EXWC
EDGE
eMagazine

ACCELERATE INNOVATION TO ENABLE FLEET LETHALITY AT SEA AND ASHORE
JULY/AUG 2021

ICE EXERCISE 2021
ICEX21
GREENLAND

From Greenland to California, EXWC Divers Support the Warfighter

COASTAL TRIDENT 2021
CT21
PORT HUENEME, CA.

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COVER ARTWORK

Top photo: NAVFAC EXWC Dive Locker attends Ice Exercise 2021 at Thule Air Base in Greenland. Bottom photo: NAVFAC EXWC Dive Locker hosts training exercise during Coastal Trident 2021 at Naval Base Ventura County, Port Hueneme, Calif.
Cover photos courtesy of U.S. Navy.

A Message from Chris Kinsey, Oceans Department Head

Greetings Team EXWC,

On behalf of the NAVFAC EXWC Oceans Department, it is my distinct pleasure to present to you issue 0007 of the EXWC EDGE featuring Ice Exercise 2021 (ICEX21) and Coastal Trident 2021 (CT21).

Attended by selected members of the NAVFAC EXWC Dive Locker, ICEX provides an annual opportunity for various dive teams to perform construction and gain operational experience in below-freezing temperature conditions, sometimes well below!

As the Arctic ice continues to diminish, there is an increasing interest in the region for defense, commerce, and tourism. However, before we even entertain the thought of further exploring the capabilities of the Arctic, we need to better equip ourselves—most importantly our technology and protocols—to ensure they can endure the ever-changing geographic and operating conditions warfighters face. The challenges of operating in the Arctic Circle are immense and pose limitations that we continue to address. Developing state-of-the-art systems for U.S. Navy Diving is a principal capability and success of the NAVFAC EXWC Dive Locker.

In this issue, you will have the opportunity to learn about the limitations of operating in the Arctic Circle, and how NAVFAC EXWC and joint forces are working with industry and academia partners to better equip our Sailors and Marines with solutions needed to deploy and succeed in environmentally hostile environments.

Naval exercises like ICEX further exemplify the way NAVFAC EXWC is leading the enterprise in providing increased fleet capability to support distributed maritime operations and expeditionary advanced base operations objectives through participation in fleet exercises, joint capability technology demonstrations, research, development, testing and evaluation of new technologies, and new equipment procurements within contested global areas.

On behalf of the entire NAVFAC EXWC Oceans Department, enjoy your 7th edition of the EXWC EDGE, and continue to anticipate, innovate, and accelerate solutions to the warfighter!

Very Respectively,
Chris Kinsey, P.E.

Sailors from the NAVFAC EXWC Dive Locker travel to Greenland to join other Navy units for a two-week port damage assessment exercise

Focus Area: Increase Agility

Teams attending ICEX 2021 survey equipment to ensure their capabilities are not impacted by harsh arctic conditions at Thule Air Base in Greenland. (Courtesy U.S. Navy photo)

Divers from NAVFAC EXWC Train in Greenland

Story by Sarah G. MacMillan, NAVFAC EXWC Deputy Public Affairs Officer

THULE AIR BASE, Greenland – Three divers from NAVFAC EXWC joined teams from Construction Diving Detachment Alfa from Underwater Construction Team ONE, Naval Construction Group TWO, the Naval Diving and Salvage Training Center, Naval Surface Warfare Center, and the Naval Experimental Diving Unit for a two-week port damage assessment exercise.

Planned and led by Construction Diving Detachment Alfa and supported by Naval Mobile Construction Battalion ONE, the Ice Exercise (ICEX) 2021 simulated a task-tailored mission to support an arctic port damage assessment with limited repairs.

NAVFAC EXWC participated in three phases of the exercise. In each phase, NAVFAC EXWC identified which, if any portions of the Naval Construction Force's table of allowance (an equipment allowance document that prescribes basic allowances of organizational equipment and provides the control to develop, revise or change equipment authorization inventory data) was inadequate for operations with the Arctic environment.

"The ICEX 2021 was a difficult but fruitful exercise conducted with a multiagency team representing the entire Naval Expeditionary Combat Command diving force," said Navy Senior Chief Petty Officer James McVicar, NAVFAC EXWC Master Diver. "The team of divers from NAVFAC EXWC were charged with conducting and evaluating the table of allowance equipment used during the exercise."

McVicar added in the intervening years, the Navy has updated thousands of pieces of equipment within the table of allowance without a full evaluation of the equipment in both arctic and polar conditions.

