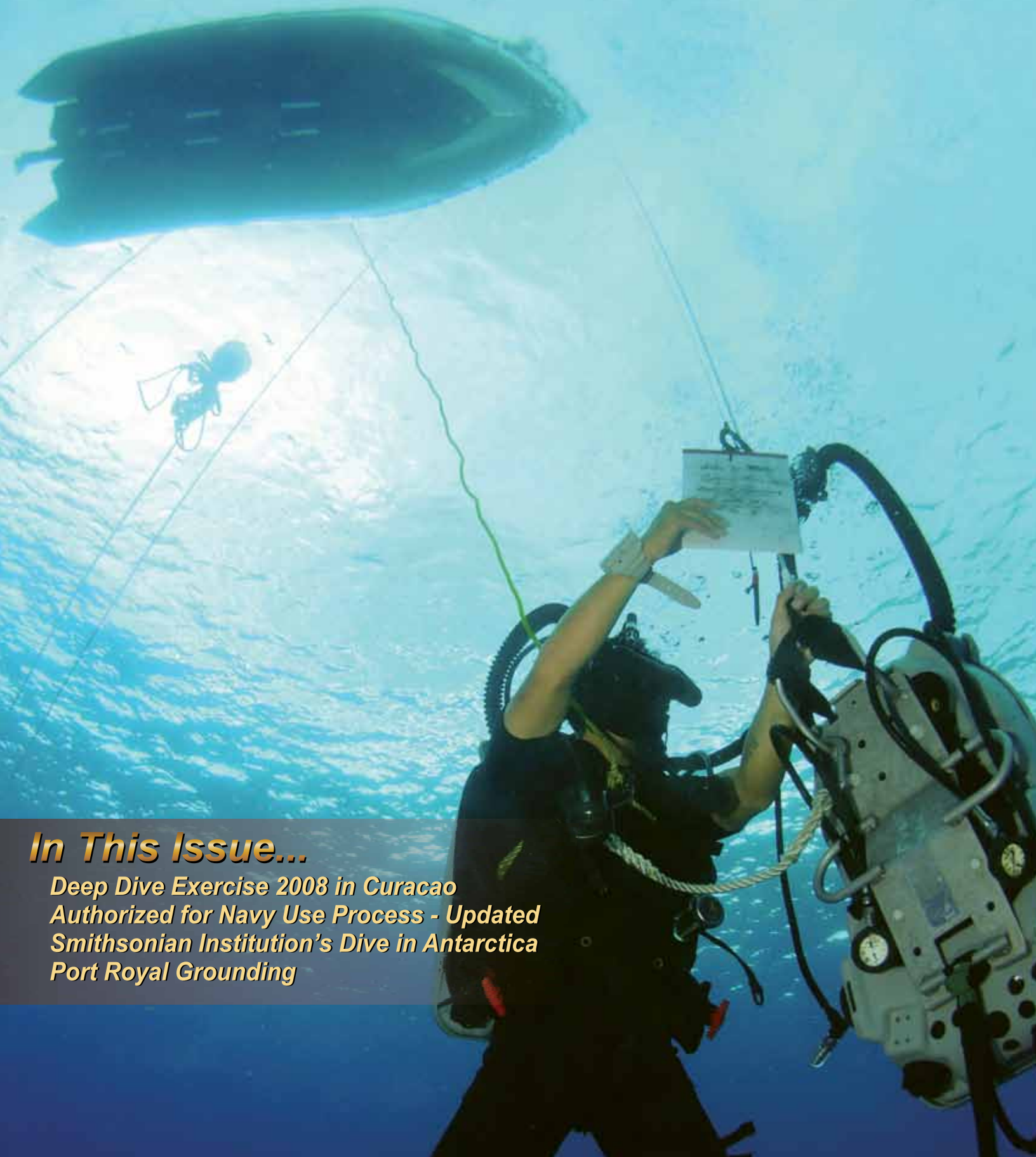
FACEPLATE

The Official Newsletter for the Divers and Salvors of the United States Navy • Volume 13, No. 1 / July 2009



In This Issue...

Deep Dive Exercise 2008 in Curacao
Authorized for Navy Use Process - Updated
Smithsonian Institution's Dive in Antarctica
Port Royal Grounding

SUPSALV SENDS...CAPT Pat Keenan

I wrote this article in a Washington, DC office. You are likely reading it on a dive boat, in a dive locker, on a ship or submarine. You are deployed supporting expeditionary forces, in shift work repairing an SSN in a shipyard or conducting salvage training with a partner from one of our MSC salvage ships. You are out doing the business of Navy Diving and Salvage. The SUPSALV D.C. office is not the focal point of the diving Navy, you are. The Supervisor of Salvage and Diving (NAVSEA 00C) is here to support you. We strive to ensure you have the necessary equipment and technical procedures to perform your missions. If we do this well your capabilities are virtually unlimited as you continue to demonstrate. Specifically:

