COASTAL COMPASS

The force behind the fleet

May/June 2023
Vol. 11 Issue 3

PCD DAY!

NSWC Panama City Division

Ensuring Warfighting Dominance in the Littoral Battlespace

May/June 2023
Vol. 11 Issue 3

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The *Coastal Compass* is published bimonthly by the Naval Surface Warfare Center Panama City Division (NSWC PCD) and is an authorized medium for news of general interest about employees of NSWC PCD and their work.

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Editorial Staff

Cover Photo: Eddie Green

VIEW FROM THE BRIDGE

Dr. Peter Adair, SES
Commanding Officer

Just within these last two months, our command has made major strides in connecting the PCD workforce with our mission.

As you read the following pages, you will see that the focus on our people and the celebration of your successes sets the stage for the tremendous work we do in support of the world's greatest Navy.

For example, we hosted quite the celebration to mark the achievement of the initial operational capability for the Navy's Littoral Combat Ship (LCS) mine countermeasures mission package (MCM MP) and the AN/AQS-20 Sonar Mine Detection Set. This major accomplishment was the result of many years of tireless hard work from many of the talented people we have here. This significant milestone is just the beginning of the future of mine countermeasures that provides the warfighter with cutting-edge technologies to expand the Navy's advantage while staying out of harm's way. Bravo Zulu to the PCD team!

We also offered opportunities each month where personnel could attend a Lab Showcase event at various locations to see the projects that support our mission at NSWC PCD and beyond. In May, we hosted our very first PCD Day! The event was intended to inform, educate, promote collaboration, make a friend or two, and have a great time enjoying learning about what our teammates do in support of the Navy. Our mission is successfully executed because of the efforts each of our teammates provide, no matter the size of contribution or where you sit in the command.

> "The focus on our people and the celebration of your successes sets the stage for the tremendous work we do in support of the world's greatest Navy."

My favorite part of PCD Day (and there was more than one) was seeing everyone in person and hearing so many positive things. Whether it was a simple "wow" or "I had no idea that we did so much" or "I've seen that person in town and didn't realize that they worked here" or "are we doing this again next year?"…and the answer is yes, it was such a phenomenal success! I can't say thank you enough to those who presented displays, coordinated in the background to make it happen, and those who came out to join us.

I also heard intrigue from across the warfare center enterprise from people asking, "what's going on in PCD" and "what was PCD Day?" The good news had gotten out and I AM SO PROUD TO BE PART OF PCD!!

Our trajectory continues to rise as we are consistently hosting many visitors who are eager to learn about the importance of who we are, what we do, and why it matters. We will have some exciting happenings over the next few months, including a continuation of lab showcases, awards, collaboration opportunities, and INSPIRE 2.0! Stay tuned.

Thank you to everyone who continues to be a part of the Navy story, no matter where you sit within the organization. Your daily efforts and impact are vital. Continue to support our important mission – the warfighters are counting on us.

IN THIS ISSUE

CIVILIAN LENGTH OF SERVICE

MAY/JUNE 2023

Name	Years
LEE DITTMAN	40
RAYMOND LIM	35
DARRYL UPDEGROVE	35
ROBERT WOODALL, JR	35
JOY ST. AMANT	30
ANGELA HAWES	30
ANTONY SANFELIPPE, JR.	25
JOSEPH BOZA	20
PETER FRYE	20
DALE GARWOOD	20
JENNY HOWELL	20
STEPHEN HOWELL	20
JONATHAN PROPST	20
CLARISSA REEVES	20
JASON SCOTT	20
TIMOTHY ADAMS	15
COREY ALDERMAN	15
JOHN BEST	15
ADRIONE CANADA	15
ERIC FULTON	15
COURTNEY HENSLEE	15
JASON ISAACS	15
ANTHONY PALLOTTO	15
MELISSA PATTERSON	15
LYDIA ROSA	15
BRIAN TOOLE	15

Name	Years
VINH TRAN	15
JEREMY VONKNOBLAUCH	15
EMILY WAYMIRE	15
MICHAEL WICKS	15
VICKI WIGGINS	15
DANIEL GREENLEE	10
WILLIAM ROBERTSON	10
BRIAN WENTWORTH	10
RYON BANTES	5
ALEX BURGANS	5
HALIE CAMERON	5
MICHAEL CRUZ	5
RIDGE DAMREN	5
JEFFREY EICHLER, JR	5
KENT ENGELHART	5
JAMES FAISON	5
ROBERT HERMAN	5
DANIEL JERMYN	5
EMILY KIEHN	5
MARTIN KNAPP	5
MELISSA MARCHAND	5
MONICA MCGRATH	5
ISAAC SLEDGE	5
DARIUS SMEDLEY	5
CHRISTIAN VAZQUEZ	5
JACQUELYN ZBRANAK	5

NSWC PCD DAWIA

Defense Acquisition Workforce Improvement Act

Congratulations to our employees for completing their DAWIA requirements this period!

Phillip Bray
Aaron Blevins
Christopher Eby
Colleen Goodwin
Lesley Kitchens
James Moody V
Daniel Noble
Melissa Paterson

WELCOME ABOARD!

Name	Code
TRISTAN DICKINSON	01B1
TIMOTHY DOAK	0122
MAKAYLA CAMPER	022
SANDRA CASTANARO	022
ASHLEY MAJTYKA	022
MARIA MCELIECE	1071
JABARI ACRE	A13

Name	Code
AMY BRIGHTBILL	A45
VICTOR CRAWFORD	A11
BENJAMIN DINAL	A32
JOHN GROSS	A13
TEAL WHEELER	A31
CARRIE DELGADO	E14
AARON HATFIELD	E33

Name	Code
PAYTON KING	E15
STEPHEN LOWE	E12
RAYMOND SERNA	E12
KYLE DEAN	X23
THOMAS HARRIS	X12
MORGAN OLSEN	X21
JOSEPH PATULLO	X11

DIVISION SPOTLIGHT

Rachael Robinson

PMS 420 and PMS 501 Technical Program Manager

Code A30

Modular Integration Division

How long have you worked at NSWC PCD?

6.5 years - I started at NSWC PCD on Christmas day 2016.

Why did you decide to work at NSWC PCD?

I started my Navy career at Naval Sea Systems Command Headquarters (NAVSEA) at the Washington Navy Yard. I then moved to the Pentagon as part of the Chief of Naval Operations (OPNAV) Staff before coming to Panama City. The move was a big cultural adjustment from the D.C. area, but I met my husband at NSWC PCD and we are enjoying raising our daughter here.

What do you do in your job? What is the impact?

I am a technical program manager (TPM) for NAVSEA's Littoral Combat Ship Mission Modules (PMS 420) Mine Countermeasures Mission Package and Common portfolios. I manage nine projects, which make up over 80 funded efforts from the sponsor. The portfolio includes all of A30, a large part of A40 (the Analysis, Tactics & Simulation Division), and includes personnel from various branches outside of the Littoral & Mine Warfare Systems Department. For the PCD team, I help the project engineers and their teams with all aspects of program management, including procurements and contract actions, tracking of milestones and deliverables, and monitoring financial execution. I am the liaison with our funding sponsors in PMS 420 and lead task negotiations that fund our team.

What does your Division do?

The A30 Modular Integration Division leads engineering, analysis, and planning support for the modularization of off-board systems in support of the littoral warfare mission area. A30 played a significant role in recent achievement of initial operational capability (IOC) for the Littoral Combat Ship Mine Countermeasures Mission Package. IOC was declared by Vice Adm. Scott Conn, OPNAV N9, May 1, 2023.

What is an interesting fact about you?

I serve as a volunteer with Florida's Guardian ad Litem (GAL) program. GAL represents abused, abandoned, and neglected children in court and the community. My role is to help children express their needs and wishes, to address their needs, and to advocate in court for the child's best interest. There is a great need in Bay County for GAL volunteers and suitable foster families; I would happily share my experiences with anyone considering volunteering.

NEW HIRE TOURS

Some of our newest personnel, and those who may have joined us within the last few years, were able to familiarize themselves with mission sets and facilities that highlight NSWC PCD's impact to the fleet, May 24. We are glad to hear such positive responses from those taking these tours. (U.S. Navy photo by Ronnie Newsome)

NSWC PCD personnel from various departments visit several mission sets during the Navy Lab's new hire tour, June 14. The tour allows new personnel to experience the scope of NSWC PCD capabilities for national defense. (U.S. Navy photo by Anthony Powers)

ASIAN AMERICAN PACIFIC ISLANDER HERITAGE MONTH: *DOMINIC GABRELESKI*

By Jeremy Roman, NSWC PCD Public Affairs

Dominic Gabreleski is the head of the NSWC PCD Maritime Mission Systems Division and he is responsible for the overall health and success of this division. He attended U.S. Navy Dive School, helped stand-up the Undersea Special Warfare Engineering Support Office in Hawaii and learned the importance of education and hard work from his Filipino upbringing. (Courtesy photo)

Dominic Gabreleski is the head of the Naval Surface Warfare Center Panama City Division (NSWC PCD) Maritime Mission Systems Division and he is responsible for its the overall health.