Unidentified Sailor tests welding equipment capabilities during ICEX 2021 at Thule Air Base in Greenland. (Courtesy U.S. Navy photo)

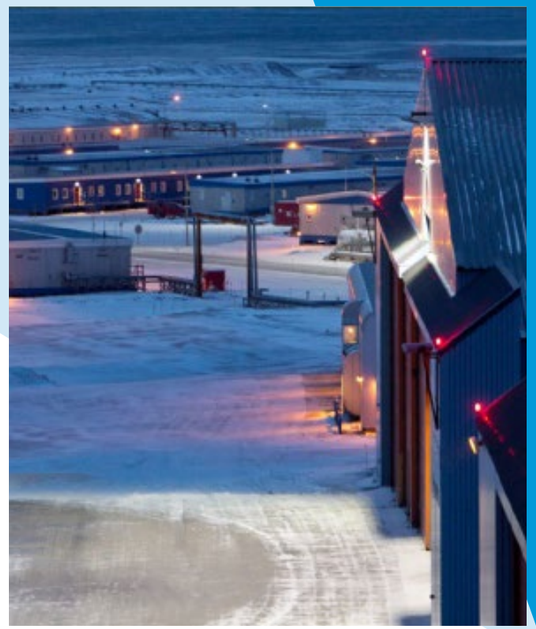

Image of Thule Air Base during dusk. (Courtesy photo)

Phase one of the exercise consisted of manufacturer-provided project documentation for the projected operating environment. During this part of the assessment, assemblies and systems were either verified to be within or outside the manufacturers recommended operating parameters. These parameters are environmental variables, such as proper application, operations, and ambient temperature restrictions.

> "Our intention is to participate in ICEX 2022 and all other exercises for the forseeable future to ensure the equipment our warfighters use is ready when and where they need it."

During phase two of the exercise, NAVFAC EXWC divers directly observed employment and operation of all systems and assemblies to verify whether operating cycles were functioning properly–this included extremely limited malfunctions.

In order to identify any shortcomings of the systems and assemblies during phase two, each system underwent vigorous testing through each phase and cycle of operation. This included all initial procedures, beginning procedures, the operation of each system and their functional capabilities, regularly scheduled maintenance procedures, post-operation maintenance procedures, and storage in several different environments.

In the third phase of the exercise, NAVFAC EXWC gathered feedback from exercise participants from every unit involved in the operation and employment of each tested system. The dive team collected feedback through electronic questionnaires tailored to each test system to gather the most relevant and useful information to identify discrepancies outside typical operational capabilities.

"Our divers found multiple pieces of equipment that failed to function in real-world application in temperatures minue 50 degrees Fahrenheit. We are working hard to identify other pieces of equipment that need evaluation. Our intention is to participate in ICEX 2022 and all other exercises for the foreseeable future to ensure the equipment our warfighters use is ready when and where they need it," said McVicar.

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Los Angeles and Ventura County first responders team up with U.S. Coast Guard and Navy to complete a five-day wreck-age and salvation exercise

Focus Area:
Increase Agility

Diving Simulations Fabricated for ANTX/Coastal Trident Incorporate Lessons Learned from Local Charter Disaster, New Equipment Tested to Aid Efforts

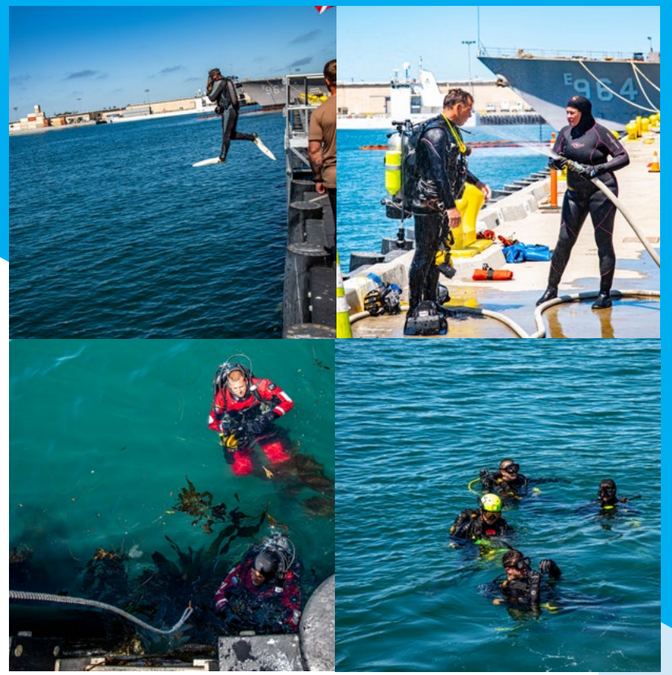
Story by Petty Officer 1st Class Tyler Ault, NAVFAC EXWC Dive Locker Project Supervisor and Sarah G. MacMillan, NAVFAC EXWC Deputy Public Affairs Officer

PORT HUENEME, Calif. – At the bottom of the seafloor within Naval Base Ventura County Wharf 5 lies a fabricated shipping container strategically placed and equipped for search and salvage simulations. Part of the five-month annual Advanced Naval Technology Exercise and Coastal Trident Port and Maritime Security Program (ANTX/CT21), the simulations are geared to incorporate a "whole of government" focus, recognizing the importance of non-Department of Defense, federal, state, and local government partners in sustaining Navy forces and responding to port and coastal water incidents.

