



FACEPLATE

The Official Newsletter for the Divers and Salvors of the United States Navy

Volume 17, No. 2 / November 2013



In This Issue...

***UCT TWO Cold Weather Altitude Diving
Navy Diver 2020***

NEDU Command in the Spotlight

EOD Group 2 Divers Find & Salvage Downed F-16C Aircraft

FACEPLATE

FACEPLATE is published by the Supervisor of Salvage and Diving to make the latest and most informative news available to the Navy diving and salvage community. Discussions or illustrations of commercial products do not imply endorsement by the Supervisor of Salvage and Diving or the U.S. Navy.

Articles, letters, queries and comments should be directed to the Commander, Naval Sea Systems Command, NAVSEA 00C, 1333 Isaac Hull Ave. SE Stop 1070, Washington Navy Yard, DC 20376-1070. (Attn: FACEPLATE). Visit our website at <http://www.supsalv.org>. To view an electronic version of Faceplate in PDF format go to our website and click on the word "Faceplate" located in the left hand column. This link will direct you to our list of Faceplate issues.

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Cover



Builder 2nd Class (SCW/DV)
Matthew Dawson emerging from
the cold water after a altitude dive
in Bridgeport, CA during diving
training operations, April 2013.
(Photo By Builder Second Class
(SCW/DV) Josh Noel UCT 2).



A SAD DAY AT THE WASHINGTON NAVY YARD

I cannot let the opportunity pass to comment on the events of September 16th. I was fortunate – not only was I out on travel but the SUPSALV office spaces had been moved from what would become “ground zero” to a separate building across the yard. Thankfully, none of the hardworking military or civilian personnel in our office were directly involved. However, we all knew people who were wounded and people who were killed. There but by the grace of God go we. Please keep the families of the victims, the survivors, and all those affected by this horribly tragic event in your thoughts and prayers.

COSTA CONCORDIA

At just before 10 pm on January 13th, 2012, the COSTA CONCORDIA, a 952-foot long cruise ship carrying more than 3,200 passengers and 1,000 crew members, hit a rock as it transited past the Isola Del Giglio, a small island off the coast of Italy about 62 miles northwest of Rome. The rock ripped a 174-foot gash along three engine room compartments. The ship began taking on water, lost propulsion and electrical power, drifted toward the island, coming to rest on a rocky ledge in a protected marine environment partially capsized to starboard at about 65 degrees. All but 32 of the known passengers and crew were recovered. Thus begins the largest single ship salvage operation in history.

I was fortunate enough to be able to visit Isola del Giglio during the week of September 9th, one week before the ship was parbuckled upright. The salvage contract had been awarded to a team comprised of the Italian underwater engineering company, Micoperi, and Titan, the U.S. Navy’s commercial salvage provider for salvage operations from the West Coast to the International Date Line. I felt well prepared to assess the scope of the task that the combined team having spent most of the winter removing the ex-USS GUARDIAN from the Tubataha Reef in the Philippines.



I could not have been more wrong...

Twenty months after the initial grounding, the ship still sat on the rocky ledge at a list of 65 degrees. COSTA CONCORDIA was partially supported by two blunt pinnacles and fully flooded with little, if any, residual buoyancy. From a very high level, the salvage plan was simple: secure the ship, parbuckle upright, refloat, and tow; however, the devil is in the details.

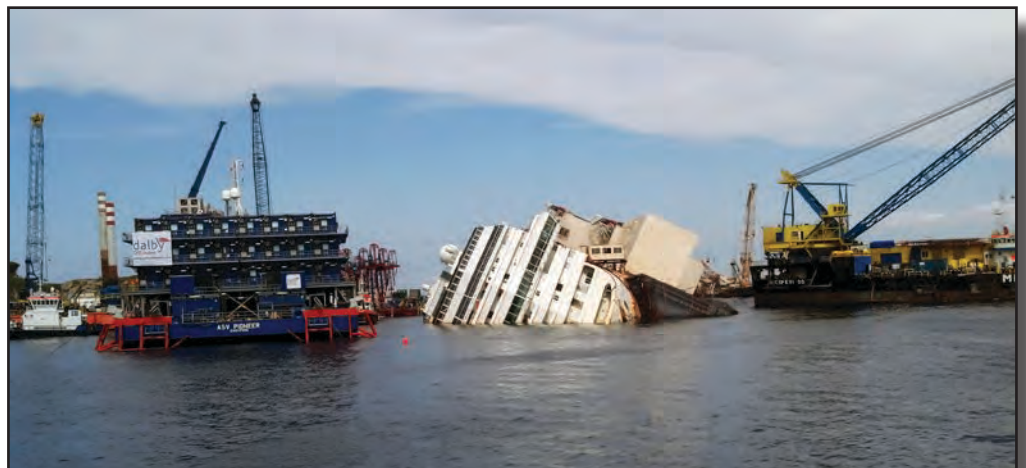
The parbuckling operation completed early in the morning on September 17th. The amount of work required to reach that milestone cannot be understated: divers constructed a platform below the COSTA CONCORDIA to support the ship after righting, holdback chains were secured between the ship and jacking towers embedded in the sea floor, a

series of sponsons were fabricated and installed along the ship’s port side, and jacking cables were installed between the upper outboard corners of the sponsons and outriggers on the subsea platform. The holdback chains and platform served to prevent the ship from sliding further down the slope during the parbuckling. The torque would initially be provided by the jacking cables, but, once the ship was rotated sufficiently, the sponsons were to be flooded to complete the task. To give you an idea of the scale of the operation:

- 31,000 tons of steel were used to fabricate the required components
- 9 tons of welding rod were consumed to build the sponsons and attach them to the ship
- 33 km of weld bead were laid
- 13,000 individual dives were logged

The scope of the project was equal to that of designing and building a moderately sized ship in an industrial yard; however, the team was accomplishing its task on a small, tourist island completely exposed to environmental forces with a logistics chain that would make the simplest need a threat to progress.

Further, COSTA CONCORDIA was a perfect example of the principal challenge of salvage engineering – you never know all the data you want to know when you are developing your salvage plan and



Bow Aspect of the COSTA CONCORDIA prior to parbuckling.

performing structural calculations. It was clear that the ship had suffered some structural damage to the starboard side, but the extent would not be evident until the ship was parbuckled upright. Was the ship's structure sufficient to handle the loads imparted during parbuckling? In salvage engineering, there is only one thing you can be sure of – a damaged ship is not going to heal itself. You can expect conditions to continually degrade as the environment continues to eat away at a ship's structure. Imperfect knowledge forces assumptions requiring that you apply safety factors for the "known-unknowns". Salvage engineers need to be able to make a frank assessment of what they know and what they don't – not only to have an answer based on the best information on hand but also to understand the risks they assume with what they do not know.

The Titan-Micoperi success in parbuckling is a huge accomplishment. Hoo Yah to Nick Sloan, the salvage master for the COSTA CONCORDIA project. Congratulations on completing the parbuckling and best wishes as you push towards refloating next year.

DIVING OPERATIONS

There have been an unacceptable number of fatalities this year associated with diving operations. It is certainly appropriate that we all take a step back and assess how we plan and execute diving operations to identify any weaknesses or vulnerabilities that need shoring up.

You all know that there are many hazards involved with diving – these warnings are firmly imbedded in our training programs. From the moment your head dips below the surface until well after you return to the surface, you are at risk. If you lose your air or your air supply is contaminated, bad things happen. If you hold your breath on ascent or fail to meet your decompression obligation, bad things happen. If you have too much or too little oxygen, bad things happen. If you are too cold or too hot, bad things happen. You all know this, but this list is far from complete.

When you stand up and state with confidence and authority, "THIS IS [insert your name here] AND I HAVE THE SIDE!" you are accepting responsibility for the safe execution of the dive. It is an absolute requirement

that you and your team have completed adequate operational risk management prior to placing your Divers in the water. Complacency is your enemy. Accept no unnecessary risk.

Take a look at how your dive locker is conducting operations. NEDU published a report in 2005 titled, "A Navy Diving Supervisor's Guide to the Non-technical Skills Required for Safe and Productive Diving Operations." Your Master Divers are familiar with this report. Get a copy and read it <http://supsalv.org/pdf/TR%2005-09.pdf> What can you do differently to improve your situational awareness? Decision making? Teamwork? How can you adjust your

operations to account for fatigue and stress?

FAIR WINDS...

In this issue you will find the final SUPDIVE Sends article from LCDR Sam Brasfield. Although only in the billet for a little over a year, Sam has made great progress in establishing the Diving Executive Steering Committee and bringing diverse diving activities together at senior levels to discuss common issues. Sam, we appreciate your dedication and effort. Fair winds and best wishes over on OPNAV staff. Hoo Yah!

Leaving big shoes to fill, Sam has been relieved by CAPT Dan Shultz. Join me in welcoming CAPT Shultz aboard.



Port quarter of COSTA CONCORDIA prior to parbuckling.



SEA 00C staff and others standing on top of the COSTA CONCORDIA prior to the parbuckling. Pictured left to right: LT Jared Hinton (USCG), Vince Jarecki, LT Dale Cressman (USCG), LT Chris Addington, CAPT Mark Matthews, CAPT (Ret.) Patrick Keenan, Mr. Mark Hart.



Cold Weather Altitude Diving in California's High Sierra

By: Lt. Cmdr. Charles Kubic,
UCT TWO Commanding Officer

Underwater Construction Team (UCT) TWO recently completed a diver training exercise in California's High Sierra, designed to increase the team's cold weather and altitude diving expertise.

Members of Construction Dive Detachment (CDD) Bravo spent 10 days in Bridgeport training at the Marine Corps Mountain Warfare Training Center (MCMWTC), where they learned and exercised skills such as cold weather survival, mountain medicine, cold weather diving and altitude diving, including both SCUBA and surface supplied diving operations.

Occupying 46,000 acres of Toiyabe National Forest with elevations ranging from 6,000 to 12,000 feet, the training center conducts unit and individual courses to prepare Marines and joint and allied forces for operations in mountainous, high-altitude, and cold-weather environments. The center is also involved

in the development of warfighting doctrine and specialized equipment for use in mountain and cold weather operations.

During the winter season, from October to April, snow accumulation can reach 6 to 8 feet. The annual temperature at the center ranges from 20 degrees below zero in the winter to 90 degrees Fahrenheit in the summer.

Before getting into the water, the detachment was required to undergo a pre-environmental training course designed to provide Sailors and Marines with the tools they need to survive in the strenuous mountain environment.

"The best part of exercise was not only utilizing UCT's arctic dive gear but the pre-environmental training course of instruction provided by Marine Corps staff," said Construction Mechanic 1st Class James Richardson. "They covered topics such as cold weather and altitude medicine, first aid, mountain survival, mountain weather and equipment."

The dive portion of the exercise focused on honing the detachment's skills to establish and sustain a camp that supported diving operations in a mountain environment as well as the utilization of special dive gear designed to operate in intense cold environments.

CDD Bravo used both dry diving suits and hot-water diving suits to keep divers warm in the water. The hot-water suit is used during surface-supplied diving operations and employs a hot water heater and 600 feet of hose to push hot water into the diver's wet suit.

"It felt like diving in a Jacuzzi," said Builder 2nd Class Andrew Quiroga.

Utilitiesman 2nd Class Richard Noel said he was most interested in the effects of altitude.

"Learning how altitude not only affects the equipment but also the diver was by far the best learning experience," he said.

The mountain environment provided multiple opportunities for valuable train-

ing. “Most of the divers in CDD/B have never dived at altitude. It was just a chapter we studied in the dive manual but never implemented in an applicable manner,” remarked Construction Mechanic 1st Class Trevor Bucket. “Now that we have gone, we are all very familiar with altitude protocol.”

The detachment also had the opportunity to evaluate the command’s equipment for use in austere cold weather conditions.

“It gave us the opportunity to find our weakness and be that much more ready to execute in a wartime situation if called upon,” said the detachment’s officer in charge, Chief Construction Mechanic Adam Winters.

UCT TWO is now better equipped to complete tasking in austere environments, from extreme cold to extreme elevations.

CDD Bravo will deploy this summer to support operations around the Pacific.

Article cover photo: Utilitiesman 2nd Class (SCW/DV) Joshua Noel and Builder Second Class (SCW/DV) Matthew Dawson backing down into the cold water during altitude diving operations at Twin Lakes Bridgeport, CA.



Steelworker 2nd Class (SCW/DV) David Miller, Petty Officer 3rd Class Gabriela Puerta, Builder 2nd Class (SCW/DV) Andrew Quiroga, and Steelworker 1st Class (SCW/DV) James Kirk assist divers Builder 2nd Class (SCW/DV) Matthew Dawson and Builder 2nd Class (SCW/DV) Christopher Farmer enter the water while Diving Supervisor Construction Mechanic 1st Class (SCW/DV) James Richardson Observe. Chief Equipment Operator (SCW) Master Diver Emory Cole observes the entire evolution at Twin Lakes Bridgeport, CA, April 2013.

Construction Diving Detachment BRAVO of UCT 2 conducts training for the Transportable Recompression Chamber (TRCS) during altitude diving operations at Twin Lakes, Bridgeport, CA, April 2013. (Photo taken by Builder 2nd Class (SCW/DV) Noel UCT 2)



Builder 2nd Class (SCW/DV) Christopher Farmer and Builder 2nd Class (SCW/DV) Runyon unload the transportable recompression chamber during altitude diving operations at Twin Lakes, Bridgeport, CA, April 2013. (Photo taken by (SCW/DV) Joshua Noel, UCT 2)

Petty Officer 2nd Class Joshua Noel, Petty Officer 1st Class James Kirk and Petty Officer 1st Class James Richardson, assisting Divers BU2 (SCW/DV) Andrew Quiroga and BU2 (SCW/DV) Matthew Dawson, dress for Surface Supplied Diving as the Diving Supervisor CEC (SCW/DV) Adam Winter observes at Twin Lakes Bridgeport, CA, April 2013.



00C4 SYSTEM IN THE SPOTLIGHT

FADS III-ASRA By: Eric Frank

During a recent on-site system certification survey 5,000 psi was put to this cap which abruptly cracked causing the crowd on the dive boat to get a little excited. Needless to say this fitting didn't come completely apart but if it had, there was a very real potential for serious injury to someone in that tight space.

