

SHIPYARD LOG

Pearl Harbor Naval Shipyard & IMF News Since 1946

January 2017



INNOVATION

THE

UPDATE

Technology Insertion Advances New Navy

Aloha, and thank you for taking the time to read the January edition of the Shipyard Log. This month, it is my honor to turn over the Commander's Corner to Daniel Yamane, my Director of Quality Assurance and your champion for the "Innovation" strategic focus area.

On the 75th Anniversary of Pearl Harbor Day last month, we were reminded of the brave men and women who witnessed the onset of America's entry into World War II and the involvement of the Pearl Harbor Navy Yard during the attacks. The honor, courage, commitment, hard work and innovation they showed in that time of peril formed a national resolve that helped make our country an international leader in the struggle for freedom from tyranny.

Since WWII, we have innovated and improved our processes and infrastructure. We have inserted technology and made our ships and submarines the best in the world. We have invested in our people to operate and maintain those vessels in order to keep our great nation at the forefront of maintaining peace.

The world we live in today has become more globalized than ever before. Our adversaries and competitors have also embraced innovation and technology, with the intent of doing us harm. So, with that thought in mind, I give you Daniel Yamane.



Code 130 Director of Quality Assurance, Dan Yamane is pictured with Captain James K. Kalowsky, USN Commander, Pearl Harbor Naval Shipyard & Intermediate Maintenance Facility, and Shop 31 Numeric Controller Programmer / Machinist, Brandon Magsayo in front of Code 930's new horizontal Turning Center Lathe. This Horizontal Turning Center produced this 1 1/4" Fastener.

Thank you, Capt. Kalowsky, and thank you Shipyard for allowing me the opportunity to be your Innovation Strategic Focus area champion.

Last year, Nathan Lorenzo, USS Asheville Project Superintendent, and Dennis Young, head of our Engineering and Planning Department (Code 200), lead the Shipyard in Innovation and Technology Insertion and focused Shipyard efforts to identify and invest in innovation and technology insertion advancements as enablers for success.

Together, they focused on people, process and environment to set the foundation for innovation and technology insertion that will propel our Shipyard into the future.

It's essential that all of you understand the *why* behind Innovation and its importance to our command. As the Chief of Naval Operations (CNO) Adm. John Richardson pointed out in his September 2015 visit, "The key to comprehending the sense of urgency necessary to always stay one or two steps ahead of our competitors and adversaries is understanding today's world and the significance the U.S. Navy plays in maintaining our nation's success."

In today's dynamic world, we must recognize three global and interrelated forces. The first is the maritime system -- the trade, both legal and illegal, that occurs over water (e.g., oceans, seas and waterways). As the global economy continues to expand, the maritime system is being used more than ever before. Simply put, whoever controls the water controls the trade. The second force is the global information system, in which data is communicated in near-real time, at a decreasing cost. The third force is the increasing rate at which technologies are being created and implemented. Together, these three forces are changing how our Navy responds and operates. Our adversaries understand these forces well and continue to advance their military technologies in order to become global powers -- so they can leave us in the proverbial "dust."

To maintain our maritime superiority, we must achieve high velocity learning at every level, and apply the best concepts, techniques and technologies to accelerate learning as individuals, teams and organizations. We must define our objectives and set our goals high, and practice knowledge management so we don't have to relearn lessons from the past.

Department of Defense and Navy budgets will continue to be under constant pressure, so we need to be very aware of what types of improvements can be made, so we can invest wisely, recognize what processes can be improved, then leverage the best minds in the industry to develop new technology solutions to save time and money, and achieve increased efficiency.

It is my belief that the best improvements come from you. As you work, you can discover what needs to be improved, then provide your ideas on how to make that happen. Our Shipyard has a lot of "cool" tools and more that will soon come in. I'm asking you to be a part of the movement! Be part of the change! Be the one to suggest the idea that makes us better, and help us keep our Navy "Fit to Fight!"



SHIPYARD LOG

January 2017

Vol. 70, Number 1

<https://www.flickr.com/photos/phnsy/>

Commander
Capt. Jamie Kalowsky

Public Affairs Officer
Christian P. Hodge

Editor
Justice Vannatta

Commander's Comment Line
474-4729

Fraud, Waste & Abuse

Hotlines

Shipyard Hotline
471-0555

NAVSEA Hotline
(800) 356-8464

Navy Hotline
(800) 522-3451

DoD Hotline
(800) 424-9098

Safety Hotline
471-8349

Report-to-Work Status Hotline
473-9000

SHIPYARD LOG: This DoD publication is authorized for members of the Shipyard. Contents of the *Shipyard Log* are not necessarily the official views of, or endorsed by, the U.S. government, DoD, or PHNSY&IMF. ISSN 1073-8258.

PUBLICATION DATES: The *Shipyard Log* is published monthly. Articles are due the 10th of each month. Send material to the editor via email or, if hard copy (typed, upper/lower case) on a CD via inter-office mail to Code 1160 *Shipyard Log*. All material is subject to editing.