Salvage: The initial damage assessment of USS Port Royal (CG 73) and the underwater survey to determine the retraction path for that grounded ship were performed by Mobile Diving and Salvage Unit One (MDSU ONE). This diving work was instrumental in the ship's successful de-beaching. A MDSU TWO detachment deployed to Bahrain was on their way to a body recovery and aircraft salvage job in Lake Victoria, Africa (surface elevation 3,720 feet above sea level) when we needed their services for an initial damage assessment of USS New Orleans (LPD 18) following that ship's collision with USS Hartford (SSN 768) in the Straits of Hormuz. MDSU TWO conducted the survey providing valuable video footage to our engineers (ultimately viewed by the CNO) and then entered the flooded fuel tank to remove 20,000 gallons of DFM in preparation for weld repairs. Fortunately, USS Frank Cable (AS 40) Divers were in Bahrain at the time of the collision for work on another unit. They performed an underwater inspection on USS Hartford. So in an interval of just a few months, I have been able to tell my bosses (the Chief Engineer of the Navy and Commander, Naval Sea Systems Command) not to worry, Navy Divers are in place, ready and capable of performing these difficult, important jobs.

Underwater Ship Husbandry (UWSH): On an average day, UWSH lockers around the world are engaged in 20 underwater repairs to our ships and submarines. Military and civilian Divers performing complex waterborne rigging and equipment removal and re-installation procedures were able to keep 30 submarines and 40 surface ships from having to be drydocked in 2008. Our Fleet readiness levels would not be as high as they currently are without your efforts.

Expeditionary support: Our Divers work directly with EOD and SPECWAR units performing underwater inspections, assisting with SDV operations and maintaining diver life support equipment. You are members of teams that keep our ships and personnel safe and take the fight directly to our enemies.

Experimental: Perhaps you have just climbed out of a tank filled with ice water and are shaking so badly that you can't even de-instrument yourself. Someday, a Diver will benefit from your pain because they will have better equipment and be more effective in the water.

As you continue to prove your versatility and professionalism, SUPSALV personnel are trying to make your jobs easier. We haven't always been successful. For example, we are attempting to give you a tool for real-time air monitoring that will allow you to assess the quality of your Diver's air on-site without having to send bomb samples to Panama City, FL for analysis and then await the results. The Portable Air Monitor (PAM) that we have begun to issue to selected fleet units (primarily deployers) is a good start but it does not check for all contaminants listed in Table 4-1 of the U.S. Navy Diving Manual. So commands that are issued a PAM will (initially) still need to take periodic air samples the way we have for years. The PAM provides most of the immediate sampling capability you need but is not a complete solution. Our goal is a real-time Diver's air monitoring tool that will replace the requirement to send out samples for analysis. We are not there yet. We are also having trouble completing and fielding a Saturation Fly-Away Diving System (SATFADS). Consequently, our saturation diving career pipeline is in jeopardy. Because of problems like these I have taken the advice of the three SUPSALV Master Divers; Master Chiefs Costin, Johnson, and Stark, and we held a Diving Leadership Working Group vice a Working Divers Conference this Spring. Our purpose in changing the focus of this meeting is to gather the leaders of our diving community so that we can work together to try to solve these problems that are keeping you, the working Navy Diver, from even greater accomplishments than those you continue to demonstrate. We will provide an update on our progress in the next issue of Faceplate. Keep diving and I hope to see you around the Fleet.

Captain Patrick J. Keenan
Supervisor of Salvage and Diving
(NAVSEA 00C)

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Cover: *NEDU participating in Deep Dive Exercise 2008 in Curacao.* ***Photo Credits: Doug Elsey / DougElsey.com***

PORTABLE AIR MONITOR IS ON THE STREETS

By: LCDR (RN) Jim Pearson

It is now 18 months since September 2007's Faceplate Article 'New Portable Air Monitor (PAM) Undergoes Field Testing' introduced the concept of a portable monitor capable of approving Divers' air for use without the need to conduct bomb sampling. I am pleased to report that 25 PAMs have been purchased by the Navy and are in the process of being issued to the fleet. At the time of going to press MDSU ONE and TWO, UCT ONE and CTG 56.1 Bahrain are already in receipt of one or more PAMs.

The path from research and development to operational use has not been a smooth one. There has been much internal debate as to whether the benefit of having the ability to conduct real time screening - for dangerous levels of CO, CO_2, O_2 and Volatile Organic - Compounds (VOCs) is outweighed by the risk of not being able to measure oil, mist and particulates, water vapor, and halogenated compounds (solvents) in accordance with Tables 4-1 and 4-2 of the U.S. Navy Diving Manual. Clearly, if the PAM is used in addition to the current air sampling program we have a 'gold standard' in terms of safety but have gained nothing in turns of versatility. I will try to summarize some of the main areas of discussion before highlighting the current policy and the way ahead.