For the past 15 years, he has used his attention to detail and dynamic problem-solving ability to positively impact the Navy Lab's ability to support the fleet.

"I ensure that [our] division's workforce has what they need to deliver material solutions and support to the warfighter," said Gabreleski. "It involves a multitude of tasks such as ensuring facilities are sufficient, that there are enough personnel with the right expertise to perform the tasking, interfacing with sponsors and end users, maintaining open communication with leadership internally and externally, and ensuring everything aligns to the Naval Sea System Command and NSWC PCD strategic vision."

Born and raised in a Chicago suburb, he graduated from Purdue University in Indiana before arriving at Panama City, Fla., in 2007. He shared what foundations were key to his success and how he acquired them.

"Education and a hardworking mentality are highly emphasized in Filipino culture. I believe the emphasis of those two items have helped me get to where I am now," said Gabreleski. "I lived in the Philippines when I was young and have visited several times as an adult. It is a paradise for those that enjoy outdoor activities, being in or on the water, good food, and learning about new cultures. The most expensive part of the trip is the flight, but once you get there, everything is relatively inexpensive and the people are extremely friendly and polite."

Gabreleski has achieved several career highlights to include attending U.S. Navy Dive School, spending nearly four years to stand up the Undersea Special Warfare Engineering Support Office in Hawaii, and served in numerous project management leadership roles. Despite all the success, he explained the driving force behind his work at NSWC PCD.

"What I enjoy most about working here is the ability to positively impact the warfighter by delivering to them material solutions that increase their lethality. Working with and getting capability to the end user is what matters to me," said Gabreleski. "The work is very interesting, diverse, and ever-evolving due to the specialized customer base in the maritime mission systems division. It also allows me to work with very fascinating people and equipment."

AWARD NEWS

Congratulations Awardees!

Dr. Richard Tatum

Dr. Delores M. Etter Top Navy Scientists and Engineers of the Year Awards,

Individual Scientist Award

Amanda Elkins

Navy Civilian Service Meritorious Award

Joel Roberson

Navy Civilian Service Commendation Medal

Garrett Leavitt

Navy Civilian Service Commendation Medal

Jamell Kilgore

Outstanding Civilian Quarter Two Award

Christine Livingston

INSPIRE Award of Quarter Two

Equal Employment Opportunity (EEO), Diversity and Inclusion & Human Resources (HR) Offices

Department of Navy HR and EEO Community Awards for Excellence 2022

Honorable Mention

Coastal Compass Team

Navy Media Awards, Print and Digital Publication

Upcoming Awards

12 July	SECDEF Performance-Based Logistics Award
15 July	Society of Hispanic Professional Engineers Technical Achievement Recognition (STAR) Awards
17 July	Acquisition, Program Management, and Small Business Excellence Awards
2 August	Outstanding Early-Career Investigator
17 August	Black Engineers of the Year Awards (BEYA) Professional and Academia Awards
24 August	W. Edwards Deming Training Award
1 September	BEYA Modern-Day Technology Leaders
	BEYA Science-Spectrum Trailblazer
	American Society of Mechanical Engineers (ASME) Freeman Scholar
15 September	Federal Laboratory Consortium (FLC) National Awards
	Institute of Electrical and Electronics Engineers (IEEE) Professionalism/Technical Achievement/Literary Awards
	FLC Director of the Year
21 September	ACT-AIC Industry Executive Leadership Award
15 October	Society of Industrial and Applied Mathematics (Polya/DiPrima/Reid Prize)
23 October	Jerlov Award

Dates provided are due dates for completed package(s) to be received.

Upcoming awards are regularly updated on: https://wiki.navsea.navy.mil/display/PCD103/Awards

***Non-government agency award submissions now require approved public release documentation.**

Contact ***Cierra Burch*** at ***W_PNMA_NSWCPCD_PAO@navy.mil*** for nomination requirements, forms, and questions.

According to the U.S. Department of Defense, President Harry S. Truman led the effort to establish a single holiday for citizens to come together and thank our military members for their patriotic service in support of our country. Naval Surface Warfare Center Panama City Division proudly reflects upon the ways we have observed Armed Forces Day throughout the years. This excerpt is from the lab newspaper, The Underseer, May 1967.

Send comments to
NSWC PCD Command Historian:
Shauna Love-vonKnoblauch at
shauna.r.love-vonknoblauch.civ@us.navy.mil

The day's celebration started off with a parade downtown.

1967 Mine Defense Laboratory Armed Forces Day Program

An interesting afternoon of activity is being planned for the MDL Armed Forces Day Open House program on May 20. Gates will be open to the public form 12 noon to 4 P.M.

A program of live demonstrations, eye-catching static displays, visits aboard minesweepers, and free boat rides have already been scheduled with more attractions to come. Also in store are free balloons and facilities for sending messages via an amateur radio hookup.

Demonstrations will take place in the bayou of the Laboratory and will include an airborne/underwater reconnaissance and underwater demolition demonstration during which divers will explode a simulated target on shore, a mine-sweeping demonstration, flying helicopter exhibition, a demonstration of deep sea and SCUBA equipment and others.

Always a big hit during open house are the static displays as devised by the scientists and engineers of the Laboratory. A helicopter from the Naval Air Mine Defense Development Unit will be on the pier for public inspection.

Three ships of Mine Division 81 will be dressed up and ready for public inspection. They are the USS ASSURANCE (MSO 521), USS VIGOR (MSO 473), and USS VENTURE (MSO 496).

Free boat rides, which have proved a big hit over the past few years, will again be on the program, Utility boats will be operating throughout the afternoon, giving boat rides to children accompanied by parents.

Members of the Panama City Amateur Radio Club will set up shop to permit visitors to transmit messages to friends and relatives in far off places.

The Laboratory will have a marching unit and Floats in the Armed Forces Day parade the morning of May 20, and window displays.

Chairman of the Laboratory's Armed Forces Day committee directing the program is LT Dan Woods.

A simulated beach target is blown up by divers during airborne-underwater reconnaissance demonstration.

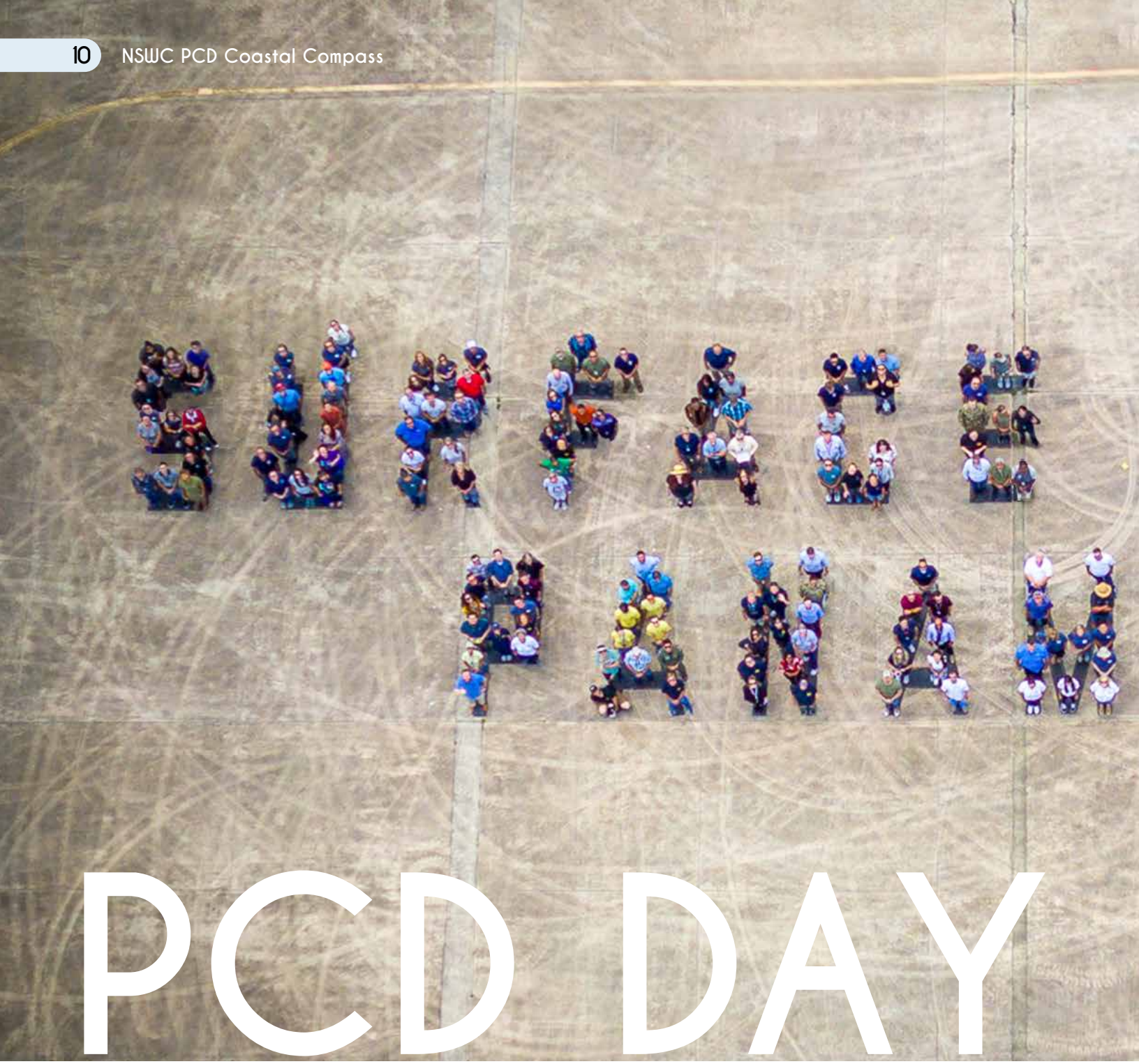
A panorama of the crowd on the pier. Not visible are the crowds waiting for boat rides, and viewing the sea animal.

