FACEPLATE

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FACEPLATE

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JASCON 25 conducts stores on load with support tug ARCHON TIDE, while Navy & SMIT crews on board the USS GUARDIAN prepare rigging for a crane lift from the Main Machinery Room (MMR).

SUPSALV SENDS...CAPT MARK MATTHEWS

Many events have transpired since the last "SUPSALV Sends". Just three days after I submitted the previous article, Superstorm Sandy made landfall and devastated the Eastern seaboard around New York. Shortly after that, the USS GUARDIAN (MCM 5) ran aground in the Philippines. In both events, the Navy Salvage Triad flexed to provide tailored responses to the Nation's needs.

SUPERSTORM SANDY:

On Halloween, I found myself in Battery Park in lower Manhattan, responding to requests for support from the U.S. Army Corps of Engineers. Sandy had come ashore on 29 October, bringing with it a storm surge of nearly 14 feet. This extreme height of water overflowed and flooded a majority of the mass transit tunnels between Manhattan, Brooklyn, Queens, and New Jersey. It also took down significant portions of the power grid. For all intents and purposes, lower Manhattan, the financial capital of the United States (if not the world), was shut down. My mission was clear – remove the water from the mass transit tunnels so transportation could be restored.

As more and more of the tunnels were assigned to us, Donjon Marine, our east coast salvage contractor, rapidly increased their response, assigning not only more Donjon personnel but also pulling personnel and equipment from other commercial providers. Each tunnel provided unique challenges – volume of water, discharge distance, discharge height, availability of prime movers or power sources, air circulation, etc. Donjon and their partners were able to adapt and overcome, successfully managing multiple teams throughout the city to complete the dewatering mission well ahead of schedule.

The Navy Salvors of Mobile Diving and Salvage Unit Two in Little Creek quickly responded as well, supporting the dewatering of the Freedom Tower basements and humanitarian efforts. NAVY SALVAGE – the combined efforts of our uniformed divers (NDs, EODs, SEABEES, our Chief Warrant Officers, and our ED Salvage Engineers), our contracted support

at ESSM, and our commercial salvage partners – swiftly responded to expeditiously return Manhattan, the heart of the Global Economy, back to business as usual.

USS GUARDIAN:

Not long after that, in mid-January, the USS GUARDIAN (MCM 5) ran aground on the Tubbataha Reef in the Philippines. Again, NAVY SALVAGE was called to duty. All three components of the Navy Salvage Triad responded to execute the most impressive salvage operation in several decades – our shipmates at Mobile Diving and Salvage Unit One and Southwest Regional Maintenance Center's Battle Damage Response Team; USNS SALVOR and USNS SAFEGUARD, with their civilian mariner crew; and my office with the commercial salvors of SMIT, Singapore. It was certainly a career highpoint to serve as the On-Scene Commander with such great salvage divers as CDR Tom Murphy and his sailors at MDSU ONE and the salvage masters and salvors from SMIT.

Our role started with stabilization of the ship. This included the collection and removal of armaments, ammunition and explosives; classified and sensitive material; high value, man-portable components that could be returned to service; and the removal of all fuel, lubricating oil, hydraulic oil, and hazardous materials. Access to the ship was difficult – the wave action slamming against the side of GUARDIAN often precluded boarding the vessel from RHIBs. With these tasks complete, the immediate risk of an ecological disaster from the further structural failure of GUARDIAN was mitigated.

With the arrival of more capable, dynamically positioned salvage assets, our team was able to start the in-place disassembly of GUARDIAN. We lifted off topside equipment and then began the piecemeal removal of the superstructure. We cleared the exhaust funnel and started removing engine room components. Finally, we cleared cut paths and paths for the lifting slings and then sectioned the ship into four pieces: the bow, auxiliary machinery room, main machinery room, and stern.

To accomplish the in-situ disassembly of the USS GUARDIAN with negligible personal injuries and hazardous substance spills is certainly an impressive feat. This can be directly attributed to the deck-plate leadership on the ship each and every day – my Assistants for Salvage, MDSU's Master Divers and Chiefs, and SMIT's salvage supervisors. Well done.

Those two events demonstrate that we, as Navy Salvors, can be called upon at any time to respond to almost any emergency. Collectively, we have demonstrated that we can achieve incredible results. I look forward to our next challenge, our next opportunity.

NAVY DIVING LEADERSHIP

On a separate note, I need to extend the gratitude of the Navy Diving community to RDML Stuart Munsch. During his assignment as the Deputy Director of Undersea Warfare (OPNAV N97B), Admiral Munsch has led the effort to establish flag-level steering groups to align efforts across our diverse diving communities not only within the Navy but also across the Department of Defense. Collectively, these executive groups will serve the military diver by resolving issues that cross claimancies and by providing a strategic framework for how we improve operational capabilities and invest in technologies. We have lots of work to do, but, thanks to RDML Munsch's leadership, we are off to a good start.

Keep diving and stay safe.

Salvage of Ex-USS GUARDIAN

By: LCDR Chris Addington and LT Dustin Cunningham

SUPSALV, along with Mobile Diving and Salvage Unit One (MDSU ONE), conducted operations to dismantle and remove Ex-USS GUARDIAN (MCM 5) from the Tubbataha Reef National Park, Philippines after she ran aground on 17 January 2013 while transiting the Sulu Sea. The Tubbataha Reef is located approximately 93 miles southwest of Puerto Princesa, Palawan, Philippines, and is a Marine Protected Area and UNESCO World Heritage Site under the authority of the Philippine Government. Salvage operations concluded on 3 April 2013 as the Ex-USS GUARDIAN had been completely removed and the reef cleared of any remaining debris.

Immediately following the grounding of USS GUARDIAN, coordination between the Philippine government and the US Navy was conducted through the US Embassy in Manila. As response teams were mobilized and deployed to the area, coordination was directed through the Commander, Task Unit Operation GUARDIAN Ashore team, Naval Sea Systems Command (NAVSEA), US Forces Seventh Fleet, and Commander U.S. Pacific Fleet to the on-scene Command Element established on USS MUSTIN (DDG 89) and included SUPSALV, CTF73 Salvage Officer, MDSU ONE Command Element and supporting companies, and the Battle Damage Repair Team from Southwest Regional Maintenance Center (SWRMC) as well as SMIT Salvage team members.

Salvage planning involving CTF73, SUPSALV, MDSU ONE and SMIT onboard USS Mustin in the vicinity of the Tubbataha Reef.

Navy salvage forces are organized and equipped to meet worldwide salvage requirements. The triad of salvage consists of MDSUs, MSC salvage ships, and SUPSALV. Because of the working relationship among the three functional areas, the Navy salvage triad is able to leverage a wide range of salvage and recovery capabilities to provide global and immediate support to the fleet. Depending on the operational requirements, any combination of salvage functional areas can be used. For the salvage of Ex-USS GUARDIAN, all three legs of the salvage triad were mobilized.

OPNAVINST 4740.2 instructs SUPSALV to maintain and execute worldwide salvage contracts to respond to national tasking and to provide support for Navy Fleet OPS. SMIT Salvage (NAVSEA's WESTPAC Salvage Contractor) was directed and managed by SUPSALV in response to this CNO tasking. SMIT Salvage was responsible for providing commercial salvage assets as directed by SUPSALV to include two main heavy lift cranes and several support vessels. JASCON 25, a pipe-laying construction vessel, was the primary salvage platform capable of positioning itself within 40 meters of GUARDIAN. This vessel functioned as the main asset to dismantle Ex-USS GUARDIAN and as an accommodation platform for the salvage crews of the US Navy and SMIT Salvage. With

Arial view of all Ex-USS Guardian salvage assets. Included are (from right to left); Ex-USS Guardian, JASCON 25, USNS Salvor, Archon Tide, Intrepid, S-7000(Barge) and Borneo.

her dynamic positioning system, Jascon 25 can operate her 800 MT crane without the need to set anchors for mooring. The second crane, SMIT Borneo (with 500 MT revolving crane), arrived on-site in February and supported the loading of salvaged sections onto an ocean-going barge for transport to a shore facility. Other commercial support vessels included; Archon Tide, Trabajador-1, Intrepid, VOS Apollo, and VOS Hercules. Military Sealift Command and US Forces Seventh Fleet provided USNS Salvor and USNS Safeguard for Command and Control and salvage support.

Throughout the operation, SUPSALV received technical assistance from NAVSEA shipyards and engineering directorates needed to execute the salvage plan. In addition, SWRMC Battle Damage Response (BDR) team contributed in the salvage response by assisting SUPSALV with the initial damage assessment and stability calculations necessary for the development of the salvage plan. SWRMC BDR divers also assisted in the hazardous material and loose item recovery operations.

"SUPSALV personnel have a long history of executing successful salvage operations and are once again demonstrating their expertise in this challenging environment," said Michael Dean, SUPSALV's Deputy Director of Ocean Engineering. "The support our ship design community and their planning yard experts have provided has been brilliant and enabled the operation to continue to move ahead despite weather setbacks and a continually deteriorating hull structure."

After the initial grounding, early morning on the 18th, GUARDIAN was pushed by the seas into a broached position with her starboard side to the reef. Her final resting position was in approximately 1 - 2 m of water with a 5 degree port list. Her keel rested on the reef along her length. The rudders are partly embedded in the coral/sand and several port and starboard propeller blades had broken off lying beside the shafts which were embedded in the coral.

Initial response was conducted by the CTF73 Salvage Engineer and the SMIT Salvage team who had been mobilized from Singapore and arrived on scene 19 January. The remaining salvage forces arrived on scene the next day from Puerto Princesa. First opportunity for inspection and assessment was 22 January with hydrocarbon recovery commencing on 24 January.

A salvage team, comprised of MDSU ONE, SUPSALV and CTF73 Salvage Engineers, and SMIT, was able to safely board the GUARDIAN and conduct an internal survey of the damage on 22 January. All compartments were flooded to the waterline as levels varied with the tides. Significant damage was identified in the Auxiliary Machinery Room (AMR) and Main Machinery Room (MMR). Coral head puncture was confirmed in the AMR at frame 45 and multiple coral penetrations were also noted in the MMR. Wood shards from the hull were floating on the water surface of the AMR. It was confirmed that the bulkhead between AMR and MMR was lifted, allowing free communication between the two compartments. Significant structural damage occurred on the mess decks located on the main deck above the AMR and MMR due to cracks in the bulkheads.

From the stern forward, the bottom was severely damaged by the coral. In several places the hull was breached causing ingress of water within the lower compartments. Due to the continuous motions on the coral, the engines were out of alignment and elevated. Frame 63 had shifted and keel deformation was evident between frames 41 and 76. On the 02 level (superstructure) several cracks were observed from frames 55 to 72 around the exhaust stack. Due to the motion in the structure, the cracks widened slowly during adverse weather conditions and continuous impact of the waves

Hydrocarbons and hazardous materials being pumped from Ex-USS Guardian to the VOS Apollo.

MDSU ONE divers rigging main engine for removal from Ex-USS Guardian.

against the portside hull. Due to the impact of the waves, the GRF (Glass Reinforced Fiber) on the portside of the hull had come off and was scattered on the leeside of the vessel on the reef.

"The removal of GUARDIAN from the reef requires thorough planning and operating in an environment 80 miles from the nearest port presents many challenges," said Capt. Mark Matthews, SUPSALV. "The environment onboard GUARDIAN requires constant vigilance. We brief safety every morning, are cognizant of the risks involved with working in severely damaged ship spaces and strive to minimize injury to personnel at all times."

Salvage operations were suspended several times because of bad weather. The vessel was subject to the prevailing northeast monsoon conditions and sea swells are impacting the port side of the hull causing motion of the vessel and slowly deteriorating its condition. Routinely, due to large swells, team members were required to jump in the water, swim over the reef and board the casualty on the starboard site. Medical evacuation of team members, if an incident occurred, was practiced on a daily basis. Throughout the entire salvage operation, there were zero reported injuries or safety mishaps.

JASCON 25 in position for main engine lift from Ex-USS Guardian.

Since the GUARDIAN's grounding, the salvage forces worked meticulously to recover any reusable equipment and remove any potentially harmful materials including petroleum-based products and human wastewater. In addition to performing the initial salvage assessment, SUPSALV oversaw the removal of fuel, lubricating oils, and hazardous material that could be salvaged from the ship. No fuel had leaked since the grounding and all of the approximately 15,000 gallons aboard GUARDIAN were safely transferred off the ship. "We continue to work closely with the Philippine Coast Guard, Navy, and Tubbataha Reef Park Rangers, and we are grateful for the support and advice we have received to remove Guardian and minimize further damage to the reef," said Captain Matthews. Ordnance and ammunition were accounted for and removed immediately after the salvage assessment. As far as practicable, all loose items from within the hull and on deck were removed by RHIB to other vessels to mitigate possible environmental impact.

Ex-USS Guardian bow section lift - 314 tons.

Due to the amount of bottom damage, development of cracks in the structure, and the current position of the vessel on the reef, refloating was not an option. Although several options for recovery had been discussed, it was decided that the Ex-USS GUARDIAN would be dismantled into several recoverable sections and removed as soon as possible. As weather continued to deteriorate the structural integrity of the casualty, immediate salvage execution became a priority. Any delay in the recovery could potentially be catastrophic to a controlled salvage operation.