Spanning over eight hours a day for five days, ANTX/CT21 brought together first responders and divers nationwide to participate in simulations and other various training exercises to address threats to port and maritime security, including industrial accidents, natural disasters, and acts of terrorism.

Exercise participants included the U.S. Coast Guard's Regional Dive Locker-West, the Los Angeles Port Police Dive Team, the Los Angeles Fire Department, the Ventura County Sheriff Department, the Santa Barbara Sheriff Office, Navy Supervisor of Salvage, Navy Supervisor of Diving, Naval Surface Warfare Center Philadelphia, Naval Surface Warfare Center Panama City, the National Institute of Standards and Technology, Sentinel Safety, Numerus, Video Ray, Coda Octopus, and divers from the Naval Facilities Engineering and Expeditionary Warfare Center (NAVFAC EXWC) Dive Locker.

Chief Petty Officer Cody Oswald prepares for diving exercising using the Diver Augmented Vision Display System. Photo credit: Petty Officer 2nd Class Michael Schutt, Naval Construction Group ONE, Collateral Duty Public Affairs Officer



Assortment of diving photos taken at CT21, June 20-24, 2021 in Port Hueneme, Calif. Photo credit: Petty Officer 2nd Class Michael Schutt, Naval Construction Group ONE, Collateral Duty Public Affairs Officer

Over the course of a week prior to the exercise, Petty Officer 1st Class Tyler Ault, NAVFAC EXWC Dive Locker Project Supervisor, with oversight from Senior Chief Petty Officer James McVicar, NAVFAC EXWC Master Diver, designed and built the container simulation. Inside the container were two rooms, each filled with bunks, furniture and training mannequins. A camera system was additionally set up inside the container to allow topside personnel to view the divers performing tasks during the simulation.

"Use of the underwater container allowed multi-agency divers to gain valuable experience diving into a simulated sunken vessel. Divers experienced what it actually feels like to dive into and search inside submerged compartments," said Ault. "The entirety of the exercise allowed dive teams to conduct real-time realistic dive operation enabling professionals from a wide breadth of agencies to operate as one team."

Two times a day for up to two hours a day, divers from NAVFAC EXWC and U.S. Coast Guard Regional Dive Locker-West dove 40 feet into a 20-foot shipping container outfitted to replicate a sunken berthing vessel that caught on fire.

During the exercise, participants used an Echoscope Sonar System (real-time three-dimensional sonar) and handheld LiDAR (three-dimensional scanner) to scan the shipping container. One sonar system was placed in a stationary position, while another sonar system was connected to a research vessel where topside participants viewed the landscape of the exercise from top-down. The stationary sonar system conducted a scan that created a three-dimensional topographic map of the simulation area, gathered data from the scan, processed the information, and provided relevant data to the diver completing the simulation–the data was specifically useful to help divers navigate through low visibility conditions.

> "The entirety of the exercise allowed dive teams to conduct real-time realistic dive operation, enabling professionals from a wide breadth of agencies to operate as one."

Diving Simulations Fabricated for ANTX/Coastal Triden Incorporate Lessons Learned from Local Charter Disaster, New Equipment Tested to Aid Efforts

Senior Chief Petty Officer James McVicar shows CT21 participants the capabilities of NAVFAC EXWC Dive Locker's newest technology, the Diver Augmented Vision Display System.
Photo credit: Petty Officer 2nd Class Michael Schutt, Naval Construction Group ONE, Collateral Duty Public Affairs Officer

Assortment of diving photos taken at CT21, June 20-24, 2021 in Port Hueneme, Calif.
Photo credit: Petty Officer 2nd Class Michael Schutt, Naval Construction Group ONE, Collateral Duty Public Affairs Officer

Article Continued...

New to the exercise was the use of the Diver Augmented Vision Display (DAVD) System. During each dive simulation, the DAVD System provided divers the ability to view images and data via a heads-up display inside their helmets.

Simultaneously, the dive locker used a berthing container rigged with lights and cameras to watch the divers and remotely operated vehicles to explore the simulation—in a real-world environment, the DAVD system allows topside personnel to communicate with divers by transmitting instructions, messages, and a breadth of other important data a diver may need to perform their mission.

"We have a responsibility to render assistance to civil authorities in the event of a disaster," said McVicar. "[The CT21] partnership has been exercised across the country to reduce loss of life and suffering. The complex nature of diving and the unique mission areas assigned to divers make coming together in a time of crisis is difficult. Having events like [CT21] allow agencies to conduct and rehearse realistic co-located diving operations so that when the need arises, the teams can coordinate for the benefit of their community."