The PAM is unique in that it is the first unit to be able to measure CO, CO_2, O_2 and VOCs in the same box. High or low O_2 levels or high levels of any of the other gases are immediately life threatening to the Diver and the PAM will alarm if the dive table limits are exceeded. Not only does this mean that the PAM can be used to sample a compressor, or another air source, to immediately confirm that the air is suitable for life support, but it also means that the PAM can be left attached to an operating compressor to warn the surface team if the compressor begins to malfunction or draw in poor quality air.

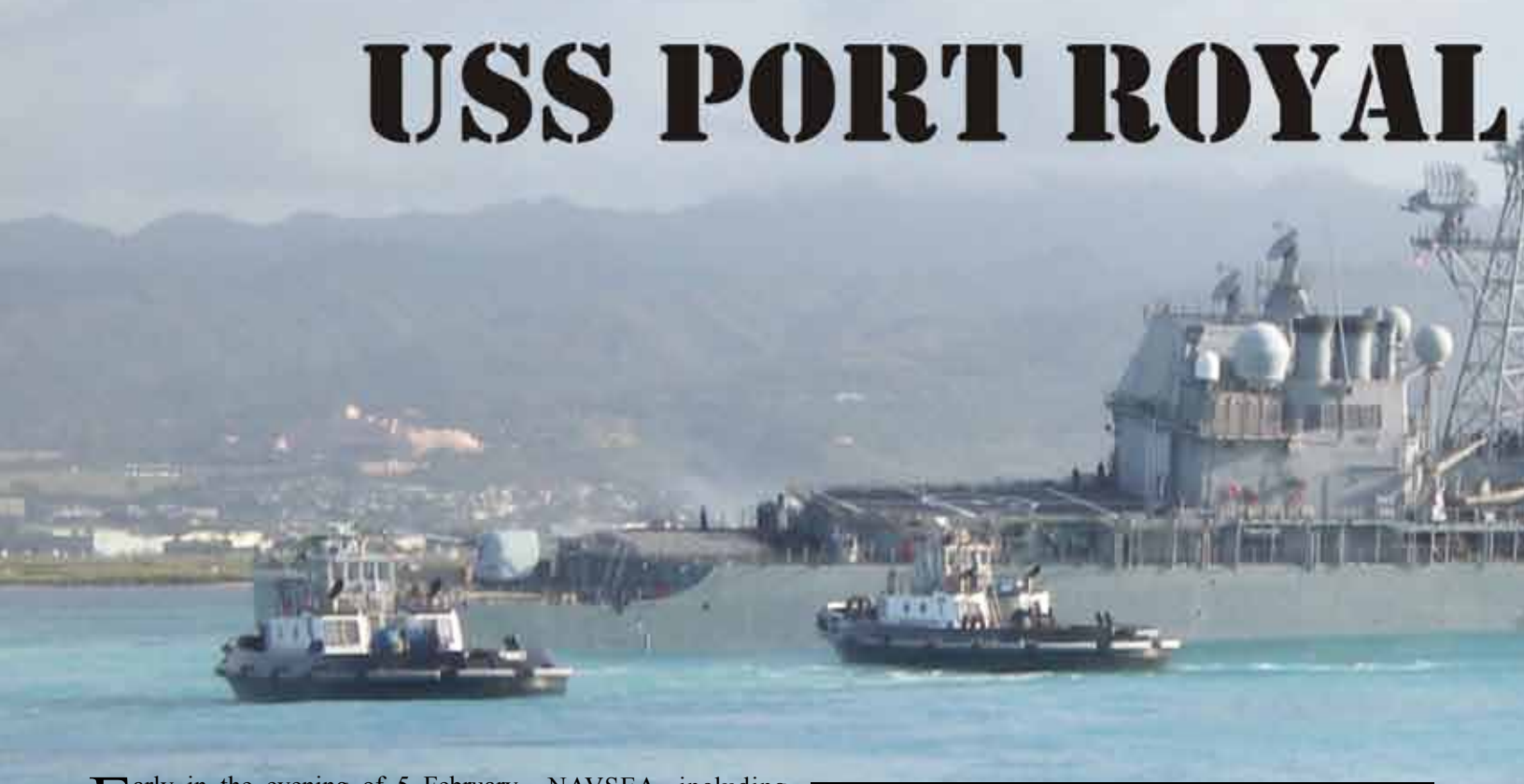
What the PAM cannot do, due to its extremely small size, is warn the user if the weight of oil, mist and particulates, the presence of certain solvents, or the presence of water vapor and separated water exceeds the limits in the Dive Manual. 00C has been looking closely at the real risk associated with these hazards and how such risk may best be mitigated. Looking back at historical data we have found that the number of ANU compressors failing air sampling on the basis of high levels of oil, mist and particulates is very low (less than 0.5%). We have also been reviewing the actual health risk to the Diver from oil, mist and particulates and it appears that the biggest risk comes from chronic exposure over a long period of time. Most occupational exposure limits are referring to industrial factory workers, e.g., in car plants, and the risk would appear to be far lower for a military Diver. One other potential risk, which requires more investigation before it can be completely ruled out, is any fire risk when using the ORCA for in water O_2 decompression if there is potential for oil, mist, and particulates to be present.