MAILING ADDRESS:

Shipyard Log Editor
PHNSY & IMF (Code 1160)
667 Safeguard St. Ste 100
JBPBH, HI 96860-5033

CONTACT INFO

Telephone: (808) 473-8000 ext. 4157
Fax: (808) 474-0269
Email: Justice.vannatta@navy.mil

ON THE COVER: Code 135 Metals Inspector Apprentices Nicole Bareng and Tiras Koon, alongside Code 1140 Shipyard Administration Officer Maurice Honeywood. They are holding Special Tools made by Shop 38 ST (Special Tools.)

Graphics by: Dave Amodo
Photo by: Justice Vannatta

PHNSY & IMF Hits Key Milestones

Story by Karen Orosco
Code 300 Risk Manager

Our Shipyard's docking team has once again performed with flying colors. With the recent docking of USS *North Carolina* (SSN 777), the team -- led by the Code 340 Docking Officer and Dock Master and comprised mainly of Shop 64 Shipwrights, Shop 99 Pumpwell Operators, Code 740 Riggers, and Code 250.5 Naval Architects -- has successfully performed five docking evolutions within a 28-day time frame.

These evolutions began with the early undocking of USS *Bremerton* (SSN-698) on Nov. 15, then continued with the docking of USS *Chung Hoon* (DDG 93) on Nov. 17, the undocking of USS *Hawaii* (SSN-776) on Nov. 22, the undocking of USS *Asheville* (SSN-758) with the assistance of Buoyancy Assistance Modules (BAMs), which started on Nov. 28 and completed on Dec. 3, and, finally, the docking of USS *North Carolina* on Dec. 13.

Notable achievements included Shop 64 Shipwrights, led by Supervisor Renny Muraoka, completing the block build-ups for USS *Chung Hoon* and USS *North Carolina* dockings in a four-week timespan, with zero discrepancies. Both builds were precisely placed within a quarter of an inch to plan. Collaborating with the Code 740 Rigging team, the Shipwrights implemented process improvements by utilizing two outhaul tracks for the USS *Asheville* undocking and two inhaul tracks for the USS *North Carolina* docking, which ensured vessel safety in our two smallest dry docks. The Rigging team, led by Brian Apo, safely completed and successfully implemented process improvement ideas from Galen Nascimento and Ron Joseph, enabling the BAMS installation and removal processes to be the most efficient to date.

The precise calculations by the Code 250.5 Naval Architects for these five docking evolutions -- led by Gary Zane and Belinda Adcock -- were within two inches of all vessel lift-offs and landings. Their quick thinking enabled the docking team to safely land 50,000 lbs. of weight on USS *Chung Hoon* to correct list, allowing the vessel to land safely on the blocks with zero degrees of list.

Throughout all of these evolutions, the safety of all dry-docks and caissons was maintained by Shop 99 Pumpwell Operators, led by Richard Atiburcio and Lee Ancheta. The Pumpwell Operators "saved the day" for the USS *Asheville* undocking in the 11th hour with their quick troubleshooting and development of a corrective action plan for the successful back-seating of the Dry-Dock #3 caisson, which was essential for the vessel's safe lift-off and breast-over.

Docking Officer Lt. Cmdr. Daniel Hogue stated, "I am beyond impressed with this team's pursuit of excellence in their craft, their ingenuity in pre-planning and drive to 'swarm' to issues that ensured the success and safety of all five evolutions, the most of any Shipyard in recent history. They truly are the United States Navy's 'No Ka Oi' docking team."



USS *Chung Hoon* (DDG 93)



USS *Bremerton* (SSN - 698)



USS *Hawaii* (SSN - 776)



USS *North Carolina* (SSN - 777)



TOMORROW IS TODAY

A LOOK INTO THE DYNAMIC FUTURE OF PEARL HARBOR NAVAL SHIPYARD & IMF

Story By Dan Yamane
Code 130 Director of Quality Assurance

Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility (PHNSY & IMF) benefits significantly from maintaining a mindset that focuses on continuous improvement through innovation.

The vision of the Shipyard's Innovation and Tech Insertion strategic focus area is to *"Innovate to increase efficiency."* So our idea of innovation is based not only on improving processes and acquiring the latest tech improvements, but also on getting U.S. Pacific Fleet ships and submarines back into the fight on time and on budget, with increased predictability.

Additionally, our vision expands to the practice of going after problems and solving them, using a disciplined process. To that end, we are completely aligned with Naval Sea Systems Command's Maintenance and Industrial Operations (NAVSEA 04) and the Chief of Naval Operations (CNO) regarding the use of High Velocity Learning (HVL). This methodology, defined as "disciplined learning through the use of four capabilities -- See, Swarm, Share and Sustain," allows us to continuously improve the performance of our work. As a High Velocity Learning organization, we employ these disciplines to learn and improve every day, making HVL an integral part of the culture of our Shipyard.

Innovation: What is it?

Innovation is the process of implementing new ideas to create value for the organization. This may mean improving or changing processes to grow our Shipyard capabilities. Innovation is a force multiplier that can enhance existing processes or create new ones with the potential to dramatically increase effectiveness, even when operating in a constrained resource environment.

