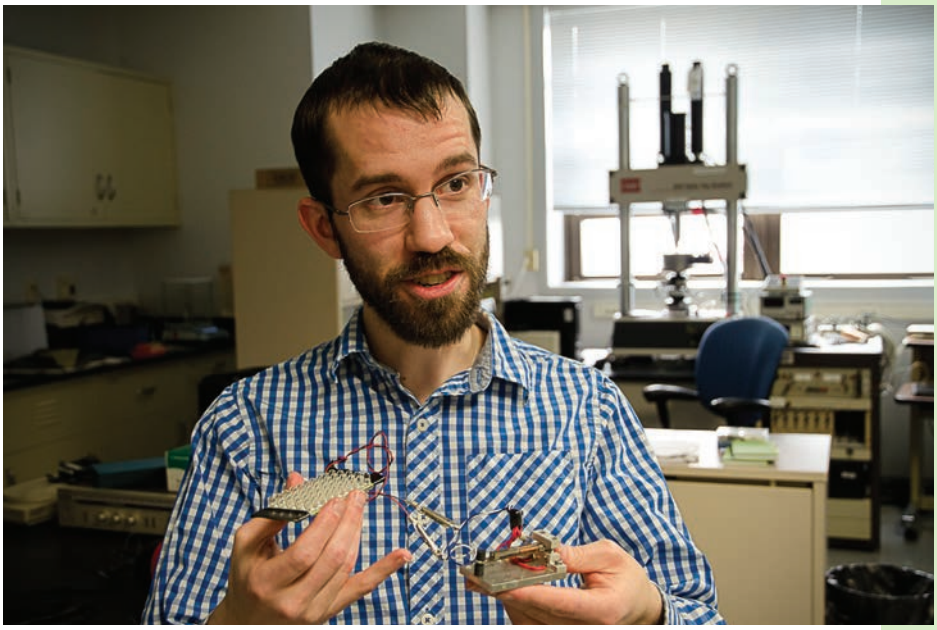
Carderock researchers enhance data-gathering capabilities with new stereo particle image velocimetry system

Researchers from Naval Surface Warfare Center, Carderock Division's Naval Architecture and Engineering Department (Code 80) received recognition at Carderock Division's quarterly all-hands ceremony July 21, 2016, for creating and successfully testing a self-contained submersible stereo particle image velocimetry system in the David Taylor Model Basin in West Bethesda, Md.

Dr. Emily Harrison, a naval scientist with the Hydrodynamics and Maneuvering Testing Branch (Code 863), said the completion of this multi-year project produced the best particle image velocimetry results ever seen at Carderock and will save the government money in testing time moving forward.

Galfenol: A disruptive technology

In late 1999, researchers at the Naval Surface Warfare Center, Carderock Division invented an exciting new smart material: Galfenol, an iron-gallium (Fe-Ga) alloy system. Since then, it has advanced from being a curiosity in a laboratory to a material being investigated worldwide by a variety of university and government laboratories. In the United States, efforts to commercialize the material are well under way and showing substantial progress. Continued development of magnetostrictive materials will result in their optimization for as-yet untapped potential in structural applications: vibration sensors, vibration control actuators and energy-harvesting devices and systems. (Right) Dr. Nick Jones of Code 612.



Carderock's Disruptive Technologies Laboratory

The U.S. Navy faces innumerable obstacles every day as it carries out its mission, and the scientists and engineers at Naval Surface Warfare Center, Carderock Division in West Bethesda, Md., are charged with helping to solve them so the fleet is ready with the latest capabilities and technologies when and where it needs to be.

To meet the challenge of combatting disruptive threats and realizing ever-changing operational demands, the Department of Defense and Navy leadership are driving the Navy laboratory infrastructure to get new and innovative technologies into the hands of warfighters and maintainers quicker than ever. Carderock Division has taken a unique approach to this goal: to create a Disruptive Technology Laboratory (DTL) and charge it with generating ideas and solutions for the fleet and take them from concept to reality.

The DTL thrives on the premise that great ideas are not just random events – by putting together innovators in a nurturing environment, one that facilitates thought and is not hindered by historical paradigm, ideas can be predictably generated. Bringing those ideas to fruition and displacing the old solution with the new one in the marketplace is the bread and butter of the DTL. At Carderock, the DTL works to make innovative successes achievable, not onerous. The DTL premise is to move good ideas forward into the fleet.

Carderock employee receives Navy Meritorious Civilian Service Award

Naval Surface Warfare Center (NSWC) Commander Rear Adm. Tom Druggan presented William Needham, materials engineer in the Corrosion and Coatings Engineering Branch (Code 613), with the Department of Navy Meritorious Civilian Service Award during an all-hands call Nov. 17, 2016, at NSWC Carderock Division in West Bethesda, Md.

Needham received the award for his contributions to reduce the impact of corrosion across all weapon systems and facilities within DOD and his service to NAVSEA, the U.S. Navy and the nation from October 2002 through August 2016.

Carderock's award-winning milSuite page

Naval Surface Warfare Center, Carderock Division leadership honored core members of the Carderock milSuite team, who created the command's award-winning milSuite page, during a ceremony March 29, 2016.

According to Jack Templeton, Carderock milSuite team member and NSWCCD Chief Technology Officer, the team created the command's milSuite page, which won Best in the Navy, partly in response to NSWCCD Technical Director Dr. Tim Arcano's desire for a Wikipedia-like website that Carderock employees could use to share information.

He said milSuite, a collection of online tools and applications for the purpose of bringing online collaborative methods and secure communities to the entire Department of Defense, was an ideal way to meet that objective and also further one of the vectors in Carderock's strategic planning process: modern knowledge transfer.

Carderock employee receives PEO IWS Excellence Award for historic missile test

A Naval Surface Warfare Center, Carderock Division employee received a Program Executive Office for Integrated Warfare Systems (PEO IWS) Excellence Award July 28, 2016, for his critical role in the first live-fire test firing of a Sea-Launched Rolling Airframe Missile (SeaRAM) weapon system from a guided-missile destroyer.

Brian Lang, a SeaRAM Team member with Carderock's Underwater Explosions Research and Development Branch (Code 661), was on board the guided-missile destroyer USS Porter (DDG 78) when testing began at sea near Rota, Spain, on Feb. 25, 2016, which was also the first time Rota's test range was used.

The SeaRAM close-in weapons system (CIWS) is a complete combat weapon system that automatically detects, evaluates, tracks, engages and performs kill assessment against anti-ship misssiles and high-speed aircraft threats in an extended self-defense battle space envelope around the ship. It combines two fleet-proven weapon systems: Block 1B Phalanx CIWS and the Rolling Airframe Missile RAM Guided Missile Weapon System. It also features an 11-round launcher assembly missile system on a single mount. Lang said Naval Surface Warfare Center, Dahlgren Division, the lead warfare center for structural test firing, asked for Carderock's assistance in testing the missiles. Lang led the Carderock team of three other employees who assisted with testing the missiles: Matt Strawbridge and Shahram Kazemzadehmarand of the Dynamic Measurements and Testing Branch (Code 663) and Craig VandeVusse (Code 661), who Lang said deserve equal recognition for successfully supporting the SeaRAM structural test firing.

Science and technology award given to Carderock at Australian Embassy

Naval Surface Warfare Center, Carderock Division employees accept an award recognizing a long-standing science and technology collaboration at a reception celebrating the collaboration in defense science at the Australian Embassy in Washington, D.C., on May 24, 2016. From left: Dr. Paisan Atsavapranee, Code 86; Susan Gowing; Scott Gowing, Code 873; Bonnie Kinsley; Dr. John Barkyoumb, Code 00T, Julie Simmons, Code 616; Daphne Fuentevilla, Code 616; Kane Ivory, Australian exchange engineer, Australian Defense Science and Technology Group; and Mrs. Ivory.

Carderock teams win 2015 SECNAV Innovation Awards

Secretary of the Navy (SECNAV) Ray Mabus announced two Naval Surface Warfare Center, Carderock Division teams Feb. 9, 2016, as winners in the 2015 SECNAV Innovation Awards. The awards program recognizes the top individual and team innovations that have made remarkable innovative accomplishments to solve the Navy's most challenging problems during this past year.

Carderock's Underwater Wireless Energy Transfer (UnWET) system team was selected the winner of the Robotics/Autonomous Systems Category. This award recognizes contributions in robotics and autonomous systems within the Navy's science and technology community or within the operational forces.

The UnWET system team, comprising members from Carderock and Naval Surface Warfare Center, Philadelphia Division, earned the award for demonstrating the feasibility of transferring power to unmanned systems underwater during tests at Carderock in West Bethesda, Md., and Newport, Rhode Island, last year. They collaborated with personnel from the Naval Undersea Warfare Center, Division Newport, and Space and Naval Warfare Systems Center Pacific (SSC PAC).

Carderock's Realtime Acoustic Imaging Team of Dr. Philip Gillett and Christian Sarofeen was selected as the winner of the Data Analytics Category. This award seeks to identify members of the data-savvy workforce who implemented new approaches to using data analytics to improve performance, support decision making or provide meaningful insight to existing processes.

Gillett and Sarofeen's goal when they began working together at Carderock was to find a way to display acoustic data so that it could be visually understood. Sarofeen said this data can be used to detect sources of noise to isolate and eliminate them.

American Society of Naval Engineers recognizes Carderock senior technologists

Dr. Ted Farabee and Dr. E. Thomas Moyer earned recognition from the American Society of Naval Engineers (ASNE) during the ASNE annual awards banquet in Arlington, Va., March 3, 2016.

Farabee and Moyer, both senior scientists assigned to Naval Surface Warfare Center, Carderock Division (NSWCCD) in West Bethesda, Md., received the Gold Medal and Solberg awards from Rear Adm. Lorin Selby, commander, Naval Surface Warfare Center (NSWC), and Dr. Tim Arcano, NSWCCD technical director, respectively.