"Wrench tight" is a term used in the past that could create an enormous amount of torque depending on the size of the wrench and the person applying the torque. Imagine someone like Master Diver Coffelt with a 24-inch crescent wrench. We have evolved over the years and we now commonly use terms such as 3/8 to 1/2 turn past O-ring engagement. In fact this specific application of torque is called out in many of our system drawings and Operating Procedures (OP's). This technique creates an estimated 36-



Have you experienced this before?

72 in-lbs of torque, far less than what could be applied if "wrench tight" were applied to the fitting. Supervisors should monitor the assembly of these fittings during the system set up to ensure that these fittings are not over torqued.

Fly Away Diving System (FADS) OP's require that the interface hoses be inspected for cuts and abrasions. At the same time the hose or cap fitting should be inspected for defects to eliminate the potential installation of a cracked or damaged fitting.

The remaining caps on this particular ASRA were inspected and checked for proper torque. Several other caps were torqued in excess of 3/8 to 1/2 turn past O-ring engagement. AIG 09-15 is still an active AIG: it was issued to alert commands to this problem and provide technical guidance to prevent over torquing CPV face seal union fittings. I strongly recommend you take the time to review it again with your dive locker. Dive SAFE.

Retired Master Diver Eric Frank is the Diving Systems Safety Certification Manager at NAVSEA 00C.

Navy Divers Recover Sunken Patrol Boat

By: EOD Group 2 Public Affairs

U.S. Navy Divers from Mobile Diving and Salvage Unit (MDSU) TWO and contracted salvage personnel successfully raised and returned to shore a sunken patrol boat (PB 502) on April 18, 2013.

Coastal Riverine Squadron (CRS) 10, a Navy Reserve unit based in Jacksonville, FL, was conducting a routine training event sailing from Jacksonville to Charleston when one of their patrol boats transiting into Charleston Harbor ran aground on a jetty on the south side on the channel entrance at 9:41 p.m., April 13, 2013.

"Salvage operations like this are quite common, we train to respond to all types of incidents from planes going down to boats sinking and each one brings up its own unique challenges," said Chief Warrant Officer John Sullivan, MDSU TWO officer-in-charge of the salvage operation.

The 34-foot patrol boat was surfaced Thursday morning by Navy Divers from approximately 20 feet of water and was towed to shore by a contracted salvage company.

The 8-person Mobile Diving and Salvage (MDS) Company, MDS Co. 2-4, based in Virginia Beach, VA, arrived in Charleston Tuesday and worked with local Coast Guard and maritime officials to determine how to safely recover the submerged vessel by using another similar patrol boat ashore as a model.

MDSU TWO Divers then performed a site survey to determine the extent of damage to the vessel. On Wednesday and Thursday divers installed lift points, placed belly bands on the submerged vessel prior to rigging for lift and recovery, and attached salvage lift bags capable of lifting 22,000 pounds. Once secured, the vessel was

carefully brought to the surface Thursday morning by the lift bags and checked for stability.

"I thought my team did outstanding, this is what we train for," said Sullivan. "We developed a plan, we executed it and I thought my team did outstanding."

PB 502 was then towed to the U.S. Coast Guard Station at Tradd Street.

MDSU TWO is based 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, the I-35W Mississippi River bridge collapse in Minnesota, the Civil War ironclad USS Monitor, and recovery of a downed F-16 Fighting Falcon off the coast of Italy.

What is the Senior Enlisted Advisory Team?

What is the SEAT? Before I checked in to Naval Sea Systems Command I couldn't even spell SEAT and now I'm the Chairman. For those who may not know what the Senior Enlisted Advisory Team (SEAT) is or does, here is a brief history of how it all started, its purpose, its membership, and what it does.

The Salvage Executive Steering Committee (S-ESC) was established in 1993 and the SEAT was first chartered by the S-ESC on 17 March 2005. The purpose of the SEAT was to support the deliberations and decision making of the S-ESC. Acronyms, acronyms everywhere! Now you're probably wondering what an ESC is. In general, a steering committee is a group of high level executives or authorities who have the task of guiding a group and providing direction in making decisions. Members of a steering committee typically have decision making authority but many times make recommendations to a higher authority as is the case of the S-ESC. The S-ESC was chartered to make policy recommendations to the Chief of Naval Operations (CNO). In 2007, the S-ESC was realigned due to significant resource sponsorship, type commander, and community sponsorship changes. Consequently, on 22 March the Diving and Salvage ESC (D&S ESC) was established to reflect those changes. The D&S ESC was assigned to address diving and salvage capabilities, requirements and related support functions, and make policy recommendations to the CNO.

Just when I thought I had things figured out, the "Big Blue Machine" changed something. Most recently, the Diving Executive Steering Committee (DivESC) was established on 10 Jul 2013. The DivESC is a Flag-level committee established to consider issues relevant to military diving policy, manpower, training, funding, operational readiness and future diving capability. The DivESC is

chartered to provide informed guidance and recommendations to ensure Undersea Warfare Division policy supports Navy diving requirements. The Director of Undersea Warfare Division (N97) is our diving resource sponsor.

Now that I've gone full circle on Salvage and Diving Executive Steering Committees, let's get back to the business at hand, "What is the SEAT?" The SEAT is a team of advisors comprised of 12 Master Divers and 1 Diving Warrant Officer that is chartered to address issues relevant to diving policy, enlisted manpower, personnel training, and operational readiness. This forum of senior diving personnel takes an active role in these issues and the direction of the diving community. Currently the SEAT is chartered under the D&S ESC but with the recent changes to the Executive Steering Committees this charter may also change. Regardless of who the SEAT is chartered by, the purpose of the SEAT will not change.

The membership of the SEAT represents every U.S. Navy and Marine Corps diving locker and covers every aspect of U.S. Navy diving. Current SEAT members are Master Divers from

the below commands with the exception of COMSUBLANT because there is no Master Diver billeted there.

For fleet diving commands, the SEAT is your conduit for addressing issues relevant to diving policy, enlisted manpower, personnel training, and operational readiness. As always, if you identify something that needs to be addressed, use your chain of command. Run the issue through your Master Diver first (or LCPO if no MDV is assigned). Once it is reviewed by the MDV or LCPO, they will present it to their SEAT representative, who will present it to the SEAT. All submissions should be in a point paper type format and your SEAT representative has the proper format. The SEAT is chartered to meet at least once a year but over the past 2 years has met every 6 months because there has been a lot going on in the diving community. This is an avenue for you to affect change in your community and make improvements, so don't sit idly by; route pertinent issues through your MDV or LCPO. I look forward to hearing from you.

NDCM(MDV) Arne Phillips is a Fleet Liaison Master Diver currently stationed at NAVSEA 00C.

Current SEAT Members

COMNAVSEASYSKOM:	NDCM(MDV) Arne Phillips - Chairman
COMNAVSURFPAC:	NDCM(MDV) Tony Shepard
COMSUBLANT:	CWO4 Paul Lawson
COMNAVSPECWARCOM:	NDCM(MDV) Dave Gove
COMNECC:	NDCM(MDV) Neil Wolfe
Naval Safety Center:	NDCM(MDV) Dave Schoephoerster
Norfolk Ship Support Activity:	NDCM(MDV) Doug Heater
CENEODD:	NDCM(MDV) Mike Troedel
Enlisted Community Manager:	NDCM(MDV) Paul Adams
Diving Enlisted Detailer:	NDCM(MDV) Ken Willmoth
USMC:	NDCM(MDV) Brian Pratschner
UCT:	EQCM(MDV) Brian Thompson
Reserves:	NDCM(MDV) Mike Bross

Navy Experimental Dive Unit 86 Years of Excellence

By: Jim Brawley

The famous U.S. Navy Diver motto: “We Dive the World Over...” would not be true without the efforts of the Navy Experimental Diving Unit (NEDU), which has led the way for over 86 years! This article will give you an insider’s view of NEDU’s history, mission, staff, and facilities.

In The Beginning

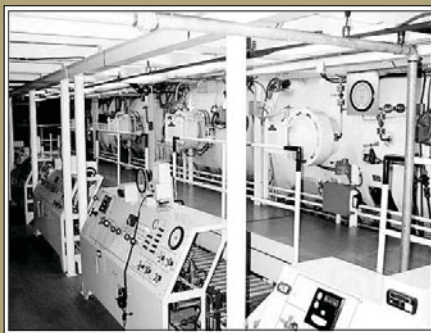
NEDU traces its roots back to the first experimental dives performed by Chief Gunner George D. Stillson at the Brooklyn Navy Yard in 1912. Chief Stillson’s experiments using Haldane’s decompression research with the British Royal Navy expanded the operating capability of the U.S. Navy Deep Sea Diver from 60 feet of seawater (fsw) to 300 fsw. Stillson’s dive tables were eventually formalized into the first U.S. Navy Diving Manual.

Location, Location, Location

Navy salvage operations after Chief Stillson’s first experimental dives in Brooklyn confirmed the need to establish procedures, equipment, and training through a formal experimental diving program. NEDU was commissioned at the Washington Navy Yard in 1927. During its time at the Navy Yard, NEDU developed and tested new diving equipment such as the Momsen Lung. The command also “pushed the envelope” of diving physiology by creating free ascent tables for submarine rescue. In the late 1960’s, the GENESIS and SEALAB Projects created and proved that Saturation Diving was a viable option for deep endurance diving. The success of these projects led the U.S. Navy to construct the Ocean Simulation Facility (OSF), the world’s largest manned hyperbaric facility. In 1975, the OSF was commissioned in Panama City, Florida. NEDU was officially relocated to Panama City,



Preparation for the SEALAB project



OSF manual operation panels and service locks



Archive OSF Oxygen Research

home of the “World’s Most Beautiful Beaches”, where it continues experimental work today.

Change in Mission

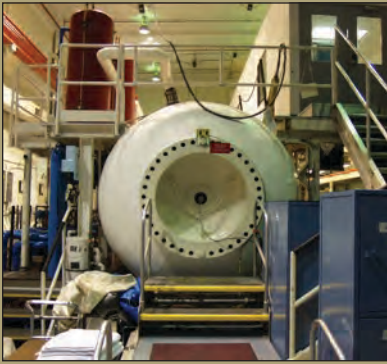
Just as the location of NEDU has changed over the years, so has the mission. Following the commissioning of the OSF, NEDU began to focus on developing equipment and procedures for Saturation Diving and providing support to special mission diving. At the same time, the Navy Medical Research Institute (NMRI) in Bethesda, Maryland, worked many of the “human use” diving issues. NMRI experiments ran the gambit from cold water exposure limits to various diving table development projects.

As a result of the base realignment and closure (BRAC) process in the late 1990’s, the diving facility at NMRI was ordered to be closed and the NMRI diving mission was consolidated with NEDU in Panama City. This merging of NMRI and NEDU required the construction of a new wing to support the transfer of personnel and equipment, as well as the shift in mission as NEDU turned back toward its roots and continued the unique experimental diving work previously performed at NMRI.

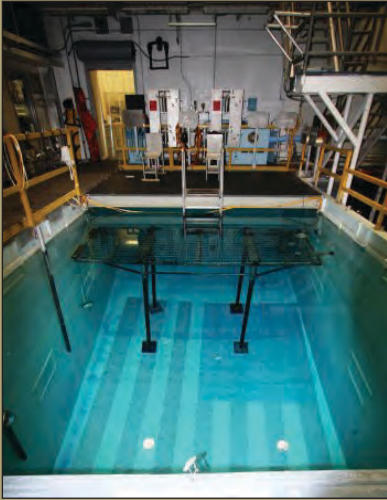
A Typical Day at NEDU

Take a tour of NEDU on any given day and there is no telling what you may see our crew members testing.

Walk over to the OSF and our crew members may be in shift work, standing a 24 hour watch for weeks at a time while Sat Divers perform experimental human subject research or equipment testing on a Saturation Dive to 1000 fsw.



OSF "A" Chamber



OSF Test Pool

While you are in the OSF building, you could stop on the second deck and talk decompression theory with the NEDU "Deco-Group" who are responsible for the development of specialized decompression programs, the algorithms and equipment involved with the Navy Dive Computers, Topside Decompression Monitor, and the development of future generations of these devices. These NEDU crew members have also developed tables currently in use by astronauts to prevent them from being bent while performing space walks on Space Shuttle/Space Station missions.

You could talk to one of our Diving Medical Officers (DMOs) who are deeply involved with all aspects of NEDU research and are also responsible for answering questions on "bends calls" from around the world.

Walk out back behind the OSF building and you will find the Specialized and Fleet Diving Lockers, various Engineering Support Shops, and the Medical

Electronics Shop. The crew members who man these shops continuously support NEDU by constructing unique diving apparatuses, equipment, and testing gear. They also provide rapid response specialized equipment support for various unique fleet assets.

Continue your tour over to the Experimental Diving Facility (EDF) and meet the crew members who perform all unmanned diving equipment testing and diving accident investigations. You will likely find them performing the initial unmanned testing of the latest Underwater Breathing Apparatus (UBA) for a military or civilian customer. If it does not pass the grueling testing profiles of unmanned testing, it does not advance in the NEDU evaluation process.

Over in the Physiology Lab, you will find one of our Research Physiologists putting a service member through the paces on a treadmill. The member might wear an instrumented Emergency Escape Breathing Device (EEBD) usually found on surface ships in the fleet, or an Air Purifying Respirator (Gas Mask) usually used in the field with the U.S. Marine Corps and other services. These same Research Physiologists are also working on solving many Special Operations Forces (SOF) specific diver performance issues, including oxygen toxicity and thermal protection, which can be associated with long exposure oxygen dives unique to SOF missions.

Further back in the Physiology Lab, you may find one of our Corpsmen performing an evaluation of a new type of self-applied tourniquet by checking the distal leg pulses of a simu-

lated battle field casualty (test subject).

From the Physiology Lab you can walk out to the NEDU Test Pool and you may see a highly instrumented diver getting ready to enter the water for a 6-hour dive in water temperatures ranging from 34 to 90 degrees Fahrenheit to test a new active thermal heating or cooling garment. Directly across the hall from the Test Pool area, you will find the Gas Lab where scientists work on the development and unmanned testing of various hyperbaric and submarine atmosphere monitors.

One deck below in Sick Bay, a Diving Medical Technician Corpsman screens visiting divers to ensure they are medically qualified for the next High Risk Experimental Research Protocol. Next door to Sick Bay, you may get a glimpse of hyperbaric cellular research being per-



NEDU's unmanned research complex



OSF Control Room during a SAT dive

formed to investigate the reaction of cells to specific stimuli while at depth. This unique laboratory is the only one of its kind within the Department of Defense.