At PHNSY & IMF, we embrace the Learning Organization approach of involving our people. We include *all* individuals who work at the Shipyard: military/civilian, blue collar/ white collar, leaders/juniors. Innovation is the coordination of Shipyard process and program owners, providing all of them the opportunity to put forward ideas to solve problems. The mechanic or engineer closest to the problem to be solved or the "constraint" witnessed within the system is the best source of information about what could be done differently to fix it. The sharing of such ideas needs to be a priority for every employee. Once problem-solving ideas are identified, they need to be shared and published to the rest of the workforce in order to take full advantage of each learning opportunity, from the mechanic on the deckplate to the senior manager in the Shipyard.

Innovation is more than a single program or initiative. It is an interconnected set of solutions to meet the Shipyard's needs. It provides workers with needed tools and improved processes to more efficiently get the job done. Done right, innovation empha-

sizes core values and imbues a strong sense of purpose, linked directly to national defense, the Navy, the Pacific Fleet, and the long and storied history of Pearl Harbor Naval Shipyard and IMF.

What's on the Horizon for Fiscal Year 2017?

The Innovation and Tech Insertion strategic focus area has two main initiatives planned for Fiscal Year 2017 (FY17). The first is to align, collaborate, capture and execute process improvement events. The process improvements we plan to execute in FY17 fall into two main areas: Production Shop and USS *North Carolina* Project initiatives.

Production Shop initiatives include: main condenser cleaning; underwater cable manufacturing; multi-function test unit (MTU); measurement quality jumper (MQJ) manufacturing; material and equipment tracking; gasket fabrication; and non-nuclear learning/training centers.

North Carolina Project initiatives include: Mold-In-Place (MIP) hot work mock-up to improve controlled welding; hatch seal re-facing machine to improve Los Angeles class (SSN 688) and Virginia class (SSN 774/VACL) watertight hatch and door repair; ASW valve body cavity modification to improve valve repair; material tracking/storage; improvement of protective wrapping for blasting operations; PEP/Moonshine project to improve torpedo tube slide valve gasket availability; VACL aft-end event improvement; and PCM special attention job.

We have established and are developing a 3D measuring machine program, across the Shipyard, and a Continuous Improvement Action Group, comprised of various shops and codes, to ensure the Shipyard has an effective process improvement program, targeting jobs that affect critical chain work and have a high cost variance.

The second initiative is focused on closing the gaps in our technology capabilities by establishing a Shipyard Innovation Center/Lab, where we will be able to innovate in a safe environment.

The Shipyard is also collaborating with NAVSEA and the

Naval Warfare Centers on various initiatives to bring technology into the work we do on a daily basis to “Keep Our Ships Fit to Fight.” The specific initiatives include: laser ablation; cold spray; decontamination gel bilge cleaning; cable mold platens; vertical launch system laser clad repair system upgrades/repairs; laser range finder test equipment for VACL and 688 class motor generator automated commutator stoning; laser metrology for finite element analysis modeling of tanks and voids; laser metrology for defect mapping; 3D rigging path/crane operations/training; additive manufacturing (3D printing); digital mapping boards; 3D scanning of drydocks; main condenser cleaning; and TeraHertz (THz) imaging for Mold-In-Place (MIP) special hull treatment debonding. The Shipyard has also established a Cyber Security Working Group to break down barriers and bring technology into the Shipyard faster.

Based on the conceptual figure from *Ideas Are Free* by Alan G. Robinson and Dean M. Schroeder, innovation and the way our organization governs how work is done will be integrated, such that ideas to improve are integral to the Shipyard way of doing business. Just as the Shipyard aligns to NAVSEA Priorities and CNO Lines of Effort, it must also align to other external environments. The strategy we employ must pull needed resources from these environments. The Shipyard's structure must support the strategy, as well as define how we budget resources and what policies we put in place. The systems and procedures used must align to our strategy, structure, budget and policies. The training we provide, the way we supervise and reward our people must also be aligned. Ultimately, individual behavior in how to submit ideas and manage them will be aligned to the Shipyard's direction. Finally, our Shipyard culture and leadership will keep all this on track. Misalignment of any of the above elements will adversely affect the submittal of ideas and our continuous improvement. When these elements are completely integrated into how the Shipyard operates, working with new ideas will simply be part of the way everything is done.

A worker from VRC Metal Systems demonstrates a Generation III Portable High Pressure Cold Spray System. Cold spray, also referred to as supersonic particle deposition, is a high-energy solid-state coating and powder consolidation process. Cold spray uses an electrically heated high-pressure carrier gas, like nitrogen or helium, to accelerate metal powders through a supersonic nozzle above a critical velocity for particle adhesion.



Code 930 Special Tools Team pictured here in Bldg 215 ST, Special Tools facility.

Front row: Janice Ayano C393; Clayton Uyechi C393;
2nd row: Stevan Kitterman C393; Dandrell Corpus C938; Ian Nitta C393 **3rd Row:** Kimokea “Kimo” Hamakua C938; Laurence “Tommy” Dolormente C393; Robert “Bob” Yanke C393
4th Row: Daryl Dikilato C938; Wayne Watanabe C393; Alan Hayashida C393 **Back row:** Devin Akim C938

The Tools of The Trade



Three elements are essential for the employees of our *No Ka ‘Oi* Shipyard to “Keep Them Fit to Fight” -- engineering, skilled labor and the right tools. Integrated together, these elements perform the tasks our Shipyard undertakes on a daily basis. What differentiates our many skill sets are the tools, many of which can be transitioned from one trade to another – like combination and adjustable wrenches, screwdrivers and many other tools that are used in almost every trade.