The Gold Medal Award (Engineering) is given to an individual who has made a significant naval engineering contribution in a particular area during the past five years. Farabee has served as NSWCCD's senior research technologist since 2009. Before that, he served at Carderock as a staff scientist providing technical oversight and scientific direction on ship silencing programs. Today, he works to identify enabling technologies and design initiatives for the Ohio Replacement design.

The Solberg Award is given to an individual who has made a significant contribution to naval engineering through personal research. Moyer is the Navy's senior technologist for ship survivability modeling and simulation. He has more than 30 years of post-doctoral experience as a naval engineer and researcher improving the Navy's ability to achieve optimal survivability in its ships to maintain their warfighting superiority.

NAVSEA Warfare Center Awards

Top: James McWhite (second from left) and Lauren Moraski (third from left) receive the NAVSEA Warfare Center Multi-Platform Mission Package Innovation Cell Team award from Naval Surface Warfare Center, Carderock Division Technical Director Dr. Tim Arcano; Commanding Officer Capt. Rich Blank; and Naval Architecture and Engineering Deputy Department Head Steve Ouimette at the Quarterly Awards Ceremony in West Bethesda, Md., Jan. 12, 2016.

Middle: Kedric Eisenberg receives the NAVSEA Warfare Center Anti-Submarine Warfare Advanced Development Model Mission Package Team award from Naval Surface Warfare Center, Carderock Division Technical Director Dr. Tim Arcano; Commanding Officer Capt. Rich Blank; and Naval Architecture and Engineering Deputy Department Head Steve Ouimette at the Quarterly Awards Ceremony in West Bethesda, Md., Jan. 12, 2016.

Bottom: Dr. Matthew Craun receives the NAVSEA Warfare Center 2014 Scientist of the Year award from Naval Surface Warfare Center, Carderock Division Technical Director Dr. Tim Arcano; Commanding Officer Capt. Rich Blank; and Signatures Department Head Dr. Paul Shang at the Quarterly Awards Ceremony in West Bethesda, Md., Jan. 12, 2016.

NAVSEA Warfare Center Awards

Naval Surface Warfare Center, Carderock Division recognized employees for performance and length of service at its quarterly awards ceremony Oct. 20, 2016, in West Bethesda, Md. Technical Director Dr. Tim Arcano and Commanding Officer Capt. Mark Vandroff presented the awards.

The Naval Sea Systems Command (NAVSEA) Warfare Centers awards recognize individuals, teams and activities across the enterprise for their contributions of innovation and improvement in the areas of product quality, change leadership and technical and business development.

Top: The NAVSEA Excellence Awards acknowledge individuals and teams for their contributions. For Carderock, Robert Young, a naval architect in the Future Ship and Submarine Concepts Branch (Code 824), received the award as part of the Amphibious Warfare Program Ship-to-Shore Connector Team; Charles Roe, head of the Physical Metallurgy and Fire Branch (Code 612), received the award as part of the Laser Ablation Coating Removal Non-Nuclear Ships Team; Brian Heidt, head of the Programs and Platforms Division (Code 807), received the Individual Excellence Award from the Engineering and Technical Authority Training Team; and Christopher Fountain, program manager for the Systems and Measurement Branch (Code 752), received the Team Excellence Award for his role on the Advanced Degaussing System Specification Development Team.

Second down: The NAVSEA Warfare Centers Collaboration Award was given to the Unmanned Vehicles and Autonomous System Working Group for having made substantial contributions in promoting collaboration across the Warfare Centers. The award went to Reid McAllister, director of the working group and part of the Strategic Planning Branch (Code 00X); Scott Petersen, head of the Systems Design and Integration Branch (Code 832) under the Combatant Craft Division at Joint Expeditionary Base Little Creek-Fort Story; John Stebe, a naval architect in the Research and Development Programs Branch (Code 812); Dr. Peter Cho, an electrical engineer with the Marine and Aviation Division (Code 88); and Stephen Ebner, division head of Code 88.

Third down: The NAVSEA Warfare Centers Transformation Award was given to the Naval Engineering Education Consortium (NEEC) Team. Representing Carderock from that team was Steven Ouimette, the deputy department head for the Naval Architecture and Engineering Department (Code 80).

Bottom: The NAVSEA Warfare Center Knowledge Sharing Award was given to the Carderock Knowledge Management (KM) Team, consisting of Dr. Paul Shang, department head for the Ship Signatures Department (Code 70); Dr. Judy Conley, a supervisor in the Programs Office under the Structures and Composites Division (Code 6502); Dr. Jim Roche from the Fleet Systems Branch (Code 732); and Garth Jensen (not pictured), Carderock's director of innovation.


Vice Adm. Samuel L. Gravely Jr.


Rear Adm. Grace M. Hopper


Rear Adm. Benjamin F. Isherwood


Vice Adm. Emory S. Land

Carderock Division honors its "Magnificent Eight"

For the 17th year, Naval Surface Warfare Center, Carderock Division recognized their best and brightest during the 2015 Magnificent Eight Division Honor Awards ceremony in West Bethesda, Md., on Aug. 31, 2016. Commanding Officer Capt Rich Blank and Technical Director Dr. Tim Arcano presented the awards.

The awards are named for Vice Adm. Samuel L. Gravely Jr., Rear Adm. Grace M. Hopper, Rear Adm. Benjamin F. Isherwood, Vice Adm. Emory S. Land, Donald F. McCormack, Rear Adm. George W. Melville, Capt. Harold E. Saunders and Carderock's founding father, Rear Adm. David W. Taylor.

Vice Adm. Samuel L. Gravely Jr. Award

- Marylou K. McNamara, head of the Acoustic Signatures Technology Department (Code 72)

Rear Adm. Grace M. Hopper Award

- Michael G. Vukovich, the acquisition manager for Ship Signatures Department (Code 7072)

Rear Adm. Benjamin F. Isherwood Award

- Michael B. Coakley, a systems group leader in the Ship Control Branch (Code 861)

Vice Adm. Emory S. Land Award

- William D. (Dave) Sudduth, a program manager for the Survivability, Structures, Materials and Environmental Department (Code 60)

Donald F. McCormack Director's Award for Warfare Center Collaboration

- Timothy Tenopir from Naval Surface Warfare Center (NSWC), Port Hueneme Division and William D. (Dave) Sudduth, a program manager for the Survivability, Structures, Materials and Environmental Department (Code 60)

Rear Adm. George W. Melville Award

- Dr. John E. Miesner, an engineer in the Structural Acoustics and Target Strength Branch (Code 722)

Capt. Harold E. Saunders Award

- William Hertel, a mechanical engineer for the Solid Waste, P2 (pollution prevention) and Hazardous Material Management Branch (Code 634), and Tracy Harasti, an environmental specialist (Code 634)

Rear Adm. David W. Taylor Award

- Kurt A. Junghans, a mechanical engineer in the Hydrodynamics and Maneuvering Simulation Branch (Code 862)

Donald F. McCormack Director's Award for Warfare Center Collaboration

Rear Adm. George W. Melville

Rear Adm. David B. Taylor

Capt. Harold E. Saunders

NAVSEA 2015 Command Awards

Organizational Support:
Lisa Almeter (Code 0CA)

Acquisition Professional of the Year:
James M. McGarvey (Code 0213)

Customer Service Award:
Kristy Ross (Code 013)

Outstanding Leadership Award:
Kimberly D. Barker (Code 0211)

Leadership Award:
Michael D. Hall (Code 102)

Outstanding Achievement Award:
Jessica Klotz (Code 634)

Team Award, Accounts Payable Team:
Lauri Busco (Code 01B), Mai Trang-Than (Code 0CA), Richard Ford (Code 012), Russell Stewart (Code 0122), Kristy Ross (Code 013), Clarissa Pudleiner (Code 0122), Joann Starks (Code 0112) and Gene Reed (Code 0122)

NAVSEA 2015 Command Awards

Program Management Award:
Lindsey Reilly (Code 10B)

Customer Support Award:
Carol Overman (Code 607)

Leadership Award (non-supervisory):
Carrie Davis (Code 611)

Administrative Employee of the Year:
Frances Staana (Code 7201)

Senior Technical Person:
Dr. John Miesner (Code 722)

Innovation Award, ONR NICOP FSI Test Team:
Erick Alley (Code 654), Yared Amanuel (Code 654), Jazalyn Dukes (Code 654) and Jeremy Lewis (Code 653)

SAP Team:
Douglas E. Pohlman (Code 0224), Pat Perzella (Code 0224), Patty A. Vara (Code 0224), Lisa D. Smith (Code 0224), Toby Brooks (Code 0221), John G. Mulcahy (Code 0221), Michael Bonaiuto (Code 0221), Kellie Holley (Code 0224), Christopher S. Bezold (Code 0221), Antwan M. Bethea (Code 0223), Carlos S. Bernal (Code 02) and Dianne Grimes (Code 0224)

NAVSEA 2015 Command Awards

Innovation Award:
Peter Chang (Code 8202)

Support of the Carderock Division:
Jessica Williamson (Code 807)

Support of the Carderock Division:
Charlotte George (Code 8202)

Technical Excellence:
Kurt Junghans (Code 862)

Young Scientist/Engineer Award:
Christian Sarofeen (Code 871)

Customer Focus:
Cesar Artze (Code 841)

Customer Service Team Award, Time Lapse Team:
James Contreras, Ryan Hanyok, Devin Pisner and Neubar Kamalian (Code 1032)

Award winners not pictured:

Junior Technical Person:
Matt Medzegian (Code 7132)

Line of Program Manager:
Michael Schilt (Code 75022)

Fleet Support:
Andy Cole (Code 861)