The water vapor risk is slightly easier to quantify. The main risk associated with water vapor is one of regulator freeze up, but there are no health risks to the Diver. Change A to Revision 6 of the Dive Manual will state that Divers' air authorised for use with a PAM is not to be used for cold water diving as defined in the manual. There is also an additional requirement to visually inspect flasks on completion of diving for the presence of water. There are also a number of very simple hand held devices designed to detect the presence of water vapor which NAVSEA is looking at to see if they could be used in conjunction with the PAM. The solvents requirement in Table 4-2 dates back several decades and was incorporated to detect the presence of a number of specific solvents that some disreputable contractors were using to clean flasks and that the U.S. Government recognised as being dangerous to the Diver. The PAMs VOC detector will pick up only one of these solvents so there is a requirement to determine whether or not these solvents are still in use and whether there is still a requirement to screen for them.

To further 'muddy the waters' the current requirements in Table 4-2 are based on FED SPEC BB-A-1034 B which is no longer extant but for which, as far as I am aware, no replacement has

***Portable Air Monitor** cont'd on page 5.*

USS PORT ROYAL



Early in the evening of 5 February 2009 USS PORT ROYAL (CG 73) ran aground on a reef, port side to and approximately 1,000 yards south of the Honolulu International Airport on the island of Oahu. Initial damage reports indicated that the sonar dome was flooded, one air conditioning plant was inoperative, and possible flooding of a crew baggage storage compartment. A subsequent video taken by US Navy Divers showed that the propeller blades had been sheared off by contact with the reef. Initial attempts using harbor tugs were unsuccessful in freeing the vessel.

Mobilization of MDSU ONE, Pearl Harbor Naval Shipyard, USNS SALVOR (T-ARS 53), along with the resources of NAVSEA, including SEA 05, SUPSALV, and Titan Salvage (a Crowley company and SUPSALV's West Coast Salvage Contractor) were required to effect a successful recovery of PORT ROYAL.

Using the Program of Ship Salvage Engineering (POSSE) and the Flooding and Casualty Control System (FCCS) program, NAVSEA engineers determined that the ship was aground with a ground reaction of approximately 470 long tons and would require a force of 441 long tons to free the ship from the reef. Reduction of the ground reaction required off loading of salt water ballast, 140 crew members, and the ship's anchors and anchor chains.

Bull rope under tension

MDSU ONE Divers completed a survey that showed a large obstruction on PORT ROYAL's starboard side which would prevent moving laterally off of the reef. The survey also showed that the area astern was deeper and free of obstructions. The extraction plan was modified to include a larger pulling force in the astern direction.

Since PORT ROYAL was aground for a significant period of time in active seas (waves 3 – 5 feet, wind 15 knots from the East), the effect on the structural integrity of the hull and the possible failure of seals or hull plating due to the continuous pounding on the reef had to be considered. POSSE analysis of the worst case scenarios showed that potential stresses were larger than normal

GROUNDING

BY: MR. JOHN JUERGENS

operational loads, but did not exceed 50 percent of the steel's yield strength, and that only total flooding of an engine room would result in unacceptable stability. These results were considered acceptable for the short tow into Pearl Harbor.

Using two ocean-going tugs and seven harbor tugs PORT ROYAL was pulled free of the reef in the early morning hours of 9 February 2009. As predicted by POSSE, the ship was stable with a small starboard list and trim by the stern. She was immediately towed into Pearl Harbor and preparations for dry docking began.

This salvage job was particularly challenging. It was successful due to the complete dedication and professionalism of the many agencies and people involved. The lessons that were learned will have a very beneficial effect on the command, control, communications, and execution of future salvage operations.

Mr. John Juergens is a Senior Engineer at ROH, Inc., the engineering, technical, and administrative support contractor for NAVSEA 00C.

Portable Air Monitor *cont'd from pg 3.*

been issued. NAVSEA is investigating the overall Table 4-1 and 4-2 requirements for future updating to meet current needs and requirements.

Having covered the background to fielding the PAM here is the current situation. NAVSEA owns 25 PAM sets. A set consists of a PAM, a reducer kit (reducer, HP whip, SCUBA, FADS III, LWDS, CGA 580 connections and tubing for connecting to the PAM), Calgas and PAM instructions. The 25 sets are being held at the ESSM Base in Virginia and are being issued to a preapproved list of commands that NAVSEA feels will gain the most from the PAM. ACN-6A (Diving Advisory 08-18) to Revision 6 to the U.S. Navy Dive Manual authorizes the use of the PAM for approving any source of Divers' compressed air, 00C3 letter, Ser 00C3FN/3017 dated 6 March 2009 temporarily restricts the use of the PAM to those occasions when a dive unit cannot utilize the air sampling program (i.e. they would normally be forced to request a waiver from NAVSEA in order to dive).