Early in the planning process it was determined that lifting the lower sections in pieces was not a feasible option. Because of the degradation of the keel and deterioration of the AMR and MMR, the

machinery and other heavy pieces of equipment could fall through the hull if a lift was attempted. The salvage plan was changed to lifting the machinery and other heavy equipment individually before picking up pieces of the hull. Grabbers were contracted out in the event rigging was no longer an option to pick up pieces of the GUARDIAN.

The initial dismantling was conducted by MDSU ONE, and SMIT including major deck equipment, the mast, the funnel, and the 02 and 01 levels. To assist in the final task of cutting the hull sections, SMIT, as directed by SUPSALV, hired on an additional demolition crew. They were tasked with assisting in major machinery removal from MMR and the final cutting of the four hull sections. Stability of the remaining casualty after cutting of a section was a major factor in finalizing the salvage plan. While the vessel becomes lighter during removal of the structure it becomes increasingly subject to the elements. "The lifting of the first large hull section was a significant accomplishment. Each of these sections weighs about 250 tons," said Captain Matthews. The demolition team, as well as MDSU Divers, began cutting operations on 25 February with the final section lift completed on 30 March.

All pieces were lifted by Jascon 25 and relocated onto a barge for transit to SRF Sasebo, Japan and further dismantling. Salvage operations secured on 3 April 2013 as the debris field was cleared by SUPSALV and MDSU ONE. Navy assets remained onsite to complete the joint Philippines and US Marine Environmental Assessment of the reef damage.

The salvage of the Ex-USS Guardian has been a learning experience for not just the US Navy, but the salvage industry as a whole. The uniqueness of this salvage effort, from operating in a remote location under harsh environmental conditions to performing salvage calculations and modeling on a wooden hull under intense stresses, has demonstrated the flexibility and capability of the US Navy's Salvage Triad to get the job done right. Hooyah, Deep Sea!

LT Cunningham and LCDR Addington are serving as Salvage Assistants at NAVSEA 00C.

Cover Photo: Ex-USS Guardian grounded on Tubbataha Reef.

SMIT salvage contractor guiding main engine as it is being lifted from the Ex-USS Guardian funnel section.

Divers removing final debris around Ex-USS Guardian reef damage.

Final configuration of Ex-USS Guardian debris on S-7000/ Borneo - preparations for tow to Sasebo, Japan.

Navy's 'Copperhead' Trains Future EOD Technicians

By Ensign Elizabeth Allen, Naval School of Explosive Ordnance and Diving Public Affairs

EGLIN AIR FORCE BASE, Fla. (NNS) -- The Navy's Senior Master Diver is helping to train future generations of EOD technicians at the Naval School of Explosive Ordnance Disposal.

Master Chief Navy Diver Eric Holliday, Command Master Diver (MDV) at NAVSCO-LEOD is the Navy's "copperhead," a title held by the U.S. Navy Diver (ND) who has been a Master Diver the longest. The term 'copperhead' originates from the copper helmet of the Mark V dive suit, a familiar symbol representing deep-sea divers, even though its use was discontinued in the early 1980s.

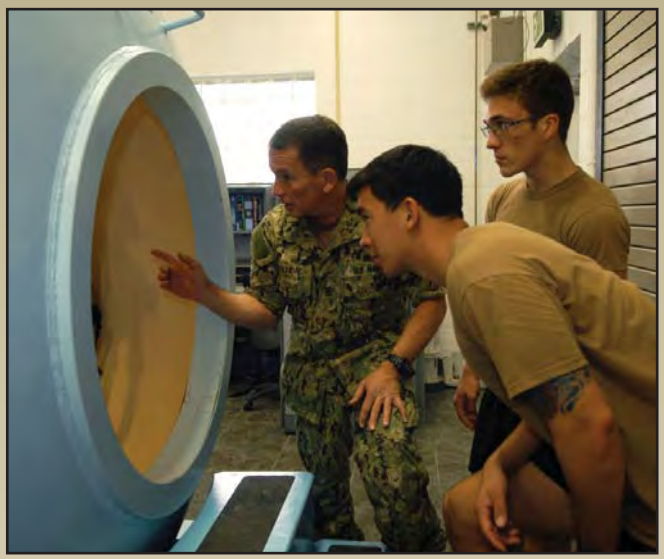
Holliday currently works at the Underwater Ordnance division (UOD) at NAVSCO-LEOD, where he helps train students and their instructors.

"One of the many positive impacts MDV has had in UOD is the amount of realism and relevance he brings during the course of training students in diving operations," said LT Jeffrey Schultz, UOD division officer. "Whether an instructor is qualifying as a new or prior diving supervisor, anyone present during the training MDV conducts comes out with not only a better understanding of the dive evolution, but also a newfound respect for the inherent risks Navy Divers encounter every day."

Holliday joined the Navy in February 1984, and spent his first year attending Interior Communications Electrician (IC) "A" School. He then reported to USS MOINESTER (FF 1097), a Knox-class frigate, for his first duty station.

"When I first joined the Navy, standing duty on the MOINESTER, I didn't like it," said Holliday. "I didn't realize there was a dive program when I joined, so I spent a year in the Navy, and then attended dive school."

Holliday left the MOINESTER to attend dive school and became a U.S. Navy diver in August 1985.



Master Chief Navy Diver Eric Holliday, Command Master Diver (MDV) at Naval School Explosive Ordnance Disposal (NAVSCO-LEOD), describes the recompression chamber to Seaman Elijah Moore and Seaman John Dirks in the Underwater Ordnance Disposal division of school, Jan. 29, 2013. Holliday is the Navy's "Copperhead," a title held by the most senior MDV in the Navy. U.S. Navy Photo by Ensign Elizabeth Allen/RELEASED.

"When I became a diver, things got better and my views on everything changed," said Holliday. "I found a sense of camaraderie in the dive community."

It has proven enough of a change for Holliday to continue on with his Navy career for 30 years.

Holliday became a Master Diver in 1995, and succeeded Master Chief Navy Diver Gary Furr as the copperhead. Furr, former Command Master Diver of the Naval EOD Technology Division in Indian Head, Md., retired in 2012.

"We met for lunch at a very informal ceremony when he passed the title to me," said Holliday.

Throughout his nearly 30 years in the Navy, Holliday has been stationed around the world, but of all his duty stations, his favorite place was Guam.

"Guam is great - the water is very clear to dive in," said Holliday. "During the 1990s, I was stationed at U.S. Navy Ship Repair Facility and at Commander, U.S. Naval Forces, Marianas, where I performed a lot of ship's husbandry and inspections. We also operated the busiest recompression chamber in the Navy."

While in Guam, Holliday received the Ancient Order of the Chamori Award, which is the highest award that can be given to a non-Guamanian. The award was presented for Holliday's assistance to local divers with the recompression chamber.

"In Guam, there were a lot of civilian divers, and we treated them when they received dive-related injuries," said Holliday. "I probably treated four-to-five hundred patients throughout my career. Treating someone in the chamber and bringing them back from being unconscious is very rewarding. Afterward, they stand up and shake your hand. There's nothing like that."

Following his years in Guam, Holliday transferred to commands in Puerto Rico and Bahrain, then on to Naval Diving and Salvage Training Center (NDSTC), followed by a set of orders to the Center for EOD and Diving, where he helped to create the ND Enlisted Learning and Development Road Map, updated the ND Occupational Standards, helped to write ND E4-E7 advancement exams and updated the 1st Class Diver and 2nd Class Diver curricula.

"He made an immediate impact on NDSTC," said Master Chief Navy Diver Louis Deflice, MDV at Commander Submarine Development Squadron 5, Silverdale, Wash. "As the training department MDV, he was tasked with updating course curriculum to reflect the largest change to the Navy Diving manual in

(Continued on page 10)

Marine Corps Diving Mission

By: HM2 (FMF/DV) Wallace Justin

Marines of the 1st Marine Special Operations Battalion (MSOB) alongside the Sailors of 1st MSOB Consolidated Dive Locker (CDL) recently worked together to train for combatant diving operations in Oahu, Hawaii.

The Marines of 1st MSOB are no stranger to the rigorous training and high deployment tempo assigned to them by US Special Operations Command (SOCOM). Becoming a Marine Special Operations Command (MARSOC) Operator isn't an easy task and is never taken lightly. Only after a board selection is a Marine allowed to attempt the 7-month Individual Selection Course. The course is designed to test and improve upon the individual's capability to meet worldwide special operations assignment. Only after they have successfully completed the prerequisites to become a MARSOC Marine will they be granted the title of Spartan, a title built on the shoulders of the Marines that came before them.

The Sailors of the 1st MSOB CDL have played a huge role in preparing Marine Combatant Divers for use in future water born operations. Always looking for new ways to recapture the importance of diving operations, Commanding Officer, LTCOL Michael Brooks, requested that a training operation be planned, scheduled, and completed. Master Diver, NDCM Brian Pratschner, had decided that testing the battalions' capability to successfully deploy overseas was of the utmost importance. There was, of course, a catch to the mission; the Sailors had to establish and execute a plan that would allow them to be self-sustainable during the entire operations.

On the morning of 2 January 2012, five sailors and 16 Marines departed Naval Air Station San Diego for Oahu, Hawaii. Directly upon landing at Marine Corps Station Kaneohe Bay, the Marines and Sailors had the task of immediately unpacking and setting up the dive station in order to make the scheduled dives the following day. The gear that had been brought on this training operation had its first trial journey by air. Among the gear brought to Hawaii were one Transportable Recompression Chamber (TRC), three Diver Propulsion Devices, one generator, one Mini Bauer Compressor, and one Rapid Deployment Oxygen Transfer Pump System (RDOTPS).

The TRC was the newest piece of gear that had been developed specifically for use in overseas deployments alongside the Sailors of the CDL. THE TRC had been mounted inside an ISU-90 shipping container with CAUSE Air supply racks installed directly below and an oxygen rack installed above the recompression chamber. Additional supplemental oxygen had also been installed via two Oxygen K bottles. The housing for the TRC had the added benefit of having internally mounted lights and an internally mounted air conditioning system with the capability of using an external generator to power the entire system.

Everything that was to board the C-130 for our movement phase of the operation had to be packed in accordance with the Code of Federal Regulations. Utilizing two separate ISU-90 shipping containers, an entire diving side was neatly packed away and ready for movement. In one container was the entire TRC system set up. Members of the CDL packaged the chamber by adding extra protection to the gauges utilizing pieces of plywood in the event that any gear packed around the chamber slipped. All of the gear packed around the chamber was cleaned and had no risk of leaking any fluids or creating any type of hazard to the certified system. The additional shipping container was packed with two Evinrude 55hp MFE outboard engines, two zodiac rigid inflatable boats, one 5000k generator, and other miscellaneous diving equipment. Ensuring that both engines and generator met with the flight standards involved completely draining all fluids and ensuring the external parts remained clean and free of dirt and oil. After every piece of gear was inspected before boarding the aircraft, we were ready for take-off.

The Marines had one mission and that was to refamiliarize themselves with the MK-25 rebreather and the Diver Propulsion Device. The MK-25 under water breathing apparatus is a 100% oxygen closed loop system that gives divers the ability to complete longer dive times, but prevents them from reaching any depth deep than 60 feet in the water due to the high risk of oxygen toxicity. Several day dives began with Marines navigating the coral entrapped waterways utilizing only their compasses and depth gauges. Navigating the coral heads of Hawaii can be a tricky task for divers who have never seen such coral formations before, but after a few bumps and minor scrapes the Marines were able to

HM2 Wallace setting up TRC system in Hawaii.

complete a successful day diving operation, which involved launching from a Zodiac inflatable boat and completing a fully planned beach entry.

Day operations for divers can be quite easy when compared to the common night diving operations that are considered to be the Marine Corps bread and butter. When the Divers of 1st MSOB enter the water at night, there are no dive lights to help guide them through the coral or along the dangerous bottom. The Marines were allowed to make some premission planning that involved graphing and plotting their desired swim paths. By knowing the desired distance, a Marine is able to determine the amount of time he must swim before adjusting his heading for a new waypoint.

Using the Diver Propulsion Device is no easy task, even during the day. The miniature submarine looking device required complete concentration and any minor directional change can put a Marine at the wrong insert point and possibly in the enemy's arms. With a maximum speed of 2.7 knots with two divers, this two-person delivery vehicle allows Marines to increase their distance of insertion into the water by providing shorter dive times. The 1st MSOB Marines quickly learned that coral heads don't do a terrible amount of damage to the vehicles. After completing a few sets of day dives with the device there was a great appreciation for thermal protection as the inability to swim during transport causes the body to quickly lose heat in any water below body temperature.

US Marine Corps dive team ready to enter water, Kaneohe Bay Hawaii.

After the week of dive training, there was nothing left to do but repack the gear and prepare for another long flight home aboard another C-130. The Sailors and Marines of 1st MSOB made a successful movement and trained for an unknown diving operation and then successfully returned to their homeport. The ability to remain fully self sustainable wasn't an easy task, but a great amount of knowledge had been gathered in performing the task that will greatly aid future missions and deployments of complete diving teams.

HM2 (FMF/DMT) Wallace is assigned to 1st Marine Special Operations Battalion. The only DMT attached to the Consolidated Dive Locker (CDL), he provides direct support to all diving command and functions onboard Marine Corps Base Camp Pendleton, CA.

Article Cover Photo: US Marine Corps divers using MK-25 and Diver Propulsion Device (DPD).