NAVSEA 2015 Command Awards

Collaboration Team Award, Cybersecurity Team:
Matthew Early (Code 1043), Craig Dennison (Code 10431), Felix William (Code 10431), Mark Galusha (Code 10431), Ying Huske (Code 10411), Evgeniy Gitlin (Code 10411), Frank Wright (Code 1041), Monica Walker (Code 104), Larry Brown (Code 600A0), Carole Overman (Code 607), Richard Gates (Code 104), Tad Cowell (Code 104), Mathew Bange (Code 104) and Demetrious Pousatis (Code 10402)

South TOTO Acoustic Measurement Facility (STAFAC) Dual Array Capability Restoration Team:
Lillie Ruhlmann (Code 7331), Joe Key (Code 7307), Tom Wallace (Code 7335), Gary Brown (Code 7335), Mark Stewart (Code 7335), Randy Carr (Code 7335), Kevin Meier (Code 7335), Lars Easterson (Code 7335), Bruce Baumann (Code 7332), Bob Kollars (Code 71), Chris Dann (Code 714), Kevin Runyan (Code 7152), Todd Beahm (Code 7151), Kes Tomlin (Code 7311), Sam Bugeja (Code 7311), Jose Diaz (Code 7335), Matt O'Morrow (Code 7335) and Joe Gordon (Code 7141)

Innovation Award, HyDem Program Shock Team:
Dr. Bradley Klenow (Code 661), Randall Goodnight (Code 661, Timothy McGee (Code 661), Dr. Robert Atkatsh (Code 6621), Lana Craig (Code 663), Sean Wills (Code 663), Shahram Kazemzadeh (Code 663), Young Hwang (Code 652), Tom Fick (Code 655), Dr. Wes Trim (Code 661) and Rebecca Grisso (Code 661)

Teaming Award, DOE WEC Testing Team:
Miguel Quintero (Code 853) and Dave Newborn (Code 881)

Vice Adm. Moore visits Carderock

As the new commander of Naval Sea Systems Command (NAVSEA), Vice Adm. Thomas Moore is visiting commands that fall under his purview to see what they are doing for the Navy and to give them his command philosophy in person. For Naval Surface Warfare Center, Carderock Division in West Bethesda, Md., that visit happened Nov. 8, 2016.

In addition to touring Carderock facilities during his day-long visit, Moore addressed employees in an all-hands call in the Melville-Taylor Auditorium.

Moore discussed three primary mission areas from his NAVSEA Strategic Framework: on-time delivery of ships and submarines, cybersecurity and culture of affordability. Moore said Carderock's innovative employees support these mission areas because they designed where the fleet is today, and they are constantly looking at the fleet of the future.

(Above) Vice Adm. Thomas Moore at MAKE Lab, Nov. 8, 2016. (Left) Vice Adm. Thomas Moore and Chief Master Petty Officer Russ Mason talk to Charlotte George about ISR date.

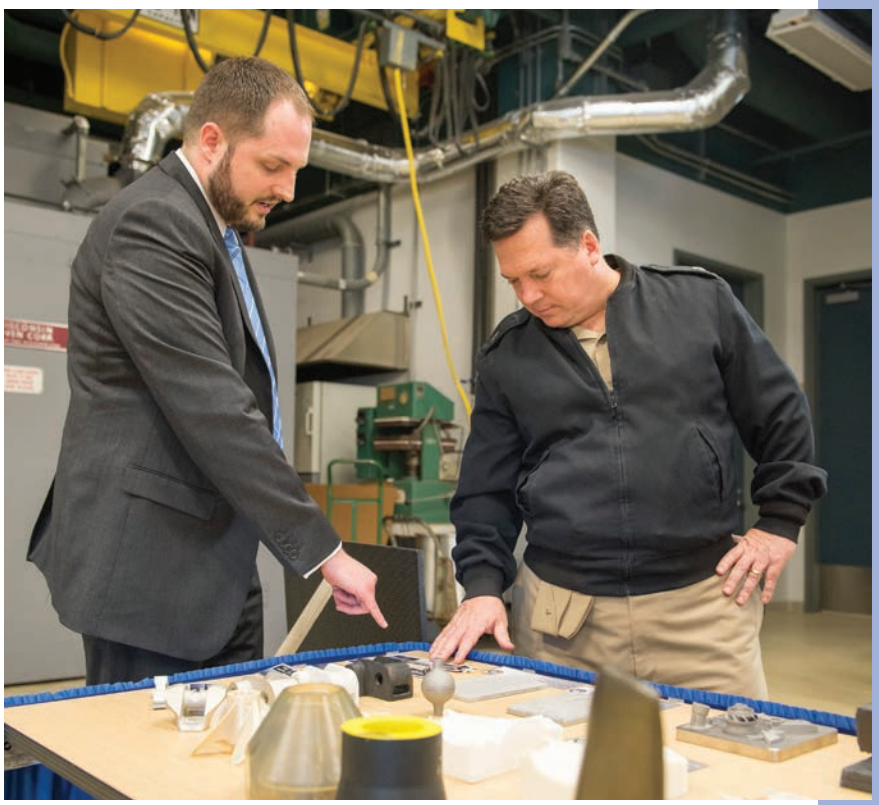
Rear Adm. Druggan praises Carderock Division workforce during visit

Rear Adm. Tom Druggan, commander, Naval Surface Warfare Center (NSWC), relayed his sincere appreciation to employees at NSWC Carderock Division for the benefits their work brings to the fleet during an all-hands call Nov. 17, 2016, part of the admiral's day-long visit to Carderock's headquarters in West Bethesda, Md.

Druggan emphasized how Navy missions go far beyond conflict and combat. He said the fleet stays incredibly busy throughout the world helping people in need.

Above: Druggan tries out HoloLens as Carderock Commanding Officer Capt Mark Vandroff and Garry Shields, Disruptive Technology Laboratory head, watch.

Right - Jonathan Hopkins explains an additive manufacturing display to Druggan.



Notable Visits

Sen. Jack Reed visits Carderock Division

Sen. Jack Reed (D-RI) learns about the Manufacturing, Knowledge and Education Lab additive manufacturing facility during a tour of Naval Surface Warfare Center, Carderock Division in West Bethesda, Md., March 30, 2016. Reed is the senior senator from Rhode Island and has served in that office since 1997. He is ranking member on the Senate Armed Services Committee.

Senate staff visit Carderock

Naval Surface Warfare Center, Carderock Division Technical Director Dr. Tim Arcano talks with Senate staffers USMC Maj. Heather Ichord (right), a military fellow with Sen. Tim Kaine's office (D-Va.), and Emerald Litke (center) with Sen. Roger Wicker's office (R-Miss.) in the Manufacturing, Knowledge and Education Lab during their visit to the base in West Bethesda, Md., March 4, 2016. The eight staffers from five U.S. Senate offices also learned more about Carderock's capabilities during tours of the Maneuvering and Seakeeping Basin, the electromagnetics facility, the model fabrication shop and the David Taylor Model Basin.

Delegation visit to SEAFAC

Congressional staff visit the Southeast Alaska Acoustic Measurement Facility (SEAFAC) in Ketchikan, Alaska, Sept. 18, 2016. This photo was taken from the back deck of SEAFAC II departing from Knudson Cove Marina on the way to SEAFAC, Bear Island. From left: Capt. Leonard "Butch" Dollaga, director, Navy Budget Congressional Matters Office (FMBE); Lt. Cmdr. Jeremy Lyon, liaison, FMBE; Adam Goodwin, military legislative assistant for Sen. Patty Murray (D-Wash.); Emily Wilson, legislative assistant for Sen. Jerry Moran (R-Kan.); Rachel Peterson, military legislative assistant for Sen. Murray; Lt. Cmdr. Nate Gammache, liaison, FMBE; Rob Ganim, military legislative assistant for Sen. Mark Kirk (R-Ill.); and kneeling: Adrielle Churchill, legislative director for Rep. Steve Womack (R-Ark.).

Dr. John Burrow is keynote speaker at set-based design seminar

Dr. John Burrow, deputy assistant secretary of the Navy for research, development, test and evaluation, was the keynote speaker at a seminar focusing on set-based design Aug. 23, 2016, at Naval Surface Warfare Center, Carderock Division in West Bethesda, Md.

Notable Visits

Rear Adm. DelToro visits Carderock

Rear Adm. Moises DelToro, deputy commander for Undersea Warfare, Naval Sea Systems Command (NAVSEA) SEA07 and commander, Naval Undersea Warfare Center (NUWC) listens as Dr. Tim Arcano, technical director for Naval Surface Warfare Center, Carderock Division talks about Carderock's Maneuvering and Seakeeping (MASK) Basin during DelToro's visit Nov. 21, 2016, in West Bethesda, Md.

Rear Adm. DelToro visits Bayview

Steve Finley (right), test operations manager for Naval Surface Warfare Center, Carderock Division's Acoustic Research Detachment (ARD) in Bayview, Idaho, provides Rear Adm. Moises DelToro an overview of Carderock's Intermediate Scale Measurement System (ISMS) and static test model Whitefish, Nov. 15, 2016.

Congressional visit at ARD in Bayview

Lake Pend Oreille in Bayview, Idaho, is the backdrop for congressional and Pentagon staff visiting Naval Surface Warfare Center, Carderock Division's Acoustic Research Detachment (ARD) on Oct. 17, 2016.

From left: Steve Finley, ARD test operations manager; Marylou McNamara, head, Acoustic Signatures Technology Division; Dr. Arun Seraphin, professional staff member, Senate Armed Services Committee; Dr. Robin Staffin, director for basic research, Office of the Assistant Secretary of Defense for Research and Engineering; and Lt. Cmdr. Greg Storer, Navy Office of Legislative Affairs.

Vice Adm. Smith, commander, Navy Installations Command, visits Carderock

Vice Adm. Dixon Smith (left), commander, Navy Installations Command, tours the Fatigue and Grillage Test Facility at Naval Surface Warfare Center, Carderock Division in West Bethesda, Md., with Commanding Officer Capt. Rich Blank, March 1, 2016.