NAVSEA wants to lift the restriction on the use of the PAM as soon as practicable. To this end NSWC have been tasked to investigate the availability of, or if necessary develop, a portable filter which could be used in conjunction with the PAM to remove oil mist and particulates. We are also looking for any other COTS solutions that would allow us to test for those contaminants not currently detected by the PAM without significantly increasing the overall foot print. The second part of a two-pronged approach is to review the current compressed air breathing requirements to see if any of the requirements in the current tables can safely be removed or updated in light of advancements in dive equipment and general safety.

In summary the PAM is out there and is already helping the fleet. It has been used in the Gulf and is currently being used on various operations across the globe. We have asked those units in receipt of a NAVSEA PAM to provide feedback to 00C on the monitor. Initial indications are that it works extremely well and will prove to be a rugged and valuable addition to any dive locker's inventory.

LCDR Jim Pearson is a Royal Navy Exchange Officer working for Diving Programs at NAVSEA 00C and is the Program Manager for Contaminated Water Diving.

Andros Island Project

By: LT Li Sung

Members of Underwater Construction Team One (UCT ONE), Air Detachment Alfa, recently joined forces with Naval Facilities Engineering Service Center (NFESC) and Motor Vessel (MV) RICHARD L. BECKER (a civilian salvage ship) in a project to install a new acoustic measurement system at Andros Island, Bahamas. The project, which is key to supporting the U.S. Submarine Force, replaced the use of a ship-deployed portable acoustic measurement system, which provides measurement and tracking underwater, with a fixed cable array system.

EO1 (SCW/DV) Nicholas Gegg, Assistant Officer in Charge, explains the importance of the project, "Stealth is the submarine's most important tactical advantage. Force protection and mission success depend on how well the Navy maintains the quality of submarine stealth. South Tongue of the Ocean Acoustic Facility (STAFAC) provides specialized, quality assurance services for assessing the stealth of all existing submarine classes. UCT ONE's work is essential to maintaining U.S. Navy submarine superiority and advancing undersea warfare."

Air Detachment Alfa combined efforts with other teams to land the ground and trunk cable, starting two miles out at sea and ending at the Mesa Vault on Atlantic Undersea Test and Evaluation Center Site 1. Detachment Alfa Divers executed all diving operations during the shore side of the project and also operated on a Junction Box (J-Box) from MV Becker approximately 90 nautical miles off the coast of Andros Island.

Initially used to keep the two cables afloat prior to placement, the dive team removed 500 flotation buoys, each weighing 50 lbs, and ensured both cables sat on the ocean floor, free of any environmental hazards, i.e. coral. Once the cables were in the Mesa Trench and secured, the shore-based crew replaced 300 feet of double armor cable protection with conduit, in order to feed the cables into the MESA Vault for the NFESC Engineers.

BU1(SCW/DV) Brian Strantz and EA1 (SCW/DV) Wyatt Boettger mount all-thread bolts to the sea floor with epoxy-grout using a pneumatic assisted dispenser. Photo by Jason Tanaka, NFESC.

Back at sea, a J-Box was precisely placed on the sea bottom, then anchored with four 750-foot cable tethers stretching from the J-Box towards the Tongue of the Ocean.

First, UCT ONE Divers inspected the J-Box for proper orientation and ensured it was free of any environmental dangers. Next, they focused their efforts on assisting the service ship retrieval and splicing of the four cable tethers. After completing each splice, the Divers inspected the tether, applied cable stoppers to the cable, and organized each tether to ensure proper orientation of all four cables.

This project directly supported efforts to ensure the Navy's submarine force maintains its global superiority. The members of UCT ONE, Air Detachment Alfa, were instrumental in accomplishing a crucial upgrade to U.S. Navy test and evaluation facilities, thereby enhancing our national security.

LT Li Sung is the Executive Officer for UCT-ONE in Norfolk, VA.

Newcomer to 00C4!

We would like to welcome Eric Frank to SEA 00C4 Certification Division. Eric came onboard in March as a System Certification Manager. He comes to us from PCCI where he supported Military Sealift Fleet Support Command (MSFSC) as one of their Towing and Salvage Specialists. Eric was responsible to the MSFSC Tugs and Salvage Class Program Manager for providing towing and salvage technical assistance to the East Coast T-ARS and T-ATF class vessels. Eric recently retired from the Navy as a highly regarded Master Diver with over thirty years of naval service. He spent the majority of those years in the diving community supporting salvage and ship husbandry missions. Eric brings with him a strong background in diving operations, system certification, and DLSS maintenance. Eric joins our other two retired Master Divers, and providers of sage wisdom to the Fleet, Steve Smith and Brendan Murphy. Eric will be carrying out on-site surveys and answering certification issues pertaining to Diving Systems Safety, and of course pontificating and commiserating on the 'Good Ol' Days in Navy Diving with all of you out in the Fleet. Welcome aboard!