(Continued from page 8)

decades. The entire curriculum for half a dozen high-risk diving courses had to basically be rewritten."

Holliday was also responsible for the implementation of the changes throughout the NDSTC training department, to include the conversion of making Navy Diver its own rate.

"NDSTC officially made the transition from a 'training command' to a Navy "A" School, which presented huge challenges never anticipated at the command," said Deflice. "Through it all, Holliday managed to expertly guide the instructors and training department over hurdle after hurdle. I honestly don't know anyone else capable of such accomplishments while simultaneously ensuring his training department was training and putting out such highly skilled Navy Divers."

Holliday has also helped overhaul the Diving Salvage Warfare Specialist Personnel Qualification Standards (PQS), which is now known as the Military Diver PQS, and made it applicable to all services.

But above all the awards received and the changes he has helped to make, he believes the most rewarding part of his job have been working with Sailors.

"My time as an instructor and instructor trainer have been some of the best parts of my time in the Navy; helping my subordinates and my replacements to achieve what I've achieved," said Holliday. "It's been a great career - the people, the friends I've made, the camaraderie, the job itself."

"He has made a huge impact on my life both personally and professionally," added Deflice. "I was a young chief when I worked for him and he taught me more about leadership, ethics, and the importance of standards than anyone before or since. He was, and remains, my mentor and role model. I consider myself very fortunate to have been trained by Master Diver Holliday and I proudly try to teach my men what he has taught me."

NAVSCOLEOD, located on Eglin Air Force Base, Fla. provides high-risk, specialized, basic and advanced EOD training to more than 2,100 U.S. and partner nation military and selected U.S. government personnel each year.

For more information about the Naval School of Explosive Ordnance Disposal, visit https://www.netc.navy.mil/centers/ceneoddive/eods/.

Ensign Elizabeth Allen is a public affairs officer assigned to Naval School Explosive Ordnance Disposal, Eglin AFB, Florida.

International Students Learn to Dive at Naval Training Center

By Ensign Elizabeth Allen

PANAMA CITY, FL (NNS) -- With their instructors watching closely, U.S. Navy and international students participated in Pool Week at Naval Diving and Salvage Training Center (NDSTC), March 25-29.

Pool Week tests the students' proficiency in the water by performing in-water checks of their dive gear, the ability to tread water while wearing tanks, and how to correct multiple problems with equipment underwater while remaining calm.

The class is held once a year, and prior to arriving at NDSTC, international students attend the Defense Language Institute in Monterey, CA if they need to become more proficient in the English language.

International students begin by learning the basics in the 2nd Class Diver course, followed by more advanced curriculum in the 1st Class Diver course. Training is conducted in classrooms, but the majority of learning happens in the facilities in and around the school.

"We don't have this type of training facility back home," said LT Marcq Lewin of the Jamaican Coast Guard. "We don't have the support equipment, like the dive chamber, a ship primarily for diving, or the pools. The training we're doing is to prepare us for real life - train hard, fight easy."

The current class of 11 students, each from a different country, spent a week learning through various training evolutions that not only test their abilities in the water, but the faith they have in their training.

"I've enjoyed every second of my time here," said 1st LT Mahmood Bany Omar, a member of the Marine Battalion of the Jordanian Navy. "I'm not a diver, so this is all new to me. This is the best course I have ever been to."

Navy Diver 1st Class James Stubbs, one of two international military student instructors, has been an instructor at the school for more than a year and has enjoyed working with international students.

"It's a good experience teaching" international students," said Stubbs. "I like getting a chance to see and learn about different cultures."

Pool Week occurred this year for the international class during a cold spell, where the temperature was 56 degrees. Being in a heated pool then getting out to the cold air was difficult for several of the students.

"The weather has been challenging," said Petty Officer 3rd Class Jose Cid, a member of the Chilean Navy.

"I love America, but it's a bit cold," said LT Lewin.

NDSTC, located in Panama City, FL provides a controlled diving environment as well as direct access to open water diving throughout the Gulf of Mexico, and trains all Department of Defense divers to include Navy, Army, Air Force, Coast Guard and all Marine Corps combatant divers, a limited number of law enforcement, government agency personnel and allied forces.

U.S. Navy Photos by CWO3 Dale Kasztelan/ RELEASED.

Cover Photo: U.S. Navy and international students at Naval Diving and Salvage Training Center (NDSTC) participate in Pool Week, Mar. 24, 2013. Pool Week tests the students' proficiency in the water by performing in-water checks of their dive gear, the ability to tread water while wearing tanks, and how to correct multiple problems with their equipment while staying calm.

An instructor observes two international students as they "buddy breathe" while correcting a problem with their equipment.

Instructors observe a student underwater.

Two students jump from a platform into the water.

Hotel Pier Pile Restoration

By Construction Maintenance Chief (SCW/FMD/DV) Elisia Correa

Underwater Construction Diving Detachment Alfa (CDD/A), attached to Underwater Construction Team (UCT) Two, from Port Hueneme, California recently completed tasking to repair and preserve 30 piles on Hotel Pier, located in Joint Base Pearl Harbor-Hickam (JBPHH), HI. The efforts conducted by the SEABEE Divers of UCT TWO consisted of inspection, cleaning, and repair of 30 piles in accordance with an Appledore Marine Engineering Inc. design specification. UCT TWO has a long history with JBPHH's Hotel Pier. It is a common stop during their deployments across the Pacific. "UCT TWO has made multiple repairs to this pier over the course of the last few years," said Equipment Operator Chief James Igoe " but never has a detachment completed this many pilings in such a short timeframe, CDD/A set the new record!" With time sensitive deployment stops ahead of them CDD/A had 6 weeks to complete their 30 pile workload.

CDD/A had to adhere to a strict schedule, completing 5 piles per week to meet their goal. With several steps involved in the repair of each pile this was a busy task. Before they could access the concrete piles a sometimes extensive removal of marine overgrowth was required. After exposing the pile surface they were able to chip away the exterior concrete to access the rebar. While that was happening concrete forms were constructed on the surface. With the piles prepped cathodic protection wires were brazed to exposed rebar and zinc anodes were fastened. Finally, the forms were placed around each pile and concrete was placed.

Challenges included delays due to ship traffic, refueling requirements of equipment on the pier, and wave action from daily ferry traffic taking groups to and from the nearby USS ARIZONA memorial. Equipment Operator 1st Class Leroy Schnathorst decided the constant wave action was especially memorable. "Drilling holes for the J-Box installation while the waves were coming in from the ferry's going to and from the Arizona Memorial really took you for a ride under the pier while on floating pontoons."

Fulfilling their mission of supporting the Fleet and Marine forces in the PACOM AOR, maintenance of Hotel Pier is the first stop on a 6 month deployment of UCT TWO that will take them across the Pacific, from Pearl Harbor to the Philippines with numerous stops in between. For the SEABEE Divers at UCT TWO it's just another day at the office.

Construction Maintenance Chief (SCW/FMD/DV) Elisia Correa is the OIC of Construction Dive Detachment ALFA, with Underwater Construction Team Two, based out of Naval Base Ventura County, Port Hueneme, CA.

Construction Mechanic 3rd Class Daniel Nichols and Builder 2nd Class Keith Reed, prepare formwork for concrete placement.

Steel Worker 2nd Class (SCW/DV) Holly Ramirez prepares a pile at Joint Base Pearl Harbor's Hotel Pier for concrete form work by scrapping marine growth off with a heavy duty scraper.

Equipment Operator 1st Class James McVicar and Hospital Corpsman 1st Class Ryan Irvine prepare formwork for concrete placement.

Hospital Corpsman 1st Class (SCW/DV) Ryan Irvine uses a vibratory hammer during a pile restoration project to vibrate concrete within formwork surrounding a pile.

Photos By: Chief Elisia Correa

Equipment Operator 1st Class (SCW/DV) Leroy Schnathorst pumps concrete in to formwork during pile restoration work.

Builder 2nd Class Justin Lieder chips away concrete with a pneumatic chipping hammer in order to attach cable to the existing rebar to be able to integrate it into the new cathodic protection system being installed by UCT 2.

REQUIREMENTS GENERATED FOR THE DIVING COMMUNITY

By: LCDR Stephen Keene

Suppose the Navy needs a new diving apparatus. Suppose there is such a gap in what your current apparatus can do and what it should be able to do that USN is ready to seek-out a replacement system. Where would we start? There are a lot of commercially available systems, but would they meet our needs? How would we know? How would we verify that those systems can do what their manufacturer advertises that they can do? Do we need to develop a new military system because no commercial system meets our needs? How long will that take? How much will that cost? Do we have the funding? Where do we start?

The answer to all of these questions, and many more, begins with properly developed "Requirements."

This article is an overview of the processes and decisions that have to take place in order for the Navy's diving community to properly develop the "Requirements" for new or updated diving systems. A big "R" is used in requirements in this instance because it represents those specific qualities and capabilities that a diving system is "required" to have. What is the difference between "Requirements" and "requirements"? That will be clear by the end of this article, but for now let's just say that it is the difference between what Congress will pay for and what you "wish" for in a new diving system.

To start the discussion of how Requirements are generated, let's look at who owns the requirements for the new diving system. Is it your dive locker? How about the Commanding Officer, COMNECC, or Fleet Forces Command? No. They should all be participants, or represented, in the development of the Requirements, but they do not own them. Requirements are owned by the CNO. Various branches of the OPNAV staff, specifically N95 and N97, are the Requirements Officers for USN EOD and diving systems. As such, it is their responsibility to draft and approve formal requirements for new or upgraded diving systems. They do that with the help of Fleet Divers, TYCOM personnel, Program Management Office personnel, and so forth. The Requirements that they approve will be captured in various formal capabilities documents that themselves require additional approval through the Joint Capabilities Integration and Development System (JCIDS). JCIDS is a DoD system that operates well outside of the control of the EOD and diving communities, and to some extent outside of the reach of the Navy's Requirements Officers. Now that we know who owns the Requirements for our new diving system, let's look at how the Requirements themselves are developed.

Since the Requirements Officer has the responsibility for developing the Requirements for the new diving system and developing the formal capability documents to process through JCIDS, it is logical that they would initiate the process for drafting and documenting the initial (little "r") requirements. These requirements include all of the good ideas, opinions, and desires of those who are asked to participate in an event such as a Requirements Working Group or a Requirements Development Meeting for the new diving system. These draft requirements are not yet approved, thus the little "r" designation.

This is where the door opens wide to consider threat assessments, technological improvements, doctrine, tactics, manning, funding, "nice-to-have's" and so forth to drive the discussion on the requirements for the new system. This is the single best opportunity for the end-user to have an influence on the capabilities of a new or upgraded diving system. Can you "ask for the world" at the Requirements Working Group? Yes. Will you get it? Probably not. Here is why: everything in the systems acquisition process is driven by cost, schedule, and technical feasibility. If the requirements for the new system demand a substantial investment for technology development, require extensive time to develop, or cre-

ate substantial risk to the program because it uses immature technology, then it is either less likely that those requirements will become formal Requirements, or they will become the Requirements at the expense of other attributes that can no longer be afforded. Once the long list of requirements is drafted it is time to start selecting the valid requirements and conducting a trade-off analysis.

Making trade-offs is key to down-selecting the less important requirements in favor of the more important requirements. Why? Because we cannot afford everything, and some requirements compete against one another – for example, size and weight. Trade-offs can be made in the areas of size, weight, shape, functionality, performance, technological maturity, and cost considerations. At the end of the trade-off analysis, the end state should be a list of valid requirements that adequately address the threat considerations, meet the necessary tactical and performance criteria, have an adequate technological maturity, and have a realistic cost expectation. Consider down-selecting the invalid requirements step one in the trade-off process. These validated requirements will become the approved Requirements in the formal JCIDS documents – the Initial Capabilities Document, the Capabilities Development Document, and the Capabilities Production Document.

Step two in the Requirements trade-off process is the assignment of Key Performance Parameters, Key System Attributes, and Other Attributes. The Key Performance Parameters of a system are those Requirements that must be met otherwise there is no point in fielding the new system. They are the critical capabilities. All other capabilities are of lesser importance. However, they are not the only Requirements for the system, thus we have the Key System Attributes which are of secondary importance, and finally there are the Other Attributes, which are valid Requirements themselves, but are of lesser importance. Within each of these Requirements there are threshold and objective specifications. The threshold specification is the minimum capability the new system must meet for a given Requirement. The objective specification is the optimum capability for the same Requirement. Why not just develop to the objective specification and get the best capability? It costs a lot more, and we cannot afford (in dollars and time) to develop everything to the maximum capability. Consider the maximum operational depth of a new diving system as a Key Performance Parameter. Its threshold specification might be 100 FSW, whereas its objective specification might be 150 FSW. In this example, the threshold of 100 FSW is the absolute minimum acceptable depth for the maximum operational depth Requirement, but 150 FSW would be optimum, so that is the objective specification for the same Requirement. Once the system Requirements, Key Performance Parameters, Key System Attributes, Other Attributes, and their associated Threshold & Objective specifications are determined, then it is the responsibility of the Requirements Officer to move the proper documents through the JCIDS process for approval.