Maryland Science Center visits Carderock Division

Curtis Martin (right) and Dr. Mark Opeka (second from right) show Maryland Science Center employee operations in one of Naval Surface Warfare Center, Carderock Division's ceramic labs during a STEM outreach tour in West Bethesda, Md., on March 10, 2016.

Notable Visits

Warfare Center senior technologists tour new additive manufacturing laboratory at Carderock

Naval Surface Warfare Center, Carderock Division mechanical engineer Ben Bouffard (right) gives a presentation in the new additive manufacturing MAKE laboratory to visiting Warfare Center senior technologists (ST) Thomas Wettergren and Stephen Greineder from Naval Undersea Warfare Center, Newport Division; David Burnett from Naval Surface Warfare Center, Panama City Division; and Neil Baron from Naval Surface Warfare Center, Dahlgren Division during the ST deep dive workshop in West Bethesda, Md., on Jan. 14, 2016.

Carderock honors veterans

Retired U.S. Army Lt. Col. Alfred H.M. Shehab (right) stands with Mark Grapin, a contracting officer's representative in the Information Assurance Compliance Branch (Code 1043), after the Veterans Day observance ceremony Nov. 9, 2016, at Naval Surface Warfare Center, Carderock Division in West Bethesda, Md. Shehab was the guest of honor at the ceremony and told the group about his time as a Cavalry officer during World War II, holding the line at the Battle of the Bulge in Monschau, Germany. Grapin, a chief warrant officer five in the Army Reserve, and Shehab shared stories about their time in the Cavalry.

The Lab@OPM brings human-centered design to Carderock

Arianne Miller (left), the deputy director of The Lab@OPM (U.S. Office of Personnel Management) in Washington, D.C., educated Naval Surface Warfare Center, Carderock Division employees on the benefits of using human-centered design during an hour-long lunchtime seminar in the Maritime Technology Information Center in West Bethesda, Md., July 28, 2016.

The process of human-centered design starts with the understanding of a problem and the people affected by the problem. It then focuses on a solution by focusing on the needs, behaviors and context of people who will interact with the final product, service or policy.

Naval Academy ethics expert speaks to Carderock employees

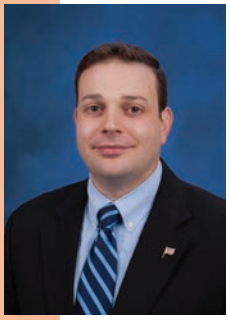
Retired Marine Col. Art Athens, an expert on ethical leadership at the U.S. Naval Academy, visited Naval Surface Warfare Center, Carderock Division to give an all-hands presentation, April 11, 2016.

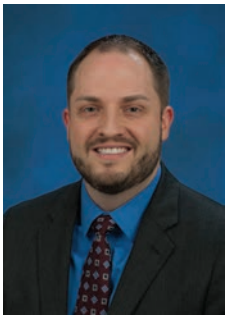
Athens is the director of the U.S. Naval Academy's Vice Admiral James B. Stockdale Center for Ethical Leadership and a member of the Academy's Senior Leadership Team. His presentation was titled "It's Hard To Be Humble ... When You're The Finest."

Pioneering submariner, author speaks at Carderock to observe MLK Day, African American History Month

Retired Vice Adm. Melvin Williams Jr., a member of the Centennial Seven, spoke at Naval Surface Warfare Center, Carderock Division's Martin Luther King Jr. Day/African American History Month observance Feb. 3, 2016.

Williams and the other members of the Seven made naval history in the 1970s as the first black men to command submarines.




Carderock's LEAD Program

Above: Graduates complete the fiscal year 2016 Leadership, Education and Development Program (LEAD) at a ceremony Oct. 19, 2016, at Naval Surface Warfare Center, Carderock Division (NSWCCD) in West Bethesda, Md. Front row from left: NSWCCD Technical Director Dr. Tim Arcano, Aurore Zuzick, Calvin Krishen, Jean Ali-Tavassoli, Frank Hartman and Brandon Swartz. Back row from left: Parker Field, Dr. Jason Smoker, Stephen Minnich, Dr. Maureen Foley and NSWCCD Commanding Officer Capt. Mark Vandroff.

Left, from top: Fiscal year 2017 LEAD participants are Chris Calvitto, Nathan Hagan, Ryan Hanyok, Jonathan Hopkins, Adam Kurkoski, Dr. Morgan Parker and Danielle Paynter.

Brown-bag presentation highlights at Carderock

Dr. Joe Teter: Technology Transfer

Reid McAllister: CONFLOW

Lou Carl: Technical Excellence

James Harrison: "The Front Fell Off"

Dr. John Baryoumb: Patents and Invention Evaluation Board

Rick Schuhmann: Sustainable boat manufacturing

Cultivating Our Workforce

Ice Cream Social

Capt. Mark Vandroff (left), Naval Surface Warfare Center, Carderock Division prospective commanding officer, scoops ice cream while Commanding Officer Capt. Rich Blank serves Kathy Stanley (right), NSWCCD chief of staff, during a base-wide ice cream social in West Bethesda, Md., Aug. 16, 2016.

Memorial Day Ceremony

The employees of Naval Surface Warfare Center, Carderock Division honored fallen American service members with a wreath-laying ceremony May 31, 2016.

Commanding Officer Capt. Richard Blank began the event by talking about Memorial Day's origins as Decoration Day and how the holiday became what it is today. He then introduced retired U.S. Navy Chief Information Systems Technician Kevin Mook, Veterans Employment Readiness Group (VERG) chairman (pictured right), who organized the ceremony.

New-Hire Bridge Group

Members of the New-Hire Bridge Employee Resource Group (NHB-ERG) hike Billy Goat Trail in Great Falls, Md., after work Sept. 8, 2016. The NHB-ERG is a group for new employees at Naval Surface Warfare Center, Carderock Division, and those who started within the last five years. Besides just getting to know one another, topics of discussion for the group include training requirements, carpooling/commuting options, sports, as well as general information about Carderock Division.

Employee Appreciation Day

Employees enjoyed barbecue during the annual Employee Appreciation Day at Naval Surface Warfare Center, Carderock Division in West Bethesda, Md., on Aug. 2, 2016.

The second annual Employee Appreciation Day recognized all staff personnel on base for their effort and concentration placed toward their jobs. The event brought together employees from different departments and codes to one location where they could eat and socialize with colleagues.

2016 Captain's Challenge

Naval Surface Warfare Center, Carderock Division employees who participated in this year's Captain's Challenge were honored at an awards ceremony in West Bethesda, Md., April 18, 2016. Tom Yates (middle), Captain's Challenge coordinator, welcomed guests and gave opening remarks.

2016 Combined Federal Campaign kickoff tailgate party

Naval Surface Warfare Center, Carderock Division kicked off its national capital area 2016 Combined Federal Campaign (CFC) Oct. 26, 2016, with a tailgate party in West Bethesda, Md.

The Carderock CFC tailgate party, which was hosted by the Women's Employee Resource Group (ERG), raised close to $1,000 in donations. Donations were accepted throughout the event, which included employees, some wearing their favorite sports team's jersey, bringing food to share; an ice-cream social hosted by the Morale, Welfare and Recreation (MWR) Community of Interest (COI); a car show hosted by the Veterans ERG; and a pie-in-the-face contest.

Visiting faculty provide research capabilities at Carderock

Naval Surface Warfare Center, Carderock Division in West Bethesda, Md., hosted visiting professors from universities across the county during summer 2016.

Carderock Division's Director of Research Dr. Jack Price said these tours give professors an opportunity to provide their expertise and knowledge to different professional areas of Carderock, and allow them to gain some practical experience in naval problems.

Price wants to see the visiting faculty members act as recruiters for Carderock when they go back to their universities. Carderock has multiple programs available to college-level students that would not only provide employment to them after graduation, but also give Carderock the new engineers, mathematicians and scientists it needs to replace an aging workforce.

In addition to the 12 visiting faculty members at the West Bethesda location this year, there were two Combatant Craft participants at Joint Expeditionary Base Little Creek – Fort Story in Virginia Beach, Va.

Carderock 101

Capt. Mark Vandroff, Naval Surface Warfare Center, Carderock Division commanding officer, speaks to employees at the new-employee orientation, Carderock 101, Oct. 26, 2016.

Carderock employees "Meet the Fleet"

About 30 employees and interns from the Naval Surface Warfare Center, Carderock Division in West Bethesda, Md., participated in a Meet the Fleet visit to Naval Station Norfolk on July 12, 2016. The staff members were given a tour on USS Mitscher (DDG 57), USNS William McLean (T-AKE 12) and USS Montpelier (SSN 765).