Continued on page 18.

NAVY EOD SHOWCASES UNIQUE CAPABILITIES ON CAPITOL HILL

BY: MASS COMMUNICATION SPECIALIST 3RD CLASS RANDY SAVARESE

WASHINGTON, D.C. - Navy Explosive Ordnance Disposal (EOD) technicians showcased the Navy EOD's unique equipment and capabilities during the Congressional EOD Caucus's "Day on the Hill" at the U.S. House of Representatives, July 31, 2013.

The day's event was an open invitation to lawmakers in the capitol to become more knowledgeable of the people and equipment behind the EOD missions carried out every day around the world.

Eight Sailors from Explosive Ordnance Disposal Mobile Unit (EODMU) 2, EODMU 6, EODMU 12 and technicians from Naval Surface Warfare Center, Indian Head EOD Technology Division brought gear to highlight Navy EOD's maritime role, such as mine countermeasures and dive capabilities, which sets it apart from the other services.

Explosive Ordnance Disposal Technician 1st Class Wesley Cody and Explosive Ordnance Disposal Technician 1st Class Steve Rivers, both from EODMU 12, shared their knowledge with U.S. Representatives and congressional staffers by demonstrating equipment including gear similar to that used during a recent deployment to Afghanistan.

"Our guys can live and thrive in any environment, we can integrate with any service or operate independently whether we're in the water, in the air, or on the ground," said Rivers.

During his deployment, Rivers' platoon spent nine months without having anyone injured in an IED strike. They covered over 500 kilometers in that time period and cleared 93 IEDs.

Chief Explosive Ordnance Disposal Technician Jeremy Lindquist, assigned to EODMU 2, supports special operation forces and recently returned from his 10th deployment.

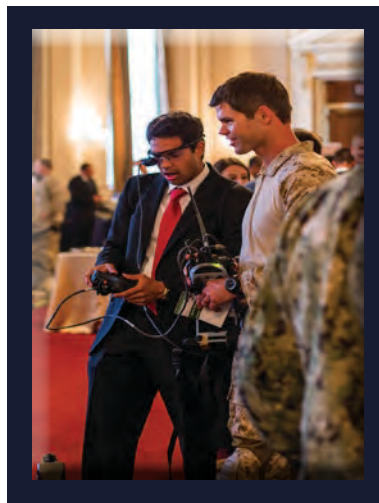
"We're really the only EOD service that can fully support all the forces be-



Rep. Susan Davis, D-Calif., co-chair and co-founder of the Congressional EOD Caucus, speaks with Navy EOD technicians during the EOD Day on the Hill.



Navy Explosive Ordnance Disposal technicians speak with Rep. Scott Rigell, R-Va., during the Congressional EOD Caucus' EOD Day on the Hill.



Navy Explosive Ordnance Disposal technician 1st Class Wesley Cody, right, demonstrates the use of an optics piece to the PackBot portable robotics system to a House staffer during the Congressional EOD Caucus' EOD Day on the Hill.

cause we're the only community that has jump, free fall, fast roping, and dive qualifications," said Lindquist. "We're the primary EOD special operations forces support for the Army and the Navy, and we're the only EOD force that has underwater capabilities."

Navy EOD technicians also gave a hands-on opportunity for everyone to interact with their gear which included a Mark 16 mixed-gas diving rig, SeaBotix underwater rover, and a Mark 12 acoustic firing system.

Rep. Rick Crawford, R-Ark., co-chair of the Congressional EOD Caucus and a former Army EOD technician, spoke with Navy EOD techs and offered words of praise to EOD Group (EODGRU) 2 for their contributions after recently returning from Afghanistan leading Combined Joint Task Force (CJTF) Paladin and working alongside other EOD services.

"I think that anytime you can have the level of success that they've had, and this underscores the joint nature of these operations over there, I just say congratulations," said Crawford. "Group 2 has done great work and I'm sure they will continue to do great work."

CJTF Paladin is responsible for all Counter-Improvised Explosive Device (C-IED) operations, training, evidence collection, and analysis in Afghanistan.

EODGRU 2, headquartered at Joint Expeditionary Base Little Creek-Fort Story (JEBLCFS), oversees all East Coast based Navy EOD mobile units, including one forward deployed mobile unit in Spain, as well as EOD Expeditionary Support Unit (EODESU) 2, EOD Operational Support Unit (EODOSU) 10, EOD Training and Evaluation Unit (EODTEU) 2, and Mobile Diving & Salvage Unit (MDSU) 2.

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

Navy Divers, Local Deputies Dive Together During Ardent Sentry 2013

By: Mass Communication Specialist 3rd Class Randy Savarese

PARRIS ISLAND, S.C. - Navy Divers assigned to Mobile Diving and Salvage Unit (MDSU) TWO and Beaufort County Sheriff's Department SWAT Team divers worked together to increase hurricane and disaster response preparedness during exercise Ardent Sentry 13, May 13-17, 2013.

effective response of dive teams to natural disasters, such as surveying a damaged bridge due to a hurricane. This week's dives were also in coordination with the Beaufort County Emergency Management Division.

Senior Chief Navy Diver Russ Ciardello, a Master Diver assigned to

In turn, SWAT divers gained valuable insight on Navy dive equipment and SCUBA diving procedures.

"Any tips we could get on how to make our diving safer and more effective to help better serve the county here and the sheriff's officers, that's our main goal and I definitely think that was met," said Corporal Mark Cobb, Beaufort County Sheriff's Office.

MDSU TWO is based 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, the I-35W Mississippi River bridge collapse in Minnesota, the Civil War ironclad USS Monitor, and recovery of a downed F-16 Fighting Falcon off the coast of Italy.



Photo caption: Senior Chief Navy Diver Russ Ciardello, Mobile Diving and Salvage Unit TWO Company 2-1 Master Diver, discusses a diving operation with Corporal Mark Cobb of the

Exercise Ardent Sentry is an annual NORAD and U.S. Northern Command (USNORTHCOM) exercise focused on Defense Support of Civil Authorities (DSCA) scenarios to support civil authorities with military capabilities to save lives, prevent human suffering, and mitigate great property damage.

Navy and SWAT divers' goals this week were centered on increasing the

MDSU TWO, believes exercises like these are a great opportunity for divers on both sides to observe how different dive teams operate through this week's scenarios.

It's a chance for both agencies to interact and exchange valuable information, said Ciardello. "We can always learn from each other."

Beaufort County Sheriff's Office during operations in support of Ardent Sentry 2013. Exercise Ardent Sentry is an annual NORAD and U.S. Northern Command (USNORTHCOM) exercise focused on Defense Support of Civil Authorities (DSCA) scenarios to support civil authorities, when requested, with military capabilities to save lives, prevent human suffering, and mitigate great property damage. (U.S. Navy photo by Mass Communication Specialist 2nd Class Justin Whiteman/Released)

U.S., JORDANIAN NAVY EXPLOSIVES TRAINING MAKES LASTING IMPACT

By Mass Communication Specialist 3rd Class Wyatt Huggett

AQABA, Jordan – Explosive Ordnance Disposal (EOD) Technicians assigned to Commander, Task Group (CTG) 56.1, participated in exercise Eager Lion 2013 in Jordan from June 9-20.

Eager Lion is an annual, multi-national exercise designed to strengthen military relationships and enhance security and stability in the region by responding to modern day security scenarios.

“It’s always great to participate in joint exercises. Even though we’re from different countries, we share a common bond as EOD Technicians; that bond gives us something to build upon,” said EOD Technician 1st Class Michael Dillon, assigned to CTG 56.1. “These relationships we create now are important for the future. Our two nations continue to gain confidence in each other’s abilities, allowing the next exercise to be as successful as this one.”

Members of the U.S. Navy EOD trained together with members of the Royal Jordanian Navy EOD. Divers from both countries learned from each



other and introduced effective tools and techniques that each country uses to accomplish its missions.

The exercise concluded with an awards presentation, attended by Jordanian Chief of Navy and CDR Matt

Andrews, CTG 56.1. After the closing ceremony, CDR Andrews commented on the value of partnerships between low density expeditionary naval assets when a larger area/force footprint may be denied.

“It’s sometimes slow work, and requires a certain operational patience to maintain a persistent gaze toward the horizon of better relationships; but well worth it in the long run,” Andrews said.

Each year, the EOD teams from both countries enjoy the opportunity to build upon their mutual respect to strengthen partnerships and capabilities. Both the U.S. and the Jordanian Divers are already looking forward to the next chance to work together.

Photo above: Explosive Ordnance Disposal Technician 2nd Class Charles Linder, assigned to Commander Task Group 56.1, and a sailor from the Royal Jordanian Navy prepare to surface after placing a charge for an underwater detonation during Exercise Eager Lion. Photo below: Sailors assigned to Commander Task Group (CTG) 56.1, and sailors from the Royal Jordanian Navy detonate charges during Exercise Eager Lion. (U.S. Navy photos by Mass Communication Specialist 3rd Class Wyatt Huggett/Released)



Navy Investigates Life Support Recirculator for Surface Supplied Mixed Gas Diving

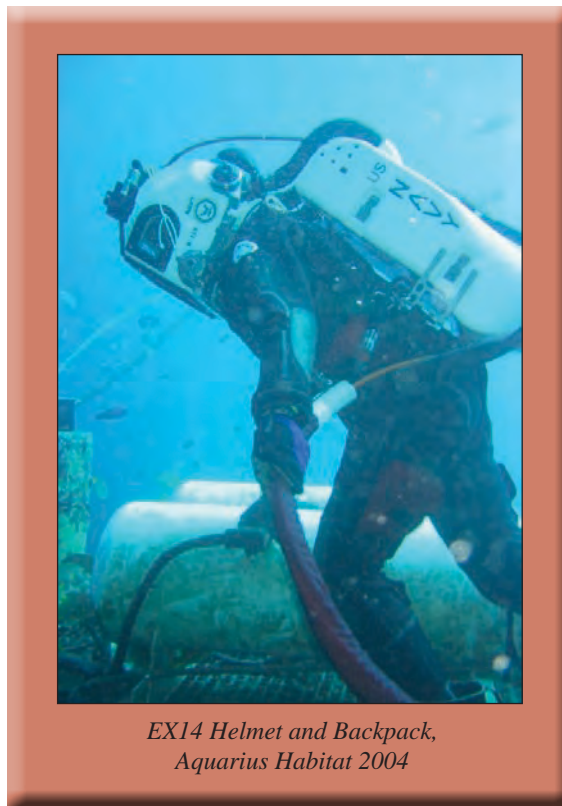
By: Dr. John Camperman and Mr. Joe Berger, Naval Surface Warfare Center Panama City Division

Researchers at the Naval Surface Warfare Center Panama City Division (NSWCPCD) are investigating the possibility of equipping deep salvage divers with a life support rebreather. They are working to modify the Navy EX14 backpack for use with the Fly-Away Mixed Gas System (FMGS), with the potential to reduce surface supplied breathing gas consumption by eighty percent, reduce helmet noise, and increase emergency gas supply duration.

Mobile Diving and Salvage Units (MDSU) meet their requirement to conduct manned diving operations to 300 feet of seawater (fsw) through use of the FMGS for a surface supplied diver. When diving deeper than 190 fsw, the nitrogen in air becomes narcotic and helium-oxygen breathing gas is needed. The FMGS provides rapid response to 300 fsw when the situational awareness, adaptability, and dexterity of a diver are needed. Major components are the control console, Air Supply Rack Assembly (ASRA), bottom mix Helium-Oxygen Supply Rack Assembly (HOSRA), decompression mix HOSRA, and Oxygen Supply Rack Assembly (OSRA). When secured on a dive vessel the FMGS interfaces via an umbilical to the diver's open circuit helmet and Emergency Gas System (EGS).

Deck space required for an FMGS operation often competes with salvage rigging and recovered items. Opera-

tional cost is driven largely by airborne or other transportation, by support vessel size, and by consumables (primarily helium). On a deployment to the English Channel, MDSU TWO prepared for



EX14 Helmet and Backpack, Aquarius Habitat 2004

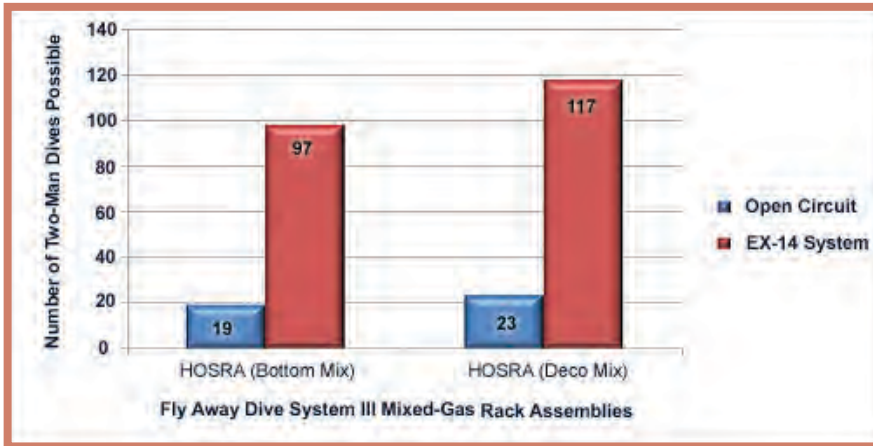
50 to 60 dives in 220-240 fsw using the existing FMGS open circuit system. A single FMGS would not provide enough gas for the mission, so a commercial 8-tube compressed gas cylinder module (20' x 8' x 4') and eight compressed gas cylinder cages (3' x 3' x 8') were used. The gas stowage created a logistical challenge with a footprint of over 230

square feet and 53,000 pounds. Using the EX14 rebreather, this MDSU TWO mission could have been performed with a standard FMGS (footprint of only 135 square feet and 13,000 pounds).

Helium is essential for FMGS and for the Fly-Away Saturation Diving System (SATFADS) that puts Navy divers to work when their sustained presence to depths of 1,000 fsw is needed. SATFADS utilizes an integral helium reclaim system. A ready supply of helium has been a national concern since 1925 when the United States Helium Reserve was created to protect it. Helium is becoming less available and more costly. The U.S. now manages about a third of the world's supply in Amarillo, Texas. Helium availability has been impacted over the years by increased use in research and manufacturing that includes semiconductors and magnetic resonance imagers (MRIs). As recently as September 2013, at the urging of over 120 businesses and universities, Congress passed HR 527, "Responsible Helium Administration and Stewardship Act".