Deep sea diver with full regalia prepares to go below.

Sea animals perform for the crowd.

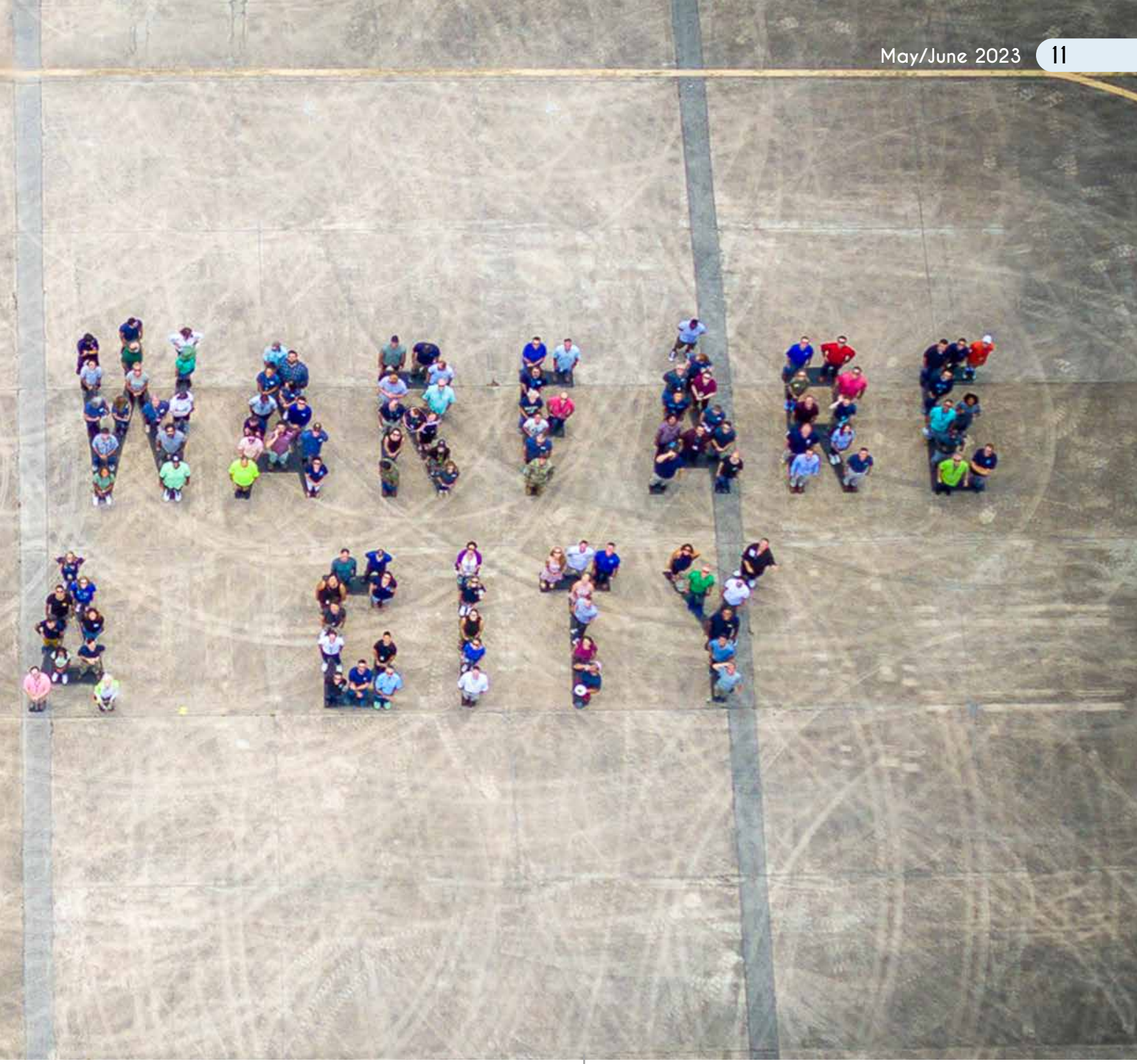
The largest crowd in several years, about 2,700 people, turned out for the MDL Armed Forces open house last Saturday. The big attraction was the sea animals that were brought here for training. But, there were many other fine attractions, too, such as free boat rides, live demonstrations in the bayou, open house aboard three ships of MINDIV 81, and static displays.

Diver jumps from helicopter prior to starting demolition demonstration.



PCD DAY

By Jeremy Roman, NSWC PCD Public Affairs



Personnel from NSWC PCD and Naval Support Activity Panama City unite on the former flight line to celebrate the Navy Lab's first ever PCD Day, May 18. The event featured each of the command's business and technical departments and how they serve the fleet and warfighter through the rapid delivery of support, research, development, test and evaluation solutions. (U.S. Navy photo by Anthony Powers and Eddie Green)

PANAMA CITY, Fla. – For the first time ever, Naval Surface Warfare Center Panama City Division (NSWC PCD) held PCD Day, May 18. This event invited all personnel onboard Naval Support Activity Panama City to learn about the numerous mission sets and people at the Navy Lab.

More than 800 people accepted the invitation and gathered together to take part in the festivities. PCD Day was an opportunity for each department to showcase their talents and educate the workforce on how NSWC PCD works together to serve U.S. Navy objectives. Each technical and business department was encouraged to set up their displays and be as creative as they choose. The displays ranged from easels, obstacle courses, game shows, real-life board games, tangible items such as diving suits/equipment, video monitors and, in some cases, 40-foot vehicles.

Participants were handed a PCD passport postcard that encouraged them to travel to the different event locations to experience

> "It was a phenomenal success and news of the event spread across the warfare center enterprise."

how each department meshes together to support the fleet. They also could learn about the opportunities available here to get involved with various groups and programs aimed to help personnel professionally and self-develop.

The event, which was the first of its kind at NSWC PCD, allowed its personnel to ask questions, celebrate successes, interact and reconnect.

"Among the many favorite parts of PCD Day, I enjoyed seeing everyone in-person and hearing so many great things. Whether it was a simple "wow…I had no idea that we did so much" or "I've seen that person in town and didn't realize they worked here" or "are we doing this again next year", the answer is a resounding yes," said Dr. Peter Adair, NSWC PCD technical director. "I can't say thank you enough to those who presented displays, provided background event coordination, or those who joined the festivities. It was a phenomenal success and news of the event spread across the warfare center enterprise. I'm extremely proud to be a part of PCD."

No matter the display type that was chosen or where each department fit into the process of delivering rapid solutions to the warfighter, the one constant was the people. This symbolism was captured as attendees assembled for an aerial group photo where they stood united as one command. In the wake of its success, the command is looking to make PCD Day an annual event moving forward.

Business and technical teams from NSWC PCD were on display for the tenants of Naval Support Activity Panama City during the Navy Lab's first ever PCD Day, May 18. (U.S. Navy photos by Anthony Powers and Eddie Green)

ENSURING WARFIGHTING DOMINANCE

NSWC PCD LOGISTICS DIVISION USES APPRECIATIVE INQUIRY TO BUILD CULTURE, IMPACT FLEET

By Jeremy Roman, NSWC PCD Public Affairs

Naval Surface Warfare Center Panama City Division (NSWC PCD) Integrated Logistics Support Division (E50) recently experimented with a novel management approach used by major companies to more fully engage the division's workforce, refine their culture, and enhance their impact to the warfighter.

The management approach, called Appreciative Inquiry (AI), is a way of creating organizational change by focusing on identifying and doing more of what is already working, rather than focusing solely on problems and trying to fix them. The key feature of AI is that it uses existing strengths, achievements and successes – the aspects of people's work that they are proud of, that motivates them, and that are getting good results – as a foundation for a credible vision of the future, and a launching pad to reach that future vision.

The department first learned about AI through a government management workshop attended by NSWC PCD Expeditionary & Maritime Systems Department Head Stephen Hunt. AI is being used by other organizations in the Navy, but E50 was the first NSWC PCD division to try it.