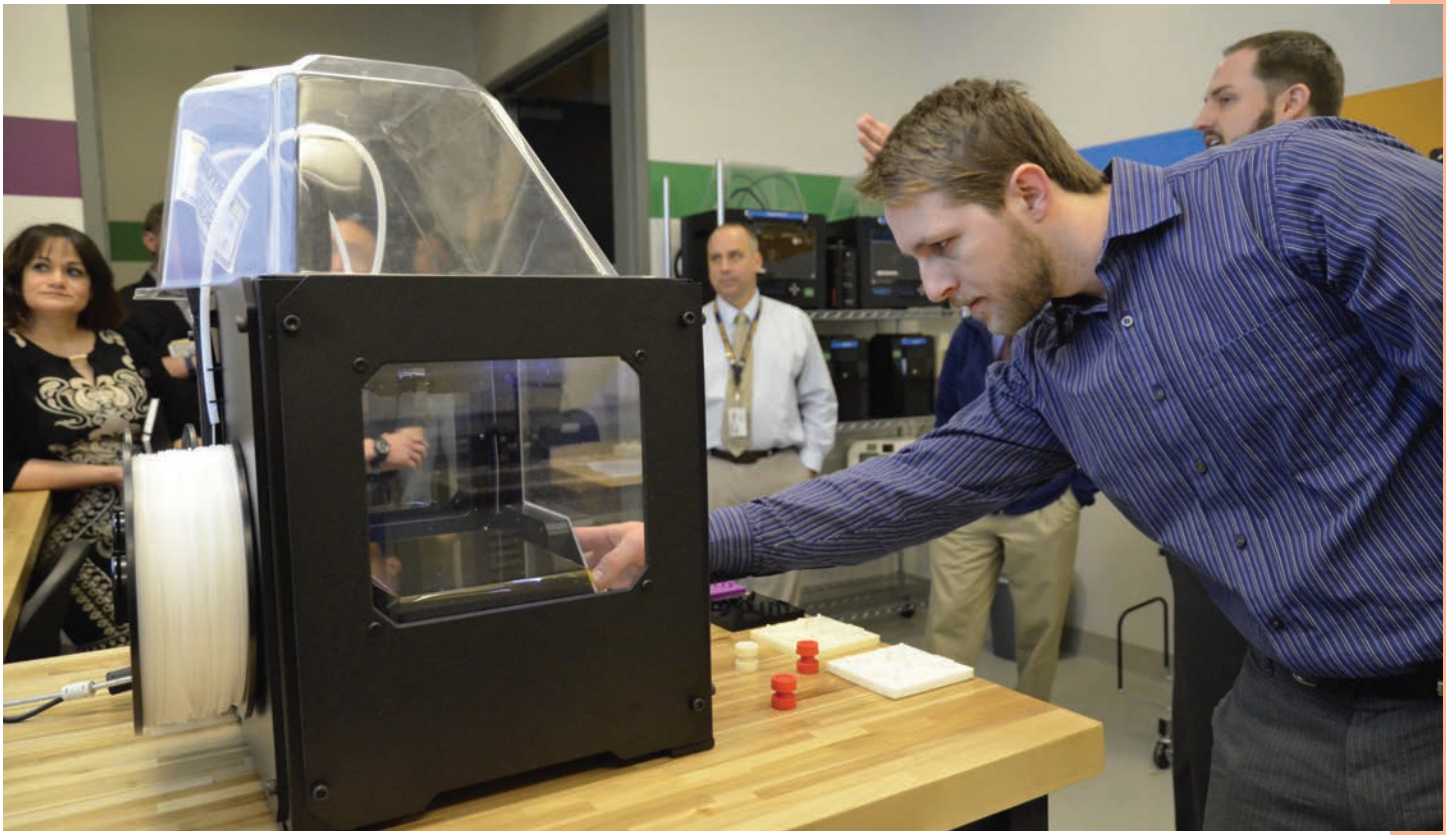
MAKE Lab opening brings new AM opportunities to Carderock

Naval Surface Warfare Center, Carderock Division officially opened the Manufacturing, Knowledge and Education (MAKE) Lab, an open-access additive manufacturing (AM) space for all its employees, March 24, 2016.

The grand opening kicked off in the Maritime Technology Information Center auditorium with remarks by Commanding Officer Capt. Richard Blank; Technical Director Dr. Tim Arcano; and AM Tiger Team members Caroline Scheck, Deputy AM Tiger Team lead; Jonathan Hopkins; and Michael Britt-Crane.

After the ribbon cutting in the Lab, the AM Tiger Team hosted tours to show employees the printers in the new space, how the printers function and how to reserve time. The new MAKE Lab is opening with 12 consumer and prosumer-level AM printers. AM describes processes that create objects layer-by-layer.

AM Tiger Team member Jonathan Hopkins (above), who is leading the MAKE Lab effort, said this technology will also create new opportunities for the command's STEM outreach programs. With the MAKE Lab, the AM Tiger Team can change the way students think and approach design and manufacturing, just as the team will do with their colleagues at Carderock.



Carderock celebrates 241st Navy birthday and Navy heritage

Naval Surface Warfare Center, Carderock Division celebrated the Navy's 241st birthday with a cake-cutting ceremony in the Maritime Technology Information Center lobby, Oct. 11, 2016.

Carderock's Commanding Officer Capt. Mark Vandroff hosted the ceremony and provided brief remarks in honor of this year's Navy birthday theme, "America's Sailor, for 241 Years: Tough, Bold and Ready." He encouraged the Sailors, civilians and contractors present at the celebration to take time to reflect on the Navy's role in the nation's history and security.

After Vandroff's opening remarks, in upholding Navy and Carderock traditions, the youngest and oldest Sailors and civilians in attendance joined Vandroff to cut the Navy birthday cake.

Carderock celebrates Earth Day with base-wide events

Naval Surface Warfare Center, Carderock Division celebrated Earth Day with various base-wide events focusing on protecting natural resources, April 19, 2016, in West Bethesda, Md.

Festivities kicked off with a 2.4 mile fun run around the base led by Commanding Officer Capt. Rich Blank and Environmental Engineer Mike Phillips. The afternoon included an environmental open house and food truck picnic.

Carderock changes command

Capt. Mark R. Vandroff relieved Capt. Richard Blank as the commanding officer of Naval Surface Warfare Center, Carderock Division in a ceremony Sept. 8, 2016, in West Bethesda, Md.

Blank, who was the 36th commanding officer at Carderock, said he will miss the people of Carderock the most and thanked as many as he could during his speech at the change of command ceremony.

During the ceremony, guest speaker Rear Adm. Lorin Selby, chief engineer and deputy commander for Ship Design, Integration and Naval Engineering, Naval Sea Systems Command (NAVSEA), praised Blank for the many technical achievements during his time as commanding officer. He also recounted many of the awards Carderock received, to include two 2015 Secretary of the Navy Innovation Awards, the 2014 Vice Adm. Harold G. Bowen Award for Patented Inventions and the fiscal 2015 Office of Navy Research Technology and Transition Achievement Award.

Rear Adm. Tom Druggan, commander, Naval Surface Warfare Center, presented the Legion of Merit Medal to Blank for his performance as the commanding officer of Carderock Division and his leadership during a time of significant change and fiscal challenges, which resulted in improved business operations and a renewed focus on mission performance.

Pictured above are four of Blank's children singing the national anthem as part of the ceremony. Pictured right are Druggan, Blank and Vandroff.

Carderock Division supports energy innovation with Wave Energy Prize

One team emerged victorious from an initial field of 92 competing in renewable energy development to win $1.5 million during the Wave Energy Prize Innovation Showcase Nov. 16, 2016, at Naval Surface Warfare Center, Carderock Division.

With nine teams in the finals, Alex Hagmuller and Max Levites-Ginsburg of team AquaHarmonics, both civilian engineers and graduates of Oregon State University, took the prize with the most effective and cost-efficient wave energy converter (WEC) design, which they tested and demonstrated at Carderock Division headquarters in West Bethesda, Md. Carderock and the Office of Naval Research (ONR) supported the contest, which was sponsored by the Department of Energy (DOE).

This victory is the culmination of years of work both on their part, but also the many members of government and private industry involved in the Wave Energy Prize contest. Jim Ahlgrimm, director of DOE's Water Power Technologies Office, spoke at the beginning of the awards ceremony about DOE's vision for the contest and the critical support of Carderock and other partners in this contest, which ran 20 months from beginning to end. He said the goal of the Wave Energy Prize is to encourage the development of more efficient WEC devices that double the energy captured from ocean waves, which in turn will reduce the cost of wave energy, making it more competitive with traditional energy solutions. The winning team actually quintupled the captured energy.


WAVE
ENERGY
PRIZE
U.S. DEPARTMENT OF ENERGY


Congratulations to
our Winners!
NAVAL SURFACE WARFARE CENTER, CARDEROCK DIVISION

Outdoor sports leagues grow in popularity at Carderock

From early spring until late fall employees at Naval Surface Warfare Center, Carderock Division participate in various outdoor sports on the parade grounds in front of Building 2. Employees participating can be seen enjoying the beautiful weather playing team sports such as volleyball, ultimate Frisbee and soccer. These leagues are open to all employees on base and provide a great way to team build with fellow coworkers.

Daughters and sons spend the day at Carderock

Over 160 children came to Naval Surface Warfare Center, Carderock Division on April 28, 2016, to learn about the work their parents do to support the fleet.

On the 23rd anniversary of the Take Our Daughters and Sons to Work Day program's founding, Carderock opened its doors to its employees' children for a day of learning and entertainment around the base.

The day began with a scavenger hunt with the children solving math problems for clues to their next objective. When they arrived at each location, a subject-matter expert showed the children an example of Carderock's capabilities, as when Dr. Nick Jones (right), a materials engineer with the Metallurgy and Fasteners Branch (Code 612), demonstrated how transductive materials can be used to both harvest and output energy. He did this through technical demonstrations, one of which showed them how to experience music in a new way. Stephanie Ferrone (below) explains the Electromagnetics Lab.

Australian engineer works alongside Americans in advanced power and energy

When the chance came to work and study abroad with the engineers and scientists at Naval Surface Warfare Center, Carderock Division, in West Bethesda, Md., Kane Ivory (left) did not hesitate to say yes.

Ivory is an electrical engineer from Melbourne, Australia. He works for his country's Defence Science and Technology (DST) Group, but since March, he's been doing in West Bethesda for the Advanced Power and Energy Branch (APEB) (Code 636) under the Engineer and Scientist Exchange Program (ESEP). ESEP is one of the Department of Defense's Defense Exchange Personnel Programs that provides a framework for military and civilian participants to spend one or more years working in the host nation's defense research and development organizations, joint program offices or operational defense establishments on projects directly related to their areas of expertise.