It is the specific (or “special”) tools that create our more discrete skill sets. Our Shipyard organization reflects this distinction. Specific groups of skilled men and women within our workforce perform electrical or mechanical work, ship fitting, welding, preserving, rigging, lagging, pipe fitting, machining and many other skill-specific tasks. Each group is proficient in the utilization of the “special” tools that help define its individual and group capabilities.

The uniqueness of naval shipyard tooling requirements resulted in the 1967 creation of a “Tool Engineering Section” here, tasked to design and develop all special tooling needed to work on nuclear submarines and surface craft. Today, this same section is known as Code 930 Special Tools (C930ST), located in Bldg. 215. This Code 930 division’s long and documented history includes hand-drawn production diagrams of all the special tools and machines designed and developed at Pearl, along with the original requests for what and why the special tool was needed.

The more than 6,500 drawings in Code 930ST’s archives show the rich history of talented and innovative Shipyard employees. Many of the tools were created in the 1980’s for Los Angeles class submarines, due to the number of boats requiring maintenance, modernization and repair. When first established, the Tool Engineering Section employed up to eight Mechanical Engineering Technicians (tool designers), six Equipment Specialists (tool room technicians), a

**Story by Ian Nitta
Code 930ST Special Tools
and Tooling Maintenance
and Repair Division**

Our Shipyard’s mission is to maintain, modernize and repair United States Navy vessels -- whether they are Los Angeles Class (SSN 688) attack submarines, the ultra-modern Virginia Class (SSN 774) submarines, or any of the many different classes of surface commandants. All of these engineering wonders are vital to the strategic national security role played by the U.S. military within today’s global community.

Progress man and a Planner-Estimator. Today, Code 930ST employs four Mechanical Engineering Technicians (tool designers) and three Equipment Specialists (tool room).

Strong demand for “special tools” brought about the need for a dedicated accountability section to inventory, maintain, refurbish and issue these high-cost, Pearl Harbor-manufactured tools. The Code 386 Special Machine and Portable Machine Tool Branch was established in the early 1980’s to increase Shipyard productivity by designing, developing and accounting for custom tools and machines to meet the stringent requirements of a specific application and still have the adaptability for a wide range of use.

Six Production Toolmakers refurbished and maintained the tools, and taught machine and machine tool operating procedures, while a single tool room attendant issued and received (returned) tools. This branch maintained these custom tools and machines in a “ready-for-issue” state for immediate waterfront support. It also ensured the inventory of contaminated tooling was up to date, so a contaminated tool could be used on a contaminated system, in lieu of using a “clean” machine or machine tool.

Code 386 also initiated more efficient and effective communication between technical codes, production shops and waterfront project teams by assisting the technical codes in the work process, developing new operating procedures for newly developed machines and machine tools, and instructing waterfront personnel in the new procedures. Basic overall functions and ideals were kept as, over time, the Special Machine and Portable Machine Tool Branch evolved into Code 930ST, incorporating both tool engineering and maintenance-repair personnel. The collaboration of those involved instilled a nurturing environment for innovative thinking.

Today, the Shipyard’s “special” tool process starts with a request being submitted through the *Special Tools Database*. An Equipment Specialist reviews each request to determine, based upon the information provided, whether such a special tool already exists within our inventory. If more information is needed, the requester will be contacted, either by

phone or email. Access to the database through the Special Tools webpage is limited to supervisors, work leaders and engineers. (If you require access, please contact Special Tools; their points-of-contact are listed on the web page.)

If the requested tool already exists, the Equipment Specialist will create and provide to the Maintenance and Repair section a “pull-list” with all the tooling requested. The Maintenance and Repair personnel will locate and stage the tooling requested. Once the tooling has been staged, the personnel requesting the tooling will be notified to come pick it up.

If a tool does not already exist and needs to be designed, the Equipment Specialist will notify the Mechanical Engineering Technician Supervisor (Tool Designer) that such a tool is needed. The supervisor will then assign a Mechanical Engineering Technician (MET) to collaborate with the requester as to what is needed. Utilizing their previous trade background, team experience, understanding of engineering concepts and ability to read and understand technical documentation, the MET will then design a tool to suit, using computer-aided design (CAD) software to produce preliminary production drawings to send to the requester for concurrence on the design of the tool. Once the final design is agreed upon, the MET will complete the production drawing and issue it to the Equipment Specialist, to document that concurrence has been received and submit the drawing to Shop 31’s Tool Maker Division for manufacture.

Six Machinist Tool Makers and a Planner/Estimator constitute the Tool Maker Division, which reviews the production drawings, writes the machining instruction, provides material

cost estimates, purchases materials, and issues instructions to the Machinist Tool Makers. Utilizing a variety of precision machines, the tool makers then work within the requestors’ need dates to produce the new “tools” -- which can vary in complexity from very intricate cutting machines to a one-piece wrench, but may also hold minute tolerances as small as 0.0005-in.