"When I was first introduced to AI, I was initially skeptical that it was some sort of trendy, flavor-of-the-month management theory," Hunt said. "But the more I learned about it and the science behind it, the more I realized its potential value. I applaud Division Head Peter Halvorson and his team for being the first to try it at the lab, and I am looking forward to seeing their results going forward."

Nearly 100 logistics personnel across the six E50 branches (including one branch remotely located in Orlando) attended an AI exercise created and facilitated by Rhonda Hoeckley, a senior analyst for New Venture Research Corporation, at the request of Halvorson.

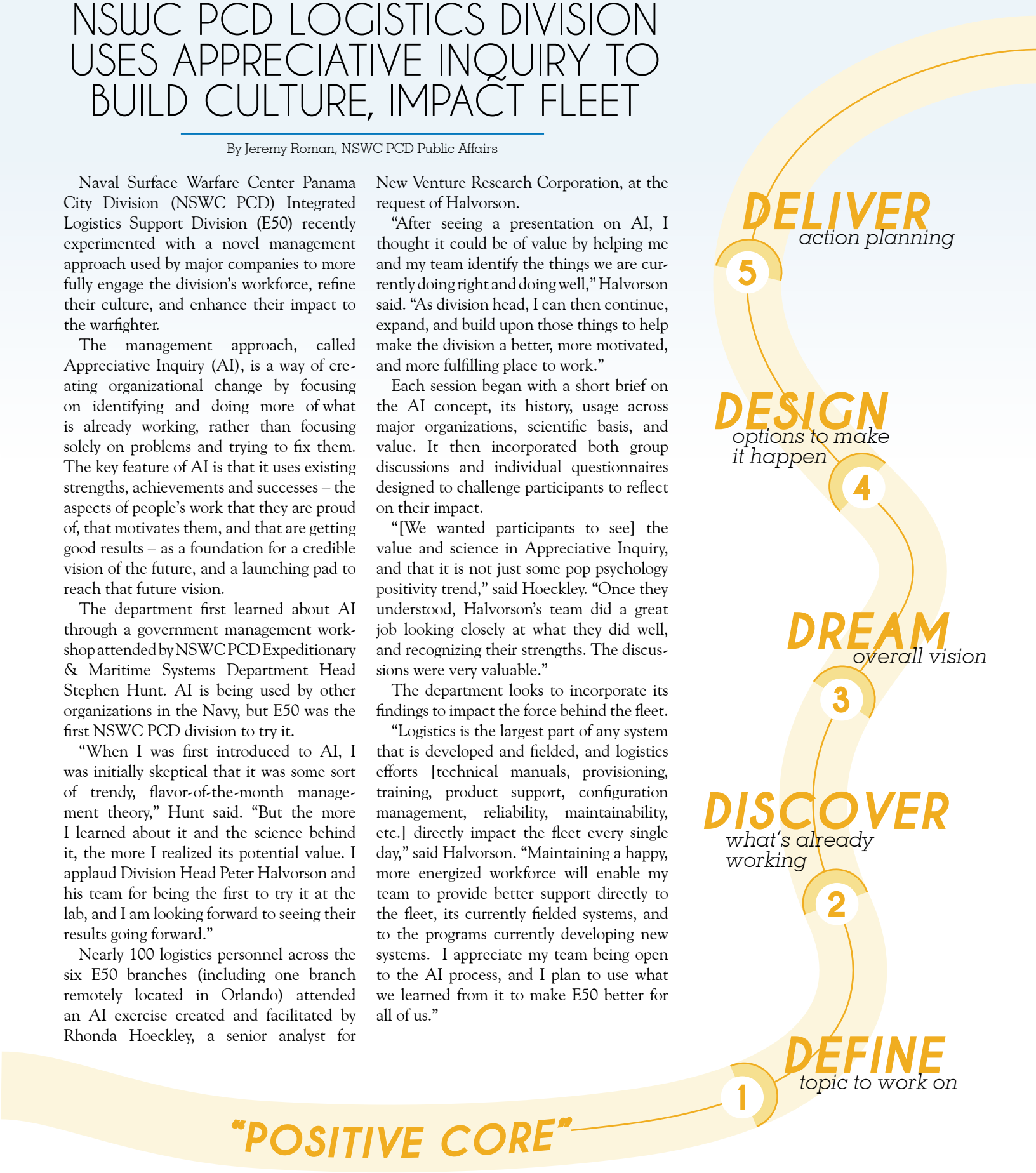
"After seeing a presentation on AI, I thought it could be of value by helping me and my team identify the things we are currently doing right and doing well," Halvorson said. "As division head, I can then continue, expand, and build upon those things to help make the division a better, more motivated, and more fulfilling place to work."

Each session began with a short brief on the AI concept, its history, usage across major organizations, scientific basis, and value. It then incorporated both group discussions and individual questionnaires designed to challenge participants to reflect on their impact.

"[We wanted participants to see] the value and science in Appreciative Inquiry, and that it is not just some pop psychology positivity trend," said Hoeckley. "Once they understood, Halvorson's team did a great job looking closely at what they did well, and recognizing their strengths. The discussions were very valuable."

The department looks to incorporate its findings to impact the force behind the fleet.

"Logistics is the largest part of any system that is developed and fielded, and logistics efforts [technical manuals, provisioning, training, product support, configuration management, reliability, maintainability, etc.] directly impact the fleet every single day," said Halvorson. "Maintaining a happy, more energized workforce will enable my team to provide better support directly to the fleet, its currently fielded systems, and to the programs currently developing new systems. I appreciate my team being open to the AI process, and I plan to use what we learned from it to make E50 better for all of us."



DEEP LEARNING ARCHITECTURE RESEARCH IS UNDERWAY THROUGH NEEC GRANT SPONSORED BY NSWC PCD

By Shauna Love-vonKnoblauch, NSWC PCD Public Affairs

PANAMA CITY, Fla. – So what is a machine learning algorithm really doing? That is the question a group of university students and faculty are tackling at the University of Florida (UF) under a Naval Engineering Education Consortium (NEEC) grant sponsored by NSWC PCD.

NEEC includes students, university faculty and NAVSEA Warfare Center mentors. Dr. Matthew Bays, NSWC PCD senior scientist for robotic and optimization and NEEC director, weighs in on the subject.

"Machine learning processes are quickly taking over not only facets of everyday life with systems such as ChatGPT, but also have the potential to transform the maritime battlespace. NSWC PCD has been actively pursuing machine learning techniques in automated target recognition for mine warfare," said Bays. "However, a growing concern both within the Department of Defense and our broader society is how we can ensure machine learning algorithms are safe and effective."

Using information-theoretic techniques, this NEEC project is developing a systematic way of understanding machine learning systems.

Ben Colburn, Ph.D. student and UF research assistant in the Computational NeuroEngineering Lab (CNEL), explained how they are using information theory ideas to understand this project.

"There is a growing use of Deep Learning architectures in military applications and understanding these models will be key to ensure reliability and proper application of deep learning models. If we are deploying these models in potentially life or death situations, we need to trust them. If we are to trust them, we must understand them," said Colburn. "The most current work done under this grant is submitted for review under the title, The Functional Wiener Filter (FWF). This work extends the Wiener solution for an optimal nonlinear filter to a Reproducing Kernel Hilbert space (RKHS) that is nonlinearly related to the input signal. This yields a closed-form solution to an optimal nonlinear filter in a data-dependent universal RKHS."

Bays, explained that tackling important research questions while training students, like Colburn, with the goal of employment after graduation are the two primary NEEC program goals.

"The NEEC program has been a tremendous benefit to the Naval Research and Development Enterprise and NSWC PCD in particular, with projects recommended by all three NSWC PCD [technical] departments in recent years," Bays said. "It's created a sustainable pipeline of scientists and

(*right*) Ben Colburn, a research assistant at the University of Florida, presents his research to Dr. Matthew Bays, Naval Surface Warfare Center Panama City Division's (NSWC PCD) senior scientist for robotics and optimization and the command's Naval Engineering Education Consortium (NEEC) director. The NEEC program has benefited the Naval Research and Development Enterprise and Navy Labs, like NSWC PCD, by creating a sustainable pipeline of scientists and engineers with difficult-to-hire skillsets. (Courtesy photo)

engineers with difficult-to-hire skillsets, such as autonomy and machine learning."