Certification Notes

How to Prepare for a System Certification Survey

By: Brendan Murphy

It's hard to believe that as of July I will have been a member of the NAVSEA 00C Team for seven years. As one of the three Diving Safety Certification Managers supporting the System Certification Authority (SCA), I have participated in dozens of Diving System Certifications Surveys. Though we field a wide variety of questions during these surveys there is one that is asked by virtually every command; what is the purpose of the Diving Certification Program? The first paragraph in the Forward of the U.S. Navy Diving and Manned Hyperbaric Systems Safety Manual (MAN 10) says it best:

"Diving is an inherently dangerous occupation, performed in a hostile environment. The sole purpose of the US Navy Diving and Hyperbaric Systems Safety Certification Program is to make this occupation as safe as possible for the men and women who put their lives on the line, every day, in the service of their country.

Through the System Certification Programs, it is our mission to provide a final independent review of diving and hyperbaric system design, fabrication, testing, repair, maintenance and operation."

A key component of the program is the On-site Diving System Safety Certification Survey. Suffice it to say that these surveys are independent inspections whose outcome could seriously affect a Dive Locker's ability to continue diving operations. The purpose of the survey is to verify that the operational commands have maintained their Diver Life Support Systems (DLSS) in the "as-built" configuration and that the system being maintained and operated safely in accordance with approved written procedures. On-site surveys are performed on all U.S. Navy, U.S. Marine Corps, and U.S. Army Special Operations DLSS every three years. Important details concerning on-site surveys and how to prepare for them can be found in MAN 10, Section 2-6. Below are some additional recommendations on how commands should prepare for an on-site DLSS Certification Survey. They are gleaned from the literally hundreds of on-site surveys completed by the Certification Managers, Certification Engineers, and the SCA.

An Underwater Construction Team ONE LWDS Ready for Certification.

- Master Divers must be involved. Remember delegation is giving a task to somebody else with responsibility from you. However, it does not remove the responsibility from you.
- Train your Dive Locker with the skills necessary to maintain your DLSS.
- Closely review all RECs prior to their being closed, and ask questions.
- Review each PMS Force Revision (FR) with your technicians, prior to its installation.
- Work with your personnel to have all of the answers pertaining to every aspect of your Dive Locker.
- Always be certification ready. Foster a climate within the Dive Locker that would welcome or even challenge an on-site survey with little or no notice.
- Develop a deep bench. Too often Dive Lockers have only one "PMS Guy" and "REC Guy". This does not support the development of our new Navy Divers who are coming from the school house with virtually no QA or DLSS maintenance training. It is also unfair to the Petty Officer who is stuck reviewing Quarterly Boards, implementing PMS FR's and writing REC's while everyone else is in the water or on the side. It hampers their development in the operational aspects of their job.
- Call early and often. Look ahead to future maintenance requirements and certification visits. If you have any questions give us a call. NAVSEA 00C will never gaff off a question from the Fleet. If we don't have a specific answer we will either get it for you or direct you to another resource that can help you out. Whenever possible, please give your Master Diver the opportunity to answer your question prior to contacting us.
- Use the Certification Checklist. Not very often in life is one given all the questions prior to the test. The System Certification Requirements/ Guidelines checklist contain the questions we will be asking during an on-site survey. If you are properly prepared to answer those questions, you ace the test. If you haven't properly prepared, it will show, and we will be forced to delve into the system more deeply to be assured that the DLSS is safe for continued manned use.

The hundreds of years of diving experience imbedded in NAVSEA 00C are at your disposal. Please do not hesitate to use us.

Brendan Murphy is a NAVSEA Diving Safety Certification Manager. He is a retired Master Chief and Master Diver who has also worked several years in the commercial diving industry.

Navy Launches Career Guide For Divers

The Navy dive community now has a roadmap to help enlisted Sailors succeed in their careers with the launch of a new career tool available on Navy Knowledge Online (NKO).

The Learning and Development Roadmaps (LaDR – pronounced ladder) are being developed by the staffs at the Learning Centers charged with providing career learning and development for each Navy rating. The Diver roadmap was developed by the staff at the Center for Explosive Ordnance Disposal and Diving (CEODD) in Panama City, FL.

"Today's Sailor can find a written path to success," said Navy Diver Hugh "Sandy" Bell, Command Master Chief at the Naval Diving and Salvage Training Center, Panama City, FL. "This path is located at their finger tips on Navy Knowledge Online. There are no questions as to what courses are required and what courses are suggested to better ones self. No questions as to what type of duty to take or when to attend professional development school."