McVicar added the simulation the NAVFAC EXWC Dive Locker developed incorporated aspects of the recent tragic Conception Dive Charter disaster, and scenarios from the USS McCain collision. All of the divers involved in the simulation either knew someone or participated in recoveries from both events.

The Navy and Coast Guard divers who attended the exercise were generally all very experienced divers. Other event participants ranged from well experienced to highly seasoned divers. Only a very small segment of divers participating in the event had limited diving experience, of which, focused on training to perform enclosed space diving and other types of less egregious missions.

> "The complex nature of diving and unique mission areas assigned to divers make coming together in a time of crisis difficult. We have a responsibility to render assistance to civil authorities in the event of a disaster. "

"This exercise is another example of how dedicated the Navy is to developing technology for the warfighter, and the deep respect we have for our communities and the first responders that keep our families safe when we deploy," said McVicar. "We were able to conduct cutting edge esearch, development, testing and evaluation to benefit our Sailors and facilitate a realistic training environment for public safety divers."

McVicar commented that each component added to the exercise furthered the planning complexity of the event, but lead to outcomes that far surpassed the expectations of both the event planners and attendees.

Next month, the NAVFAC EXWC Dive Locker will participate in an additional exercise involving the assessment of a partially submerged structure using a drone that can fly, land on water, submerge itself, and be controlled while sub-surface and send visual data back to the drone operator. NAVFAC EXWC will also be present for the closing event of ANTX/CT21, scheduled for Sept. 22-23, where they will present on environmental containment recovery technologies and demonstrate atmospheric water extraction technologies.

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NAVFAC EXWC

NAVFAC EXWC structural engineer wins Dr. Delores M. Etter Individual Science Award for Impactful Contributions to Navy and Marine Corps

Focus Area: Increase Agility

Geometric Nonlinear Modeling and Simulation Study Earns NAVFAC EXWC Structural Engineer Top Indvidual Scientist Award

Story by Sarah G. MacMillan, NAVFAC EXWC Deputy Public Affairs Officer

PORT HUENEME, Calif. – NAVFAC EXWC structural engineer Dr. Robert Zueck of the capital improvements department, is awarded the Dr. Delores M. Etter 2021 Individual Scientist Award for his impactful contributions to the warfighting capabilities of the Navy and Marine Corps.

In 2020, Dr. Zueck and a team of nonlinear analysts at NAVFAC EXWC wanted to discover a way to reduce fluid drag (a resistive force) from water and wind. They focused on a commonly accepted belief that structural vibrations amplify drag. With most of the published information supporting this belief, codes and standards for designing ocean structures had begun to require even higher levels of applied drag force to account for how structural vibrations could amplify fluid drag. Using the correct geometric nonlinear physics, Dr. Zueck and his team discovered through specialized experimentation and simulation that vibrations do not amplify drag.

In 2018, Dr. Zueck began studying how natural, nonlinear space-time physics allows geometrically complex vibrations to initiate, grow and sustain themselves. In 2020, Dr. Zueck applied his 2018 research results to improve the Navy's capabilities for designing, analyzing, deploying and maintaining reliable subsea arrays, towed sensors, ship moorings, subsea pipelines, guyed towers, transmission lines and other cable-like naval structures.

Since 1970, researchers have believed that vortex-induced vibrations (VIV) increase fluid drag by as much as five times. The largest amplitude of VIV can occur perpendicular to the drag direction. Consequently, the larger the VIV amplitude, the more researchers believe fluid flow is altered, and therefore makes the drag load more amplified. By eliminating the above requirements for drag amplification, the DOD theoretically would be able to make marine structures lighter, safer, and ultimately less expensive, while providing better operational agility, performance and lethality.

Official Navy headshot of Dr. Robert Zueck
Photo credit: Palmer Pinckney II, NAVFAC EXWC Public Affairs Officer

Dr. Zueck hypothesized that VIV cannot amplify drag. Instead, his team proved his hypothesis using two separate models: experimentation and simulation. Through testing, instead of amplifying drag, both models showed that VIV slightly reduces fluid drag. Consequently, Dr. Zueck's findings were published and later presented to an international VIV subcommittee. Moreover, Dr. Zueck and his team continued to encourage academics, including the Norwegian University of Science and Technology, the Naval Postgraduate School, and the US Naval Academy to continue performing experiments with alternative structures to see how they interact in alternative fluid environments—in hopes of proving Dr. Zueck's original hypothesis.

"To help put our recent research results into a broad DOD perspective, let me pose the following questions," said Dr. Zueck. "What limits the speed of a fighter plane? What causes a rocket to veer off target? What degrades the acoustic performance of an undersea array? The answer for all three questions is the unusual vibrations that moving air, gravity or water induce into the structure of a plane, a rocket, or an undersea array. Our recent research reveals the physical basis (nonlinear relative-motion geometrics) for these unwanted vibrations, and thus helps us all eliminate the vibration and improve the performance of military hardware beyond current limits."