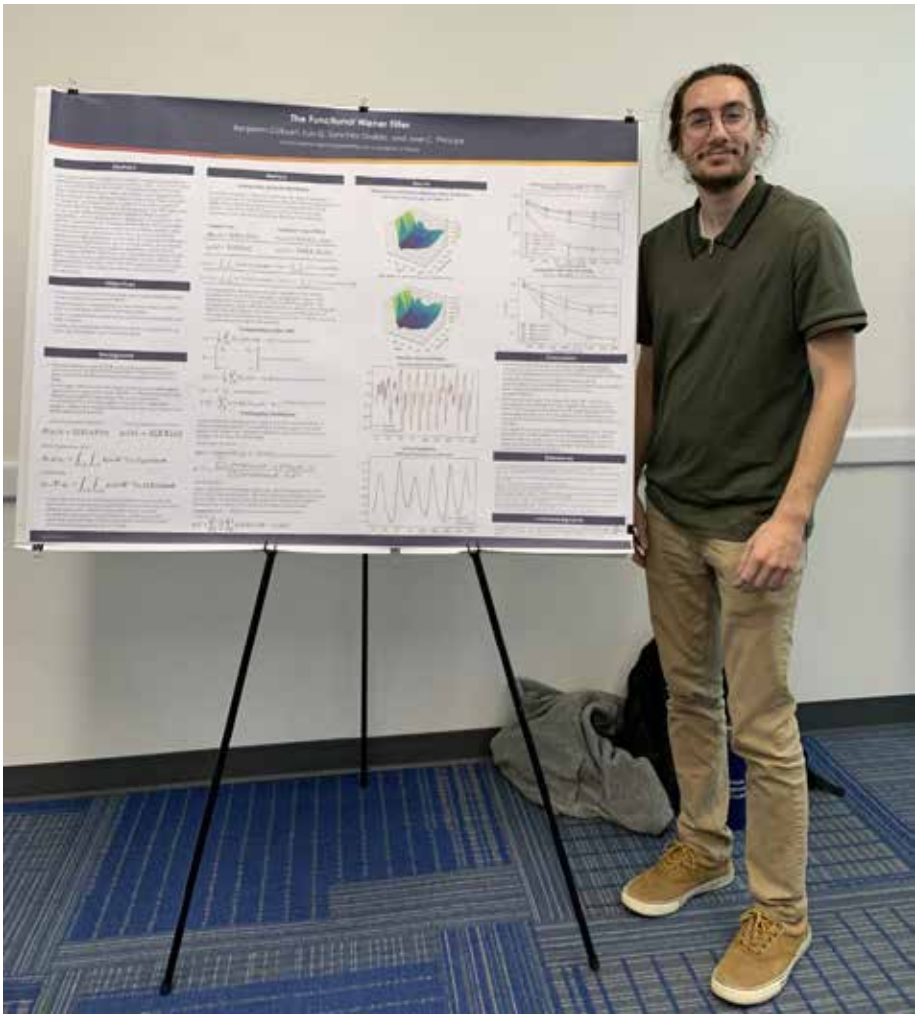
Dr. Jose C. Principe, Eckis Distinguished Professor of electrical and computer engineering, is the NEEC faculty member at UF and principal investigator of this project. He is responsible for the research direction effort and execution of the project.

"Machine learning is achieving amazing results, but our lack of understanding about how specifically this happens is quite frustrating. On the other hand, information theory is a well-developed theory of bounds, centered around the concept of information. The big advantage of information is that it is metric and actionable," explained Principe. "Hence, integrating machine learning with the theory of information quantifies how information is transformed within a machine learning algorithm during training. This will pinpoint bottlenecks and ways to improve training times and the choice of hyperparameters for robust performance. The overall project goal is to design machine learning algorithms in the same way engineers build high technology. In my laboratory, students not only learn algorithms and applications, but also collaborative methodologies on how to solve problems and construct new paradigms that push the state-of-the art. I am, therefore, very honored to be part of the NEEC initiative."

Isaac Sledge, NSWC PCD senior machine learning research scientist and NEEC mentor, and his team, have successfully competed for and received grants from the U.S. Office of Naval Research in the areas of information-theoretic reinforcement learning, information-theoretic deep learning, and information-theoretic uncertainty quantification.

"This project is incredibly important for understanding the flow of information in deep networks and why they learn to perform complicated tasks, like automated target detection and recognition, semantic scene segmentation, and more," said Sledge.

"This research will be instrumental in designing better automated target recognition systems and understanding why they work and where they provide spurious responses," continued Sledge. "All of these topics are of immense interest to the U.S. Navy, as they will lead to the creation of deployable systems that remove the need for the warfighter to act in dangerous locations. They also enable us to maintain a lopsided technical edge against our adversaries."



Ben Colburn, Ph.D. student and University of Florida research assistant in the Computational NeuroEngineering Lab with his Functional Wiener Filter poster from the Control and Cognition Conference. (Courtesy photo)

NSWC PCD AND BROWN UNIVERSITY SIGN CRADA TO PROTECT HIGH SPEED CRAFT OPERATORS

By Jeremy Roman, NSWC PCD Public Affairs

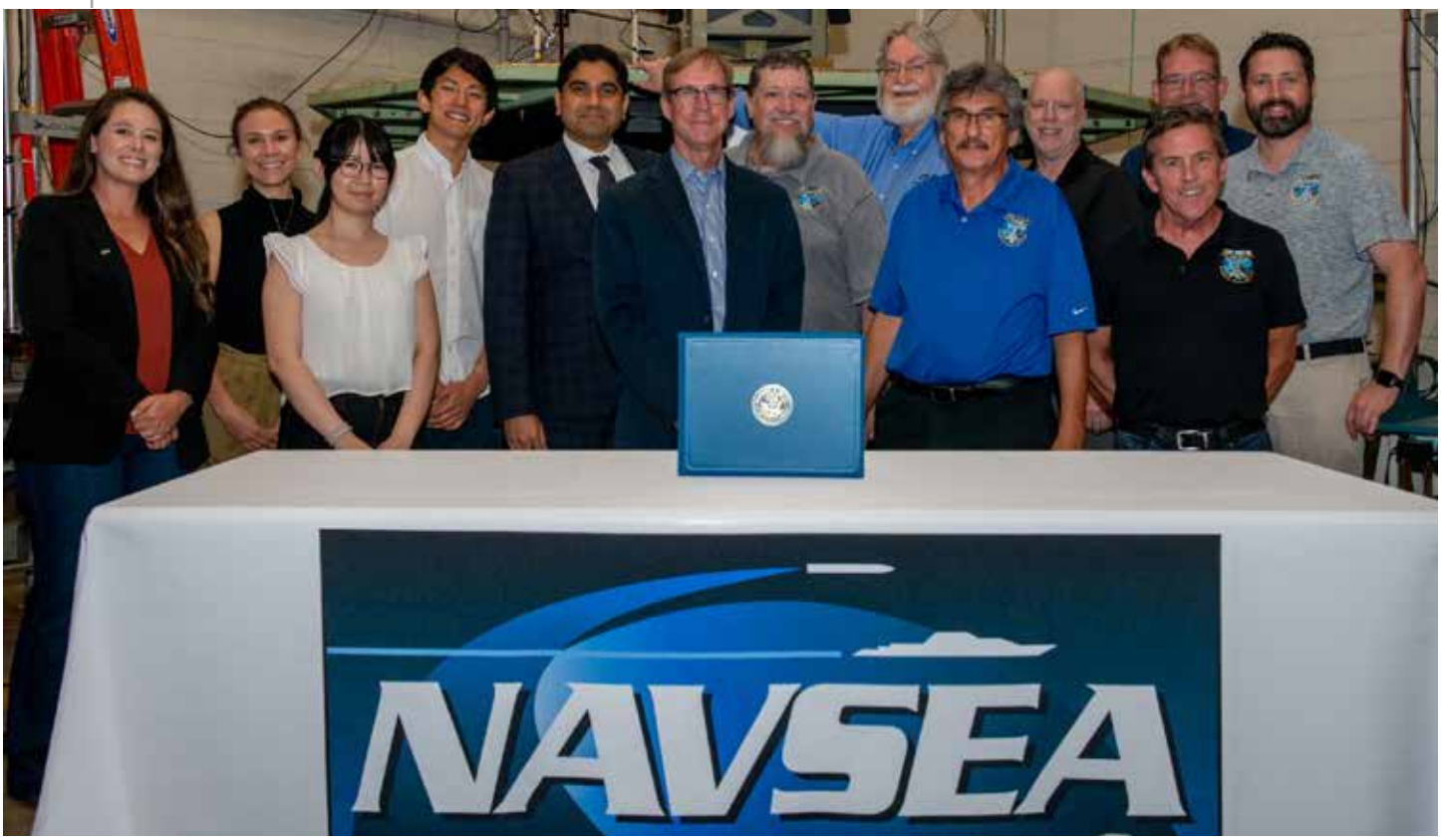
PANAMA CITY, Fla. – Naval Surface Warfare Center Panama City Division (NSWC PCD) and Brown University have recently entered into a Cooperative Research and Development Agreement (CRADA) aimed to develop technology solutions to protect high speed craft (HSC) operators from injurious environmental conditions, specifically the repeated mechanical shock a body endures when quickly navigating open water.

The research under the CRADA was sponsored by Office of Naval Research (ONR) Code 34 Warfighter Protection and ONR Global Experimentation and Analysis (ONRG E&A). The agreement is entitled the "Development of Improved Sensor Systems and Algorithms Optimal for use in Brain and Spine Injury Research associated with the HSC Environment" and outlines what facilities, technology and data may be shared; ownership of resulting innovative technologies; and processes for publishing new findings. It also reinforces the collaborative relationship between researchers, scientist and engineers from NSWC PCD and Brown University to combine capabilities towards goal-achieving discovery and technological advancement in protection. Eric Pierce, NSWC PCD Test and Evaluation & Prototype Fabrication Division senior test director and Human Factors engineer, explained what the Navy Lab brings to the table and why these partnerships are important.