In addition to the JCIDS documents there are numerous other official acquisition documents that are required by either statute or regulation to ensure that the new or improved diving system has a realistic and verifiable cost and schedule, and that it meets its required performance specifications. There are also numerous reviews and test events that take place in the manufacturer's facilities, government labs, field experiments, and at the associated Systems Command to further ensure that all of the Requirements are met and that the system maintains cost and schedule adherence. These processes take a long time. Systems Acquisition takes years. Why? Because it takes a lot of time to develop the proper requirements, to contract for the development and manufacture of a new product, to properly test a new system to ensure that it meets the Requirements and (especially for Diver's Life Support Systems) is safe to use in a military capacity, and to simultaneously develop all of the associated training and maintenance plans and materials.

But what if the requirements need to change while a two-to-four year acquisition process runs? There are a few options.

First, you can wait for the finished product, and then adjust your tactics and techniques to make use of the new system even though it does not meet your "new" requirements. (They are little "r" requirements because they have not been approved.) This approach saves time and money, as it does not interrupt the acquisition process.

Second, you can attempt to stop the acquisition process, get a new set of Requirements approved, and then re-start the acquisition process. This approach will be extremely expensive and time consuming. Imagine you are building a new house and just before it is finished you decide you want the contractor to move the fireplace and chimney to other side of the house! Changing the Requirements midway through the acquisition process will definitely cause an increase in the system's cost and delivery schedule at a minimum. It may also create a legal conflict with the manufacturer and a host of other funding and contractual problems.

A third approach would be to receive the new diving system that meets the original Requirements and make good use of it by adjusting your tactics and techniques, and at the same time initiate an incremental improvement process that gets new Requirements approved, new funding authorized, and a new design developed. This could create a modification to the diving system that could be implemented at a depot organization or by the manufacturer, or it could be a new system, wholly redesigned, that gets delivered a few years later.

No matter the reason for changing the Requirements mid-process, the outcome is always the same…increased system cost and extended delivery schedule. That is why it is imperative to get the Requirements right initially; even if it means spending a lot of extra time developing them! It is the best way to get the diving system you need.

LCDR Stephen Keene is the Director of EOD Programs for PMS 408, the Navy's Program Management Office for expeditionary mission systems. He is an EOD/Diving Officer, a member of the Acquisition Corps, and holds an MBA in Systems Acquisition Management from the Naval Postgraduate School.

SAIPAN DANGER TO NAVIGATION (DTON) REMOVAL

By: CWO3 Randy Duncan

In December 2008 USNS SAFEGUARD and Mobile Diving & Salvage Unit ONE (MDSU ONE) Company 1-8 (CO 1-8), were tasked by COMSEVENTHFLT with removing Dangers to Navigation (DTON) in Saipan Harbor and channel in order to provide safe navigation for CG 47 and DDG 51 Class ships. The operation was conducted over 21 days by a 15-man diving detachment that conducted 48 surface supplied and SCUBA dives with 101 hours total of bottom time.

All DTON locations were surveyed and reported by the Fleet Survey Team (FST) based out of the Stennis Space Center. GPS locations were found to be extremely accurate so GPS locations alone were used to choose the spot in which to moor. CO 1-8 indicated to the ship where to moor and laid out the desired scope and position of the ship. During the mooring process, company personnel worked closely with the ship's Navigator, Mates, and Master to ensure that the ship was moored in the correct location. This relationship worked very well and saved a great deal of time. Having oversight of the mooring evolution is an important part of the operation to prevent divers from having to move wire too far in the water. MDSU ONE, Company 1-8 was able to lay 3 precision 2 point moors and salvage 2 large DTONS in the same day. Large scale charts with DTON positions overlaid were useful in plotting the appropriate moor.

There is no accurate way to estimate the weight of the DTONS on the bottom or in the water column which makes selection of rigging difficult. Previous to CO 1-8, no one measured the weight of any of the DTONS brought on deck. All initial rigging selections were based on rough estimates of weight, rigging used by previous companies, as well as the limited rigging available on board SAFEGUARD at the time.

Diver's pneumofathometer hoses were placed directly on top of DTONS to determine the depth of the DTON. All DTON depths in the report from the FST were given at Mean Lower Low Water (MLLW). It was important to compare daily tidal changes against MLLW when determining the depth of the DTONS to ensure that they are on the correct DTON. Once DTONS were located and identified, the circumference was measured and the appropriate choker sling selected.

Once the DTON was marked for removal, it was choked off with 1¼" wire rope through a shackle. The bitter end of the choker was then shackled to a 100' wire rope and taken through the mooring roller to the capstan where a minimum

Putting divers down to rig onto a DTON using 1 1/4 Wire.

Taking DTONS to approved dump site in 500 feet of water.

over the big hook on the boom and the boom given the weight. Slack was then put in the wire or it was taken off of the capstan and the DTON was brought on deck.

To release the DTON, the same choker pendant was used. A pelican hook was shackled in as the release mechanism so no rigging was lost during this evolution. During the drop phase, the ship was in 600' of water with no way on. Ship maintained heading with the bow thruster. All DTONS were pre-rigged prior to the ship going to the deep water site. The DTON was simply lifted up and over the cap, lowered down, and hogged in to the side of the ship. The release wire was then made fast to a cleat on deck. Once this was in place, the pin was pulled using a boat hook and the DTON was lowered with the boom. This made the release wire taut and pulled the bail open on the pelican hook. The DTON goes to the bottom and all rigging is recovered.

of 7 turns was taken. The 100' pendant was then slowly taken to power. The DTON was then snapped or broken off the bottom and dragged to the ship. This is a slow and steady process, especially if there is any significant swell or if the DTON is large. Once the ship settled out in the moor, slack was put back in the 100' length and a lazy pendant (for picking with the boom) shackled to the bitter end of the choker by the Divers. The Divers were then recovered and the DTON lifted off the bottom. Once the lazy pendant was near the roller, it was placed

Navy Diver taking a break after dragging a 1 1/4 wire pennant 100ft to the DTON.

The largest DTON brought on deck weighed more than 65,000 lbs. Two larger DTONS, estimated to weigh 40-50 tons, were also removed from the channel using different methods. One DTON was lifted using both capstans taking opposing pulls through each stern mooring roller. It was brought just under the keel. Then, they heaved around on the aft anchor and pulled the ship out of the channel and lowered the DTON down outside the channel. The second DTON that exceeded 40 tons was lifted using 2 slings and the 10" hawser and towed to sea just under the surface of the water at the mooring roller. At the end of the operations, a total of 25 DTONS were removed from the harbor and main channel.

Coordination with local authorities and CTF 73 was crucial to the success of the mission.

MDSU ONE, Company 1-8: CWO2 Randy Duncan, MDV- NDCS Jon Klukas, LCPO – NDC Paul Wotus, IDC/DMT- HM1 Enrique Martino, LPO – ND1 Kenneth Bontempo, ALPO ND1 Nicholas Zaborski, ND1 Jericho Diego, ND1 Alexander Grun, BM1 Richard Racette, ND2 Mariano Lorde, ND2 Richard Ellis, ND2 Jeremy O'Dell, ND3 Jason Balavram, ND3 Brody Dorton, ND3 Matthew Stinson.

Article Cover Photo: Recovering a DTON after the dive.

CWO3 Randy Duncan is a Specialized Diving Division Officer at Naval Diving and Salvage Training Center in Panama City, Florida.

Becoming a Submarine Diver

By: MM2 (SS/DV) Eric O'Gradney

It was around seven o'clock when I finally stepped off the plane at my destination of Panama City, FL. After being stationed in the humid climate of Guam for the last year and half, the cool January weather was a welcomed change. After passing through the terminal, I stopped at the USO to call for a ride to the Naval Diving and Salvage Training Command (NDSTC). NDSTC houses some of the best and most experienced divers in the world, and those divers would soon to teach us to become Navy SCUBA Divers.

Most individuals are familiar with the prestigious Navy Diver, but a lesser known faction of military diving is the Submarine Scuba Diver. Our purpose onboard the submarine is to serve as the Captain's force of trained personnel who are qualified to provide security checks, search and recovery operations, perform light maintenance, and, if required, unfoul critical equipment on the submarine while at sea. Since reporting as a nuclear-trained Machinist's Mate to my first submarine, the USS BUFFALO (SSN 715) in July of 2011, I had expressed interest in joining Dive Division. Being an armed forces diver was something I had always considered prior to joining the Navy, and even after selecting the nuclear program, a goal I still hoped to achieve. After discussing my ambitions with the Diving Officer onboard BUFFALO, LT Horodowicz, I was given a chance to become indoctrinated with diving operations by helping as a tender during a routine dive. Even though the dive consisted of the somewhat regular task of attaching a chlorination unit to a seawater suction strainer and performing a security swim, it was my first exposure to the true attention to detail and professionalism required for safe diving operations. The diving supervisor, MMC (SS/DV) Willett, systematically went through all aspects of this dive from gear checks to CPs, or casualty procedures. After all checks were satisfactory and the brief complete, both red and green divers entered the water by a front-step entry off the starboard side of the boat. Following them down the side, then under the boat and back around, we received four pulls on the line, signaling they were coming up. When surfaced, they made standard reports about their dive and proceeded topside via the extraction point. Although a routine dive with nothing out of the ordinary, one thing about these events stuck with me; for these men, diving was their job, and that would become something I respect.

About a year and a half after reporting to BUFFALO, I was granted temporary orders to the USS FRANK CABLE (AS 40), a submarine tender also home ported in Guam, to prepare for dive school. By virtue of being stationed on a highly-operational, forward-deployed, fast-attack submarine, I needed a way to get in shape for something as physically demanding as dive school. The FRANK CABLE Dive Locker had graciously agreed to take me in as a prospective diver, or "mud-pup". Each day started outside the base gym at 6 a.m. for the morning workout. Over the next three weeks, track, pool, and gym workouts helped improve my physical fitness, but more importantly helped make me more comfortable in the water. Most days were spent at the dive sides where I would study the Dive Manual and field questions from the divers to prepare for the important medical and knowledge areas of being a diver. On the rare days with no diving operations, we would perform preventative maintenance on the gear and participate in afternoon workouts at the dive locker. Returning to BUFFALO for a major ship's inspection, I knew I was mentally and physically prepared for the rigors of Navy Diving. Shortly after successfully completing the inspection, I finally received the go-ahead to fly to Panama City, FL, to become the ship's next diver. Working with the AS 40 Dive Locker was a spectacular opportunity to observe the quiet professionals at work, and is something all prospective submarine SCUBA divers should wish to take.

The full-day flight from Guam to Florida only built my excitement to start school, and coupled with the fact it had been almost two years since returning to my home state, I could barely sit still for the voyage. Arriving at NDSTC, I was impressed by a tall statue of a diver donning a traditional Mark V diving dress and the schoolhouse walls which were adorned with memorials of the many Medal of Honor recipients of the diving community. The days at NDSTC began much like they had with the FRANK CABLE dive locker; a challenging, morning exercise session always awaited. After the workout, we would participate in class work consisting of dive physics, diving medicine, physiology, and fundamentals SCUBA diving. A key component to becoming a safe and effective diver is confidence in the water. One must be able to count on his fellow diver in a time of need, and the swimming pool is where that confidence is built. Under the expert supervision and experience of Training Team One, we couldn't have been in better hands. Over the next few weeks, NDC Newell and HM1 Weber, along with the rest of the training team, would push our class out of our comfort zone to become much more capable in the water. After passing the rigorous series of tests known as "Pool Week", we took to sea to at last get some training in the open water. Descending to 70 and 80 feet of seawater, we explored a few ship wrecks several miles off the coast in the chilly waters of the Gulf of Mexico. Successfully completing these dives finalized our qualification as Navy SCUBA Divers. Following a pinning ceremony by our instructors and the Commanding Officer of NDSTC, Commander Egan, we left Panama City with a huge sense of accomplishment, joining the ranks of Navy Divers past and present.

I would like to extend my sincere gratitude and appreciation to NDSTC, Training Team One, the USS FRANK CABLE Dive Locker, and finally the USS BUFFALO for the opportunity to become a diver. It is truly and honor and a privilege to be a part of this legacy.

HOO-YAH!

MM2 (SS/DV) Eric M. O'Gradney is a nuclear trained, submarine qualified, Machinist's Mate 2nd Class from Clearwater, FL. He recently graduated from U.S. Navy Dive School and serves as one of four SCUBA Divers onboard USS Buffalo SSN715.

USCG Deployable Operations Group

By: PA1 Michael Anderson

Beneath the blue waters of the Florida Keys, the only living-coral barrier reef in the continental United States stretches for miles. The reef and surrounding waters generate more than $2.3 billion annually for the local economy, create more than 33,000 ocean jobs throughout the Florida Keys and support fisheries that feed millions.

Across this economically important area, the Coast Guard maintains 450 buoys, markers, and aids to navigation that safely guide water traffic through the Florida Keys National Marine Sanctuary, stretching 2,900 nautical miles from the Dry Tortugas National Park to Fowey Rock near Miami.

"The navigational aids maintained by the Coast Guard inside the Florida Keys National Marine Sanctuary ensure the safe flow of vessel traffic while preserving and protecting the area's natural habitats and coral," said Petty Officer 1st Class Ryan Nicholson, Aids to Navigation Team (ANT) Key West's executive petty officer. "We see the aids guiding boat traffic on the surface, but we have to use Divers to ensure that they're doing their second job, protecting and not impacting the endangered sea habitats underwater."

Regional Diver Locker East divers prepare to conduct an environmental survey of an aid to navigation near Sugarloaf Key, Dec. 13, 2012. During the survey, the divers inspect the sea floor near the aid for endangered coral species.