Carderock employee creates historical landmarks with paper

Tom Yates, a mathematician working in the Naval Surface Warfare Center, Carderock Division Acoustic Signatures Technology Division has been employed at the West Bethesda, Md., site for 35 years. He currently works on computer modeling. Yates is also the coordinator of and a participant in the annual Captain's Challenge.

Yates recently picked up a new hobby known as paper architecture.

Engineer is Ultimate Frisbee professional

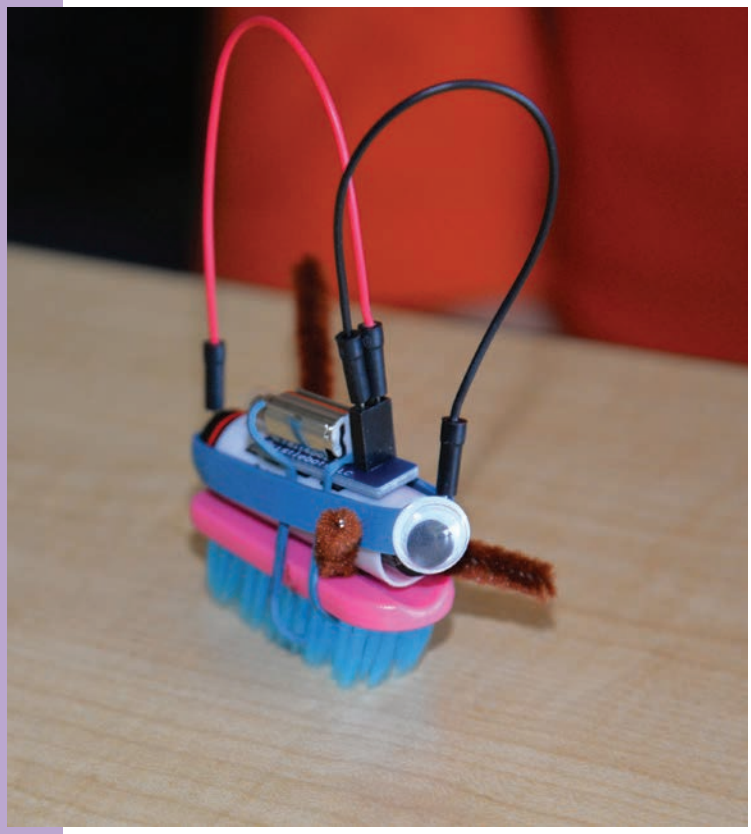
For Bradley Scott, an engineer with the Propulsor Manufacturing Office (Code 6102), Ultimate Frisbee has been more than just a sport; it has been a way of life. Scott, 24, started to play around the age of 10 and with his hard work and dedication eventually earned him a spot as one of three captains for the D.C. Breeze in 2015, where he maintains that position today. While he said he wants to ensure his team plays well, one of his main focuses is to ensure they still remain a fun, spirited team.

Chemical engineer and triathlete competes worldwide

Leslie DiMichele, a chemical engineer from the Wastewater Management Branch (Code 633), finished fourth in the Ironman France, just 30 seconds behind former Ironman World Champion, June 5, 2016, in Nice, France. DiMichele said she had her best race as a professional triathlete and realized quickly it's just a matter of time before she's the one stepping up on the podium hoisting a trophy as one of the top three finishers.

Engineer by day, ninja by night

When American Ninja Warrior returned to the air Aug. 22, 2016, it was partly thanks to the efforts of one of Carderock Division's own. Adam Grossman, 32, is a naval engineer with the Wastewater Management Branch (Code 633). That's his day job. But he's also a course tester and a participant in the television show and obstacle course-based athletic competition he calls a "real-life video game." The show first caught his interest in its initial Japanese incarnation, Sasuke, about a decade ago.



Bristlebots come to life on Halloween at Carderock

Visiting third-grade students from Lucy V. Barnsley Elementary School in Montgomery County, Md., were able to bring Bristlebots to life at Naval Service Warfare Center, Carderock Division on Oct. 31, 2016.

Bristlebots are simple-to-assemble robots which incorporate a small brush, a battery and a very small motor to create an electrical circuit allowing the Bristlebot to "walk" using vibrations. Students customized their miniature robots with little plastic eyeballs and pieces of colored pipe cleaner to bring the Bristlebot to life.

Melanie Zajic (above), a chemical engineer specializing in environmental protection with the Solid Waste, P2 and Hazardous Material Management Branch (Code 634), greeted the students with a short introduction on circuits and walked the students through the different parts of the Bristlebot.

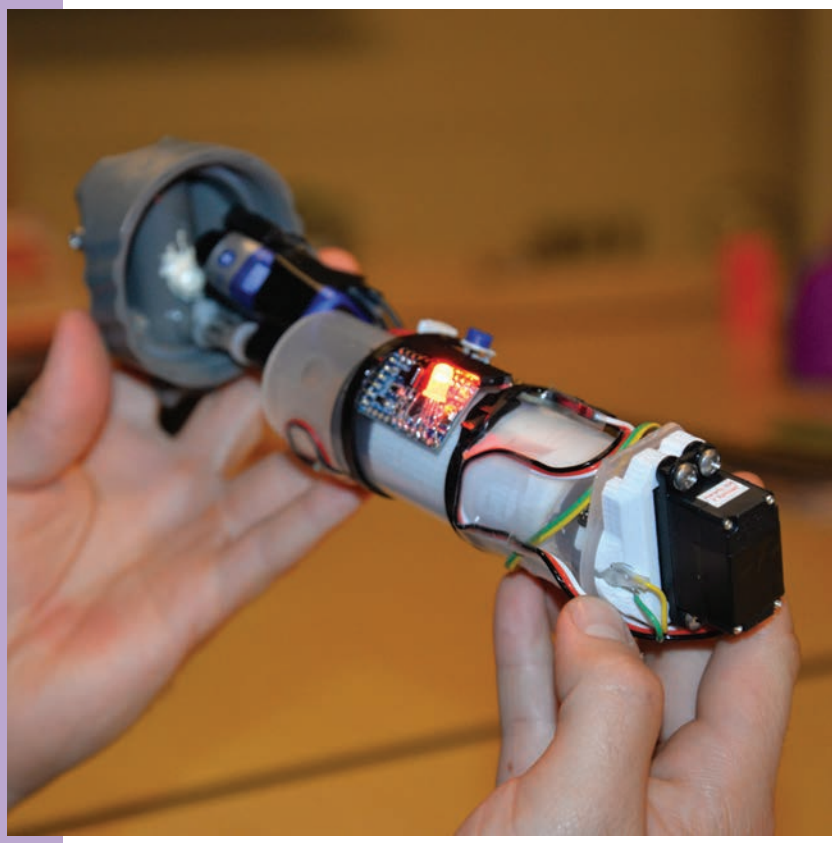
Students learned about electricity being a circuit and that not all circuits are necessarily electrical. Zajic explained that an electrical circuit is what powers their Bristlebot. The circuit was completed when the students used the wires provided in their assembly kits to attach to the battery.

Students race calculator robots at Carderock

Students from Wootton High School in Rockville, Md., visited Naval Surface Warfare Center, Carderock Division on Nov. 1-2, 2016, to experience a fun way to use a Texas Instrument calculator.

The 10th-graders were part of the high school's Academy of Information Technology (AOIT), class of 2019. The AOIT takes about 50 students each year who focus all four years of high school on technology. This is the third year the AIT class has visited Carderock in West Bethesda, Md., as part of a science, technology, engineering and math (STEM) outreach program. The students toured the Carderock facilities and also had a lesson in programming a TI calculator to operate a robot.

During the class, Michael Britt-Crane (above), a mechatronics engineer in the Hydrodynamics and Maneuvering Testing Branch (Code 863), taught the students how to calibrate and program their calculator-controlled robot so that they go forward, backward, turn or spin and even how it stops. The students then held a relay race with their newly calibrated and programmed robots.