"NSWC PCD has extensive expertise, capabilities and information in Special Warfare Maritime Mobility Mission Systems, Mission Support Equipment, Human Factors Engineering, Impact Injury Research and Development of Human Worn Instrumentation," said Pierce. "Teaming with Brown University [will offer] answers to the problems that we are seeking in terms of protection from mild Traumatic Brain Injury (mTBI) and better human-worn instrumentation to characterize these problems and provide some form of eventual dosimetry and impact injury tracking over the years of a career."

As an educational and research university, Brown's efforts aim to discover fundamental knowledge and train the next generation of scientists to solve real-world problems. As part of the Office of Naval Research (ONR) sponsored PANTHER (Physics-bAsed Neutralization of Threats to Human

A delegation from Naval Surface Warfare Center Panama City Division, Brown University, Office of Naval Research, Duke University and Human Systems Integrations commemorate the signing of a Cooperative Research and Development Agreement (CRADA), May 22. The CRADA aims to develop technology solutions to protect high speed craft operators from injurious environmental conditions, specifically the repeated mechanical shock a body endures when quickly navigating open water. (U.S. Navy photo by Sgt. Alex Morgan)



(*right*) Blake Draut, NSWC PCD E42, interviews a U.S. Coast Guard test participant following motion exposure testing, May 23. Several surveys are administered to the tester throughout the process including immediately after donning the Accelo-Suit, verbal interview while still on the platform and a more in-depth interview at completion of a subject's participation. (U.S. Navy photo by Ronnie Newsome)

tissuEs and oRgans) and TIGER (Towards Injury prediction using G-sensor-based strain Estimation and motion Reproduction) programs, a team of scientists from Brown University have developed two wearable inertial measurement systems, the Accelo-Hat and Accelo-Harness. Collectively known as the Accelo-Suit, these systems were designed to fasten inertial measurement units (IMUs) at several locations distributed across the human body so that the IMUs may measure kinematics data (namely, linear acceleration and rotational velocity) at those points. Dr. Haneesh Kesari, Associate Professor of Engineering from the solid mechanics division at Brown University, provided some insight on the collaboration's impact and trajectory.

"The human brain itself does not have pain sensors…so if a person gets injured through some of the very strenuous training conditions and military exercises, there is no direct way to know that they are getting injured until far after the fact. Even with the performance of computer simulations and calculations, they are not directly applicable because there are numerous assumptions and information we don't have with [just] a computer model," said Kesari. "So this experiment is very valuable because it ties together two very disparate fields of expertise and knowledge. One is the know-how of 20 years of high speed craft biodynamics research experience that Mr. Pierce brings and the other is the most state-of-the-art algorithms, computer software, math and physics being developed. When merging these together, we'll be able to figure out from a rational and rigorous mathematical sense of how to quantify injury and, thus, be able to have a more predictive and rationally designed preventative measure."

In Fiscal Year 2023, NSWC PCD and researchers from Brown, with biomechanics expertise from Cameron R. Bass LLC, collaborated to assess the suitability and effectiveness of the Accelo-Suit under simulated at sea conditions. Future tests may continue to utilize the Moog 6DOF motion simulator located in the NSWC PCD Human Systems Integration Team's Biodynamics Laboratory.

"One of NSWC PCD's missions is to conduct research, development, test and evaluation [RDT&E] for Naval Special Warfare [NSW] Systems," said Pierce. "Ensuring NSW warfighter dominance includes addressing the collective desire of NSW to strategically maximize human capital, sharpen battlefield performance, and extend the operational service life of the warfighter."

These CRADAs serve as excellent opportunities to help organizations achieve their respective goals collectively. They can allow private industry to license federal technologies, demonstrate good stewardship of taxpayer money, and increase development of commercial technologies, which supports the national defense and economy. The benefits can also include increased efficiency, more rapid solutions, lead to future partnerships and provide academia with opportunities to expose their students to impactful on-site training.

"Having strong partnerships with academia using technology transfer agreements allows us to be more agile in our research and development. This translates to direct mission support and warfighting dominance," said Paige George, NSWC PCD Technology Transfer manager.

This isn't the first time the Navy Lab and Brown have collaborated together. In FY22, they conducted a Human Subjects Research (HSR) study determining the efficacy of exoskeleton leg braces in mitigating potentially injurious repeated mechanical shock aboard HSC.

"NSWC PCD and Brown University have already begun a strong working relationship. It is my sincere hope that this CRADA will further strengthen that relationship and ensure continued collaborative efforts intended to protect and improve Warfighter performance," said Pierce.

A U.S. Coast Guard test participant in standing bolster is being exposed to simulated Sea State III conditions, May 23. Sea State is the general condition of the free surface on a large body of water, with respect to wind waves and swell, at a certain location and moment. The Phase I bolster was provided for leaning and bracing. (U.S. Navy photo by Ronnie Newsome)

FLAG DAY

June 14 celebrates the symbolism and history of the American flag by commemorating the adoption of the U.S. flag in 1777, by resolution of the Second Continental Congress. In 1916, President Woodrow Wilson issued a proclamation that officially established June 14 as Flag Day on August 3, 1949. National Flag Day was established by an Act of Congress. (U.S. Navy Photo by Robert Lindee)

FLAGPOLE FRIDAY (U.S. Navy photos by Eddie Green)

Friday, May 19th was the Command's first Flagpole Friday, beginning an intentional effort to come together once a week to stand together as a unified team to observe morning colors.

This initiative stemmed from responses within to the Defense Organizational Climate Survey and other comments made by personnel within the organization. We hope this will bring the workforce together to ultimately remember why we all do what we do every day, to honor those who have come before us, those who are currently serving, and our nation.

Personnel are encouraged (not required) to wear RED (Remember Everyone Deployed), colors/shirts from units military branches they/their family currently serve or has served in, or PCD gear.

This will take place every Friday morning at Bldg. 110. But if you can't make to the site, just note that you can see the flag from almost every location on base just step outside your building face the flagpole and be part of honoring together from where you are….and grab a friend (or a few) on your way out the door.

MEMORIAL DAY EVENT

Members of the Naval Surface Warfare Center Panama City Division workforce gathered for a Memorial Day Observance and Remembrance hosted by the Navy Lab's Veterans Employee Resource Group, May 25. The somber event featured remarks by our very own Commanding Officer Capt. David Back and U.S. Air Force combat veteran Senior Master Sgt. James "Tip" Tipton (ret.). (U.S. Navy photos by Eddie Green and Jeremy Roman)

ARMED FORCES DAY

National Armed Forces Day honors the selfless service of the brave men and women who are currently serving our country and putting their lives on the line to protect our freedom.

The job is not easy and often thankless, yet day after day, they wake up and willingly give their time and energy for the betterment of our nation.

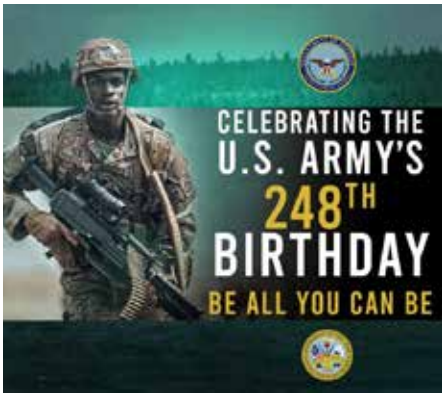
We honor those who wear the cloth of our nation, who protect and defend our country, who spend their days and nights away from their loved ones, so ours can sleep safely.

Thank you to all members of our armed forces, we appreciate your sacrifices and your dedication to the service of this country on land, in the air and over the seas in support of defending our great nation.