The relevance of Dr. Zueck's findings is highly impactful for the future structural development of countless DOD weapons, sensors, devices, platforms and facilities developed under the notion that structural virbations do amplify fluid drag.

> "Behind all research results are the giants that came before us and the team members that helped us. In each of the technical papers that I have written, I have specifically acknowledged those who specifically helped and inspired. They deserve more recognition than I do."

"At NAVFAC EXWC, we anticipate and act with agility through the style of teamwork that Dr. Zueck and his team exemplify," said Kail Macias, NAVFAC EXWC Technical Director and senior leader. "Our warfighters require initiative from our DOD engineers and scientists that anticipate, study and solve the toughest problems, and create high-velocity outcomes that win war or avoid them altogether."

The Dr. Delores M. Etter Award is presented annually to scientists and engineers who have clearly demonstrated superior accomplishments—both technically outstanding and highly beneficial to the Department of the Navy and the DOD. The selection process for the Dr. Delores M. Etter Award is highly competitive, with each submission aggressively demonstrating advanced scientific and engineering achievements.

To date, three employees of NAVFAC EXWC have earned an individual Dr. Delores M. Etter Award. Both the NAVFAC EXWC Maritime Test Bed and teams from the Siesmo-Hydroacoustic Data Acquisition System have also earned a Dr. Delores M. Etter Team Award.

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A Brief History of the Dr. Delores M. Etter Awards

The 2021 Dr. Delores M. Etter Awards were presented on June 25, 2021

> “Everything we do is pointed towards one vision, and that is to provide our Navy and Marine Corps with weapons, systems, and platforms that support their missions and given them a technological edge over the enemy.”

Dr. Delores M. Etter
Former Assistant Secretary of the Navy for Research, Development and Acquisition

The Woman Herself: Dr. Delores M. Etter

Dr. Delores Maria Etter is a well-known engineer in the DOD community. From 1998 to 2001, under the leadership of President Bill Clinton, Dr. Etter served as the United States Deputy Under Secretary of Defense for Science and Technology. From 2005 to 2007, under the leadership of President George W. Bush, Dr. Etter served as the Assistant Secretary of the Navy for Research, Development and Acquisition. During her tenure as a civil servant, Dr. Etter was responsible for strategic planning, budget allocation, program execution and evaluation for the DOD Science and Technology Program. Upon leaving office, Dr. Etter joined the electrical engineering faculty at the United States Naval Academy, where she became the first-ever Office of Naval Research distinguished chair in science and technology. Her contributions were highly recognized, receiving countless national awards and honors. She has received the Department of the Navy Distinguished Public Service Award, the Secretary of Defense Outstanding Public Service Award, and the Department of Defense Distinguished Public Service Award. Today, Dr. Etter serves as a professor in the electrical and computer engineering department at Southern Methodist University in Dallas, Texas.

The Importance of the Dr. Delores M. Etter Awards in Navy Science and Engineering

Similar to military awards for servicemembers who exhibit outstanding valor and exceptionalism, the Dr. Delores M. Etter Award recognizes civil servants serving in engineering or science professions who hold technically arduous positions within the Navy, and use their positions to develop solutions to problems the warfighter is experiencing, or may experience in the future. Both the process of competing for, and earning a Dr. Delores M. Etter Award is highly admired among the defense community. Winners of the Dr. Delores M. Etter Award are considered the brightest and most valuable contributors to national security.

The Competitive Award Process

The Dr. Delores M. Etter Awards are annually awarded by the Assistant Secretary of the Navy for Research, Development and Acquisition. Known as one of the highest achievements awarded to the Navy’s most exceptional scientists and engineers, the Dr. Delores M. Etter Awards are given to those who have clearly demonstrated superior accomplishment during the year preceding the award ceremony. The nominations—whether team or individual—represent the most outstanding and highly beneficial work developed for the Navy and national defense. To sum it up, these prestigious Navy awards recognize the technical superiority, innovation, merit and applicability to the Assistant Secretary of the Navy.