When production is completed, the Maintenance and Repair (M&R) Section will retrieve the production drawings from the archive and attribute-check the newly manufactured machines and machine tools, utilizing precision measuring instruments and various other tools. If found satisfactory, the M&R personnel will then assign each a unique identifier, to be entered into the electronic-Facilities and Equipment Management (e-FEM)

(continued on page 8)

Shop 38 ST (Special Tools) Nuclear Marine Machinist Mechanic Daryl Dikilato secures a low profile clamshell split frame pipe lathe on to a one-inch pipe stock in support of USS *Jefferson City* (SSN - 759.)





Shop 38 ST (Special Tools) Mechanical Engineering Tech Wayne Watanabe revises the drawing on a EB (Electric Boat) ring roller to meet engineering request.

(continued from page 7)
 system, which provides the accountability for the custom machines and custom tools created or purchased by the Shipyard. They then notify the project requester that the new tool is ready to be picked up and utilized. When the project is finished using the tool, they return it to the M&R section, to be refurbished and stored in a “ready-for-issue” state.

Other technology advancements have given the MET’s the ability to produce plastic prototypes of some requested new tools, in order to prove fit, form and function prior to submittal for manufacturing. The requester can take the prototype to the worksite to prove out the design in a practical manner. This process helps to reduce rework and disruption for the machine shop by delivering a proven design vice a theoretical one.

Together, all the different divisions and their respective skilled personnel have played a vital role

in creating, manufacturing and staging “Special Tools” for the missions Pearl Harbor Naval Shipyard supports here and abroad. The historical Special Machine and Machine Tools Section still exists, in updated form. Today’s Code 930ST personnel are ready and willing to help requestors design and develop “Special Tools”-- or explore any innovative idea that could help Pearl Harbor Naval Shipyard continue to be “NO KA ‘OI.”

Shop 38 ST (Special Tools) Mechanical Engineering Tech Laurence Dolormente works on a bore alignment fixture utilizing ‘as found’ measurements to create new bushings in support of USS *Jefferson City* (SSN - 759.)



Enter the Third Dimension

Story by Lori Sakai
 Production Engineering
 Communities of Practice

The importance of improving fleet readiness to ensure maritime security is growing. So where can we go to develop and test innovation and technology insertion ideas to reduce costs and improve processes for ship repair and maintenance?

Communities of Practice (CoP) leaders continue to pursue getting the tools and parts needed to help advance their initiatives. Currently, Mechanical Group (Code 930) Special Tools has a large 3-D printer to help with these initiatives. Through a grant from Shipyard Commander Capt. Jamie Kalowsky at the end of Fiscal Year 2016 (FY16), the Shipyard acquired two smaller 3-D printers, along with modeling and simulation software programs to help increase throughput. Also, the Lifting and Handling Department (Code 700) successfully acquired a second large 3-D printer with FY16 Naval Sea System Command (NAVSEA) innovation funds.

So how do we align and utilize all of these capabilities to implement improvements for ship repair and maintenance? Leaders from the Engineering and Plan-

ning Department (Code 200) and the (Code 930) Production Mechanical Shop CoP collaborated and are working together to establish the structure, process and a location (i.e., innovation laboratory, or iLAB) to implement and test the capacity and capability of various technologies.

A space within the Inside Machinists shop (Shop 31) is being prepared for the smaller 3-D printers to help with throughput for the larger 3-D printers. Initiatives to procure, install and test software for the computers are in progress. Actions to procure and store consumable supplies (i.e., plastic consumables) to test the software are nearing completion.

When prototypes are being produced and tested, magic and belief may start to happen. The iLAB is intended to provide a home to bring ideas to fruition. With success and additional funding, the vision is for the iLAB to become a gathering garden, transforming ideas from fertile seeds into a bursting growth of collaboration and innovation.

When we build this, more will come.



Code 930 Marine Machinery Mechanic Dandrell Corpus inspects the newly fabricated adapter mandrel and adapter plate in support of USS *Jefferson City* (SSN - 759)



From left: Jacy Ball, Analytical Chemist, Naval Research Laboratory (NRL); Moraima Lugo-Millán, Chemist, Defense Logistics Agency (DLA) Aviation; Eric Petran, Naval New Technology Program Manager, PHNSY; James Martin, Section Head (Coatings, Code 6138), Naval Research Laboratory (NRL); and Bob Brown, Program Manager, Naval Research Laboratory (NRL).

The Future is so bright

**Story by Eric Petran
Naval New Technology Program Manager**

Your innovation focus area team has been hard at work and has called upon an impressive network of gracious sponsors and partners to set the stage for on-hull technology demonstrations in Fiscal Year (FY) 2017. The partnerships established during the past year will accelerate our ability to bring these technologies to bear on our challenges, as well as serve as the foundation for future work. Through these demonstrations, we hope to share several new technologies that are worthy of having a place in the Shipyard's "toolbag" of methods we employ to return ships and submarines, on time and on budget, to the Commander, U.S. Pacific Fleet.