Graphic from an Armed Forces Day program, 1985, Naval Coastal Systems Center

U.S. ARMY BIRTHDAY

The NSWC PCD Veterans Employee Resource Group invited PCD personnel to join in for the Army's 248th birthday celebration, June 12. Many Army veterans, guardsmen, and reservists support the Navy Lab mission every day. (U.S. Navy photo by Sgt. Alex Morgan)



WELCOME NSWC PCD VISITORS

NAVSEA WARFARE CENTER COMPTROLLERS

NSWC PCD welcomes comptrollers and deputy comptrollers from across the Naval Sea Systems Command enterprise to the Navy Lab, May 17. The NAVSEA Warfare Center comptrollers won the One NAVSEA Teamwork Award for Fiscal Year 2022 in the category of Team - Business Operations. (U.S. Navy photo by Eddie Green)

POPLAR SPRINGS HIGH SCHOOL

(*second from left*) Dr. Damion Dunlap, STEM Outreach manager, hosted Poplar Springs High School for a Navy Lab visit, May 23. These students are a part of SeaPerch teams, which is an innovative underwater robotics program that equips teachers and students with the resources they need to build an underwater Remotely Operated Vehicle (ROV) in an in-school or out-of-school setting. (U.S. Navy photo by Ronnie Newsome)

X DEPT HOSTS INTERNATIONAL ALLIES

Members from NSWC PCD's X Department of Science & Technology welcome collaborators from the Norwegian Defense Research Establishment (FFI), Defence Research and Development Canada (DRDC), and U.S. Naval Research Laboratory Stennis Space Center (NRL SSC) for a meeting of Coalition Underwater Mine and IED Defeat (CUMID), May 23. CUMID partners develop automated seabed change detection (ACD) technologies for their respective nations; this trilateral grew out of regular NATO meetings on the topic. (U.S. Navy photo by Ronnie Newsome)

TYNDALL AIR FORCE BASE HONORARY COMMANDERS TOUR

NSWC PCD hosts one of the stops for the Tyndall Air Force Base Honorary Commanders Tour, May 24. Honorary commanders were Pamn Henderson, City of Callaway mayor, Ed Cook, Callaway city manager and Mike Smith, owner of Jimmy John's, and other visiting members were from the 325th Fighter Wing Public Affairs team. They were able to experience how the different missions sets on the installation work together to support national defense. (U.S. Navy photo Sgt. Alex Morgan)

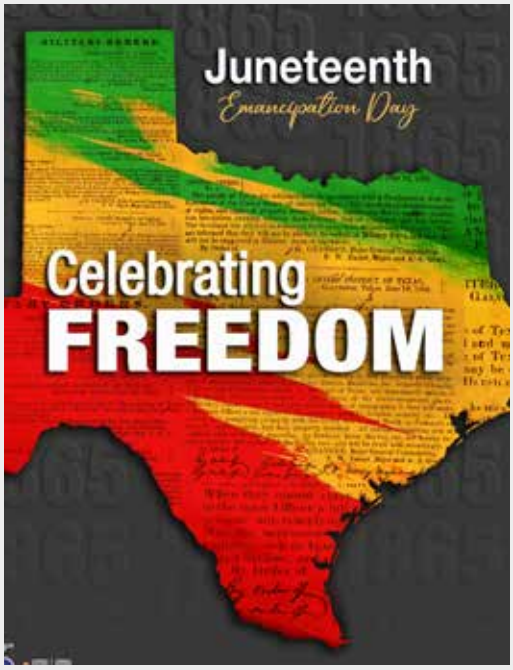
SNAME VISIT

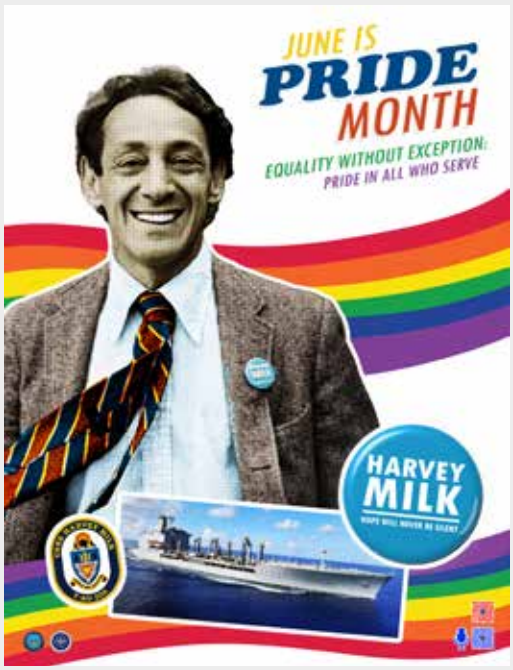
The Society of Naval Architects and Marine Engineers (SNAME) visited Sea Fighter (FSF-1) and SEAL Delivery Vehicle, May 26. SNAME is an internationally recognized non-profit, professional society of individual members serving the maritime and offshore industries and their suppliers. (U.S. Navy photo by Eddie Green)

DR. TOM DRAKE, SES

(*left*) NSWC PCD Distinguished Scientist of Mine Warfare Prototyping Dr. Todd Holland, SSTM, greets Dr. Tom Drake, SES, Office of Naval Research Ocean Battlespace Sensing Department head, before Drake's visit to the Navy Lab, June 12. Drake's department is responsible for Navy and Marine Corps science and technology in ocean and meteorological science, undersea warfare, mine warfare, space technology and marine mammals. He visited several NSWC PCD mission sets and saw how they contribute to Navy objectives. (U.S. Navy photos by Eddie Green)

SPECIAL OBSERVANCES



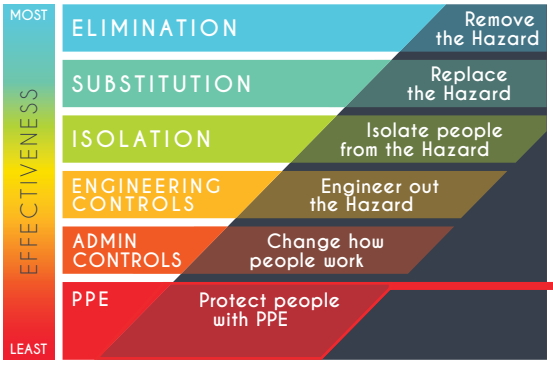


SAFETY

PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment, or PPE, is designed to protect personnel from injuries or illnesses resulting from contact with various workplace hazards.

chemical | biological | physical | electrical | mechanical



The last line of defense in the hierarchy of controls (*pictured left*) for hazards is PPE, when the other control measures have not eliminated or mitigated the hazard to a level of acceptable risk for the worker's exposure.

PPE is often essential, due to some risk to the person handling equipment or performing the task. The other controls are recommended, but not always practical or feasible depending on the nature, frequency, or environment of the task.

Supervisors must be knowledgeable of the activities performed by employees to ensure the appropriate PPE is available for employees. Employees also need to communicate with supervisors when they encounter unexpected or previously unrecognized hazards during their course of work.

WEARING PPE

SELECTION
Collaborate with supervisor to choose the correct PPE and ensure that it is documented for the specific hazard.

TRAINING
Know where to obtain, how to wear, and the limitations of the PPE, and other controls associated with the task.

FIT
Ill-fitted equipment can problems. Check with supervisor or program manger to ensure a proper fit.

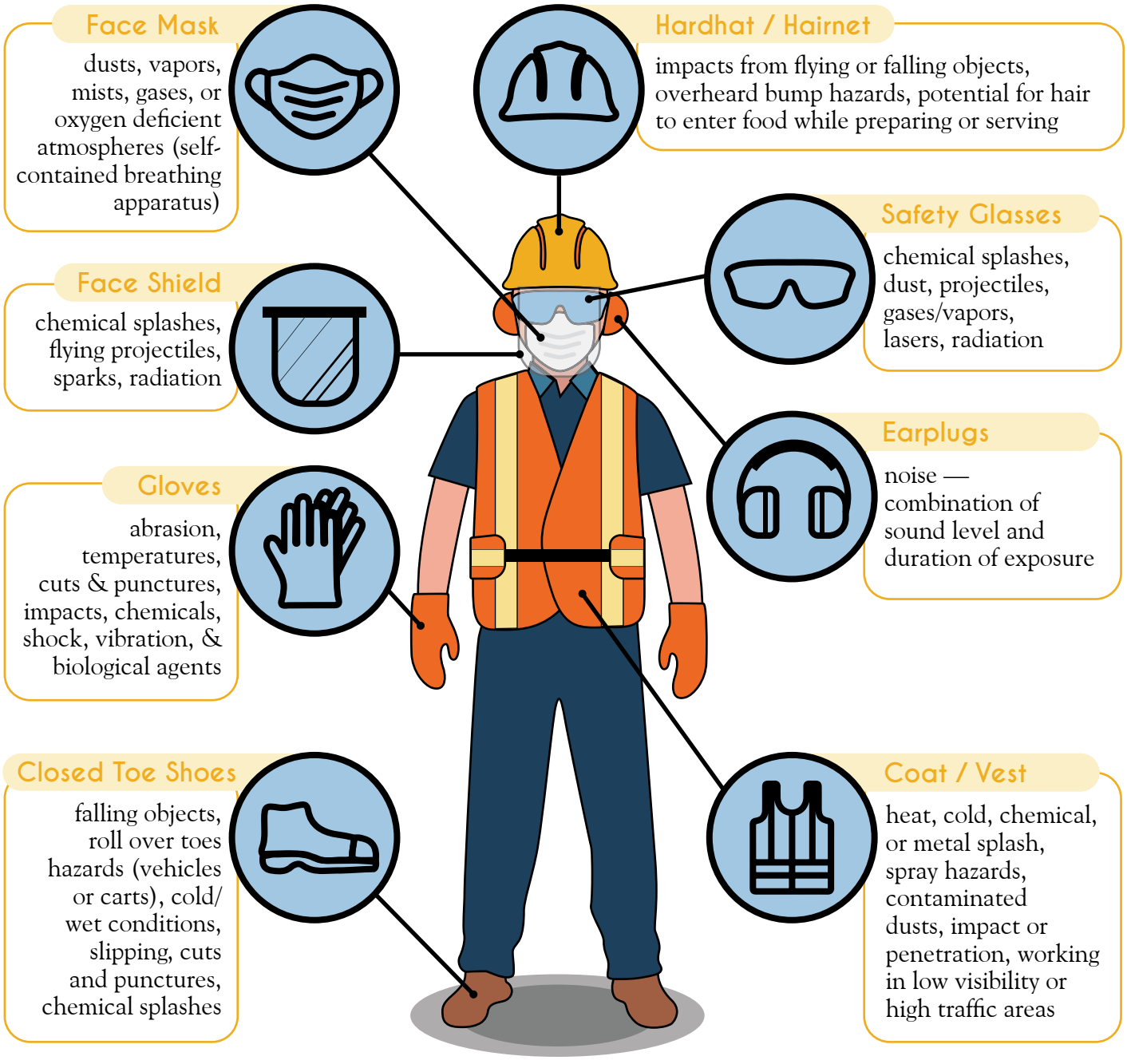
INSPECTION
Visually inspect PPE. If there is a defect or deficiency, take it out of service until it is repaired or replaced. Notify supervisor or program manager of defect or deficiency.