Cost already impacts Navy dive training and operations and conservation of helium is becoming urgent.

The FMGS currently provides breathing gas through an umbilical to a demand regulated, open circuit, diver-worn helmet. In each breathing cycle the inhalation is supported by the surface supplied gas and the exhalation is ex-



hausted to the sea. A large portion of oxygen and helium is wasted in the exhausted gas. A kit is proposed that integrates the FMGS surface supply gas umbilical,

will not be vented to the sea but will be recirculated through a carbon dioxide scrubbing canister in the EX14 backpack. By recirculating the unconsumed

oxygen and helium, only a small amount of breathing gas from the diver's umbilical is required to make up for oxygen metabolized in each breath. The diver will consume only a fraction of the gas used during a current open circuit FMGS dive. The EX14 backpack also incorporates compressed gas flasks for emergency life support with significantly longer duration than the current EGS and a gas heater for use in extreme conditions, when hot water suits might also be used.

The EX14 backpack was originally developed by NSW-CPCD, then tested and recommended for saturation diving emergency life support

by the Naval Experimental Diving Unit (NEDU). Test divers at the time gave it high marks for ease of set up, operation, and performance while conducting simulated working dives. It was also used in

joint exercises with the National Oceanic and Atmospheric Administration and the National Aeronautics and Space Administration where divers and astronauts gave it high marks during planetary exploration simulations from the Aquarius underwater habitat. While it is not as thrifty with breathing gas as an electronic closed circuit rebreather, the fully mechanical ruggedized EX14 backpack is designed for salvage diving. It appears to be a good fit for surface supplied diving that will increase the number of dives supported by a standard FMGS system by a factor of four or five.

NSWCPCD engineers conducted a feasibility analysis and then proposed using the EX14 with the FMGS. With endorsements from MDSU, SUPDIVE, and the Office of Naval Research (ONR) Science Advisor to the Navy Expeditionary Combat Command, funding was provided from ONR (Warfighter Performance and TechSolutions). Developmental analysis and testing are currently underway in the NSWCPCD Underwater Systems Development and Acquisitions Branch and Hydrospace Laboratory. Results to date are promising. The plan forward includes refining prototypes for more engineering tests and reviewing findings with NEDU and MDSU. The goal is to have dive ready backpack integration kits staged by the winter of 2014 for certification testing when possible.

Dr. Camperman serves as the NSWCPCD Diving and Life Support Senior Scientist and Joe Berger HTCS(DV) (ret.) provides Diving Systems In-Service Engineering support. NSWCPCD is tasked with the Diving and Life Support Technical Capability for the NAVSEA Warfare Centers, and provides life support systems development, in-service engineering, and depot support for the Navy and numerous government agencies that operate in extreme environments.



Open Circuit Helmet Surface Supplied Diving

the commercial KM37 or KM37SS open circuit helmet, and the Navy EX14 semi-closed circuit rebreather. In this system the open circuit option is retained, but for normal diving most of the exhaled breath

Navy Sailors, Divers Find and Salvage Downed F-16C Aircraft

By: EOD Group 2 Public Affairs

VIRGINIA BEACH, Va.-Navy Sailors and Divers from Mobile Diving and Salvage Unit (MDSU) TWO, embarked aboard the Navy's rescue and salvage ship USNS GRASP (T-ARS 51), found and salvaged a downed F-16 aircraft off the coast of Virginia, August 6-20.

The downed aircraft was one of two F-16 fighter jets from the 113th Wing, D.C. Air National Guard that clipped wings mid-air during a routine training mission 35 miles southeast of Chincoteague, Va., August 1. The other aircraft involved in the incident was able to fly back to Joint Base Andrews in Md. without further incident.

The MDSU TWO Area Search Platoon (ASP) 201 departed Virginia Beach August 6 and began seven days of search operations to find the aircraft. Staging out of Chincoteague Island, Va., the team of six Navy Sailors, led by Operations Specialist Chief William Earp, conducted both towed and autonomous side-scan sonar searches of more than 10 square

miles of ocean bottom, before locating the F-16 approximately three miles from the point of the mid-air incident.



Divers clear the side of the ship and are lowered on the diving stage into the water during air surface supplied diving operations off the coast of Virginia. Navy Divers performed deep-sea salvage operations aboard the rescue and salvage ship USNS GRASP (T-ARS 51) to recover the wreckage.



Navy Divers wait on the diving stage to be lowered into the water during air surface supplied diving operations off the coast of Virginia. Navy Divers performed deep-sea salvage operations aboard the rescue and salvage ship USNS GRASP (T-ARS 51) to recover the wreckage.

On August 14, the MDSU 2 ASP found and recovered aircraft debris using a remote operated vehicle. With the crash site located, the ASP turned over the operation to Navy Divers from Mobile Diving and Salvage (MDS) Company 2-4 who arrived on GRASP after a small-boat transfer.

The MDS Company 2-4 divers began surface-supplied diving operations August 16 and recovered part of the aircraft from the ocean floor by using a basket to raise large

pieces of the jet from a depth of 107 feet. The next day, the divers recovered the flight data recorder, commonly referred to as the "black box."

Diving operations ended August 19 after recovering key debris. The remnants of the aircraft and the flight data recorder are being transferred to Joint Base Andrews for examination by the Air Force's Safety Investigation Board.

"I'd like to thank the Sailors, Navy Divers and Civilian Mariners for their cooperation and expertise at locating and recovering the aircraft, including the flight data recorder," said Brigadier General Marc Sasseville, Commander, 113th Wing, D.C. Air National Guard. "These key items will help us to understand what happened and what we can do to prevent a similar occurrence."

MDSU TWO is an expeditionary mobile unit based 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, the I-35W Mississippi River bridge collapse in Minnesota, the Civil War ironclad USS Monitor, and recovery of a down military jet off the coast of Italy.

USNS GRASP is crewed by U.S. Navy's Military Sealift Command (MSC), which operates approximately 110 noncombatant U.S. Navy civilian-crewed ships that replenish U.S. Navy ships, conduct specialized missions, strategically preposition combat cargo at sea around the world, and move military cargo and supplies used by deployed U.S. forces and coalition partners.

U.S. Navy photos by: Mass Communication Specialist 1st Class Ernesto Hernandez Fonte/RELEASED).

NAVY DIVER 2020

BY: CDR MICHAEL RUNKLE

Since the times of Alexander the Great, who reportedly descended in a diving bell around 330 BC, man has sought to work underwater to exploit the rich bounty of resources or conduct military operations. As knowledge and technology advanced, so did the duration and depth at which man could effectively work. However, we are designed to operate at 14.7 psi in a roughly 80/20 mix of N_2O_2 . Anything other than this causes complications. Each technological breakthrough encountered new human physiological limitations. Today, mixed gas diving takes a Navy diver to 300 fsw, while saturation diving can get the diver to 1000 fsw. However, mixed gas diving can have up to a 5 to 1 ratio of non-productive decompression time to productive working time. Saturation diving solves the non-productive decompression issues by delaying the decompression to the end of the project. This technique is complicated by poorly understood but significant chronic medical risks for career saturation divers. Not to mention the large and complex systems required to support a saturation dive.

In order to improve the effectiveness and safety of man-in-the-sea there are three paths that could be followed:

1. Conduct work using remote vehicles. Take man out of the sea.
2. Make changes/improvements to our physiology to adapt to the environment.
3. Make changes/improvements to our technology to protect us from the environment.

Technologic advances in Unmanned Underwater Vehicles (UUV) both Remotely Operated Vehicles (ROVs) and autonomous vehicles have been significant in recent years but, despite their popularity, still cannot fully replace a man in the water. If you've ever spent 8 hours watching a video feed from a ROV trying

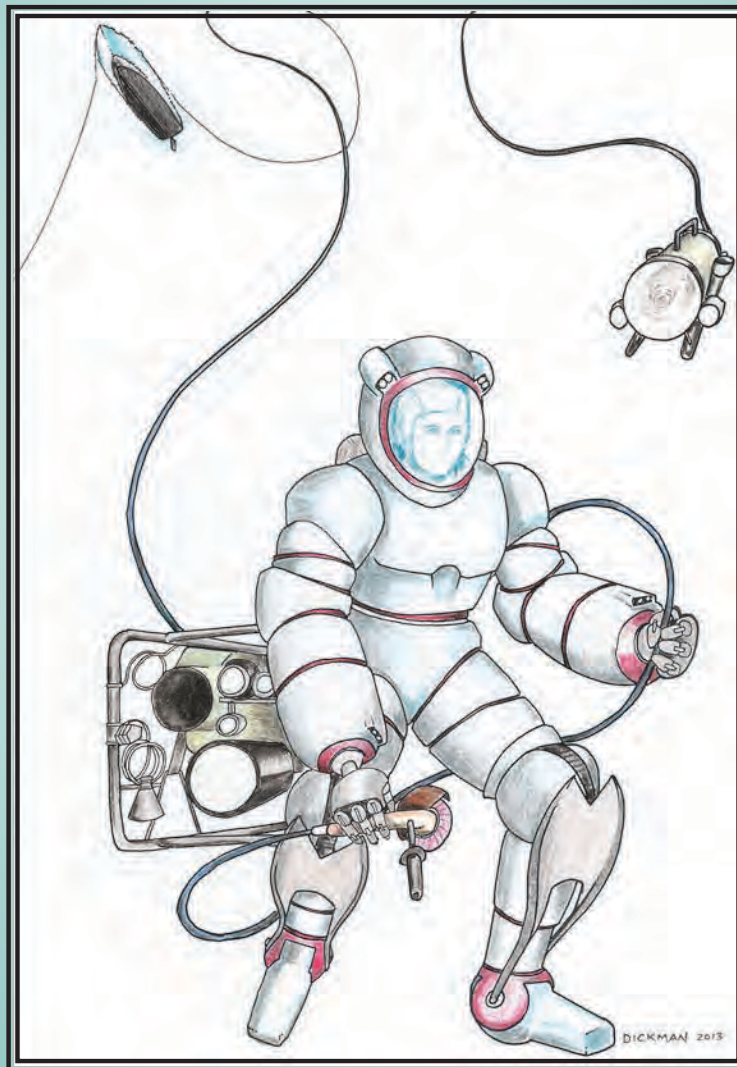
people do you know are inspired by the idea of sitting in a chair with a Xbox controller, watching exploration on a TV monitor? We are governed by our senses and to most people, things aren't "real" unless they are actually experienced. In this aspect, the challenges facing the exploration of the sea parallel that of

the manned space program. Astronaut Gus Grissom's quote regarding exploration of the moon is appropriate to highlight: "Our God-given curiosity will force us to go there ourselves because in the final analysis, only man can fully evaluate the moon in terms understandable to other men."

So too is exploration and work beneath the sea. UUVs are very important but they are complements to the diver, not replacements.

So to put man-in-the-sea we must protect man from the hazards faced therein. Advances in human physiology and mitigations have been the focus of much of the diving related research and development of the past decades. Investigations into gas mixtures, optimize decompression profiles and pharmacological solutions are all meant to adapt the human body better into the alien environment of the underwater world. Each advance has had its own associated operational and

medical risk. To date much of our knowledge remains anecdotal rather than truly comprehensive (e.g., We know a 60/60 no-decompression dive works because we've done it thousands of times rather than fully know what is happening inside the body). Nor do we yet understand the mechanisms of decompression illness



despite over 100 years of research. Work continues in perfluorocarbon emulsions, hyper-oxygenation of blood, and nitrogen absorbing nanoparticles, among other things. These technologies have a myriad of benefits beyond diving in their uses for battlefield medicine and traumatic brain injuries, but we are decades away from practical application in the diving field. We can continue to hope for the miracle “decompression pill”, but hope cannot be our only course of action.

One atmosphere suits present a technological solution to the physiological limitations faced by a diver. A diver encapsulated in a hard suit does not require exotic mixed gases nor is exposed to increased pressure requiring post dive decompression. However current generation suits are extremely cumbersome and require large handling systems to launch and recover. They cannot be considered equivalent to a diver in the water, as their large size makes them essentially man-shaped submersibles. Additionally, the hand manipulator of a suit is a simple open/close appendage that cannot per-

form complex tasks. Technological innovation in the fields of materials, joint design and underwater appendages will be required to build a suit that more closely mimics the mobility and dexterity of an in-water diver.

NAVSEA 00C is now pursuing new research to develop a light-weight one atmosphere diving suit (LADS), in collaboration with various programs under the Office of Navy Research (ONR). As the aviation community has “Skunkworks” to develop advanced aircraft technology at Area 51, so the Navy has “Swampworks” in ONR. The goal of these projects is to develop a LADS that will have the ability to: walk and swim under the divers’ own power to a depth of 1000fsw, be deployed and recovered via current surface supplied diver handling systems, and have a hand manipulator with multiple fingers to give near equivalent dexterity to that of an in-water diver. This suit would provide a MDSU or UCT the ability to effectively work at significant depths without the physiological hazards/limitations currently faced by in-water divers. Such

a suit would be able to operate current underwater tools without modification and be worn by divers without significant retraining or changes to the organization’s manpower or structure.

Man will always need to work in the sea. For the purpose of commercial, scientific or military purposes, the ocean is a world that will call us to explore and work. True effectiveness and inspiration will only come from man physically entering the world, vice visiting remotely. To facilitate this, NAVSEA 00C continues to research technology that will protect man and enhance the capability of underwater work.

As depicted, the Navy Diver 2020 is working at 1000fsw, with ROV’s providing tool and worksite support. This is the future we are working on today.

CDR Runkle is a diving officer assigned to Navy Expeditionary Combat Command.

Photo: Concept Light-weight One Atmosphere diving suit (LADS) with helper ROV’s. Illustrator: Sean Dickman

Navy Experimental Dive Unit 86 Years of Excellence

Continued from page 10.

Supporting Projects Outside of NEDU

NEDU crew members also provide on-site physical and technical support to multiple projects outside of NEDU, such as the development and certification process of the Saturation – Fly Away Diving System (SAT FADS), co-located with NEDU in Panama City. SAT FADS certification culminated with NEDU crew members participating in a 1000 fsw open ocean Sat Dive in May of 2012. NEDU has also recently been tasked to provide various levels of unmanned and manned testing to meet the certification requirements for the Shallow Water Combat Submersible (SWCS) and the Submarine Rescue System Programs.