Through a strategic investment by the Shipyard, Code 930 will soon have the capability to restore non-structural metal loss, via a technology called "cold spray." The cold spray process works by taking metal powder, heating it to a putty state, and accelerating it to supersonic speeds. The particles produced can then be directed to strike the part with metal loss and bond to it. As more and more of these metal particles stick to the substrate, they are able to replace the missing metal. In many ways, it is like you are spray painting with metal. All four of the Naval Shipyards have great hopes for this technology as a potential alternative to brush electroplating, and Pearl is likely to be the first with in-house capability.

Despite all of the headwinds we have encountered with the technology, there is still a burden of technical evidence that must be met to approve a new technology for shipboard use. Through the gracious sponsorship of the Defense Logistics Agency-Aviation Division, which has recognized our commitment to technologies that reduce our environmental impact, the Shipyard is able to leverage the expertise of the Naval Research Laboratory (NRL) to produce the technical data required to get parts from submarines we maintain repaired with the cold spray process. In the coming months, the team of Shipyard dedicated profession-

als will engage with NRL and their consortium to accelerate the implementation of the technology. Each of the other three Naval Shipyards has expressed an interest, and we will share our experiences with all of them, so we move forward together.

The DLA-Aviation Division has also provided funding for a demonstration of a cleaning gel on a surface craft bilge. The Shipyard will apply the product to a portion of the bilge, using special application tools that were developed for the product by a joint effort with DLA-Aviation Division and NRL. If successful, we will demonstrate that the gel can be applied quickly and easily, and that it is effective at removing oils and greases. Introduction of this product would result in the reduction of our generation of water and conventional cleansers. While the surface combatants have not historically received the same attention as our submarines when it comes to innovation, we also have a couple of other efforts that are tailored to them.

Through the support of Commander, U.S. Pacific Fleet, the Shipyard was able to invest in a laser system that will be used to strip paint from steel surfaces. This strategic investment will allow Pearl Harbor Naval Shipyard to be the first public shipyard to apply this innovative system to assist our surface craft. The laser paint removal team is partnering with numerous other commands, including other shipyards, to bring this technology to our Shipyard. Through collaboration with Commander, Naval Surface Group Middle Pacific, we have identified a suitable shipboard area to bring the technology to bear this fiscal year.

During the discussions of implementation opportunities for the laser paint removal system, we came across another area of joint interest: alternative coatings for certain areas on the flight deck.

Thanks to the expansive network of partners collaborating with our Shipyard, we were able to work with NRL and Naval System Engineering Directorate (SEA 05) to get funding to pursue alternative coating systems for the Recovery Assist and Secure Traverse (RAST) track plates. The RAST system consists of a cart, known as the Rapid Securing Device (RSD), that is deployed to the flight deck to assist with helicopter landings. Once the helicopter has been secured to the deck, the RSD is used to transport the helicopter back into the hanger. The paint under the RSD has difficulty handling the wear and tear of repeated RSD movements, and we will be able to investigate with Naval Research Laboratory several alternative preservation methods, with hopes of providing a more robust system to the Fleet.

The progressive attitude and hard work of the men and women of our workforce have given Pearl Harbor Naval Shipyard a reputation well-suited for being a partner of choice for innovation projects. That reputation is being placed front and center as we engage with a broad group of collaborators to increase the Shipyard's ability to return ships and submarines back to the Fleet. Please stay engaged within your shop, department or project. Your innovation focus area team could not, and cannot, progress these projects without you and your willingness to work with equally professional and dedicated off-yard collaborators.

Story and Photos by Ronald Bales
Nuclear Regional Maintenance Department
Ship Superintendent



LEGO Team, Kawaii Crafters, Takes Third Place

Oahu's first ever Girl Scouts LEGO Robotics Team -- whose members are all from Pearl Harbor-Hickam families -- won third place for young scientists 9 to 14 years of age in the First Lego Challenge competition Nov. 12 at the University of Hawaii West Oahu. The "Kawaii Crafters" team, formed the last week of September, included Gwyneth Bales, Kaileen Castilliano, Alyssah Desroches, Kyley Fletcher, Brook Martin, Brandy Martinez, Cammy Martinez and Sasha Martinez.

Lead Coach Ronald Bales, who works at Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility in Code 300N.4, and Assistant Coach Amanda Klein led the team. Alex Desroches (Code 1100) and Suzanna Holbrook were team mentors for the Girl Scouts of Hawaii Hickam Ohana Pearl Harbor (HOPS) Service Unit.

The FIRST Lego Challenge was based on a game called "Animal Allies." Each team had to come up with a problem regarding how people interact with animals and develop a solution to fix it. The Kawaii Crafters chose tigers as their animals, and spent many hours researching worldwide problems for tigers. The team decided that potential extinction was the primary problem, due to tigers being illegally hunted for various reasons. Their solution was to build a sanctuary to provide a place for tigers to live and create jobs for people to care for the tigers. Using LEGOs, the team designed and built a model sanctuary to present at competition.

As the team members began to build their LEGO robot and set up its challenge board, they practiced every weekend and some Fridays. At the first practice, the girls assembled 15 missions for the challenge board, then selected four of the missions for competition. They developed a simple robot design that could complete the missions and named their robot "Carl."

"We worked in two different teams to design the robot and voted as a group for the final design," said team member Kyley Fletcher. Once the robot design was complete, the team had to program the robot to complete the missions. After being tweaked several times, the program was finally able to work like it needed to work. At practice sessions, the team members learned that they also had to further adjust the programming and robot design to be able to achieve maximum points at competition.