MAINTENANCE
Dirt, dust, and other materials can degrade and/or interfere with the intended use. Always follow the manufacture's recommendations for cleaning PPE.

STORAGE
Do not leave PPE out. Exposure to temperature, humidity, moisture, use and sunlight are all factors in the shelf life of PPE.

REPLACEMENT / REMOVAL
If defects or deficiencies are found: DO NOT USE. Remove the equipment from service. Notify your supervisor or program manger. Obtain new PPE.

HAZARD TYPES & PERSONAL PROTECTIVE EQUIPMENT



Face Mask
dusts, vapors, mists, gases, or oxygen deficient atmospheres (self-contained breathing apparatus)

Hardhat / Hairnet
impacts from flying or falling objects, overheard bump hazards, potential for hair to enter food while preparing or serving

Face Shield
chemical splashes, flying projectiles, sparks, radiation

Safety Glasses
chemical splashes, dust, projectiles, gases/vapors, lasers, radiation

Gloves
abrasion, temperatures, cuts & punctures, impacts, chemicals, shock, vibration, & biological agents

Earplugs
noise — combination of sound level and duration of exposure

Closed Toe Shoes
falling objects, roll over toes hazards (vehicles or carts), cold/wet conditions, slipping, cuts and punctures, chemical splashes

Coat / Vest
heat, cold, chemical, or metal splash, spray hazards, contaminated dusts, impact or penetration, working in low visibility or high traffic areas

NOTE There are many more hazards than listed which could require the use of additional PPE.

IT'S NOT PPE IF IT DOESN'T FIT.

COMPTROLLER

G-INVOICING

Addresses accounting and reporting challenges around buy/sell transactions by providing a common platform for Intragovernmental transactions (IGT).

This government-wide initiative will be managed by the U.S. Department of Treasury. G-Invoicing will **create and store interagency agreements**, **create orders**, **track performance against orders**, and **transfer funds**. This is a way to improve the quality of IGT buy/sell data supporting more accurate financial management by federal trading partners, although it is not an accounting system.

There will be two new mandates with G-Invoicing:

- Intragovernmental reimbursable transactions (funding documents) must be processed using the Department of Treasury's G-Invoicing application by October 1, 2022, for new orders and October 1, 2023, for legacy "in-flight" orders (Treasury wants to clean up discrepancies between agencies).
- IGT billings/invoices must be accepted by the buyer prior to payment to the performer (Navy wants to pass audits).

General Terms and Conditions (GT&C) agreements will be established and modified in the G-Invoicing system. We will be using Navy Enterprise Resource Planning (ERP) and the Systems Analysis Program (SAP) Hub to process orders through G-Invoicing, and we will use the SAP Hub to accept/process invoices.

When is this being implemented?

PHASE 1 — NOV 2023

PRIMARY IMPLEMENTATION

- Only for Reimbursable New Orders (Basics) and follow-on amendments
- Includes ERP Activities and other external Activities who have implemented G-invoicing
- Does not include Foreign Military Sales or Private Party.

PHASE 2 — FEB 2024

YEAR END CLOSE BACK-END IMPLEMENTATION

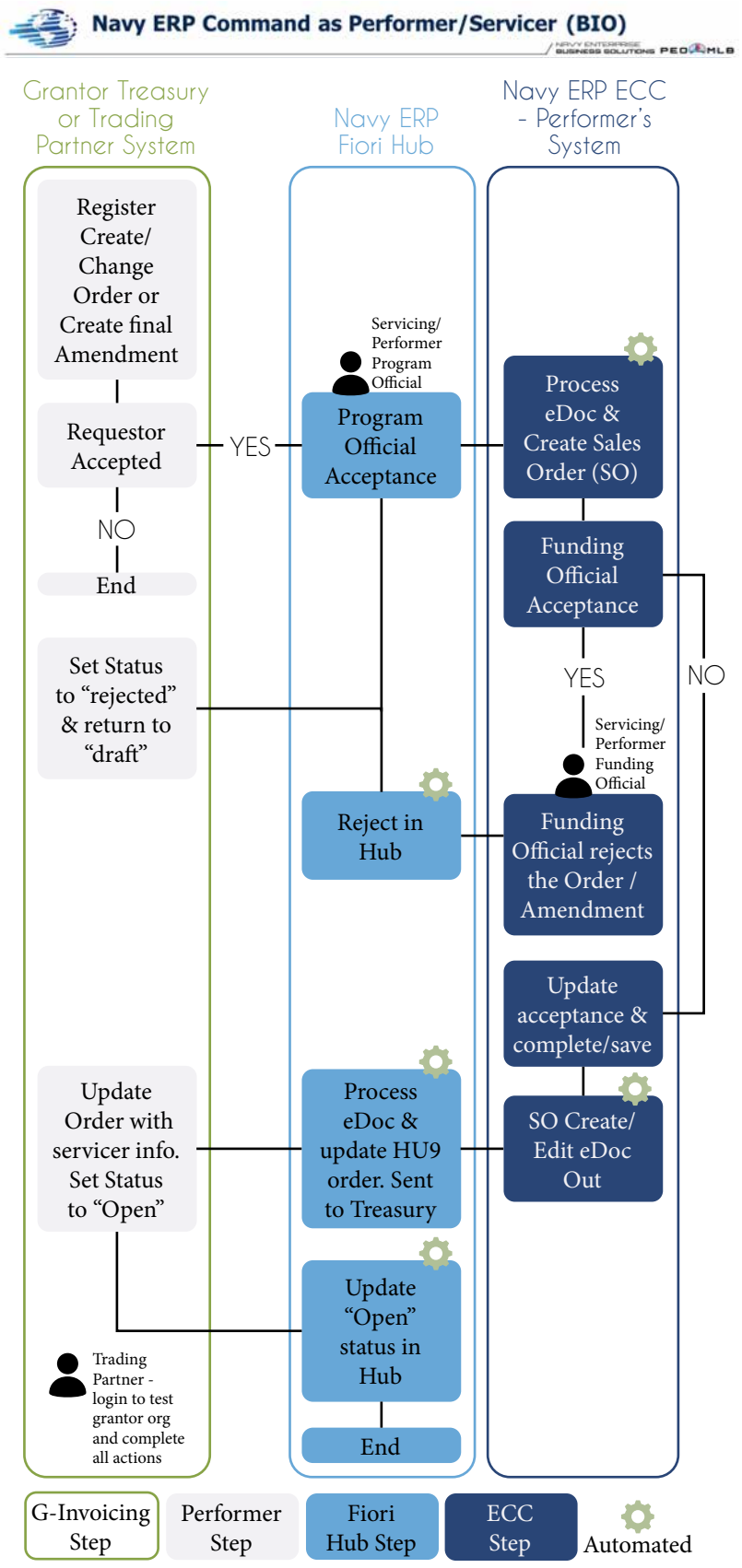
PHASE 3 — JUL 2024

IN-FLIGHT AND ADDED FUNCTIONALITY

- Will be a conversion of existing "in-flight" orders with performance starting before the 2023 Implementation
- Also includes organic repair

How will G-Invoicing impact our Warfare Centers?

- Treasury Form 7600B will replace Navy 2276A and Department of Defense Military Interdepartmental Purchase Request (MIPR) forms, which requires two grantor approvers and two performer acceptors on orders
- Technical code approver will have to approve outgoing orders in Navy ERP, along with Comptroller Funds Management Office (FMO)
- Technical codes acceptor will have to accept incoming orders in the SAP Hub, along with Comptroller FMO
- Technical code invoice acceptor will have to accept billings (invoices) from trading partner to which they've sent funding
- Invoice acceptance delays could negatively impact grantor benchmarks, as expenditure postings would also be delayed
- Performer technical codes *may* have to send detailed reports to grantor
- Comptroller will have to monitor billings for partial acceptances
- Naval Working Capital Fund cash replenishment may be delayed by as much as 30-35 days; this *may* require technical code intervention to get our billings (invoices) accepted GT&C Agreements must be in "open" status in G-Invoicing prior to any orders being created



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