In 2012, NEDU was responsible for the testing of the modernized MK 16 MOD 1 UBA for EOD, which required NEDU crew members to conduct unmanned and manned dives with the modernized MK

16 to include 150 fsw and 300 fsw open-ocean dives for system certification.

NEDU has specific tasking to provide continuous routine and rapid specialized mission support response for SOF and other fleet assets performing missions around the world which are vital to national security. NEDU’s specialized mission support also includes allied SOF units, which are currently fielding equipment and procedures developed by NEDU under international collaborative agreements governed by various military sponsors, including the U.S. Special Operations Command (SOCOM).

Additionally, NEDU is involved with collaborative projects with the Air Force and National Institute for Occupational Health and Safety (NIOSH), providing equipment evaluation and testing to improve the performance for aircraft and mine safety systems and equipment.

This limited snapshot of NEDU does not begin to describe the extraordinary work that the unit and its crew members perform on a daily basis. Duty at NEDU provides Sailors, both divers and non-divers, with exceptional opportunities to excel as members of an elite team of professionals: performing undersea research that has direct and timely impact to military diving missions world-wide.

The performance of the current NEDU crew members should make those of us who have served here in the past proud. Duty at the NEDU of today does not just mean you get confined to diving in a tank; we continue to uphold the U.S. Navy Deep Sea Diver motto: “We Dive the World Over...”

Jim Brawley, HMCM (DSW/FMF/PJ), USN (Ret.), NEDU Biomedical Research / Operations Dept.

SEABEE DIVERS WORK ON THE PACIFIC MISSILE RANGE FACILITY

BY: UCT TWO CONSTRUCTION MECHANIC 1ST CLASS JAMES RICHARDSON AND MASS COMMUNICATION SPECIALIST 2ND CLASS MATHEW DIENDORF



KAUAI, Hawaii - Diving in the Pacific Ocean off the Pacific Missile Range Facility (PMRF), SEABEE divers assigned to Underwater Construction Team TWO spent two months conducting maintenance and repair on the world's largest underwater training range.

The project represents both valuable operational experience for UCTTWO and much needed maintenance to the range.

"PMRF is a valuable training ground, the underwater cables allow communication and tracking capabilities with submarines during underwater training exercises," said Mike Dick, range manager. "We have tried to accomplish this mission with commercial units but no one has been able to match the quality, efficiency, or cost savings provided by the SEABEES. They have been invaluable in the maintenance of this range."

The team put in six-day work weeks inspecting cable systems, installing and stabilizing protective split pipe, replacing cathodic protection, and correcting damage due to abrasion, corrosion, and sand scouring from the winter storms. They totaled 86 dives to depths ranging from 7 to 110 feet with a total bottom time of 216 hours.

"It is a privilege to be able to dive in such clear and warm water," said Steel.

Worker 1st Class James Kirk. "Usually our diving conditions are dark and cold water."

The repairs and maintenance ensure that the range will remain operational in order to support future fleet-wide exercises. SEABEE Divers are a special breed that combine the construction skills of a SEABEE with that of a deep sea Navy Diver.

The Divers come from Naval Construction Battalions where they hone their individual job skills in the construction field and then spend six months at the Naval Diving Salvage Training Center learning to apply those skills in an underwater environment.

UCT TWO was able to do some community outreach while here, providing an orientation brief to a group of Civil Air Patrol cadets from Worcester, Mass., during a tour of PMRF.

The divers explained what SEABEE Divers do and what equipment they use.

"I knew the divers had a unique mission in the Navy," said Mass Communication Specialist 2nd Class Mathew Diendorf. "I wanted to show the cadets a snapshot of a job you don't normally see in the military."

The orientation included a look at some different types of dive gear, a recompression chamber, and support crafts.

The 14-member team also volunteered a day's worth of their construction skills to the Kauai Habitat for Humanity by helping give the ReStore building a much needed facelift.

"I felt honored to have helped provide a positive impact in the Kauai community," said Chief Hospital Corpsman Timothy Kerr. "It's nice to get back to 'ol' fashioned' Seabee work sometimes."

"The PMRF cable project was a great experience," said Chief Construction Electrician Adam Winters. "It combined world class diving with blue collar hard work."

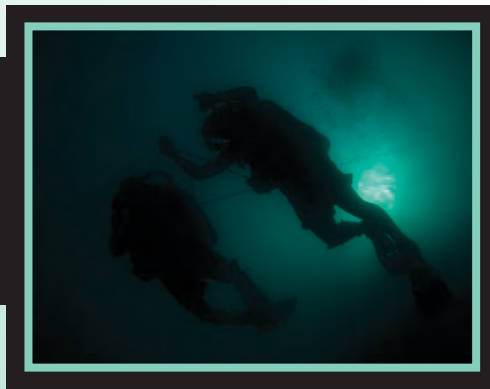
UCT TWO was glad they could contribute to the maintenance of the underwater range, Winters said.

The next deployment stop for UCT TWO is Timor Leste where they will construct a rubble mound pier and conduct both dive and construction training with the Timorese military.

Picture captions left to right: Builder 2nd Class Christopher Farmer installs steel armor around seafloor cable in 100 feet of water at the PMRF Barking Sands (Photo by CEC Adam Winters); Steel Worker 2nd Class Metro Sayre attaches a project line to a cable for a future stabilization point at the PMRF Barking Sands (Photo by CEC Adam Winters); Construction Mechanic 2nd Class Trevor Buckett inspects and cleans a deep-water buoy at the PMRF Barking Sands (Photo by Steel Worker 2nd Class Metro Sayre).

Junk Boat Divers: Past and Present

By: Mass Communication Specialist 3rd Class Nicholas S. Tenorio



In a U.S. Navy Fleet of aircraft carriers, nuclear submarines and amphibious assault ships, it's a curious question how salvage vessels acquired the nickname 'junk boats.'

As with any good sea story, there are multiple accounts of its origin.

An undisputable fact about junk boats, however, is that salvage vessels, like the USNS GRASP (T-ARS 51), have long operated as a platform for Navy Divers.

According to the Captain of USNS GRASP (T-ARS 51), Peter Long, the term junk boat is a historic legacy from early salvage operations.

"In the old salvage days, salvage ships would attempt to recover what they could from wreckage sites," said Long, a civilian mariner with the Military Sealift Command (MSC). "If they couldn't bring it back in total, they brought back as much as they could. And so, they came back with a lot of 'junk'."

Senior Chief Navy Diver, Russell Ciardiello, Master Diver of Mobile Diving and Salvage Unit (MDSU) 2, Company 2-1, reports a slightly different version.

"Back then, there was more importance - and money - put into war-fighting ships," said Ciardiello. "When salvage vessels needed repairs or replacement parts, they had to find them in the junkyards."

Either way, the nickname stuck. And junk boats - still a key operating platform for Navy Divers, like those from MDSU TWO based at Joint Expeditionary Base Little Creek-Fort Story.

On June 28, MDSU TWO, Company 2-1, aboard the USNS GRASP completed a 24-day training exercise in Key West, Florida.

"The training in Key West included mixed-gas diving, surface supplied diving, diving the MK 16 rebreather, chamber operations, and emergency procedure drills," said Chief Navy Diver Jason Smith, Chief Petty Officer at Company

2-1. "We also assisted the ship's crew with mooring operations."

Onboard USNS GRASP and other SAFEGUARD Class vessels are fly-away surface supplied dive systems and a decompression chamber.

"The fly-away system can be operated from port or starboard side without any modification," said Ciardiello. "It's very easy and efficient to shift based on sea state and current. Having a chamber on board, inside the skin of the ship, you're protected by the elements. If we had a real casualty, and had to treat a guy for several hours in the chamber, the ship could easily get underway and head into port."

In addition to dive training, life aboard a salvage vessel tests the fundamental seamanship skills of Navy Divers.

"Most people don't realize the level of seamanship that is required of divers," said Smith, a former Boatswain's Mate 1st Class. "We use line handling and rigging every day in our jobs, especially aboard junk boats."

Company 2-1 is scheduled for deployment aboard the USNS GRASP to South America as part of Southern Partnership Station. During this 6-month deployment, Company 2-1 divers are scheduled to sail from port to port, working with military divers of partner countries to improve their diving skills and capacities.

"Working with Divers from other countries is a great exchange of information," said Chief Hospital Corpsman Christopher Precht, the Diving Medical Technician with Company 2-1. "It's an opportunity for our Divers to practice their own skills, as well as travel and work with people from different cultures."

"When salvage boats were first commissioned, there were two classifications of Navy Divers," said Ciardiello. "Junk boat divers and non-junk boat divers."

"The duty aboard these vessels was just that arduous," said Ciardiello,

"The diver would stand bridge watch and engineering watch. They were anchor duty and team leaders on the fire party. On top of it all, they had to take care of the dive system onboard."

USNS GRASP is still a Navy-owned vessel, but her crew is made up of civilian mariners from MSC. The civilian mariners aboard include able body seaman, stewards, communication operators, engineers, and a navigation crew.

"We can do salvage operations, harbor clearance, and pulling off stranded vessels," said Long. "We have surface supplied air that can put divers down to 190 feet. We can unload mixed gas and get divers to 300 feet. We've salvaged gear from as low as 4,000 feet deep utilizing remote operated vehicles. This ship can also tow an aircraft carrier, and we've done a number of towing jobs."

"This type of vessel has always been held in a high regard in Navy diving," said Ciardiello. "All the big jobs were onboard a junk boat. TWA Flight 800 was onboard a junk boat. The Monitor salvage inspections were done onboard a junk boat. The USS LAGARTO identification in the Gulf of Thailand, a WWII submarine that hadn't been seen in 60 years, was identified onboard a junk boat."

"The junk boat's history, every diver knows about," said Ciardiello. "And for the guys to get on here, they feel like they got a little piece of diving history. It's a pride thing."

Photo caption: Navy Divers 1st Class Brett Harkey and Seaman Zoe Young, both assigned to Mobile Diving and Salvage Unit Two (MDSU TWO), descend through the water column while diving the MK 16 Mod 1 Rebreather during MDSU2's Fleet Readiness Training Program (FRTP) in Key West, FL. (U.S. Navy photo by Mass Communication Specialist 3rd Class Nicholas S. Tenorio/Released)

JASCON 4 RESCUE

BY: AARON M. LAY

There was nothing unusual about the evening of Sunday, May 26th, 2013, for the crew of the Lewek Toucan. The boat, chartered by West African Ventures (WAV), was about four hours off the west African coast of Nigeria. A team of SAT divers employed by DCN Offshore was busy working on the 16-inch Okpoho-Okono pipeline replacement. "We were prepping the old pipeline for flushing and decommissioning operations and putting concrete mattresses on the pipeline at that stage. We must have been about two weeks on the job," remembers Colby Werret, SAT supervisor for DCN.

As midnight approached, it was just another day at sea. Then the call came in.

"We got a call stating that there was another WAV vessel that had gotten into trouble. That was the original report. There was basically a mayday call, and we were told to stand by because we may have to leave to go on a rescue. We didn't think much of it at the time because we were busy diving," Werret recalls.

What the divers and crew of the Lewek Toucan did not yet know was that the tugboat, Jascon 4, had already capsized and sunk with 12 souls onboard. It had been servicing a tanker at a Single Buoy Mooring (SBM #3) station about 30 kilometers off the coast of Escravos, Nigeria. Large swells and bad weather were reported at the time of the accident. The exact cause is still unknown.

Eventually, more information about the accident made its way to the Toucan. Werret states, "We began to understand that the Jascon 4 had sunk, and we were told that we must go. But we had six guys in SAT at that stage, and they had already been in SAT a couple of days and stored at 73 meters. That was their storage depth when we got the call. We were told that

the sunken vessel was at a depth of about 30 meters. So, we started the decompression to bring them to this new working depth at midnight on the 25th, and on the 26th, we left early to head to the site. It was a 16-hour steam to get from our location to theirs, which was about 30 kilometers off the coast of Escravos."

It was now clear to Werret and his crew of divers what exactly they were about to be faced with. Everyone knew that the chance of finding survivors was slim to none. Reports of fruitless search efforts involving helicopters and other vessels were coming in. Morale was pretty low during the 16-hour trek to the wreck site. Werret recalls, "We knew that, because the vessel had sunk, our job was going to be strictly body recovery.

We knew we had to do what we had to do, and we wanted to get it over with. The families of the men onboard really wanted their loved ones' remains back. This was especially true for the Nigerians because of their cultural beliefs - it was apparently very important for them. So we knew that what we were doing was important to a lot of grieving families. Everyone assumed there weren't going to be any survivors."

33-year-old diver from Cape Town, Nico van Heerden, has been diving professionally for eight years. Van Heerden echoes Werret's sentiment regarding the pall that had been cast over the guys on the Toucan after getting their orders to mobilize to the wreck site where there were certainly no survivors expected. "None of us had ever done anything like that before. It was a bit of grim feeling amongst us. When we got there, the mood was just horrible among all the divers in SAT. We knew we were going to be finding dead bodies, and the mood was absolutely terrible."

By the time the DCN divers got to the scene, a Nigerian oilfield service provider, had already done some exploratory air diving to determine the exact position of the Jascon 4 on the seabed. They marked the location with two buoys and "established that she was upside down lying on the seabed at a depth of about 30 meters with her starboard side up and her port side down with her bow pointing up. They also knocked on the hull checking for possible survivors but heard nothing. No response. I mean, you find a vessel at the bottom of the ocean, you don't expect any survivors," admits Werret.

Because of the scourge of piracy, kidnappings and hijackings off the coasts of Africa, commercial vessels operating in the region have very high security protocols which requires all exterior doors to be locked and sealed shut after dark. When the boat sank, it was locked down tight. Werret admits that his guys knew that getting those doors broken down was going to be the first step in getting the job done. "They told us before we went down to expect all these doors to be locked and told us how we would have to break into them." It was time to get to work.

DCN divers were eager to get in the water and put this unfortunate and totally unexpected task behind them. When Team 2, consisting of van Heerden, Andre Erasmus and Darryl Oosthuizen, got in the bell and headed down to the wreck, it was almost 70 hours since the boat had sunk.