The Maritime Security Response Team's Regional Diver Locker East supports this mission with their specialized training and capabilities. The MSRT, like most Coast Guard units, is multi-mission and scalable. In addition to its primary homeland security mission, the team deploys divers to provide aids to navigation, search and recovery, and ship's husbandry support to Coast Guard units throughout the country.

"Our mission with ANT Key West is to inspect the sea floor and coral growth around the navigational aids," said Chief Petty Officer Stephen Doty, dive team leader. "We're trained to look for endangered coral, specifically the elkhorn and staghorn coral, report our findings to the 7th Coast Guard District, and provide support to repair or replace damaged aids if needed."

While conducting environmental surveys, one Diver records video of the coral and measures distances from aid while the second Diver documents the status of the sea floor and coral on a waterproof clipboard. This precise mapping around each aid is essential for developing navigation management strategies that balance the protection of these habitats with their use.

The 7th Coast Guard District takes the report generated by the Divers and coordinates with NOAA's National Marine Fishery Service, the agency responsible for the stewardship of the nation's living marine resources and their habitats. Together, they determine if any changes need to be made to the aid or its location to account for new coral growth. After the plan is developed, Divers guide pilings to the safe areas of the sea floor and recover debris from hurricanes during aid repair and re-positioning to ensure that the endangered coral is not harmed by surface construction.

This comprehensive and coordinated approach to the management of the aids and coral inside the Florida Keys National Marine Sanctuary demonstrates the Coast Guard's commitment to maintaining America's maritime resources.

"Maintaining the aids in a way that protects the Keys' natural resources is important to the environment, the residents of Florida, and the millions of tourists who visit the Key's each year," said Doty. "As a Coast Guardsman and a Diver, I'm proud that our efforts to be good stewards of the environment ensure that the sanctuary's reefs will be here for future generations."

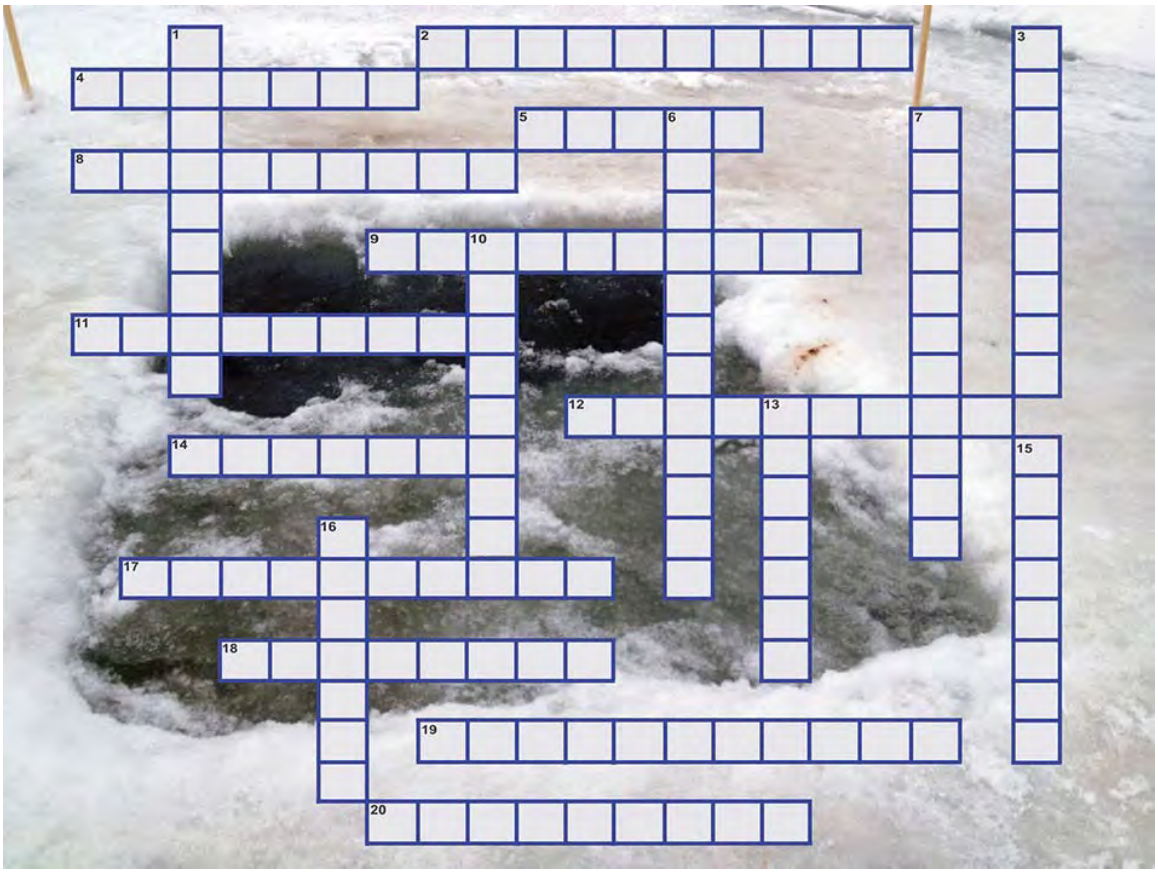
Photo caption top left: During the survey, the divers inspect the sea floor near the aid for endangered coral species. Photo caption top right: Regional Dive Locker East divers signal they are okay after environmental survey of an aid to navigation.

U.S. Coast Guard photo by Petty Officer 2nd Class Michael Anderson.

PA1 Michael Anderson serves as the deputy external affairs officer at the U.S. Coast Guard Deployable Operations Group. He has deployed more than 50 times in the last three years to support the Coast Guard's deployable specialized forces in the field.

Crossword Puzzle

U.S. Navy Diving Manual Chapter 11 - Ice and Cold Water Diving Operations



ACROSS

2. In an extremely cold and dry climate, fire and _____ ventilation are ever-present dangers.
4. The diver should therefore avoid _____ the second stage of the regulator when diving in cold water.
5. The lifeline of the standby diver should be _____the length of the diver's lifeline in order to perform a thorough circular search.
8. If a regulator is allowed to free-flow at depth for as little as five seconds, _____ may occur.
9. In very cold water, the wet suit is only a _____ effective thermal protective measure.
11. The life of batteries in homing beacons, strobes, and communication equipment is _____ when used in cold water.
12. When ice diving is conducted, a shelter must be erected as close as possible to the diving site to reduce the probability of _____ and equipment freeze-up.
14. Prior to the use of variable volume dry suits and hot water suits in cold and ice-covered waters, divers must be _____ in their use.
17. The use of life preservers with CO2 actuation is _____ only when diving under ice.
18. A _____ line should be hung through the hole to aid the diver in retaining his bearing and sense of direction.
19. Suited divers should be protected from _____ and associated perspiring before entering the water.
20. Diver tending lines are _____ when diving under ice to help the diver relocate the entrance hole.

DOWN

1. The first and/or second stage of the single-hose regulator may freeze in the _____ position after a few minutes of exposure in cold water.
3. Hypothermia demands _____ treatment and prompt evacuation to a medical facility.
6. A hot water system failure can be _____ for a diver in very cold water since the hot water is a life support system under such conditions.
7. Escape holes provide _____ exit points and aid in searching for a lost diver.
10. Where water temperature is at or below 37° F, a _____ SCUBA system shall be used.
13. A _____ debt can accumulate over successive diving days, resulting in increased fatique and reduced performance.
15. Because severe chilling can result in _____ judgement, the task to be performed under water must be clearly identified, practiced, and kept simple.
16. Thermal protection suits should expose only a _____ of facial area.

Crossword answers on pg.28

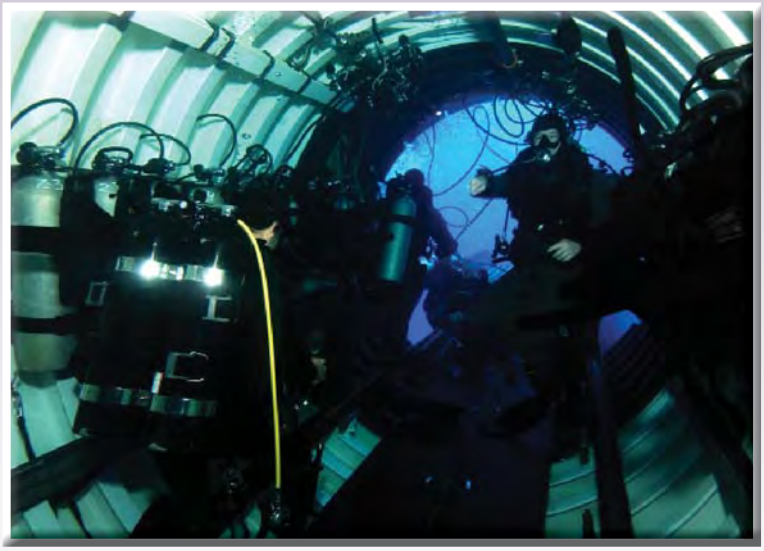
Importance of Navy Divers to the Submarine Force

CW04 Paul Lawson

VADM McCoy, Commander Naval Sea Systems Command says bluntly, "It's clear: our submarine force cannot sail without Navy Divers." But what does this really mean? What do Navy Divers do for the submarine force that makes them key players?

When you mention Navy Divers and submarines, what comes first to most minds is the repair work that goes on at Naval shipyards, tenders, and Intermediate Maintenance Facilities. Around the world, around the clock, Divers conduct underwater inspections, repairs, and maintenance on US Navy submarines. Without the strict attention to detail, precise technical knowledge, and skillfully applied brute force that Divers bring to the job, submarines could not meet the operational commitments placed on them by the Combatant Commanders. Submarines are spending more time forward deployed conducting National tasking and anti-terrorism operations than ever before - they are doing more with less - and the work conducted by Navy Divers allows that to continue. In 2012 Navy Divers put in more than 91,000 hours of bottom time conducting over 4,700 dives on underwater repair and maintenance of submarines. Most maintenance dive lockers conduct work over a broad geographical area, not just in their homeports. Naval Submarine Support Facility New London and Norfolk Naval Shipyard conduct fly away jobs to the 6th Fleet European area of operations to conduct emergent repairs to keep deployed submarines operational, and support each other with manpower when needed. Trident Refit Facility in Kings Bay Georgia routinely sends teams to Charleston, South Carolina and Port Everglades, Florida while diving continues at Kings Bay keeping one leg of the nuclear triad mission ready. USS EMORY S. LAND and FRANK CABLE Divers work all over the 5th and 7th Fleet area of operations from remote locations like Diego Garcia to larger ports like Guam and Bahrain.

NSW Group 3 Divers and SEALS perform final checks before launching the SDV. Photo by Combat Camera.



NSW Group 3 Divers and SEALs inside the Dry Deck Shelter during a mass swimmer lock out. Photo by Combat Camera.

But focusing on underwater repair only looks at one part of the big picture and ignores other valuable skills that Navy Divers contribute to the Submarine Force.

All submariners go through the Submarine Escape Trainer in Groton, Connecticut in order to familiarize themselves with the procedures and equipment needed to escape from a sunken submarine. Utilizing the only facility in the Navy designed for submarine escape, Navy Divers train the entire submarine force in submarine escape procedures. The training includes classroom time and a medical screening but centers on the facility's 20 foot wide, 88,000 gallon, 45 foot tower and the MK-10 SEIE suit, which would be worn when escaping from a sunken submarine. Sailors are taught to ditch, don, and ascend in the bright orange suit from depths up to 600 fsw. Navy Divers have trained 1,955 students in 2012, while accumulating 75,676 minutes of underwater time during 1,668 diving evolutions.

The Navy Diving and Salvage Training Center in Panama City, FL trains submariners in SCUBA diving, enabling the

(Continued on page 22)

Seabee Divers Stop in Timor Leste During Their Pacific Deployment

By Chief (SCW/MDV) Terence M. Juergens Underwater Construction Team Two

CAMP LENHOFF, Timor-Leste - Last month nine Seabee Divers from Underwater Construction Team Two (UCT TWO) arrived in Timor Leste via C-130, tired and jet lagged from a painful 4 days of flying. They were there to perform hydrographic and side-scan surveys of various sites in support of a Pacific Command Bi-Lateral exercise. Additionally, they were tasked with the evaluation of a future site for Timor Leste's Maritime Security Force Headquarters and providing Military-to-Military training with Timor Leste's fledgling dive force.

Underwater Construction Team Two's Construction Dive Detachment Charlie Officer in Charge EAC Blair Mercado prepares to launch divers to gather soil density data to support the future installation of a small craft berthing area for the local maritime security patrols in Timor-leste. Seabees from Underwater Construction Team 2 (UCT TWO) were in Timor Leste during a 6 month deployment across the Pacific that will take them from Kauai to Japan to the south Pacific and Naval Region Northwest.

With support from NMCB 74 they hit the ground running, offloading five pallets of dive and geotechnical gear for transport to Camp Lenhoff.

Equipment was quickly prepped and loaded on to trucks to get started with hydrographic surveys of Manatutu Beach. Manatutu beach is the site of a U.S. amphibious landing zone with forward movement to various training objectives. Data from hydrographic and side scan surveys was used to give a 3-D picture of the ocean floor, identifying any potential hazards to navigation that could damage amphibious crafts. Survey technicians covered over 2 square kilometers of ocean floor greatly aiding Beach Masters from the USS GREEN BAY (LPD 20).