Past and Present NAVFAC EXWC Dr. Delores M. Etter Award Recipients

2021

Recipient: Dr. Robert Zueck
Award Title: Top Individual Scientist
About: Dr. Zueck received the top individual scientist award for his studies on geometric nonlinear modeling

2020

Recipient: Maritime Test Bed
Award Title: Team Award
About: The Maritime Test Bed team received recognition for the install of an advanced power and data access point

2017

Recipient: Seismo-Hydroacoustic Data Acquisition System (SHDAS)
Award Title: Team Award
About: The SHDAS team received recognition for their collective SHDAS work which provides technical measurements that monitor nuclear treaty compliance

2014

Recipient: Daniel Zarate, P.E.
Award Title: Top Individual Scientist
About: Zarate received the individual scientist award for his development of an epoxy coating for fuel tanks

2013

Recipient: Galen Marks, P.E.
Award Title: Top Individual Engineer
About: Marks received the individual engineer award for his leadership of the HIPPO joint capability technology demo

In an upward battle of delays due to COVID-19, partners from across the Navy complete the contract procurement, design, development and installation of a new substation asset aboard the USS Gerald R. Ford

Focus Area: Increase Agility

(Courtesy U.S. Navy photo)

Navy Joint Efforts Support Shore Power Requirements for USS Gerald R. Ford

Story by Petty Officer 1st Class Amberleigh T. Cantrell

NEWPORT NEWS, Va. – Four Seabee's from Mobile Utilities Support Equipment (MUSE), a specialty program within the NAVFAC EXWC portfolio, traveled to the Newport News Shipyard (NNS) to install two mobile substations on pier 2 to support the USS Gerald R. Ford (CVN 78).

As the lead ship of her class, the nearly four-year-old Ford will undergo its planned incremental availability (PIA) for the execution of depot-level maintenance, alterations, and modifications set to improve the ship's military capabilities beginning in September.

Prior to the PIA, two new mobile substations—a never-before-seen asset from MUSE—were installed at pier 2 to offer a temporary power solution for Ford.

Ford is part of the new Ford Class carriers that need accessibility to different voltage requirements when homeported. The infrastructure of some piers is wired for Nimitz-Class aircraft carriers, does not offer the voltage support required for Ford Class carriers. In the interim, a MUSE substation provides shore power and associated transformer technology to convert a shore facility with a high voltage supply to the medium voltage requirements of the Ford class ships.

USS Gerald R. Ford (CVN 78) under construction at Newport News Shipyard in Newport News, Va. (Courtesy U.S. Navy photo)

In February 2019, MUSE joined forces with the NAVFAC Acquisitions Department, C&C Power Inc., the Supervisor of Shipbuilding, Conversion and Repair, engineers from the NNS and the Program Executive Office of Aircraft Carriers to award a contract for the procurement and design of the new substation asset.

Outlined by the Naval Sea Systems Command Program Executive Office, MUSE's mobile aspect of their substations was a desirable trait for transforming the pier 2 shore facilities voltage requirements. These requirements, in addition to transportability, include supporting class maintenance, shipboard testing, and meet the motor start, regulation and fault current requirements.

The new substation asset began construction at the contractor's facilities, but due to the coronavirus pandemic, the project experienced several hardships, including material shortages and shipping delays.

Originally set for completion in December 2020, the delays pushed the substation completion date to May 2021 with little time to spare, as Ford will pull into port by the end of the summer.

During the final stages of the installation, MUSE technicians completed electrical testing for all substation components, operational testing, customer training, and finally energizing the substations.

"I would like to thank the MUSE technicians for their professionalism and the excellent quality of service the team extended to the NNS during their visit," said Kecia Ballen, NNS Quality Engineer. "The presence of the tech team at NNS was essential in the training of the MUSE unit, and showed we are one team in service and strength."

"This has been a very difficult project with several moving parts," said Petty Officer 1st Class Amberleigh Cantrell. "This is an experience I will never forget. I had the pleasure of helping design substations, and monitored the contract from beginning to end. Supporting the warfighter is the most rewarding job and I am so thankful for the opportunities and support both NAVFAC EXWC and the MUSE team have afforded me."

NAVFAC EXWC and the Ventura County Office of Education co-host a virtual hackathon event for students grades 9-12

Hackathon by the Sea students receive swag bags filled with t-shirts and water bottles from NAVFAC EXWC and VCOE.
Photo credit: Dr. Ramon Flores, NSWC PHD STEM Coordinator

Southern California STEM Students Participate in Navy-Sponsored "Hackathon" Event

Focus Area: Develop the Workforce

Story by Sarah G. MacMillan, NAVFAC EXWC Deputy Public Affairs Officer

VENTURA, Calif. – In partnership with the Ventura County Office of Education (VCOE), NAVFAC EXWC hosted "Hackathon by the Sea"—a virtual hacking event for high school students in Ventura County made possible by the Naval Science, Technology, Engineering and Math (STEM) Program.

This year, the Hackathon by the Sea theme "Hack the Future" challenged students to build projects that address the STEM needs of the world in either manufacturing or 3D printing, cybersecurity, environmental, artifical intelligence, machine learning or drones. Each category of "need" was further divided into four "future" areas: build the future, defend the future, grow the future, know the future.