In 2007 Naval Education and Training Command was tasked by the Chief of Naval Personnel to develop an Enlisted Education Strategy. The result is the Enlisted Learning and Development Strategy (ELDS), which includes the career roadmaps.

The first rating career roadmaps included Legalman (LN), Mass Communications Specialist (MC), and nonrated Sailors in the Surface Professional Apprenticeship Career Tracks program (S-PACT)," explained ELDS Core Team Co-Leader Master Chief Petty Officer Tom Smith, an Electronics Technician and the Enlisted Learning and Development Program Coordinator for NETC. "Sailors can find their roadmap to success on Navy Knowledge Online (NKO), and I recommend every Sailor and their supervisors use the roadmap. It is a great mentoring and counseling tool."

The roadmap is for enlisted Sailors to refer to throughout their Navy career, and progresses to the rank of Master Chief. "It provides detailed information on training and advanced education opportunities," said Smith. "The roadmap is a visual guide to track their career and helps the Navy get the right Sailor, with the right training, in the right job, at the right time."

"Deckplate leadership and mentoring is essential in the Navy," said Master Chief Petty Officer Brett Rowell, NETC Force Retention and a Navy Counselor. Rowell is also the ELDS Team Co-leader with Smith. "The roadmap is a great tool for supervisors to use during mentoring sessions and Career Development Boards providing Sailors feedback on what learning and development programs are available to them.

The career roadmap includes training from the "sailorization" process at Recruit Training Command (RTC), basic technical training, advanced technical training, and Navy Professional Military Education (NPME). It also includes advanced education opportunities through the Navy College Office, as well as programs at the Naval Post Graduate School and the Naval War College. Professional certifications are part of the LaDR through Navy Credentialing Opportunities Online (Navy COOL). For example, with Navy COOL an ND can receive civilian certifications from the Association of Diving Contractors International (ADCI), the National Association of Underwater Instructors (NAUI), or the National Oceanic and Atmospheric Administration, to name just a few.

The goal is to have LaDRs for all ratings on NKO by April 2010. ELDS will not necessarily create new programs, but provide visibility to current Navy programs. It is an umbrella for the learning and development programs that enlisted Sailors need access for a successful career. The LaDR provides that umbrella, giving Sailors a checklist to see where they are, and where they need to be.

"Gone are the day's where Navy Divers gaze over a cap rail wondering what their next duty station will be," explained Bell. "Where DV after your rate really stood for 'Duties Vary', and where no one really knew what it took to make Chief or to make Master Diver. With this tool, the Sailor who is looking for answers and the Chief who is giving guidance is not guessing, they both can see what needs to be done."

"The ND roadmap should not be something that is looked at once and forgotten, instead it should be used as a living tool that can guide today's Navy Diver on the path to success and be a guide for the Navy Divers of tomorrow."

To learn more about the Learning and Development Roadmaps, visit NKO https://wwwa.nko.navy.mil

For more information about learning and development in the Navy, visit NETC https://www.netc.navy.mil/

Letters To The Editor

NDC/E7 Mark Smith
MOBDIVSALU TWO

Congratulations on another great Faceplate. I hope to point out something new that I have learned, and to suggest an actual "letters to the editor column", as well as suggest a "lessons learned from the fleet" column... make this a truly interactive medium...just a thought.

I have recently been assigned to the Area Search Platoon here at MDSU-TWO, and am both excited and disappointed at what I have learned. I'm excited that I have learned a lot that will help maximize bottom time with new technology, and disappointed that I did not know much of this before.

These are skills and NMETs which can significantly maximize bottom time, while minimizing search time, and greatly increase mission success. I'm sure many of you crusty MDV's are already much more familiar with this material than I am at present, but as a regular Diver, I wonder if the "other" regular Divers are familiar with these assets? Any Dive supervisor would find that "knowing what to ask for" is more than half the battle in many cases.

Now, if I can only figure out how to use the Blackberrry thingy they gave me.... Keep up the good work!

Chief Smith,

Thanks for the feedback. I like it! It means you're reading FACEPLATE. HOOYAH!

You bring up good points about getting some of the new technology taught at the school house level so you can bring it with you to the Fleet. It eventually will!

Look for MTT's in the future that will bring Dive Computers and Portable Air Monitors (PAM) etc... to your location for instructional use.

HOOYAH Navy Diver!

VR/

Mike Egan

CDR Michael L. Egan, U.S. Navy
Supervisor of Diving

Faceplate appreciates all feedback, so if you'd like to sound off about something we have published please do! To submit feedback, go to www.supsalv.org

NEDU: Building Trust & Interoperability

By LCDR Michael Runkle, NEDU Executive Officer

"We can't surge trust; trust must be built bit by bit. Trust must be a relationship that there's no question that when there's a need, you will step forward and stand by your partner." - ADM Gary Roughead, CNO

Diving is synonymous with trust… and experience. Lives are dependent on shipmates helping each other, ensuring diving procedures are followed, equipment is functioning properly and decompression is done safely.