Van Heerden discusses the difficulty of breaking into doors that were designed specifically not to be broken into. "I can't even explain how difficult breaking down the doors to the vessel was. All the doors were latched on the inside, so getting in from the outside was

very difficult. Once I got the watertight door open, there was another steel door that I had to break down. It was extremely difficult. It took me about an hour.”

Once van Heerden was inside the vessel, the grisly task of body recovery was underway. “Once I got inside, there was absolute zero visibility, and crawling around inside the vessel was a very eerie. The boat was upside down sitting in the mud, and the floor was the ceiling and the ceiling was the floor. The furniture was everywhere, and it was an absolute mess inside. I went through the bridge and found one body there. I found out later that I missed one in that location because another team found him. Apparently, only a foot was sticking out of the mud - just to give you an idea of how quickly the mud starting rushing in and settling down once the vessel hit bottom. We broke into the ‘castle deck and retrieved to more there. I went downstairs to the main deck, but because the boat was upside down, I crawled up the stairs. This was quite difficult because of the gear on my back. It was a small space. I went up there and there was a little foyer with a few doors off the landing. I was still getting my bearings, checking left and right and feeling my way around. Like I said, visibility was terrible...that’s when I saw a hand pass in front of my face and touch me on the shoulder. Because this was over 60 hours after the boat sank, I wasn’t expecting to find anyone alive, and then this guy taps me on the shoulder. I got cold. My blood ran dead cold. I almost had a heart attack. When I first looked and saw the hand, it was still. I first thought that it was just a body that I had accidentally touched as I was moving around. As I stuck my hand out to grab the hand to move ‘the body’ closer to recover it, the hand starting moving. I can’t even explain to you what that was like. I really felt as if I was going to pass out at that moment. I was scared, but then I was just so relieved and happy to find someone alive.”

Van Heerden had just found Harrison Okene, a 29 year old Nigerian man who was the cook on board the Jascon 4. As the cold Atlantic waters began rapidly surging down the passageways, somehow Okene found a pocket of breathable air that, according to Werret, measured

about five to six cubic meters. The fact that this one physical space in the boat had not been flooded was pure luck.

By the time van Heerden found him, Okene had been marooned on the seabed, trapped 30 meters underwater, mostly naked and in complete darkness in an overturned boat with no food or drink for 62 hours. Van Heerden recounts finding Okene, “He said that he saw the light from my hat moving around from where he was. There was no light where he was of course. It was absolute pitch black. He said he heard me breaking down the doors and moving things around and said he was banging, but I couldn’t hear anything. You can hear very little from inside the hat. Also, he was banging against wooden paneling on the walls, which I probably couldn’t have heard anyway. He went into the water until just his head was sticking out. That’s when he tapped me.”

As soon as Werret, who was topside supervising the dive, realized that his guys had found a survivor, everything went into overdrive. “Originally, the plan was to get him out of the vessel and into the air basket and bring him up on deck, but I told everyone that this was a bad idea. I was worried about the buildup of nitrogen in Okene’s tissues and the requirement for decompression. The superintendent and I began discussing the fact that he had been down there so long that he was at severe risk of a decompression related illness or injury if Okene was returned to the surface immediately. So I realized that we needed to phone DCN’s diving doctor and get a good understanding of how we should proceed without



trying to rush and bring him up because he wasn’t very well when we found him. He was suffering from carbon dioxide poisoning, and he was very short of breath and delirious. We were very worried about him at this stage because we didn’t know how long it was going to take to get him out of that situation. So the DCN doctor said that [Okene] had just been down too long. He had to be treated as if he had been in saturation like DCN’s divers. That’s when we commenced the rescue operation to bring him to the diving bell and manage Okene’s return to surface pressure by keeping him in a pressurized environment,” Werret anxiously remembers.

Although the mood among the DCN team had significantly improved since they first arrived at the site, tensions were still very high. They had found a survivor. Now they had to keep him alive. Van Heerden describes being down there with Okene, “I think I stayed with him for about two hours while they decided what we were going to do with him. I did have to leave him a few times. I went out to get him a bottle of water and the hat and har-



Property of DCN Diving

ness about an hour after I found him. Obviously, I wanted to keep the time I was away from him to a minimum. I mean, he was in shock already and had been down there for 62 hours.” Werret adds, “After Nico brought him the harness and hat, I started talking to him and asked his name and position on the boat. That’s when we found out he was the cook! We left him in there for about 20 minutes breathing on the hat to get him used to it. This was also to let the helium and oxygen clear his brain because he was suffering from carbon dioxide poisoning so badly. I didn’t want to tell him too much of what was going on and what had happened because I didn’t want him panicking and endangering my divers in any way. I made him hold the umbilical in front of him and told him to focus on that because my biggest concern the entire time was that he might try to pull the hat off one of the divers in a panic. So, I just tried to keep talking to him to keep him calm so he wouldn’t pose any risk to my divers in any way.”

Once Okene had had some much needed water and air, van Heerden helped to transfer him to the bell that Werret had maneuvered to within about five meters from the wreck. Because Okene was in complete darkness for nearly three days and in total shock with no concept of time

or space, his perception of exactly where he was was very skewed. Van Heerden recalls that Okene “actually thought that when we swam out of the vessel that he was just going to step out into the fresh air. But when he got to the outside of the vessel and saw the bell, there’s 30 meters of water over his head! He said that he thought the boat had simply capsized and was floating around on the surface, which was certainly not the case.”

Once he swam out of the wreck with van Heerden, Okene may have been utterly confused to find that he was actually on the bottom of the ocean instead of floating on the surface as he thought, but he must have known that the strange looking dive bell in front of him was his ticket home. He was now in good hands. Werret discusses transferring Okene to the bell, “I shortened all the lines and did everything I could to minimize any risk when they were moving him from the wreck to the bell. I got the bell in very close, and that’s when we did the through-water transfer. We put the umbilicals away, closed the hatches, put the seal on the bell, pulled the bell back to the surface and locked onto the SAT system, and that’s when he transferred to the accommodations chamber. He was able to get food and water, and he

was finally safe.” Okene had to remain in decompression for two more days before he could welcome the warmth of the sun and the cool sea breeze on his face.

After Okene was safe and had regained his senses, he began to tell DCN divers the particulars of his horrific ordeal. Van Heerden solemnly recalls, “See, a Nigerian subsea company had already been there right after the vessel went down doing air dives and marking the wreck with buoys. They were banging around on the hull checking for survivors, and they couldn’t hear anything. But they were air diving and had limited time. They didn’t have time to open the doors. It took me an entire hour to break one door down. Everyone was certain there was no one alive inside. Harrison told us that he could hear them the first time there were divers down there banging and clanging and thought they had surely come to his rescue. But they couldn’t hear him responding. The cabin he was in was right against the hull, but there were about four inches between the metal of the hull and the wood panel he was banging on. Can you imagine this from Harrison’s point of view? He’s hearing all these people banging around on the hull and he’s trying to make noise. Then, everything goes dead again for two days. Nothing. I mean, if it was me, I would have thought, ‘Well, this is the end.’” Van Heerden adds, “All hope of getting out alive must have just faded away. I can’t even imagine going through what we went through. Absolute hell.”

As grueling as Okene’s harrowing survival was, it marks a unique first in diving history. Van Heerden explains, “From what I understand, this is the first time anyone has ever been rescued from a sunken vessel at that depth into a SAT system and survived the whole thing. So, it’s quite unique.”

Harrison Okene is reportedly doing well and has been reunited with his wife and family in Nigeria. Reports that have surfaced online state that Okene does not know whether or not he will return to sea.

This article first appeared in the September/October edition of UnderWater Magazine, the official publication of the Association of Diving Contractors International. For more, please visit www.underwatermagazine.com.

Navy EOD Techs, Divers, and Expeditionary Warfare Sailors Receive Chief Anchors

By: EOD Group 2 Public Affairs



37 of the Navy's newest Chief Petty Officers (CPOs) were presented their anchors during Explosive Ordnance Disposal Group TWO (EODGRU TWO) CPO pinning ceremony at Drexler Manor onboard Joint Expeditionary Base Little Creek-Fort Story, September 2013.

During the ceremony, 19 Navy explosive ordnance disposal technicians, 13 expeditionary warfare support personnel, and five Navy Divers were pinned with the coveted fouled anchors

on their khaki uniform and were assisted in donning their CPO combination cover by families and friends.

"For 120 years, United States Navy Chief Petty Officers have been charged with a leadership role like no other. No one trains, develops, and molds Sailors like the Chief," said Senior Chief Navy Diver Michael Woods, master of ceremonies for today's pinning. "There's a saying that goes, 'Officers run the Navy, but Chiefs make the Navy run.'"

Receiving the CPO anchors and cover represents a significant career milestone and an increased level of responsibility for these senior non-commissioned officers and deckplate leaders.

"Today is a special day that each of you will remember for the rest of

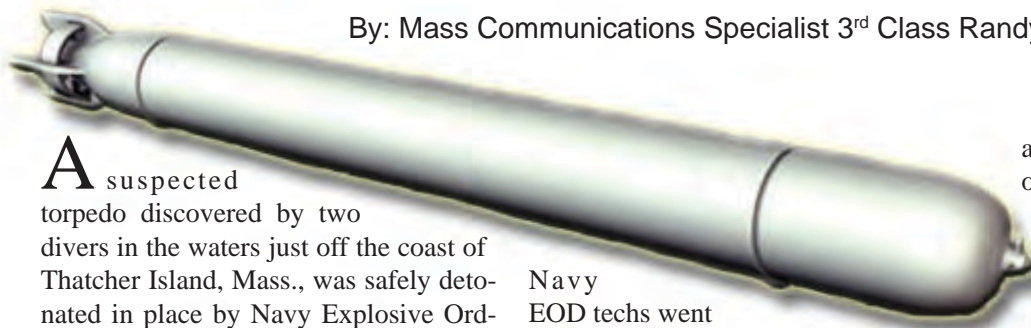
your lives," said Captain John Coffey, Commander EODGRU TWO. "It marks the day you join the most effective leadership body in the United States military; the Chief's Mess."

The Navy's CPO rank has been in existence since April 1, 1893.

EODGRU 2, headquartered at Joint Expeditionary Base Little Creek-Fort Story (JEBLCFS), oversees all East Coast based Navy EOD mobile units, including one forward deployed mobile unit in Spain, as well as EOD Expeditionary Support Unit (EODESU) TWO, EOD Training and Evaluation Unit (EODTEU) TWO, and Mobile Diving & Salvage Unit (MDSU) TWO.

Suspected Torpedo Safely Detonated

By: Mass Communications Specialist 3rd Class Randy Savarese



A suspected torpedo discovered by two divers in the waters just off the coast of Thatcher Island, Mass., was safely detonated in place by Navy Explosive Ordnance Disposal (EOD) technicians from Explosive Ordnance Disposal Mobile Unit (EODMU) TWELVE Det. Newport, August 27.

The divers reported what they thought to be a torpedo to U.S. Coast Guard (USCG) Sector Boston who then requested EODMU TWELVE Det. Newport's help in identifying and removing the ordnance.

Marine growth on the suspected torpedo precluded positive identification so

Navy EOD techs went with worst case scenario based on the USCG's desire to not leave it there and assume the risk of future recreational divers discovering it or posing a hazard to fishing nets.

Based on the type and location of the suspected torpedo, Navy EOD techs detonated it in place which was coordinated and approved by USCG Sector Boston, Rockport Harbor Master, and the Massachusetts Environmental Protection Agency.

A verification dive was conducted after the detonation to determine the ordnance had been destroyed and posed no further hazard. In addition, the site survey reported no visible damage or injury to marine life in the surrounding area.

EODMU TWELVE provides operational explosive ordnance disposal capability as required 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.

CHIEF WARRANT OFFICER ADVISORY TEAM: Who and Why

By: CWO5 Brian Bekeny

I'm CWO5 Brian Bekeny and I'm stationed at NAVSEA 00C working for SUPDIVE in the Diving Division (00C3). Until I reported, there was no Diving Warrant in the Diving Division. When I showed up, one of the major initiatives I was tasked with was to kick start the Joint Military Diving Technology and Training (MDT&T) program. MDT&T is a Department of Defense (DoD) directed initiative designed to reduce duplication of effort among the different Services' diving programs. The US Navy is designated as the Executive Manager and the Director of Undersea Warfare (OPNAV N97) is designated as the Single Manager of the Joint MDT&T. While working to get that program off the ground, the need for a Chief Warrant Officer Advisory Team (CWO-AT) became more apparent than ever before. The Director of Undersea Warfare, who is a Submariner, may or may not have experience with Navy Diving and to have the advice of a panel of diving officers is critical. This article will explain who and what the Chief Warrant Advisory Team is and how we got there.

Established in 1990, the Diving Chief Warrant Officer (NOBC 7201) Community brought a new level of diving leadership and expertise into the wardroom. Diving Warrant Officers are tasked to oversee all facets of the Navy Diving program utilizing significant operational and technical experience. As Command Diving Officers they manage all administrative aspects of the command's diving program. The Diving CWO provides a clear Command, Communication, and Control element throughout the entire diving operation. As Staff members they act as principal advisors to Fleet Staff for execution of emergent and routine salvage, ship repair, OPLANS, and Combat Harbor Clearance operations.

DoD Instruction 3224.04 establishes policy and consolidates responsibilities for DoD diving technology and training. This includes diving research and development, joint acquisition programs for diving tools and equipment, diving procedures, and common-type diver training. SECNAV memo of February, 2012 assigned those responsibilities to Director, Undersea Warfare Divi-

sion (N97). N97 was the logical sponsor to charter the CWO-AT.

In November 2012 an establishment letter and charter were signed by N97 creating the Advisory Team. The charter mandated that the CWO-AT would advise N97 on issues relevant to military diving policy, manpower, training, funding, operational readiness, and future diving capability in support of N97 requirements established in the DoD Instruction and SECNAV memo. Establishment of the CWO-AT recognizes the crucial leadership role of the Chief Warrant Officer (NOBC 7201) ranks. Establishment of the CWO-AT leverages the leadership and experience embodied in the Chief Warrant Officer ranks to resolve current and future issues within the diving community. The Diving Warrant Officer community's in-depth operational experience is required for the overall success of the diving and salvage communities.

As always, don't hesitate to call us here at NAVSEA with any of your diving questions and if you want to know more about the CWO-AT just call any of the members. Hoo-Yah and Dive Safe.