After completion of Manatutu surveys, the focus turned to Dili harbor, the main shipping port in Timor Leste. Working with the United Nations Maritime Advisor the plan was to provide comprehensive data to develop a strategic plan for the development of a maritime security headquarters. This included detailed topographic, hydrographic, and side scan surveys along with the collection of soil data. All information will aid engineers to ensure the Timorese are provided a sound platform that they can operate from. Divers were faced with a myriad of obstacles that come with operating in a developing country. Divers spent 7 days working side-by-side with the National Police of Timor Leste (PNTL) Maritime Security Force collecting mountains of data, including side scan imagery of two WWII era vessels. All information will be recorded in a comprehensive report for further review by engineers.

Timor Leste also has a robust military that includes a small contingent of Divers that are constantly training and willing to learn. Members of UCT TWO answered the call to provide a day of classroom training that encompassed

Chief Shannon Johnson from Underwater Construction Team Two, Construction Diving Detachment Charlie explains diving physiology to FFDTL divers. The divers from Timor Leste's Army and Navy are learning basic skills in diving as the first in their nations history. Seabees from Underwater Construction Team Two (UCT TWO) were in Timor Leste during a 6 month deployment across the Pacific that will take them from Kauai to Japan to the south Pacific and Naval Region Northwest.

basic diving theory, including physics, physiology, and recompression chamber operation. The seven untried PNTL divers were very attentive and gained very valuable information. According to the Officer-in-Charge of the Seabee Divers, Chief Blair Mercado, "We understand that it takes years of training to properly absorb the information we taught, however, the main point we wanted to drive home is that diving is inherently dangerous and no matter how much you think you know, you're always learning." At the end of the day the U.S. and Timorese Divers shared a meal and some sea stories making it a very successful event.

Side scan image of a merchant vessel sunk during WWII by Japanese Forces. Found in Dili Harbor, Timor-leste during a side scan search by Underwater Construction Team Two (UCT TWO) during a deployment stop in October, 2012. UCT 2 provided side scan data in Dili Harbor to Timor-leste's Maritime Security Force while looking for hazards. Seabees from Underwater Construction Team Two (UCT TWO) were in Timor Leste during a 6 month deployment across the Pacific that will take them from Kauai to Japan to the south Pacific and Naval Region Northwest.

Steel Worker 1st Class Brett Sligo, from Underwater Construction Team Two, provides side scan sonar training to divers from Timor Leste's Maritime Security Force. Seabees from Underwater Construction Team Two (UCT TWO) were in Timor Leste during a 6 month deployment across the Pacific that will take them from Kauai to Japan to the south Pacific and Naval Region Northwest.

Fulfilling their mission of supporting the Fleet and Marine forces in the PACOM AOR, Seabees from UCT TWO were in Timor Leste during a 6 month deployment across the Pacific that will take them from Kauai to Japan to the south Pacific and Naval Region Northwest. UCT TWO provides responsive inshore and ocean underwater construction, inspection, repair and maintenance to ocean facilities for Navy, Marine Corps and Joint Forces engaged in military operations.

Photos By : Chief (SCW/MDV) Terence M. Juergens

(Continued from page 20)

Submarine Force to meet its minimum requirement that each deploying SSN or SSGN have at least four SCUBA Divers onboard. Also in Panama City is the Navy Experimental Dive Unit. Long a worldwide leader in diving experimentation and product development, they also enable Special Operations Forces (SOF) capable submarines (SSGNs and VIRGINIA class SSNs) to enhance their warfighting capability with new mixed gas UBA decompression procedures tailored for the submarine/SOF mission and by testing new equipment for use in Dry Deck Shelters and Lock Out Chambers and Trunks.

A lesser known relationship is that among submarines, SEALs, and Divers. The number of submarines built with SOF capability is increasing. The four SSGNs of the Submarine Force have dual Lock Out Chambers, operated by Navy Divers, and are also capable of carrying two Dry Deck Shelters (DDS). The next generation SSN, the VIRGINIA class, is being built with a Lock Out Trunk (LOT), an organic lock-out/lock-in capability for large numbers of SEALs and Divers, as well as being capable of carrying a single DDS. These systems require Navy Divers to operate them and SEALs, Divers, and submarines spend many months working together before deployment to hone their skills and to develop a unified team. We've all been part of great dives; but diving from a submerged, moving submarine, at night, in SCUBA, is a unique experience that Navy Divers will be experiencing more of in the future. Unmanned underwater vehicles (UUVs) are an area of focus for the Submarine Force as well and the sub/SOF team of Navy Divers, SEALs, and submarines continue to develop the tactics, techniques, and procedures for this capability. At Submarine Squadron ONE and SIXTEEN, Navy Divers provide training and certification oversight for the SOF capable submarines, helping to ensure that they deploy to the Combatant Commander fully trained and certified in sub/SOF operations.

Whether it's maintenance, escape training, SCUBA diver training, experimentation, or sub/SOF operations, Navy Divers are a valuable asset to the submarine force. It's clear: our submarine force cannot sail without Navy Divers.

CW04 Paul Lawson is the Diving Officer for Submarine Force, Atlantic Fleet.

Southwest Regional Maintenance Center Divers

TO PROVIDE SUPERIOR SHIP MAINTENANCE, MODERNIZATION, AND TECHNICAL SUPPORT TO SHIPS IN THE PACIFIC FLEET, WHO STAND READY TO FIGHT AND WIN.

By: Southwest RMC Divers

These words summarize the mission and capabilities of Southwest Regional Maintenance Center (SWRMC), San Diego, California. The charge of completing all underwater aspects of this mission belongs to the dedicated group of Sailors and Civilians that comprise Waterfront Operations Diving Division (Shop Code 360). Scattered throughout the San Diego Metro Area, and operating onboard Naval Bases San Diego, Point Loma, and Coronado, you'll find SWRMC's five underwater repair teams performing any one of a number of tasks related to the emergent and planned waterborne maintenance of 49 surface combatants, two NIMITZ class aircraft carriers, and six LOS ANGELES class attack submarines. Looking closer, you'll discover the production team supporting cast of one craft maintenance team, an autonomous planning office, hyperbarics shop, husbandry support warehouse, medical team, supply managers, and staff that make the activity come to life every day. Contained in this article, you'll find descriptions of performance during the execution of a long list of high profile, first-ever, and emergency response missions performed locally and throughout the Pacific Fleet Area of Operations.

SWRMC Divers' BRAVO Team performs the first CG waterborne stave bearing repair in 13 years.

MCM HEAVY LIFT & EX-GUARDIAN RESPONSE

Tasked by Naval Sea System Command (NAVSEA), and responding to initiatives passed down from the Chief of Naval Operations (CNO), SWRMC Divers planned and rapidly deployed a 14-man team equipped with self-contained and surface supplied diving capabilities to the Ports of Long Beach and Los Angeles where they integrated with local law enforcement activities, NAVSEA's Heavy Lift Team, contractors, and port divers in support of the Navy's first-ever quadruple heavy lift operation. Logging over 924 minutes of incident-free bottom time, the team performed flawlessly during their completion of surveys of the anchorages, piers, and approaches, inspections of the MCM's underwater hulls, and pre-lift alignment checks that provided for the flawless execution of the mission and ultimately resulted in the rapid deployment of four warships to the United States Central Command (CENTCOM) area of operations in support of operations critical to the defense and war fighting capability of the United States of America.

Almost one year later, and during an instance unrelated to the ships that were transported overseas during the quadruple heavy lift, SWRMC Divers once again received Flag level tasking and surge deployed seven Sailors on less than twelve hours notice to the Philippine Islands and Sulu Sea in response to the stranding of USS GUARDIAN. Capitalizing on their technical expertise and unique proficiencies in ship repair, SWRMC responders integrated with the Seventh Fleet Salvage Officer, representatives from NAVSEA 00C, contractors, and the Mobile Diving and Salvage Company embarked aboard USNS SALVOR to stabilize and survey the stranded vessel. They off-loaded the ship and evacuated all pressurized systems to minimize environmental impact while facilitating the salvage assessments, stabilizations, and bracing efforts that would enable the safe dismantling and removal of the stranded vessel. Additionally, the success of this high profile mission proofed concepts and served as the first operational employment of Commander, Navy Regional Maintenance Center (CNRMC) Battle Damage Repair(BDR) capability.

FROM ROUTINE TO FIRST-EVER, PERSONIFYING EXCELLENCE UNDER PRESSURE.

Increasing productivity by 51% over the past 18 months, SWRMC Divers have

Group PT and team building throughout San Diego County

taken the lead logging more bottom time than any other non-training diving activity in the U.S. Navy during the first quarter. Their completion of one CPP repair, four shaft covering repairs, one submarine propeller replacement, two CVN incremental availabilities, the first-ever CVN Kellogg Insulation System installation in the Southwest Region, the first-ever LCS graving dock entry, and the first CG stave bearing replacement in 13 years in addition to hundreds of cofferdam installations and other routine repairs supported Fleet readiness while reducing contracted diving services (except for hull cleaning) in Navy Region Southwest.

HYPERBARIC HEALING

Following the recent ten year overhaul of their RCF-6500, SWRMC Divers Medical Team worked closely with Naval Medical Center San Diego (NMCSD), local Undersea Medical Officers (UMO), and the Bureau of Medicine and Surgery (BUMED) to spearhead the introduction of a Hyperbaric Oxygen (HBO) therapy program that resulted in the treatment, care, and healing of three combat wounded Sailor and Marines and one military dependent. In addition to the HBOs, SWRMC Divers were proud to perform a series of candidate pressure tests that proved critical to the success of a pilot program aimed at combat rehabilitation through the employment of SCUBA training and recreational diving.

UNIQUE CAPABILITIES AND INTEROPERABILITY

SWRMC Divers are proud to maintain the Navy's only underwater nondestructive testing capability. Their certification and proficiency in visual technical, magnetic particle, and dry habitat dye penetrant examination methods provide mission essential capabilities while saving vital repair dollars that would otherwise be spent on diving contracts. The value of maintaining these programs was evident as SWRMC Divers augmented Pearl Harbor and Puget Sound Naval Shipyard divers during the evaluation of the forward elliptical bulkhead onboard USS HAWAII and propeller shafting onboard USS NIMITZ. In addition to NDT, Southwest RMC also maintains fully capable Remote Operated Vehicle and non-certified wet welding programs in support of emergent inspection, evaluation, and repair.

ment of surge capabilities at the command level would adequately provide for the new requirement. Transforming theory to practice, SWRMC spearheaded the allocation of countless hours in planning and over one million dollars in program funding toward the development of the BDR Life Support, expeditionary camp, shop van, patching van, and tool kit systems that are now being maintained in an RFI status at the ESSM facility at Naval Weapons Station Yorktown, Cheatham Annex. At the command level, they have developed a system of screening, training, and preparing all qualified divers for immediate surge deployment to any possible repair site the world over.

A member of the integrated JRMC/SWRMC Dive Team conducts underwater drilling onboard USS DENVER.

WHAT'S A BDR?

Referencing the requirements issued in the latest revision of COMUSFLTFORCOM/COMPACFLTINST 4740.1K, Salvage, Recovery, Towing and Off Shore Oil Spill Response Operations, CNRMC issued doctrine directing SWRMC to establish and maintain a Battle Damage Repair (BDR) Dive Team capable of conducting emergent repairs and salvage/diving force augmentation. In response to the CNRMC directive, SWRMC Divers worked closely with NAVSEA 00C and the Pacific Fleet Diving and Salvage Officer to develop the concept of operations, construct, and operational footprint. Analysis found that the addition of BDR systems to the ESSM pool and develop-

An assignment alongside the over 80 Sailors and Civilian employees of SWRMC Diving Division offers great benefits to the careers of seasoned Navy Divers and newly qualified Second Class Divers. Their expansive compounds, modern facilities, seven certified life support systems, unique capabilities, and production leverage coupled with all the benefits of calling sunny Southern California home and variety of exciting duty assignments in the local area make the title SWRMC DIVER a must have in the professional resume of any DEEP SEA DIVER.

Navy EOD and Divers Promote Science and Technology with Local Students

U.S. Navy Story By Mass Communication Specialist 3rd Class Randy Savarese

Sailors from Explosive Ordnance Disposal Mobile Unit Six (EODMU SIX) and Mobile Diving and Salvage Unit Two (MDSU TWO) participated in the Portsmouth Public Schools' Science, Technology, Engineering, and Mathematics (STEM) day held at Woodrow Wilson High School in Portsmouth, VA on March 23.

Explosive Ordnance Disposal Technician 3rd Class John Ludden from EODMU SIX and Navy Diver 1st Class Frank Horn from MDSU TWO encouraged students and teachers to pursue an interest in the science and technology fields and provided a hands-on experience with their equipment to demonstrate real-world applications of STEM fields.

"It's important for the Navy to show everyone what we are all about, it helps make people aware of us and they learn a little about our community and what we do," said Horn. "I like getting the chance to show our appreciation by taking the time to show them who we are."

In addition to the MK II Talon robot and the PackBot transportable robotic system, Navy EOD technicians and Navy Divers also brought night vision goggles and Navy dive equipment including the SEABOTIX underwater reconnaissance vehicle during this year's demonstration.

STEM education offers the students and teachers of Portsmouth Public Schools opportunities to apply Virginia's Standards of Learning for Science and Mathematics using current technologies, often with an engineering focus.