Fifty-eight students from Oxnard Union, Ventura Unified, Oak Park Unified, Conejo Valley Unified, Simi Valley Unified, Los Angeles Unified, Sierra Sands Unified, and the VCOE schools used their hacking skills to produce a simple product that solved a problem within the four future areas. Potential products included creating an app or website or game that addressed their specific future problem. Volunteers from Naval Surface Warfare Center, Port Hueneme Division (NSWC PHD) and Naval Air Warfare Center Weapons Division (NAWCWD) served as speakers, mentors and judges for the event.

Spanning over two days, over seven hours per day, the hackathon also included a variety of workshops, such as web building, blog building, internship opportunities, resume writing, and interview tips. Keynote speakers also attended the event, and spoke with students on the importance of STEM as it relates to the Department of Defense. Notable speakers included Capt. Jeffrey Chism, Commander Naval Base Ventura County, Bagrat Minasian, NSWC PHD Acting Technical Director, and Richard Burr, NAWCWD Chief Engineer.

"Supporting Hackathon by the Sea is a deliberate investment in the current and future DON workforce," said Kail Macias, NAVFAC EXWC Technical Director. "By creating excitement for STEM programs and activities, our hope is students will see the value of STEM careers, and explore the option of the Navy serving as their future employer."

Macias added it takes critical investment by the DOD to develop the upcoming STEM workforce. The investment must start as early as kindergarten and last through grade school as students continue to mature and refine their career field interests.

During the event, students had the opportunity to speak to former Navy interns specializing in STEM career fields, as they shared their experiences pursuing internships with the DOD, and their transition between internships to full-time employment.

> "STEM enhances every facet of our lives. It challenges students to think critically and invent their own solutions to both complex and everyday problems."

As students continued working on their projects, mentors provided drop-in support and feedback.

At the end of the event, judges announced winners in several categories, including best overall, best in each strain, judge's choice, and winner of the most badges. twenty exceptional students received engineering exploration at-home Arduino kits.

"STEM enhances every facet of our lives. It challenges students to think critically and invent their own solutions to both complex and everyday problems," said Carina Reeves, NAVFAC EXWC STEM Program Manager. "Hackathon by the Sea is an exceptional opportunity for students to explore STEM outside the typical classroom setting. By acting early and offering these types of extracurricular events for students, we are able to build relationships with local students early in their education, and mature that relationship as students progress through their education, in hopes they will consider becoming interns and eventually civil servants for the DON."

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What is EXWC up to?

Bite-size narratives highlighting projects, programs, personnel and command-wide accolades

The aircraft carrier USS Gerald R. Ford (CVN 78) completes the first scheduled explosive event of full ship shock trials while underway in the Atlantic Ocean on June 18, 2021.
Photo credit: Mass Communications Specialist 3rd Class Riley B. McDowell, CVN 78

Living Marine Resources Program Takes on New Project After CVN 78 Shock Trials

Compiled by Sarah G. MacMillan, NAVFAC EXWC Deputy Public Affairs Officer & Mandy Shoemaker, NAVFAC EXWC LMR Deputy Program Manager
Read the full article here: https://dvidshub.net/r/ymi7cl

On June 18, the Navy began a full ship shock trial of the new Navy aircraft carrier, the USS Gerald R. Ford (CVN 78).

For several decades, the Navy has conducted shock trials—a series of underwater detonations at various distances from the ship, each detonation sends a shock wave through the ship's hull to simulate near misses during combat.

During shock trials, the Navy collects data on the acoustic shock wave effects on the ship and equipment. However, data is also needed on acoustic shock wave propagation from the detonation through the surrounding marine environment. In order to collect this data, the Living Marine Resources (LMR) program funds a team of scientists to deploy acoustic recording equipment prior to the full ship shock trial and to retrieve the equipment a few weeks after final detonation. This data is used by the Navy to validate the data used within the Navy Acoustic Effects Model, with the end goal of ensuring the Navy's estimate of acoustic impacts from explosive sources are as accurate as possible.

Following the Ford shock trials, a research team will review the data and document observations of acoustic behavior changes by surrounding mammals.

The Ford shock trials are just one of several facets of research funded by the LMR program. Depending on identifiable Navy priorities, research commonly conducted by the LMR program falls within five investment areas, including data to support risk threshold criteria, data processing and analysis tools, monitoring technology demonstrations, standards and metrics, and emergent topics. Projects funded under each category are related to supporting the Navy's ability to obtain environmental compliance and conduct uninterrupted training and testing—which preserve core Navy readiness capabilities.