CWO5 Bekeny has been in the Navy for 30 years and currently works at NAVSEA 00C for the Supervisor of Diving.

The Chief Warrant Officer Advisory Team consists of the following personnel:

1. All CWO5s- CWO5 Chris Spann, CWO5 Brian Bekeny, and CWO5 Eric MacDonald
2. Center for EOD and DIVING-CWO4 Brad Fleming
3. Southwest Regional Maintenance-CWO5 Eric Mac Donald
4. Commander Submarine Force-CWO4 Paul Lawson
5. Commander Naval Special Warfare Center-CWO3 Troy Roat
6. Commander EOD Group One-CWO3 Shawn Lorenz
7. Commander EOD Group TWO-CWO4 Coy Everage
8. Specialized Research Diving Detachment-CWO4 Ray Baker
9. NAVSEA 00C-CHAIRPERSON-CWO5 Brian Bekeny

Change of Commands



Commander Michael L. Egan

**Naval Diving and Salvage
Training Center**
September 6, 2013
*Commander Hung Cao relieved
Commander Michael L. Egan as
Commanding Officer of NDSTC.*



Commander Hung Cao



Commander Jeffery T. Rathbun

**Explosive Ordnance
Disposal Expeditionary
Support Unit (EODESU) 2**
July 11, 2013
*Commander Milton W. Troy, III
relieved Commander Jeffery T.
Rathbun as Commanding Officer
of EODESU 2.*

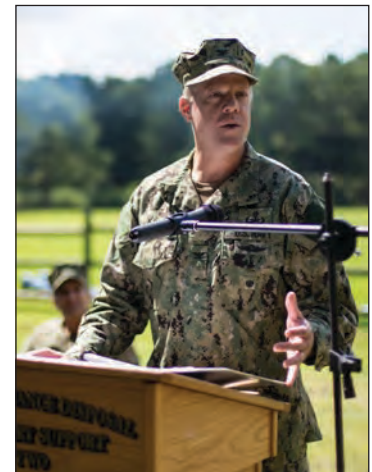


Commander Milton W. Troy III



Captain Tim Rudderow

**Explosive Ordnance
Disposal Group
(EODGRU) 2**
July 26, 2013
*Captain John Coffey relieved
Captain Tim Rudderow as
Commander of EODGRU 2*



Captain John Coffey

Underwater Construction Team TWO Repairs Pier In The Kwajalein Atoll

By: Andrea Howry

EBEYE ISLAND, Marshall Islands - What happens when a massive cargo ship slams into a pier in the Marshall Islands? The ship wins, and the pier ends up on the seafloor. This is where Underwater Construction Team TWO Construction Dive Detachment (CDD) Alpha enters the picture.

As part of the Pacific Partnership 2013 exercise, CDD Alpha deployed to the Marshall Islands to salvage the destroyed sections of the Ebeye Pier and repair the structure so it could be used to support humanitarian aid and disaster relief in the future.

Ebeye is a small island, less than 80 acres and home to more than 11,000 Marshallese.

The pier is the only one Ebeye has. It is a high traffic area for the entire community and is used by thousands daily — or it was until the accident left a 10-foot by 20-foot hole in the south end.

The joint project partnered UCT TWO with the U.S. Army and the host

nation. The Kwajalein Atoll Joint Utilities Resource and Kwajalein Atoll Local Government volunteered personnel and equipment, including a large crane that pulled the concrete out of the water and secured it on land.

On Ebeye, nothing goes to waste. The salvaged sections of the pier, some weighing more than 10 tons, are being used to protect the valuable coastline from erosion.

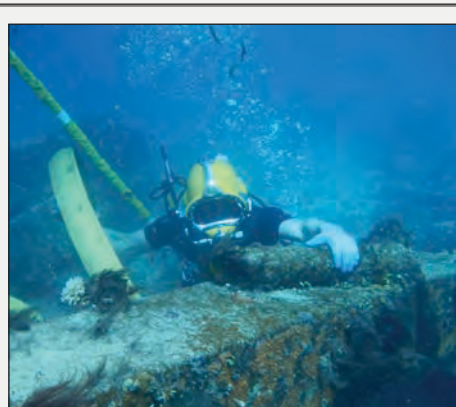
The pier repair was designed by Lt. Cmdr. Charlie Kubic, who just ended his tour as Commanding Officer of UCT TWO.

The pier was built by the Japanese during their World War II occupation of the island.

Because information on its original design and construction wasn't



Equipment Operator 1st Class Leroy Schnathorst is utilizing underwater hydraulic tool to break apart concrete sections for removal. (Photo by Petty Officer 2nd Class Michael Price)



Members of Underwater Construction Team TWO place concrete panels on a damaged pier on Ebeye Island. During Pacific Partnership 13, members of UCT TWO repaired a pier and cleared a harbor during Pacific Partnership 13.

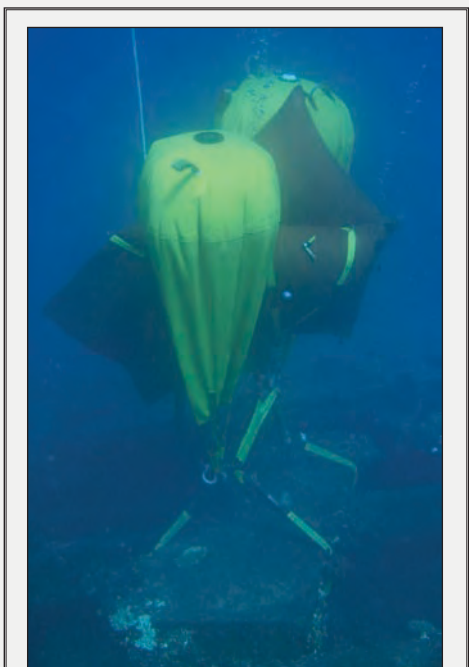
“My concern after seeing the large amount of steel placed in the original concrete slabs was ensuring our repair would meet the under-reinforced condition required by the American Concrete Institutes code,” Kubic said.

The replacement slabs were prefabricated in Guam by the U.S. Army's 84th Engineering Battalion and shipped to Kwajalein, where they were placed by the Seabees of UCT TWO.

“The results of UCT TWO's project repairing the Ebeye inter-island pier are fantastic,” said Maj. Savo, the officer in charge of the host nation. “Thanks to UCT TWO, it is now much safer. The project also contributes directly to the humanitarian assistance effort in that it makes it much easier and safer to connect hoses for bulk water delivery and distribute other relief supplies in the event of a water crisis.”

Kwajalein was CDD Alpha's last stop during its six-month deployment across the Pacific. The Seabees also visited Kauai, the Philippines and South Korea.

Andrea Howry is the editor of the Naval Base Ventura County base paper, the Lighthouse.



Debris is rigged for removal with lift bags by members of Underwater Construction Team TWO during Pacific Partnership 13. UCT TWO repaired a pier on Ebeye Island during the exercise.

available, Kubic decided the best course of action would be to return the structure to its original appearance.

A site survey conducted by UCT TWO determined that the original concrete deck panels were 10-feet long, 4-feet wide and 10-inches thick, reinforced with No. 6 reinforcing steel spaced 6 inches on center. This gave the original reinforced steel panels a steel ratio 0.0092.

EOD Operational Support Unit 7 Disestablished

By: Commander, Explosive Ordnance Disposal Group 1 Public Affairs

Explosive Ordnance Disposal Operational Support Unit (EODOSU) 7 held a disestablishment ceremony at Naval Amphibious Base Coronado, Aug. 25.

EODOSU 7, located at Naval Amphibious Base Coronado, began its service as EOD Mobile Unit 7 in October 1986.

After its commissioning in June 2010 as EODOSU 7, the unit supported Explosive Ordnance Disposal Group (EODGRU) 1 operations with deployable support for explosive ordnance disposal, ordnance clearance and area search platoons, as well as individual augmentees to local commands and overseas in support of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) combat operations.

“One of the most significant accomplishments was this unit’s ability to augment and support brigades, battalions, and task elements to Iraq, Afghanistan, and Bahrain including Task Force Troy, Task Force Paladin, and Task Group 56.1,” said Capt. Robert Baughman, Commander, EODGRU 1. “The efforts of those augmentees, and capabilities they brought to the fight were the cornerstone of the suc-

cess of those missions in a time of decreased manning and declining resources.”

Since 2008, EODOSU 7 Reservists have provided more than 53,000 man hours of stateside support to active duty EOD commands, participated in three fleet level exercises, completed 11 platoon deployments conducting force protection diving missions and counter-IED operations with Combined Task Forces Troy in Iraq and Paladin in Afghanistan, as well as support two carrier strike groups. In addition to platoon-sized support, individuals and small teams have completed eight active duty mobilizations to OIF, OEF and directly supported active duty EOD units for forward deployed naval forces in the U.S. 7th Fleet.

“But even more significantly in my opinion was your ability to source critical requirements in 5th Fleet, deploying reserve component units of action in support of anti-terrorism and force protection missions, ultimately reducing the stress on active component forces that were already significantly over tasked,” said Baughman. “As primarily a reserve component force, I would argue that none has been more

relevant, capable, or timely in execution since the beginnings of OIF and OEF, and has lived by and superbly and successfully executed the CNO’s tenets of ‘Warfighting First, Operate Forward, and Be Ready.’”

The unit, comprised of 92 active and Reserve EOD technicians, divers, support personnel and staff billets, will shift primarily to various NECC Reserve units and Naval EOD Technology Division where the main focus is developing new counter-improvised explosive device strategies and tactics from the battlefield and gathering actionable intelligence from the devices.

Sailors who lose their billet due to the disestablishment will be able to apply for a new billet through the Career management System-Interactive Detailing system. Personnel not immediately assigned to a billet will be assigned to an “in assignment processing” status for an extended period at a local Navy Operational Support Center. These Sailors will be given every opportunity to find a new billet or convert to an undermanned rating.

The disestablishment of EODOSU 7 was effective Oct. 1.

EOD Operational Support Unit 10 Takes on New Mission

By: EOD Group 2 Public Affairs

Explosive Ordnance Disposal Operational Support Unit (EODOSU) 10 and Navy Reserve EOD Group (NREODGRU) Two held a disestablishment ceremony at Joint Expeditionary Base Little Creek-Fort Story, Aug. 10 as the east coast Reserve EOD force takes on a new mission supporting counter-improvised explosive device (C-IED) operations.

The enlisted reserve EOD force, comprised of 88 billets, will shift primarily to Naval Explosive Ordnance Disposal Technology Division Reserve Unit, where the main focus is developing new counter-improvised Explosive Device (IED) strategies and tactics from the battlefield and gathering actionable intelligence from the devices.

Sailors who lose their billet due to the disestablishment will be able to apply for

a new billet through the Career management System-Interactive Detailing (CMS-ID) system. Personnel not immediately assigned to a billet will be assigned to an In Assignment Processing (IAP) status for an extended period at a local Navy Operational Support Center (NOSC). These Sailors will be given every opportunity to find a new billet or convert to an undermanned rating.

EODOSU 10, located at Joint Expeditionary Base Little Creek-Fort Story in Virginia Beach, Va., began their service as EOD Mobile Unit (EODMU) 10 in 1986. EODOSU 10 provided Explosive Ordnance Disposal Group (EODGRU) 2 operations with deployable reserve support for explosive ordnance disposal, ordnance clearance and area search platoons, and augmentees. As an East Coast-based Navy EOD mobile unit, the command provided operational

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

Since 2001, EODOSU 10 has conducted 27 deployments consisting of platoons and Individual Augmentees, totaling 105 Reservists and 4,962 days boots-on-ground supporting Operations Enduring Freedom and Iraqi Freedom.

“I believe our EOD reservists hold true to every aspect of what it means to be part of the unique, close-knit EOD and Diving Community,” said Lt. Cmdr. Patrick Smith, commanding officer, EODOSU10. “They have every bit of the EOD Ethos found in their active duty counterparts.”

The disestablishment of EODOSU 10 and NREODGRU 2 was effective Oct. 1.



The Old Master

Hooyah Deep Sea! I am honored and humbled to be able to write this article for the Old Master section of Faceplate Magazine. As I close out a 30 year career with the Navy, over 29 years with the Dive Navy community, I can say it has been a privilege to serve with such an amazing group of professionals in the Navy Diver community. I could not have



NDCM(MDV) Doug Heater

achieved this without all of you. As I looked back on my career to try and offer some thoughts that I would like to share with all of you, I could not help but think about how much the Dive Navy has evolved over the last three decades. When I went to school in San Diego we learned SCUBA, Jack Brown, and MK-1 Band Mask. I believe my class 84-13 was the first class to dive MK 12 at that school. It was a bitter disappointment (The MK 12) and not getting to dive the MK

5, however, change is what allows us to grow.

New demands, whether they are mission capabilities or resource constraints, cause us to rethink our priorities and adjust our goals on how we get the job done. One thing that has not changed with the Navy Diver is we have always gotten the job done, no matter what the challenge. I would like to challenge all of you still serving to keep getting the job done while upholding the highest standard of professionalism that all of the Deep Sea divers have done before us. Hold the highest standard when you are training your reliefs and do not accept anything less. Train as you operate, if your mission is to complete a task at 30 feet, 300 feet, or 1000 feet, then you should be training to that standard! The time to learn how to operate at that level is not during the mission, but before you get there.

As a young diver, qualify to the highest standard, do not lower your standards to meet the expectations of your self-appointed goals, or the goals set by your senior leaders. As a leader insist on quality of knowledge and performance. The high standards that our peers have set before us must be maintained in order to continue the successes we have achieved in the past.

Diving is the Navy Divers (ND) primary mission, this is an important statement that must not be taken lightly or allowed to get watered down through mission creep. I like to compare our diving skill to that of a fighter pilot or Olympic athlete. The flight commander would not send a pilot to a combat mission without ensuring he/she has had hundreds of hours of flight time and training under their belt. In the quest to become an elite athlete, it takes years of training, repetitive practice, work ups, team effort, dedication, and

desire. The same is true for every member of a Dive team! You must ensure your divers have accumulated hundreds of hours of water time to gain proficiency in the underwater environment and they must understand and acquire the knowledge to repair and maintain their dive equipment.