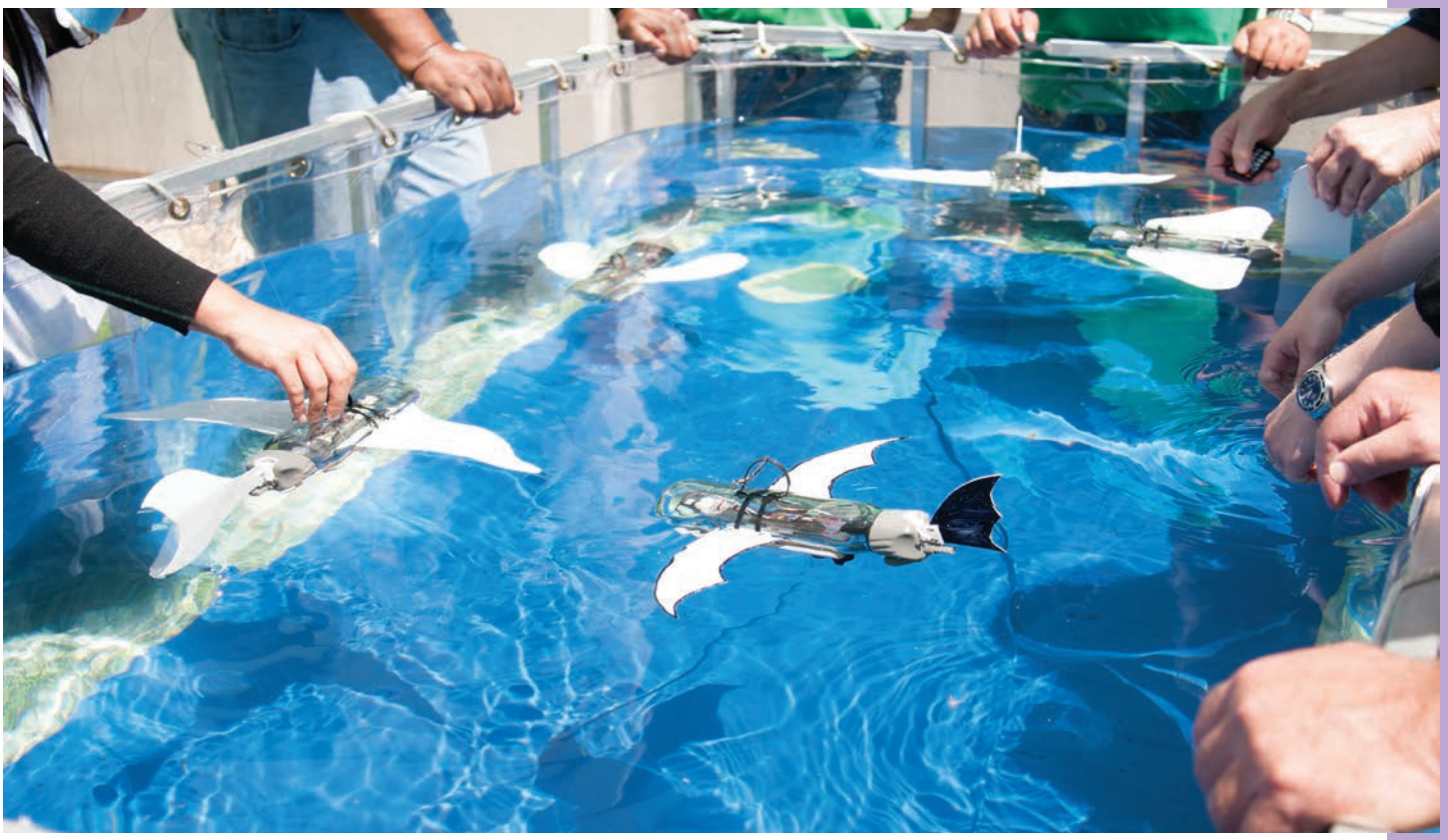


SeaGlide proves popular STEM tool

SeaGlide has proven to be a successful activity among students and professionals alike interested in science and engineering. In support of the Department of Defense science, technology, engineering and math (STEM) initiative, SeaGlide is meant to teach students the basic fundamentals of engineering by allowing them to build their own small-scale underwater glider.

Following Naval Surface Warfare Center, Carderock Division's weeklong workshop for educators across the nation in July, engineers and other Carderock personnel gathered for a SeaGlide mini-workshop Oct. 18.

SeaGlide program facilitators were Michael Britt-Crane (above), a mechatronics engineer with the Hydrodynamics and Maneuvering Simulation Branch (Code 863); John Hamilton, a general engineer with the Maritime Systems Hydromechanics Branch (Code 881); and Tyson Tuchscherer, a contractor with the Submarine Maneuvering and Control Division (Code 86). The three hosted the 90-minute workshop to push their message of continuing to expand SeaGlide by "training the trainers."



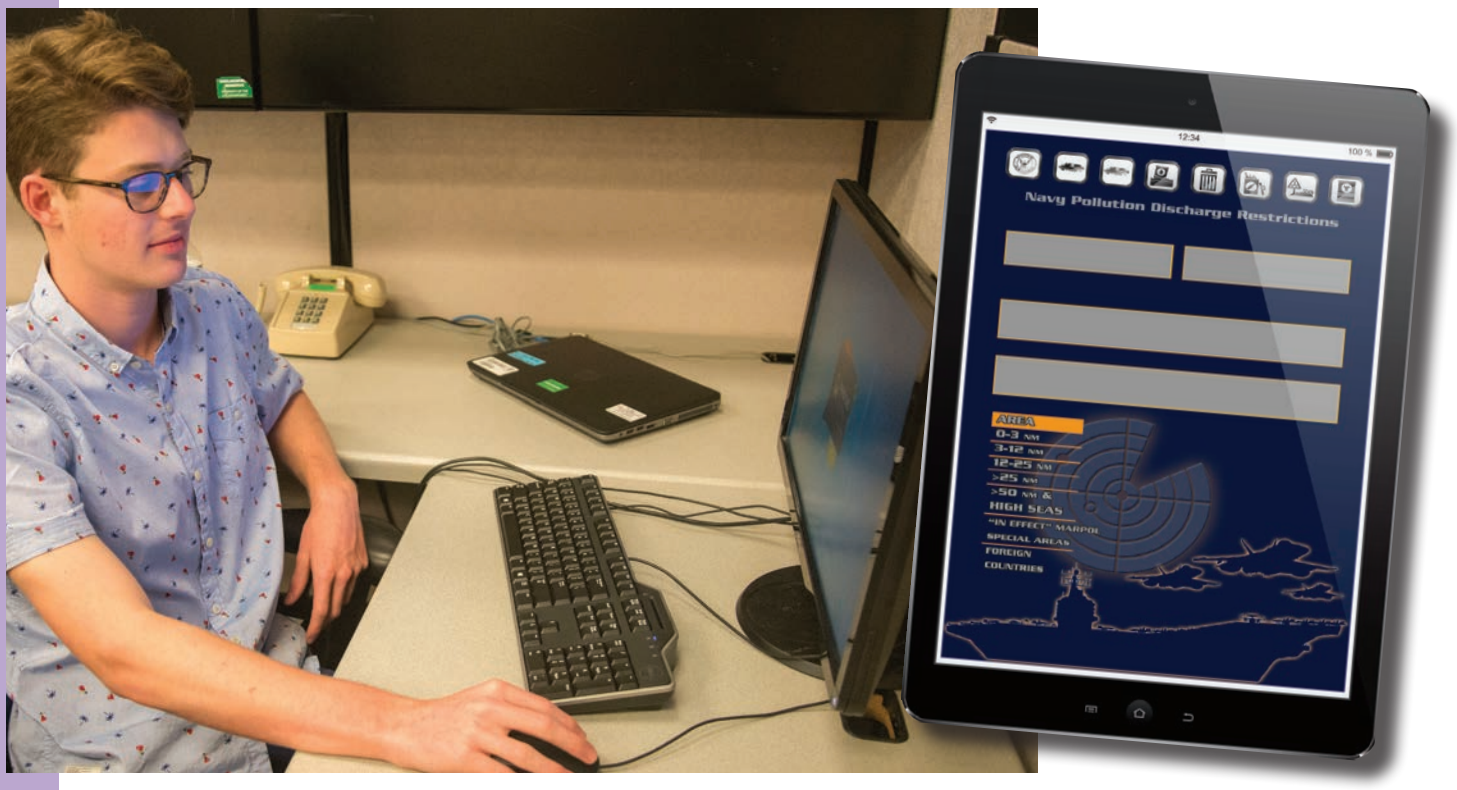
Carderock hosts SeaGlide workshop for educators

Sixteen people from around the U.S. attended Naval Surface Warfare Center, Carderock Division's (NSWCCD) SeaGlide summer workshop July 18-22 in West Bethesda, Md., geared toward educators, scientists and engineers.

A SeaGlide is a small-scale underwater glider – a non-tethered, autonomous robot that has no propeller and uses very little energy.

A SeaGlide helps collect data through sensors, which helps scientists better understand and model the ocean. Although composed of many elements, its most important components consist of a microcontroller, or microcomputer, that runs off of programmed coding sequences that runs the buoyancy engine; the buoyancy engine, which controls the depth and angle of the glider; and the body, which encases the engine, the microcontroller, additional electrical components, and has plastic, custom wings and a fin attached to it.

During the workshop, participants learned how to use coding to program their microcontrollers; build buoyancy engines while also learning how to balance the forces of buoyancy and gravity; put their glider bodies together using plastic water bottles, custom components made in Carderock's Manufacturing, Knowledge and Education (MAKE) Lab, and basic electronic skills.



SEAP intern develops smartphone application for Sailors

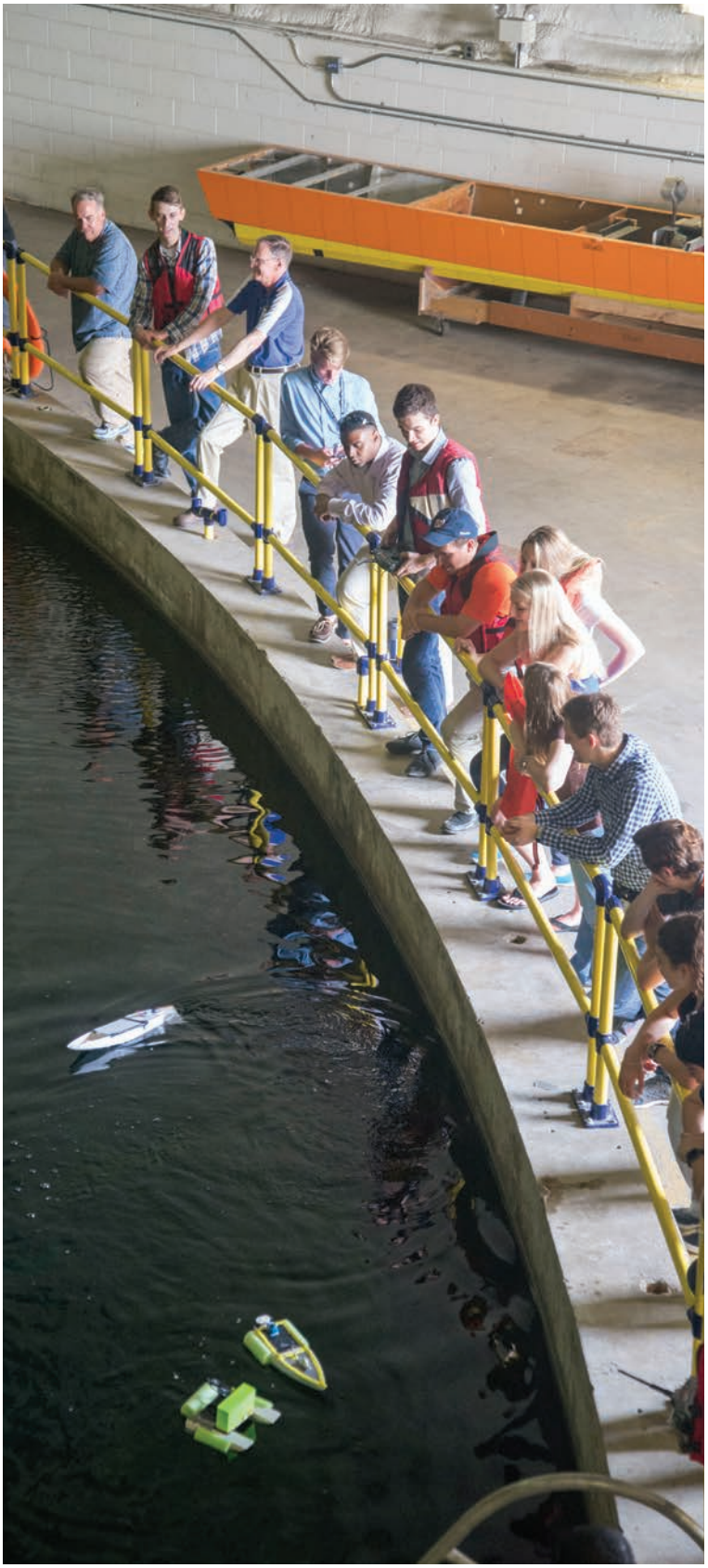
A student with this year's group of Science and Engineering Apprenticeship Program (SEAP) interns at Naval Surface Warfare Center, Carderock Division created a smartphone application in direct response to interest from Sailors in the fleet.