Left photo: EA2 James Kuntz utilizes a GeoSLAM handheld GPS surveying device during the Poseidon Watchtower exercise in Okinawa, Japan on June 8, 2021. Right photo: Marines and Sailors conduct annual Poseidon Watchtower exercise in Okinawa, Japan on June 8, 2021.
Photo credit: Sgt. Hailey Clay, 3rd Marine Logistics Group

Marines and Seabees Conduct Reconnaissance in Okinawa

In early June, Petty Officer 2nd Class James Kuntz of the Expeditionary Programs Office (currently working with the NAVFAC EXWC Dive Locker) traveled to Okinawa, Japan, to attend the Poseidon Watchtower exercise on Ukibaru Island. Marines with the 3rd Marine Logistics Group, and Sailors from Naval Mobile Construction Battalion FOUR, Underwater Construction Team TWO, and Kuntz of NAVFAC EXWC conducted a reconnaissance of the island to hone their skills in assessing terrain for suitability and supporting maritime operations.

Capt. Michael R. Saum
CEC, U.S. Navy

Capt. Scott P. Raymond
CEC, U.S. Navy

Change of Command Ceremony July 20, 2021

NAVFAC EXWC military and civilian personnel are cordially invited to attend the change of command ceremony for Capt. Michael R. Saum and Capt. Scott P. Raymond on July 20, 2021, at Naval Base Ventura County, Port Hueneme, outside building 1000 in the entryway garden. Guest speakers will include Capt. Michael R. Saum, Rear Admiral John Korka, and Capt. Scott P. Raymond.

A change of command is an honored military tradition that represents a formal transfer of authority and responsibility for a unit from one commanding or flag officer to another.

Past Commanding Officers

Captain M.R. Saum	July 2018 - July 2021
Captain J.J. Adametz	Sept 2017 - July 2018
Captain J.D. Mitchell	July 2015 - Sept 2017
Captain M.R. Edelson	July 2013 - July 2015
Captain B.D. Pickrell	Sept 2012 - July 2013

ExPO Hosts Logistics Summit, Presents "Team of Teams" Concept

Focus Area: Develop the Workforce

Team of Teams: What is it? An Overview of ExPO's New Teams Collaboration Structure

ExPO leadership attends the logistics summit at NAVFAC EXWC in Port Hueneme, Calif. in May 2021. Pictured left to right: Nate Wheeler, Nick Hall, David Kinsman, Randy Smith, Paul Newbert, Brian McGovern, Veronica Imoto, Gregg Elhert, Kevin Chiras, Austin Leedom, and D.J. Wolf. (Courtesy U.S. Navy photo)

Compiled by Loren Mitre, NAVFAC EXWC LMS Distant Support

The Expeditionary Programs Office (ExPO) within NAVFAC EXWC hosted a logistics summit in May, bringing together leaders from the expeditionary workforce to present and discuss the boldest, most innovative and transformative ideas for the future of Navy logisticians.

Led by David Kinsman, NAVFAC EXWC Director of Logistics, the summit featured presentations and breakdown workshops devoted to presenting the "Team of Teams" concept—a groundbreaking vision focused on new hierarchy and collaboration methods.

> Simply put, instead of maintaining a traditional structure in which people work in hierarchies based on a function or formal business unit, the Team of Team concept arranges teams in a "constellation" that come together to target specific goals.

Those who attended the summit primarily focus their day-to-day tasking on the following development efforts as they relate to expeditionary products and services provided by NAVFAC EXWC. These development efforts include initial operating capability (a state achieved when a capability is made available in its minimum deployable form), final operating capability (the completion of a development effort), and logistics integration (the government of materials, information and goods connected to the capability).

Kevin Chiras, a program manager within ExPO, opened the summit with a clarion call, asking teams to reflect and discuss how they can accomplish and openly accept the new transition to the Team of Teams concept.

What Happens Next?

The ideas presented at this year's summit will transform the current team structure within ExPO. In order to make the new Team of Teams model a success, individuals must be flexible—understanding that no program or product is the same, and because of that, each Team of Teams may look different. The Team of Teams concept also allows ExPO to adjust its action plan based on individual requirements of products and services.

The summit itself represents an important process that brings together different programs to think outside the box. In time, the Team of Teams concept will provide a platform to challenge the ExPO organization to develop extraordinary solutions for the singular challenges of today, and pervading challenges tomorrow.

High-Level Goals for Team of Teams Implementation

Realign the current vacancies in ExPO, and in turn form Team of Teams gaps

Ensure current positions within ExPO are aligned in the Team of Teams construct, moving from a single function to a teams objective

Fill all vacancies within 90 days

Next Steps for Team of Teams Construct

Operate at the speed of trust by removing layers of bureaucracy

Stop linear thinking, stop single function duties, and stop project hand-offs

All work will be completed within the Team of Teams construct at the direction of the project manager

Establish management by outlining objectives

Each team member must volunteer and conset to their team members

Metrics will be established and used by all project managers

Kudos to our Contributors

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Would you like to contribute to the next edition of EXWC EDGE?

The EXWC EDGE is always looking for fresh, applicable and compelling new content for our monthly publication. Issue #0008 will launch in September 2021. Please send your contributions before August 9, 2021 for inclusion.

Contact:

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In advance, thank you for contributing!

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