The underwater practice, team building, and dedication our divers get are at underwater ship husbandry (UWSH) lockers, through the training plans developed and executed by the Master Divers at our salvage lockers, the work-ups conducted by the divers of SDV teams prior to a mission, and the basic training our young divers receive at the Dive School. It is imperative that you protect these areas of our community as budget cuts lean towards the reduction of forces and capabilities across the force. The return on investment (ROI), not only in cost reduction achieved through the use of active duty Navy Divers to repair and maintain our ships and systems, pales in comparison to the ROI gained in knowledge, skills and capabilities created by the hands on experience of repetitive diving at UWSH lockers, the high standards held during training and qualifications of dive team members at our salvage dive lockers, and the confidence our divers attain during an SDV operation. You cannot acquire these skills from a book or computer based course! Hands-on teaching of young divers on how to maintain their dive hats, systems, and support equipment is the key to pride in ownership, reduced maintenance costs and higher level of knowledge of how equipment and systems work. With all that said, who can keep the Navy Diving at the forefront of excellence? It is an all-hands evolution, starting with senior leadership down to the diver that just reported to his/her first command. As a young second class diver, it your responsibility to learn, qualify and maintain the example of professionalism. The first class divers must train and develop these young men and women and strive to lead your dive team to success by upholding the standard set forth in the our guiding policies such as the Navy Dive Manual, DSWS PQS, and your Dive Bill. Master Divers and Dive Warrants have the task of developing the team into a cohesive unit, building the training plans, and establishing the requirements to meet the required capabilities of your team. This is achieved through solid documentation of what cost and time is required to achieve the highest quality. If your Immediate Superior in Command (ISIC) understands what the true cost and time is to achieve quality, they can better understand what the true requirements are for the Navy Diver missions.

So fair winds and following seas to all my Deep Sea brothers and sisters out there, this Diver is leaving bottom and coming up and over. I am forever grateful to all of those dive buddies that have helped me on my dive, and I look forward to rigging fenders with all of you in the future to hear the sea stories and tales of the deep about great feats of accomplishments I am sure you will continue to achieve.

HOOYAH DEEP SEA!





As I look back on my time as Supervisor of Diving, it seems like a whirlwind and although there were periods when time seemed to stand still, this tour went way too fast. On this 11th day of September, I am sitting down to write my final “SupDive Sends” because my orders just arrived directing me to report to the Pentagon (OPNAV N80) in October. The last 12 years have consumed many of us with the land battles of Iraq and Afghanistan. However, we are back in the water and business is GOOD! Don’t get me wrong, we have continued to dive through those desert-oriented years but the focus on undersea warfare involving Divers had waned. Trust me, we are being refocused and undersea warriors are busy! In my final words, I would like to concentrate on three separate topics that are closely related: 1) Documenting Requirements, 2) Dive Waivers & 3) Moving into the future.

The budget cuts, now and in the foreseeable future, will force efficiency in everything we do. Efficiency is a good thing and we owe it to our nation to be as resourceful as possible. We also owe it to the Divers to ensure they have what they need to safely complete their mission. During this tour I have spent a lot of time trying to document requirements and educate others on doing the same. Without documented requirements, the funding for our equipment, training, and research will dry up. The Fleet, OPNAV, and the Program Offices all play very different but equally important roles. The Fleet generates requirements, OPNAV validates, prioritizes, and funds those requirements and the Program Offices ensure those requirements are met. This is a cooperative relationship that can have challenges. But, there are reasons for the different roles and we must all learn those roles and support each other. These capability gaps are identified through the Joint Capabilities Integration Development System (JCIDS), the Joint Military Diving Training and Technology (MDT&T) and Fleet Requirements Officers’ documented requirements. Documenting these gaps ensures the decision makers can defend the funds necessary to do what you do. It is your responsibility to get to know the processes and educate those around you.



We have policies and procedures that cover most circumstances in diving. But, quite often waivers are needed to allow divers to do things outside the ordinary. There are many reasons why diving waivers are requested. Use of non-AMU/ non-certified diving equipment and systems, familiarization dives for non-divers and the use of commercial air are just a few. I always ask myself and those around me “What is the long term solution?” If waivers are designed to be specific exceptions and we continue to get a request to do the same thing, then maybe there is another solution. Waiver requests can sometimes indicate a capability gap in the Fleet. For example, the use of commercial air could possibly be solved through a material solution (Portable Air Monitor that checks all the required air purity standards) or a policy change that allows a Master Diver to use a checklist to make the call on what air to use. OOC is currently working on a solution for this one. On the other hand, sometimes the long term waiver solution on a repetitive request is necessary such as the request for a non-diver conducting familiarization dives. With these types of requests the scrutiny of the waiver process will always be necessary.

Waiver requests are from Commanding Officers to the CNO via NAVSEA OOC for a technical review and endorsement. These requests must substantiate the urgent or unusual circumstances and the op-

erational considerations justifying their approval. They should also include adequate detail to permit a meaningful technical review. I have seen over 30 requests in the past year and other than the few that never reached the approval authority because the submitters found other ways to get the job done, all were approved. The waiver process can seem like a daunting process but early communication ensures success. As I mentioned in a previous Faceplate, our job is not to tell you “no” but find out a way to tell you “yes.”

What does the future hold? As mentioned above, the emphasis on diving has been rejuvenated. In the Department of Defense, the MDT&T is moving forward enabling the different Service’s diving communities to collaborate and leverage each other. In the Navy, a Flag level Diving Executive Steering Committee (DivESC) has been established representing the appropriate stakeholders across the Navy. At the deck plates, a Chief Warrant Officer Advisory Team (CWO-AT) has been established to advise the Director, Undersea Warfare (N97) on diving policy, manpower, training, funding and future diving capability. The Senior Enlisted Advisory Team (SEAT) is also continuing to do what they have been chartered to do. The right people are in the right spots to move military diving into the future. We have to continue to get better at what we do and this involves reassessing how we do things. It is imperative that we document the requirements so we will have what we need in the future. If you need to do something outside the current approved policies and procedures, exercise the waiver process and consider and communicate what we need for the future.

To say I am going to miss this job is an understatement. I want to say thank you to all the MDVs, CWOs, and Senior Officers who have supported and schooled me during the tour. I also would like to say thank you to the unseen support staff at OOC. Thank you Julie Thulin, Julie Freeman, Kelly Stokes, Otto Adams, DT Steve Brown, Don Fegley, and John Gillispie! You folks rock! For all you Divers out there, do what you know how to do! “Plan your dive and dive your plan.”

DIVE SCHOOL GRADUATES 2013

13-60-EOD

OS2 BREAUPLY, D K
MA2 BUCHANAN, C E
SN CRANER, W T
SN CRISTOBAL, I C
SN DAVIS, J B
SN ENINGER, D K
SN FRASER, A M
SN GASSER, B R
QM2 GOSEWISCH, J E
SN GREENE, C L
SN GROMAN, W F
LT HASSANIN, E A
SN HEINRICH, E A
SN HOLMES, A K
SN HUBBARD, D C
SN JOHNSON, T C
GM3 KROM, M L
SA LOPEZ, D K
SN MIRELES, D
BM3 ROBALINO, D I
SN SALMAN, D A
SN SIERRA, T A
SN SWIFT, B H
SA TOTH, J N
SA VOSLER, M S
SN WALL, S S
SA WENDLING, NA
SN WHYTE, A F

13-40-EOD

SN ALLEY, M S
SA BRUCE, E J
SN BRUNGS, C D
SN CRAIG, C S
AN CUBILLAS, A J
OS2 DIACZENKO, D A
ENS DITLEVSON, M R
LT FAVRE, C E
SA FLEISCHMAN, D P
SA GHILICI, M A
ENS HABERER, J A
AE2 JACOBSON, K E
SN KEIPER, C J
SA LOWER, R T
SN MADRIS, C C
SN MAHONEY, T A
SA MCCANBRIDGE, A E
ENS MILLER, S W
ND2 MORITZ, J D
PR3 OVALLE, K W
SA WILBORN, J M

13-10-UCTB

CM2 EMMETT, N M
CM2 JEFFERY, R S
UT3 MARTIN, E E
EO2 BOBINCHAK, M C
SW2 HUCKABEE, C B

13-50-2C

SN BAXLEY, J F
SA CARD, D D
SN CLOUGH, D H
SN CORLEY, C L
SA CORREA, J C
SA ELLSWORTH, G T
SA ESSWEIN, D D
SN GUERRERO, J M
SA HANNON, P M
SA HUME, MT
SA KOSCINSKI, C N
SA RIVERE, J R
SA ROSS, J R
SA SCHRICHTEN, D J
SA SWANSON, A C
SN TILDEN, J R
SA TISH, T W
SN YODER, D A

13-50-EOD

SA BASILE, C D
SN BEERS, S R
SA BERTANI, S A
SN BUSH, S J
SN CHRABOT, J P
SN DENNIS, W B
SN ELLIS, T W
SN FERRETTI, A H
SA GEISER, S D
ND2 GREENE, E L
SN HAMMER, Z A
SN HILL, T M
SN HODGES, G T
SN JORDAN, M R
ENS MARRIOTT, D R
ENS MONDAY, P W
SN OMEARA, I E
SA PAULK, E R
BM3 PIRO, F J
SN RUTH, S W
SN TELFORD, T M
SN TEMPLE, D J
SN VANDYKE, A C
SN VOORS, K P
SN WILKERSON, S A
SN WRIGHT, C P

13-30-1C

ND1 EBERLE, K L
ND1 HUSBECK, B J
ND1 LIDDY, T G
ND1 MALARKEY, S A
ND1 MCMILLEN, J A
ND1 PELLE, J M
ND1 RAGSDALE, M A
ND1 SELF, C H
ND1 SOTELO, J
ND1 SWEET, E D
ND1 YOUNG, J E

13-60-1C

ND1 ANDERSON, H E
ND2 ANDERSON, C G
ND1 BAUM, M T
ND1 CARRINGTON, C M
ND1 COPLEY, C C
ND1 CREGER, J C
ND1 DEWITT, A C
ND1 DWYER, R G
ND1 ELDRIDGE, T G
ND2 GEARHEART, A W
ND1 GOOCH, R B
ND1 GRUN, A J
ND1 ILAGAN, K R
ND1 JENSEN, K R
ND1 MAGGS, C A
ND1 MCCONNELL, S P
ND1 NONNENMANN, K M
ND2 SANDERS, M D
ND1 YOUNG, C S

13-50-1C

ND1 BATES, P D
ND2 BELL, J R
ND1 BLANKSHINE, N B
ND1 CASEY, T R
ND1 DEFARCY, J W
OSC ERWIN, J R
BM1 HALL, C K
ND1 JACOBS, K M
BM1 JONES, J B
ND1 KOPCSIK, P P
ND1 LORDE, M M
ND2 LUND, C S
ND1 NILSSON, L E
ND1 O'DELL, J M
ND1 O'TOOLE, B J
ND1 SIMIC, B B
ND1 SIMPSON, J L
ND1 SMITH, T J

13-40-1C

ND2 BORDEN, V R
ND1 CLIFTON, C B
ND1 CONLEY, R S
ND1 DUNCAN, K R
ND2 DVORAK, M A
ND2 EISENBARTH, B R
ND1 EMMONS, A R
ND2 FOSTER, R T
BM1 FOUCHA, R J
ND1 GARDIPEE, E N
ND1 GREGG, J J
ND1 LESER, P N
ND1 OLIN, J A
BM1 PARTIN, D W
ND1 SCALISE, J K
ND1 ZACHRY, B M

13-20-DMO

CPT ANG, H
LT BENNETT, T L
LT BULL, K L
LT FAY, D P
LTC HALL, B T
LT KIM, S S
LT MAJOR, J W
LT MCINTIRE, S C
LT PUTKO, R M
MAJ RUBIN, A M
CPT SANDBERG, D W
LT SENSES, A L
LT SHAW, J D
LT STANCIL, R D
LT STANGE, C J
CPT TAN, Z
LT TOWNSEND, W B
LT VIER, B R
LT WILLAERT, K R
LT YETTO, T O

13-20-A2C

PFC CLARK, R A
SPC RABE, J R

13-10-A2C

SPC EMORY, B R
SPC HOLDER, Z G
PV2 MILLER, C D
PV1 ROBERTSON, K G
PV2 WINTERS, G

13-10-UCTA

CE2 LEHNE, D B
CE2 MACE, M J
BU1 MEADE, M C
SW1 SLIGO, B W

13-20-A1C

SSG BEVELL, D W
SSG FREDERICK, S D
SSG GIAGNOCAVO, D J
SGT HALL, B L
SSG MORALES, P P
SSG SCHOFIELD, S W

13-40-MDV

NDC BOLEN, R A
NDC CLOUSE, J B
NDCS SUMMEY, B A

13-60-DMT

HN BROWN, Z A

13-50-MDV

NDC WAHL, J T
NDCS WENZEL, W A

13-60-MDV

NDC EBERLE, E A

13-50-DMT

HN CHRITTON, T X
HN LAMBERTSEN, C W
HN RESTREPO, S

13-50-SCUBA

GMSN ABBATOY, J W
ENS BARFIELD, H J
SSGT BLAKE, A R
MMSN CARTER, S A
STS3 DAUTEUIL, D M
SRA DILPORT, C E
EM3 DOLAN, J W
ENS HARTUNG, M R
EM2 HEWITT, J D
MM2 KENNEDY, Z F
GMSN PIENAAR, F F
MM2 REMAN, C R
EM2 RICE, C J
FTSN RUBIO, T B
ET1 SINE, D A
MM2 THAMES, M R
LTJG WUNDERLICH, A J

13-30-MEDO

LCDR ANDERSON, T J
LT CASILIO, J F
LT PENROD, R A
LT QUEENER, B D

13-60-SCUBA

MM3 APPLETON, B S
ET1 BETHMANN, K T
ENS BIRNBAUM, M P
ENS CARPENTER, L F
GM3 COKER, R D
LTJG DONAGHY, H J
MM3 GORA, B
MM3 IVEY, A A
FTSN KING, K L
MM1 KLINK, A J
MM2 MATHEWS, B S
ENS MCVAY, M K
SRA NEITZER, S J
MM2 NICHOLAS, C A
YN3 PRIMMER, B R
ENS RAWLS, M T
ENS ROOFNER, B A
FTSN SOLOMON, J
ENS STAMER, S
LTJG VEATCH, R P
MM3 VOLK, W J

13-30-MDV

NDCS OAKLEY, R R
CEC WINTERS, A S