David Papermaster, a junior at Churchill High School in Potomac, Md., came aboard the West Bethesda, Md., headquarters for an eight-week apprenticeship in June. Before he left Carderock, he had a working prototype app running that can assist Sailors with instant access to U.S. Navy environmental protection information.

SEAP presentations

High-school interns at Naval Surface Warfare Center, Carderock Division presented their summer projects and experiences in West Bethesda, Md., on Aug 9, 2016. Center for Innovation in Ship Design (CISD) Director Dave Ruley opened the presentations by thanking interns for their contribution this summer.

During their seven-week employment period the interns, who are part of the Science and Engineering Apprenticeship Program (SEAP), the interns were given the opportunity to experiment and learn more about science, technology, engineering and math (STEM) fields at Carderock. The students were also able to utilize their knowledge and enhance their skills on how to operate a 3-D printer in the process.

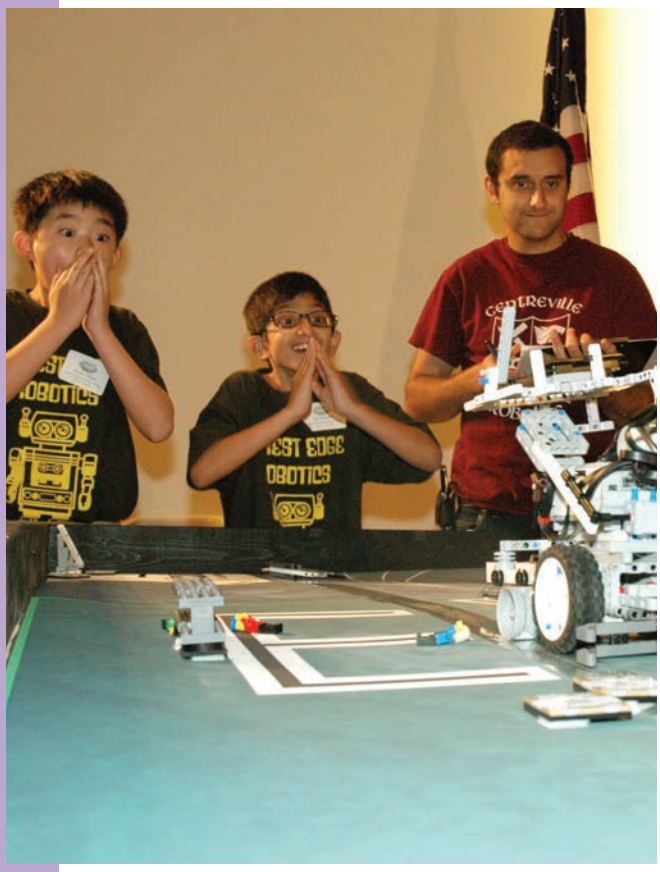


Carderock interns pilot NAVSEA Additive Manufacturing Challenge

College and high school interns at Naval Surface Warfare Center, Carderock Division raced boats they printed and assembled themselves during the inaugural Naval Sea Systems Command (NAVSEA) Additive Manufacturing (AM) Challenge in West Bethesda, Md., July 28, 2016.

Intern groups were given one month to design and build a proof-of-concept surface vehicle. Each group was given a standard kit of parts and access to the Manufacturing, Knowledge and Education (MAKE) Lab's 3-D printers. Once the vehicles were built, participants were challenged to maneuver through an obstacle course in the David Taylor Model Basin.

The NAVSEA AM challenge is testing out concepts the AM Tiger Team has for AM to support the Navy and Marine Corps in a forward-deployed environment



2016 Carderock LEGO Robotics Competition

Students from area elementary schools brought their creativity and ingenuity to Naval Surface Warfare Center, Carderock Division in West Bethesda, Md., for the 2016 Carderock LEGO Robotics Competition.

This year's competition was Operation Carderock, a Carderock-themed challenge that included robot missions aimed at educating participants about the command and its work, according to Nathan Hagan, competition volunteer coordinator and naval architect with the Structural Criteria and Risk Assessment Branch. Along with 2.5-minute matches at the "game board," students also competed in a teamwork activity, robot design judging and presented their research project focused at identifying and solving Navy problems.

Four schools participated in Operation Carderock, with two attending the June 10 competition. Wood Middle School in Bethesda, Md., and Pyle Middle School in Rockville, Md., competed previously at their own school facilities. At the Carderock competition, more than 50 students from Burning Tree Elementary School in Bethesda, Md., and Forest Edge Elementary School in Reston, Va., formed teams of 10, each with a robot they'd built and programmed with LEGO tools and software. Each team was scored on their ability to solve challenges with their robot, based around Carderock locations like the David Taylor Model Basin and the Maneuvering and Seakeeping (MASK) Basin; their ability to work as a team; ability to communicate their design decisions regarding their robot; and presentation for a team-produced research project.

Students, engineers meet at Carderock to discuss future of naval warfare

Engineering students and their professors from universities nationwide discussed the future of naval warfare with engineers at Naval Surface Warfare Center, Carderock Division, April 19, 2016.

The Naval Engineering Education Consortium's annual event gave students from 23 universities the forum to present projects that address real-world Navy problems, as well as talk about how and why to join the Naval Sea Systems Command (NAVSEA) workforce. NEEC is a NAVSEA-directed program carried out at all 10 NAVSEA Warfare Center divisions to cultivate a world-class naval engineering workforce through student participation in project-based research at colleges and universities.

Academia collaborates with naval enterprise at Carderock Academic Outreach

Academic representatives from 21 universities met with Naval Surface Warfare Center, Carderock Division and Office of Naval Research (ONR) employees in West Bethesda, Md., for the Carderock Academic Outreach event, June 8, 2016.

The intent of the event was to enhance collaboration among these representatives – including professors, college officials, interns and students – and members of the Naval Research and Development Establishment (NR&DE), according to Dr. John Barkyoumb, Carderock's director of strategic relations.

The event began with Carderock Division Technical Director Dr. Tim Arcano talking to the representatives in the Maritime Information Technology Center about doing that by creating new relationships and strengthening existing ones. Jack Templeton, chief technology officer at Carderock, then presented an overview of Carderock Division, including its mission, location, personnel, command structure and funding.

Carderock reaches out to local students through annual math contest

Nearly 200 students from 25 local middle schools competed at Naval Surface Warfare Center, Carderock Division, in the seventh annual Carderock Math Contest on March 18, 2016.

The contest, featuring MathCOUNTS-style tests and tours of Carderock, is part of Carderock's ongoing outreach efforts to encourage today's students to pursue careers in science, technology, engineering and math (STEM).

The Carderock Math Contest, part of the National Defense Education Program, challenged the students both as individuals and teams. It began with the Sprint and Target Rounds, sets of math problems each student answered alone, then a Team Round that brought their efforts together under team names like Savage Honey Badger and the moniker that won Most Creative Team Name, E = MC Hammer.

These initial rounds of the contest were followed by tours of Carderock's facilities, including the welding laboratory, the Manufacturing, Knowledge and Education Lab and the Maneuvering and Seakeeping Basin.

Carderock engineers help students soar with Seaplane Challenge

Engineers at Naval Surface Warfare Center, Carderock Division who created a specialized science, technology, engineering and mathematics (STEM) outreach program at the request of the Office of Naval Research (ONR) hosted the Seaplane Challenge competition for a third-grade class Feb. 18-25, 2016, showing pupils firsthand a bit about the Navy and sea-based aviation

Eric Silberg, an aerospace engineer at Carderock Division, and his colleagues visited with the students from Carderock Springs Elementary School in Bethesda, Md., who also toured the base.

With the guidance of engineers who visit the school regularly, the students build glider models based on the NC-4, a Navy flying boat that was the first aircraft to fly across the Atlantic Ocean. The model is constructed using inexpensive materials such as heavyweight paper, drinking straws and a few 3-D-printed parts. The model is designed to be manageable but challenging and includes activities that tie into educational standards such as measurements and units. The Challenge also includes a curriculum component that teaches students about aerodynamics, hydrodynamics, engineering, aviation and history in a program integrated with NextGen and Common Core standards.

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