During the competition, the teams were judged in four categories: Robot Design Presentation, Core Values Presentation, Project Presentation, and Robot Games. For the team to receive maximum points, each member had to speak during the presentations, explaining why tigers are becoming extinct and using their LEGO model to demonstrate their solution.

For the Core Values presentation, the girls were given a game to play where they had to display teamwork in order to finish. For the robot design presentation, they had to explain why they designed the robot the way they did and demonstrate how the robot operated by completing one mission chosen by the judges. Three rounds were given for the robot games. During each round, only two girls were allowed at the table at a time. The judges only took the top games score to add to the presentation scores. The girls placed third in the robot games, with 56 points. Although their score was not high enough to move on to the State Competition, they all agreed that they had had an awesome experience.

During the FIRST Lego season, the team members got to show their creative skills in designing and programming the robot to complete all chosen missions. They also learned to work together as a team for their presentations. They displayed great teamwork by always taking a vote to make critical decisions so that everyone's ideas were presented and included. The team members exhibited great courage to be able to speak during the presentations, even though many were nervous. When the competition was complete, they came out of it with confidence and pride in themselves.

Though they did not advance to the State Competition, the Kawaii Crafters had an amazing season in which they excelled as a team to achieve third place in the robot games. Due to their teamwork and the efforts of their coaches and mentors, the season was a huge success and they are all looking forward to competing again next year.

If you have youngsters who are interested in robotics, learn more at info@hawaiiifl.org.

Girl Scouts LEGO Robotics Team, Kawaii Crafters





Shop 11 Apprentice Instructor Jason Nagata and Shop 11 Loftier Eric Washiashi display the capabilities of the 3-D coordinate measuring machine.

APPLICATIONS OF TECHNOLOGY ARE ADVANCING

Story by Ralph Hong
Head Nuclear Engineer

Applications of technology have changed the course of history more than once. Advancements and use of canons in the naval ships and battles allowed the Portuguese to dominate the Atlantic and Indian Oceans during the Age of Exploration in 16th century. Use of radars by United States Navy ships during the Battle of Midway allowed the U.S. to turn the tide of the Pacific War.

But the Portuguese did not invent canons. Rather, they understood the game-changing advantages that canons would provide in naval battles. Their exploration of how to improve the design of their ships and canons allowed them to spot, shoot and sink enemy ships from beyond the range of enemy weapons. Portuguese use of canons changed how naval battles were fought until World War II.

Similarly, the U.S. Navy did not invent radars. They recognized the importance of detecting enemy air combatants in naval battles as visual detection limited their effectiveness. Using airplanes to detect enemy forces increased the range of battle engagements from a couple of dozen miles to several hundred miles and effectively equipped the Navy carriers with radar. This also allowed getting fighter planes airborne to protect the carriers from Japanese attack planes. During the Battle of Midway, the U.S. Navy sank four Japanese aircraft carriers while only losing one U.S. carrier.

The use of radar also changed how naval battles have been fought, right up to the present day.

Use of the 3-D coordinate measuring machines (CMM), such as FARO™ in NAVSEA applications, follows the same logic of applying technologies that provide game-changing advantages over existing processes. The 3-D CMM measures the physical geometric characteristics of an object and creates digital coordinates in a virtual three-dimensional space. The technology has been in industrial use for inspection purposes, area or component 3-D modeling, and reverse engineering.

At Pearl Harbor Naval Shipyard and Intermediate Mainte-

nance Facility (PHNSY&IMF), Code 920 Shop 11 has been using 3-D CMM since 2008. They have used the machine in component alignment, dimensional analysis, reverse engineering, and precision fit-ups. Most Shipyard applications have been in the combat systems and structural work. The 3-D CMM in nuclear applications began in 2013 with the precision fit-up of a nuclear component. It allowed the work team to complete the precision fit-up in a fraction of the duration needed for the previous fit-up method. The 3-D CMM application in precision fit-up continued for other nuclear components and became the standard method.

PHNSY&IMF is currently in process of standing up the 3-D CMM Implementation Team, consisting of Codes 109, 200, 2300, 920, 930 and 960.

The initial goal of the team is to expand 3-D CMM capabilities outside Shop 11 to allow identification of applications where the 3-D CMM could improve current work methods that may be cumbersome. To name several examples, the 3-D CMM can be used to replace current precision measurement tools, allow precision measurements of irregular shapes or defects on critical sealing surfaces, enable remote measurements using laser scanners, simplify inspections or quality controls, minimize rework or immediate work steps by using virtual fit-ups of components, improve modeling processes, simplify machining processes, allow manufacturing of hard-to-get components and construction of virtual mock-ups or mock-ups identical to shipboard dimensions. The eventual goal of the 3-D CMM Implementation Team is to establish a program where the processes associated with sustainment and further development of the work processes using the 3-D CMM are formalized, controlled and resourced.



Shop 11 CTD Instructor Kurt Nakahira demonstrates the FARO arm technology to Under Secretary of the Navy, Dr. Janine Davidson during a visit to PHNSY & IMF in July.