"The STEM Pathways Program begins in grade 4 and continues through our high school courses," said Laura Nelson, director of science education for Portsmouth Public Schools. "The coursework was developed to reflect the workforce in these areas: allied health and biotechnology, environmental science, and modeling and simulation with geographical information systems and robotics."

While the demand for science and technology jobs is increasing, the supply of qualified candidates is not. Programs like STEM day aim to stimulate interest in science and technology jobs which is vital to American competitiveness in an increasingly knowledge-based economy.

Explosive Ordnance Disposalman 3rd Class Dennis Blair, left, shows a student how to use the remote control and camera headpiece for a PackBot transportable robotic system.

Explosive Ordnance Disposalman 3rd Class Dennis Blair, left, shows a student how to use the remote control for a PackBot transportable robotic system.

Chief Explosive Ordnance Disposalman Mike Greenwood, left, explains the features of a PackBot transportable robotic system.

"I believe that Portsmouth Public Schools realizes this disparity and for the last 10 plus years has worked to make our motto, 'Dreams plus Action = Reality', a true reality for our students," said Nelson. "We are sending young men and women into the world who are able to think critically and problem solve, are creative, know how to collaborate, and can communicate to a variety of stakeholders."

Navy Sailors provided Portsmouth Public Schools expertise in the STEM fields bringing practical examples for many teachers. However, it's the children who benefited most, observing that STEM fields are not just theories and concepts but have practical uses.

"I am thankful to have the U.S. Navy involved," said Nelson. "It brings a sense of reality to the STEM Pathways Program."

MDSU TWO is an expeditionary mobile diving unit homeported at Joint Expeditionary Base, Little Creek-Ft. Story in Virginia Beach, Va. and has successfully conducted salvage operations to support TWA Flight 800, Swiss Air Flight 111, the space shuttles Challenger and Columbia, and the Civil War ironclad USS MONITOR.

EODMU SIX provides operational explosive ordnance disposal capability for the location, identification, rendering safe, recovery, field evaluation and disposal of all explosive ordnance, including chemical and nuclear weapons.

U.S. Navy EOD is the world's premier combat force for countering explosive hazards and conducting expeditionary diving and salvage.

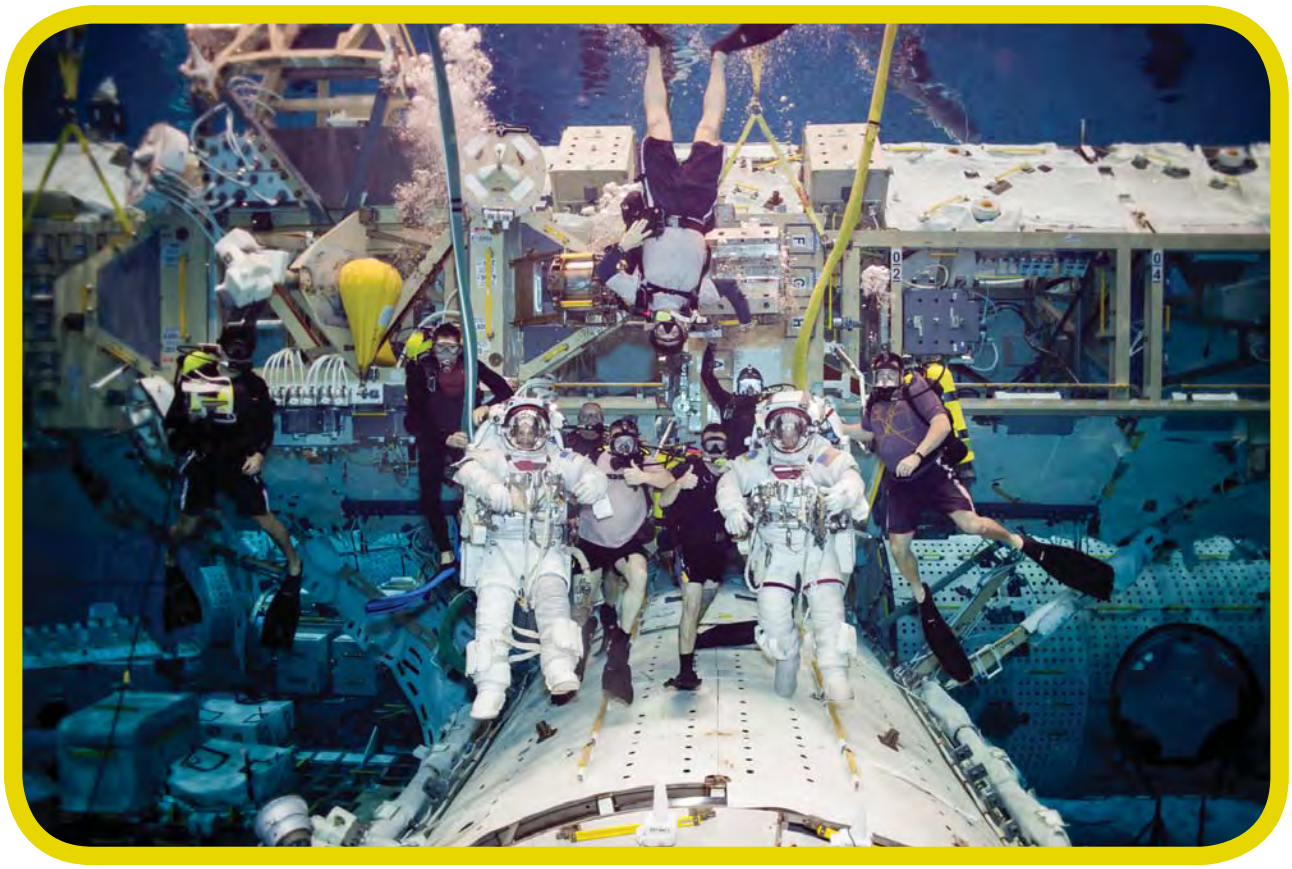
For more news from MDSU TWO and EODMU SIX visit www.navy.mil/local/eod2/.

Mass Communication Specialist 3rd Class Randy Savarese is currently supporting Explosive Ordnance Disposal Group (EODGRU) 2.

U.S. Navy photos by Mass Communication Specialist 3rd Class Randy Savarese/Released.

Space Cowboys

By: CWO3 Matt Rotan



The National Aeronautics and Space Administration (NASA) is moving full-speed ahead to explore deep space. Exploration Flight Test 1 (EFT-1) will be the first test of Orion, America's next vehicle that will carry humans to new destinations in the solar system. During the unmanned flight test, the capsule will travel farther than any human-rated vehicle has in over 40 years, and return to Earth at speeds of over 20,000 miles per hour. This is one small step for the United States Navy and one giant leap for NASA.

The United States Strategic Command (STRATCOM) requested assistance from the Navy in developing a recovery program for the Orion vehicle in November of 2012. They wanted to update the capsule recovery methods developed for the Apollo program first used in 1961. Navy Divers were identified by STRATCOM staff as the personnel with The Right Stuff to recover the NASA capsule and associated flight hardware from the Pacific Ocean.

Master Diver Scott Valentine, and Chief Warrant Officer Matt Rotan from Explosive Ordnance Disposal Group ONE (EODGRU ONE) provided the diving and salvage expertise needed to build a comprehensive training course. The course teaches Navy Divers assigned to Mobile Diving and Salvage companies how to safely recover NASA personnel and equipment from the sea. The curriculum has been in development for five months at NASA's Sonny Carter Training Facility in Houston, Texas. This training site is also known as the Neutral Buoyancy Laboratory. It is the world's largest swimming pool holding 6.2 million gallons of water and is 40 feet deep. The MDS companies will spend 24 training hours at the facility learning to safely approach, capture, and recover the NASA space capsule and associated flight hardware from the ocean into a U.S. Navy amphibious ship. The pool is also used by astronauts to practice spacewalks by working in simulated weightless conditions under water.

The EFT-1 mission is scheduled for 2014. The joint service efforts made between USSTRATCOM, USN, and NASA have significantly expanded the possibilities for human spaceflight "to boldly go where no one has gone before." Navy Divers have been in service since the late 1800's. Over the past fifteen years, they began to integrate into the Explosive Ordnance Disposal Community. They specialize in deep hard hat diving, and harbor clearance operations in expeditionary combat environments. EODGRU ONE is the echelon IV west coast command responsible for eight EOD and Mobile Diving and Salvage commands.

Photo caption: Docking in the Neutral Buoyancy Lab

CWO3 Matt "Rhodie" Rotan is a former Master Chief, Master Diver, and has been serving the Navy diving community for over 24 years. He is stationed as the Future Plans and Command Diving Officer for Explosive Ordnance Disposal Group ONE.

Pressurized Submarine Escape Training Facility

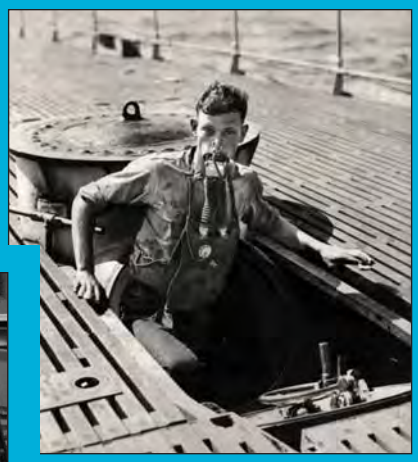
Naval Submarine School Groton, CT

By: Master Diver Rob Evans

Imagine being trapped in a cold, dark space for two days. Your food and water supplies are depleted and your oxygen levels have just dropped to 17%. CO_2 levels are on the rise. Your disabled submarine rests at a depth of 300' and the nearest rescue assets are 24 hours away. What do you do? This is the type of scenario the instructors at the Pressurized Submarine Escape Training (PSET) Facility, Naval Submarine School prepare their students for.

From the beginning of Submarine Escape and Rescue, Navy Divers have answered the call. The unique history of US Navy submarine escape began in 1929 when LT "Swede" Momsen developed the "Momsen Lung" the first submarine escape appliance 1. To train in this escape method the first submarine escape tower was opened at the Naval Submarine Base New London, CT in 1930. During its lifetime the original tower was the site of over 300,000 ascents. It was also here that CAPT George F. Bond MC, USN recruited CWO Robert Barth to conduct the Genesis and SEALAB projects 2,3,4. Another significant historical event happened in 1959 onboard the USS ARCHERFISH, where CAPT Bond made the first buoyant ascent from 302'2,3,4. There is much more history in regard to US submarine escape to share but I will save that for another Faceplate article.

In November of 2009 the 17.1 million dollar modern submarine escape simulator and hyperbaric complex formally opened, teaching the first class of students in submarine escape. The facility houses a 40' high by 20' wide water tower, three lock out trunks, surface supplied dive system, and two installed recompression chambers. The PSET Facility runs four courses a week that incorporate instructor-based, computer-based, and lab-based teaching techniques. Instructors like NETC Junior Instructor of the Year ND2 (DSW) Jason Fenn provide submariners with skills necessary for emergency situations. Fenn says sailors not only learn "lifesaving techniques," but as an instructor, he is uniquely positioned "to create a foundation for sailors upon which they will build their entire careers." The course teaches the students to become familiar with and safely utilize Submarine Escape and Immersion Equipment (SEIE). The SEIE consists of a Submarine Escape Suit MK-10/MK-11 and a one man life raft used to survive on the surface. The MK-10/MK-11 suit has been proven to make an escape from 600', provides 75 lbs of positive buoyancy and travel at 600 feet per minute. A Navy Diver may wonder "what about decompression sickness?" or "what about the risk of AGE with such a rapid ascent?" The rapid pressurization of the trunk limits the time of on-gassing, allowing an escapee to come directly to the surface without decompressing. It takes approximately 30 seconds to pressurize an SSN 688 class submarine Logistic Escape Trunk (LET) to 600'. The concern for AGE is mitigated by the students undergoing a strict medical screening process and they are



WWII Era sailor with the "Momsen Lung".

Dr. George F. Bond (left) after making the historic 302' buoyant ascent.

Momsen Hall, Naval Submarine Base New London, CT. Taken by: Jason Saiz

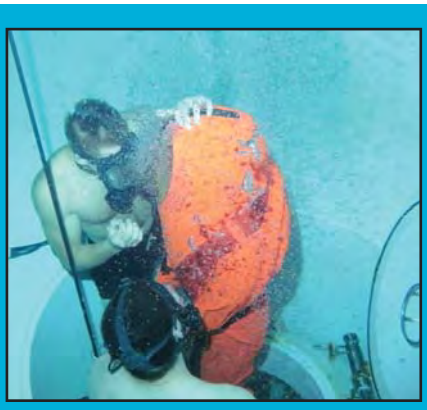
repeatedly taught the golden rule of submarine escape "NEVER EVER HOLD YOUR BREATH" 5, 6. From the first class in 2009 to February of 2013, the PSET facility has trained over 7,000 first-accession and fleet-level students with no significant incidents.

ND3 (DSW) LaFrance (left) and ND3 (DSW) Caruana (right) demonstrating the MK-11 SEIE. Taken by: Jason Saiz

The PSET Facilities staff includes a Diving Warrant Officer, two Diving Medical Officers, a Master Diver, 25 Navy Divers, 5 Hospital Corpsman, and two civilian personnel. Due to high risk, it takes 16 divers on the watch bill to conduct pressurized training, but ND3 (DSW) Baker says that "keeping students safe in our underwater environment" is the most satisfying part of his job. In the first ascent evolution, the 15' ripped hood exhalation drill, a student is pulled into the water column from the 15' lock and released to the surface while wearing a training life jacket with nothing over his face. During the evolution the instructors are all on breath holds. They've trained extensively on breath hold diving techniques through a locally generated qualification program 6. One requirement of the qualification process is the ability to recover a casualty from 40' on a breath hold dive. To see firsthand what happens at the PSET Facility, click on the link for a short video: http://www.netc.navy.mil/centers/slc/nss/HighRisk-TrainingA.aspx?ID=2.

If you are up for orders and are looking for a challenge in a specialized diving field, I highly recommend coming to Naval Submarine School. Instructors who transfer to other commands take with them Master Training Specialist and Diving Salvage Warfare qualifications. They leave with extensive hyperbaric chamber experience, and many took courses to earn college credits. The Northeast offers a lot of other opportunities, with the base located only an hour away from the nearest ski resort. It is also directly between Boston and New York, two hours to each. The local public school system is one of the best in the country. And here is where you can hear Red Diver's bottom report say, "water temperature 88˚F, no current, and unlimited visibility" year round. Hoo Yah!

PSET instructors on a breath hold dive release a student from the 15' lock. Taken by: LT Seth O'Donnell



ND2 (DSW) Tomolak (above) and ND2 (DSW) Hill (below) receive a student from the Logistic Escape Trunk (LET) during a simulated submarine escape. Taken by: Jason Saiz

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NDCS (DSW/EXW/SW/MDV) Robert Evans is currently serving at Naval Submarine School Groton, CT.

Cover Photo: PSET Instructor preparing for a student escape. Taken by: Jason Saiz.

Crossword Puzzle Answers

ACROSS:

2. inadequate
4. purging
5. twice
8. freeze-up
9. marginally
11. shortened
12. frostbite
14. trained
17. prohibited
18. weighted
19. overheating
20. mandatory

DOWN:

1. free-flow
3. immediate
6. catastrophic
7. alternative
10. redundant
13. thermal
15. impaired
16. minimum

The Old Master

As my tenure in the Navy draws to an end, mixed emotions course through my veins. For the past 30 years I've thanked God each and every day for giving me not only the opportunity to serve my country, but also, affording me the privilege to work with some of the finest people on the planet.

Being a Navy Diver for me has not been job, but a passion; I couldn't imagine doing anything else. Throughout my career I have always strived to improve our community and lay a solid foundation for those Divers who would come after me. I've always felt it was my duty to uphold the high standards that were passed down by pioneers of our community and hopefully future Divers will realize positive results from those endeavors.

NDCM(MDV) Eric (Dean)Holliday

Reflecting back on my career, there were actions, methods, and decisions that I made that produced outstanding results and some that didn't fare so well. Remember, there is no fool proof method to ensure that in the performance of our duties that we are not going to stumble along the way. As Captain Polanin says "We're expected to lead, make decisions, and make mistakes." All we can do is give it our best each and every day and ensure that we learn from our mistakes so as to not repeat them. The following are several things that have been **the core and the guiding principles of my career**.

1. **"By the Book"** – Execute your jobs, duties, and tasks by the book. Never deviate from established procedures or requirements. For those of you who have worked with me at some point in your careers, you have experienced this first hand. The only time that I feel a variation to this rule is acceptable, is in a life or death situation and no other options exist. It is not up to us to decide what rules/procedures we want to follow or when we want to follow them. This not only keeps us safe, it also provides clear guidance in your dive lockers. If deviation from written protocol is allowed by leadership it will become infectious and run rampant throughout your dive locker and that is not the example we want to set.
2. **"Always Do the Right Thing"** – This kind a goes along with "By the Book", but it also covers those situations that don't have written directive. To borrow another of Captain Polanin' s sayings "There are things we can do, but should we?" This is right on the money. If you are ever getting ready to perform an action and you have a doubt as to whether you should or not, then STOP! Reassess and ensure that the action upholds the core values of the Navy and is in the best interest of your troops.
3. **"Always be Honest"** – Regardless of the outcome, always tell the truth. When all else is gone, all we have left is our word. It is what defines our inner character and should be held sacred. Our reliance on each other's word is the catalyst that bonds us and has forged an environment of trust throughout our community.
4. **"Always be Loyal"** – Always support your subordinates, peers, and superiors. You may not agree with everyone all the time, but who does? What makes our community so strong, is knowing that we will always be there for each other and fully support the Chain of Command.
5. **"Treat People the Way They Want to be Treated"** – I went through my career and tried to treat people the way that I wanted to be treated. The hard reality is that not everyone wants to be treated like I want to be treated. I like for a person to come at me head-on and to the point, but this is not the case for others. It took me awhile to develop this skill, but once mastered, it is a great leadership trait.
6. **"Don't Take it Personal"** – While we have the greatest job on the planet, it is just that, a job. The decision we make or actions we take should be executed objectively. While very hard to do, try to never make a decision that is driven purely by emotions.

While I consider my career to have been extremely successful, I did not do it alone. I've had the pleasure to work for several great people such as Capt. Tokarick and Capt. Polanin to name a few, but the person that believed in me and gave me the opportunity that set my career in motion is Capt. Gunzel.

As a young Lieutenant on the island of Guam in 1995, Capt. Gunzel sent me TAD to MDV evaluations. He knew that if I was unsuccessful that the command would be left without an MDV for an extended period of time, but he took the chance and for that I'm grateful.

As my tenure as a Navy Diver is coming to an end, I deliberate as to what defined my career. I realized that it wasn't the jobs that I accomplished throughout the years or the lives that I saved in the recompression chamber, it was something much more. Helping others surpass my achievements have been the most rewarding moments of my career. I was fortunate enough to work with Master Diver Deflice and Master Diver Howard at NDSTC when they were both young Chiefs. Watching them develop, make MDV and continue on to do great things has to be my greatest reward. The success of others has always been my top priority and the realization of their success has defined my career.

It has been an honor and privilege to serve in the World's finest Navy and I would like to thank all of you for letting me be a part of your community. **Dive Safe!**

SUPDIVE SENDS...LCDR Sam Brasfield

There are many things I like about this job. To start with, the top-notch professionals I get to interact with daily. Whether it is one of the many active duty and retired Master Divers who work in our office, the engineers and doctors who "what if" things beyond my comprehension, or the assorted military Divers who call me to clarify portions of the Dive Manual; they are all so talented and I feel privileged to be in their presence. This leads to the next thing that is so great about my job; I learn something new every day because of these people. When surrounded by brilliant people, you can't help but learn something. But, perhaps the best thing about this job is the opportunity to serve military Divers. The men and women who call themselves military Divers in the world's premiere fighting force are the best of the best. I am privileged to serve them!

With all good things there are challenges and sometimes heartbreak. Two months ago, when I got the word that two Divers had perished on a training dive, I immediately thought "What could I have done to prevent those deaths?" My heart goes out to their friends and families. Petty Officer James Reyher and Petty Officer Ryan Harris were lost but will never be forgotten. What Divers do is dangerous work but we never expect to lose someone, much less two. I did not personally know these two divers but I feel like I did. Our profession is a close-knit brotherhood and when one hurts we all hurt. As a diving community, we will not rest until we know and address all the factors that played a part in their deaths.

As I mentioned in the last issue of Faceplate, my job as SupDive is clear. I am tasked with setting diving policy and ensuring that divers have the right equipment and the correct diving procedures to safely accomplish

their mission. We in 00C take this very seriously and that is why we "what if" scenarios beyond comprehension. We would be doing our military Divers a disservice if we didn't! Can it slow down the process? Yes, but that is what we are paid to do. I also have to take into consideration whether any of our actions or policies constrain the commanders in the field. Our #1 goal is the safety of our Divers and to ensure we do not hamstring operations!

Soon after checking into 00C, I heard that many of our Diving Requirements were not documented and funding could soon dry up. Recently, I briefed a group of Master Divers on the Capabilities Based Assessment (CBA) portion of the Joint Capabilities Integration Development System (JCIDS) process that was starting soon for Salvage and Diving. I was asked by several to explain explicitly how to document those requirements. A week later I sent out an email with tips on how to write a requirement to route through their chains of command. To summarize: Well written requirements need to be measurable, attainable, necessary, unambiguous, orderly, organized, and results oriented.

1. Spell out the problem (i.e. capability gap) "Why"
   - Use common sense
   - Use words that are directive in nature and write in the active voice
   - Keep sentences and paragraphs short with proper grammar, spelling, and punctuation
2. What is needed to fill the gap "What"
   - Avoid writing requirements that are unrealistic
   - Write testable requirements
   - Use tolerances and ranges to help the designers
   - Focus on "What" and avoid "How"
   - Never use "and/or" in a requirement statement
   - Derive requirements from the Initial Capabilities Document (ICD)
3. POC and contact information

Furthermore, I encouraged these MDVs to participate as much as possible in the upcoming CBA. At the end of March we conducted the second phase of the CBA in which we identified the gaps in our capabilities for Salvage and Diving. We had great participation from Divers across all communities within the Navy. This CBA will be complete this summer with the final phase focusing on the solutions to the capability gaps. The ICD will be produced from the information discovered in the CBA.

Keep charging and doing what you do best! I can't get you what you need to complete the mission unless you tell me. It's the ND3's, Dive Sups, and MDV's who know what is needed. I wish I could be out and about more but due to budget restrictions our travel is limited and much like the rest of you, we are required to do more with less. Thank you for the privilege to serve you!

Navy Diver 2nd Class (DSW) Jason Fenn
Named NETC's Junior Enlisted Instructor of the Year

By: NDC Jason Counts

PENSACOLA, Fla. – Naval Education and Training Command (NETC) announced its 2012 Military Instructors of the Year (IOY) during a ceremony at the National Naval Aviation Museum on board Naval Air Station Pensacola on February 28, 2013. The NETC Military Instructor of the Year award program recognizes Navy and Marine Corps instructors and facilitators who exemplify personal excellence and display outstanding instructional and leadership performance. The program highlights the significant contributions of individuals throughout the Naval Education and Training enterprise who have been nominated by their command based on their sustained superior performance over the course of the past year.

Rear Admiral Don Quinn, Commander, Naval Education and Training Command congratulated and presented each winner with a Navy-Marine Corps Commendation Medal and a plaque. "The skills and fighting spirit of our people form the foundation of our combat readiness," Quinn said. "In training the Sailors of the world's greatest maritime force, you produce warfighters that possess both the technical and leadership skills that enable our Fleet to succeed. And you prepare them for, much more than simple day-to-day operations. You prepare them for life and, if necessary, to win in combat. The training you provide can often mean the difference between life and death."

The Junior Enlisted Instructor of the Year is Navy Diver 2nd Class (DSW) Jason Fenn from Atlanta, Georgia. The four-year veteran has been assigned to Submarine Learning Center's Naval Submarine School, Groton, Connecticut teaching Submarine Escape Rescue and Survivability. ND2 Fenn joined the Navy on June 24, 2009 and went on to graduate Dive School Class 10-20-2C on April 1, 2010. He currently has orders to Mobile Diving and Salvage Unit One, Hawaii and is expected to continue to do great things as a Navy Diver. Away from work he has many interests including astronomy, physics, computers, nutrition, and history. Honored by his selection, Fenn credits his selection to his passion to better himself and extend his knowledge to students. "Top notch Sailors need to become instructors, because well-trained military professionals need to pass on their knowledge. A large percentage of students learn by imitation, so it's paramount for an instructor to lead by example in everything from the way he or she dresses to the way they carry themselves while they are off duty. First rate Sailors walk with integrity in everything they do and lead by example." Fenn says it's very rewarding being a leader and mentor and he takes great pride knowing that students leave the course with a lifesaving skill they didn't have before.

Petty Officer Fenn shares the honor of NETC Instructor of the Year with the following personnel:

Officer Instructor of the Year - LT Riley Smith, assigned to the Center for Seabees and Facilities Engineering's Naval Civil Engineer Corps Officer School (CECOS), Port Hueneme, California.

Senior Enlisted Instructor of the Year - Chief Machinist's Mate (SW/AW) Joshua Meyer, assigned to Surface Warfare Officer School Learning Site, Great Lakes, Illinois.

Mid-Grade Enlisted Instructor of the Year honors - Electronics Technician 1st Class (SW/AW) Gerardo Ceballos assigned to the Center for Surface Combat Systems' Detachment West, San Diego.

NDC (DSW/EXW) Jason Counts currently serves as a Submarine Escape Instructor Naval Submarine School Groton, CT.

Diving Advisories

13 - 07 PERSONNEL QUALIFIED TO OVERHAUL CONSHELF XIV REGULATORS
13 - 06 SCUBA REGULATORS
13 - 05 REMOVAL OF MARES ABYSS 22 NAVY SCUBA REGULATOR FROM COLD WATER SERVICE
13 - 04 AQUALUNG BUOYANCY COMPENSATOR (BC) DEVICES
13 - 03 PROMULGATION OF MILPERSMAN 1220-410
13 - 02 SUSPEND USE OF SODASORB LOTS
13 - 01 GUIDANCE FOR DIVING INTERSPIRO DIVATOR MK II DP1-2 IN AN ENCLOSED SPACE

For more information on effective diving advisories, go to https://secure.supsalv.org/home.asp