Photos by Justice Yannatta

VCNO visits Pearl Harbor Naval Shipyard & IMF

Story by Public Affairs Office

October Civilian Newcomers

Richard Gorb, C290
 Julie Hagino, C2340
 Kim Halsell, C410
 Kara Hamada, C970
 Steven Harris, C990
 Christian Hodge, C1160
 Jordan Hunt, C920
 Deborah Imada, C300
 Shelley Itagaki, C2380
 Brendon Jacinto, C290
 Frank Johns, C400
 Charvis Kaapa, C920
 Shane Kahoe kapu, C950
 Joshua Keolanui, C970
 Jason Kim, C960
 Joshua Kuewa, C970
 Bryson Kuroda, C270
 Michael Lambert, C260
 Heath Larner, C2309
 James Lavatai, C990
 Darren Lee, C710
 Johnson Leung, C290
 Linda Scott, C950
 Raven Lopes, C1351
 Ernesto Lorenzo, C710
 Ken Lui, C2320
 James Manuel, C990
 Aaron Mariano, C2380
 Corey Matsuo, C970
 Justin Mcouat, C1351
 Kari Miyasato, C970
 Tatum Moore, C990
 Kristy Morinaga, C970
 Melissa Morrison, C970
 Christopher Murata, C300
 Roger Nakamine, C1351
 Jarrod Ng, C260
 Nathan Nguyen, C270
 Arvin Niro, C260
 Jody Okamoto, C270
 Jeffrey Oshiro, C138
 Brandon Pannabecker, C2340
 Ben Phouksouvath, C2320
 Jordan Queja, C970
 Royce Redulla, C960
 Nathan Reinhardt, C920
 Jared Reyes, C970
 Jaren Rios, C920
 Michael Robertson, C260
 Travis Roussell, C246
 Kenji Salmoiraghi, C950
 Jessica Saludes, C950
 Kyle Samples, C2340
 Van Shimabukuro, C970

October Military Newcomers

Bryce Coulombe, C300
 Christopher Davis, C760
 Christopher Dupree, C990
 Marc Elago, C105
 Brian Finch, C950
 Treveor Garmane, C246
 Daniele Harris, C950
 Allison Hodge, C103
 Johnson Joseph, C950
 Norman Kampelman, C210
 Nigel Koorie, C200
 Cooper Leonard, C760
 Ryan Lindgren, C950
 Jay Mackie, C300N
 Kurtis Morgan, C210
 David Osborne, C930

October Service Awardees

10 Years

Francin Ansotigue, C410
 Mark Hagiwara, C930
 Christophe Jackson, C2602A
 Jonathon Parfait, C920
 Yanyan Xiao, C990

20 Years

Michael Caesar, C970
 Jeffrey Fortner, C950

25 Years

Thomas Husselbaugh, C10542
 Mark Obenour, C920
 Roland Toledo, C990
 Gunther Weamire, C1053

30 Years

Candace Lum, C410
 Henry Mata, C300
 Perry Nihi, C2102
 Rick Wakabayashi, C200SD
 Edward Yamashiro, C2340

35 Years

Don Bongo, C100PI
 Vincent Chong, C300
 Terrence Echavaria, C920
 Ryan Hanakahi, C970
 Ryan Harada, C960
 Melvin Iha, C970
 Earl Maeda, C920
 Lenora Mau, C1063
 Dean Naito, C990
 Arnold Pang, C920
 Derek Ragragola, C920
 Mike Sawyer, C970
 Alan Sugita, C375
 Bertram Takemoto, C920
 Robert Takushi, C742
 Eric Teruya, C950
 Ray Tomasu, C732
 Henry Wakumoto, C300
 Robin Yamashiro, C930
 Robert Yanke, C930

40 Years

Leonard Jardin, C930
 Frank Peterson, C300

45 Years

Dan Shimabukuro, C930



The Vice Chief of Naval Operations, Adm. Bill Moran, visited Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility (PHNSY & IMF) on Dec. 15.

The visit to the Shipyard was part of a multi-day/multi-nation visit to the Pacific area of operations to examine various facets of the U.S. Pacific Fleet, to include readiness and the escalation of work at PHNSY & IMF.

“It’s important for me to get eyes on the Fleet and see where we need to focus our attention, and that includes our naval shipyards,” said Moran. “Over the last decade we’ve been running the Fleet hard, and because of that we’ve had to defer maintenance. Now some of that maintenance is catching up to us, so we need to put money back into the system to ensure we’re getting our ships back out to the Fleet on time.”

Moran was joined during his visit by Rear Adm. Stephen Williamson, director of Fleet Maintenance for U.S. Pacific Fleet. During the two-hour visit, Shipyard commander Capt. James Kalowsky offered Moran an overview of the mission and capabilities of the United States’ “No Ka ‘Oī” (or “the best”) maintenance provider, including an explanation on how PHNSY & IMF’s Focus Areas are in alignment with the Lines of Effort published by the Chief of Naval Operations in “A Design for Maintaining Maritime Superiority.”

Shop 52 Awarded Safe Shop of the Month



****Due to space restrictions, we will continue Newcomers list in our next issue.****

Fair winds & following seas to
October Retirees
 Milton Kaneshiro
 Kurt Zachmann