The Navy's Experimental Diving Unit (NEDU), a field activity of the Naval Sea Systems Command (NAVSEA), tests and evaluates diving, hyperbaric and other life-support systems and procedures, and conducts research and development in biomedical and environmental physiology.

NDCS Somsack Phanthavong at deco stop.

Through NEDU research and experience on diving, technical diving recommendations are made to NAVSEA, to support the operational requirements of our Sailors and Marines, industry as well as our allies.

While some research can be conducted indoors, skill and understanding are often learned outdoors and under the water's surface through "hands on" application of systems and procedures. Hands on experience fosters trust.

Some of that experience was acquired in December 2008 when NEDU participated in an international deep diving exercise on the island of Curacao in the Netherland Antilles.

This is the first time the U.S. has participated in this NATO exercise. The exercise was a great opportunity to see different capabilities - and how each country responds to similar challenges in deep diving operations.

The exercise was first held in 1997 with Norway, Canada and Netherlands as the initial participants. Over time, Belgium, Portugal, Finland, Sweden, and Italy have also participated. For the 2008 exercise, Norway, Netherlands, Italy, Portugal, Estonia, Finland, and the U.S. took part in the diving exercise. Each country featured a 10-man dive team that conducted multiple dives in up to 300 feet of sea water using Heliox rebreathers.

The U.S. team was very eclectic group of people. Rather than a deployable team, like the other countries, this team was assembled from multiple departments and disciplines at NEDU.

"We had two EOD, one SEAL, two DMT, one DMO, three ND, and one government service civilian participate. Despite this, we were extremely effective and worked together very well," said Runkle.

"An exercise of this kind was unique because it's considerably more complicated to conduct such deep dives compared to shallower or No-Decompression dives. We had numerous difficulties due to the differences between power requirements and hose fittings," said EODCS Rob Womble. "Onboard the Dutch dive "mothership" Pelikaan, its machine shop was used to fabricate some components that we had not anticipated needing. Otherwise, it could have prevented us from participating if we hadn't improvised."

Power requirements and hose fittings weren't the only differences. Disparities in how the U.S. and the other countries conducted their dive operations were recognized. The same problems realized by all Divers were met with different solutions. Those different solutions generated the real value for countries participating in the diving exercise, which was the opportunity to compare tactics, techniques and procedures to help everyone expand and improve their capabilities.

All of the countries (except the U.S.) dove utilizing the Carleton Viper+ Rebreather while the U.S. uses the Carleton Mk-16 rebreather. The maximum depth for the Viper is 81m (~260ft) whereas the Mk-16 can dive to 300ft. Both use a Helium/Oxygen mixture for breathing at medium depths, however they differ in the ratio of gas used and how it's controlled. Another major difference between the U.S. and the other countries is the decompression schedule used. For example, U.S. dives conducted at 260 ft for 10 minutes require a decompression in the water for 11 minutes whereas the other countries had to decompress in the water for up to 70 minutes.

Once out of the water, the Divers were furnished with quarters at the Dutch Naval Base Parera on Curacao. Onboard Pelikaan there were two Dutch recompression chambers and workspac-

with Foreign Navies

es comfortably utilized by all of the dive teams. The ship also carried seven small dive boats that were utilized by all of the teams.

With a very steep bottom gradient it was clear why Curacao was a good site for the exercise. While the diving depths ranged from 250-300 feet sea water (fsw), 300 fsw could be found less than 100 yards off shore, and continued to slope rapidly to thousands of feet.

The exercise included nine diving days. The first day was utilized for equipment checks and work up dives. However, before the work up dives could commence, the exercise was interrupted by a real world situation.

The night prior to commencement the NEDU Dive Team was contacted by a USMC Dive Team that coincidently was also operating on Curacao. They had lost a Diver Propulsion Vehicle (DPV) after an equipment failure on one of their dives. The two operators were unharmed but the DPV could have been anywhere from 200 to 2000 fsw. After multiple phone calls and meetings, the Pelikaan was tasked to proceed to the estimated location of the DPV and see if the embarked Divers (from all the countries) could locate and recover it. After arriving on station it was determined that the depth was in excess of 1800 fsw. Since the depth was well beyond the diveable range, the search was cancelled and the exercise restarted. However, the international teamwork demonstrated in the effort set the stage for exceptional cooperation throughout the rest of the exercise.

LCDR Runkle with mine.

Once the exercise commenced, the NEDU team immediately began conducting dive scenarios, while the other countries spent a few days conducting work-up dives. By the end of the first week, the U.S. team had completed an aircraft crash salvage project and a mine search and recovery project.

The remaining days were devoted to individual scenarios assigned each morning. Projects ranged from aircraft crash recovery to mine location and neutralization.

"This has been a very interesting and challenging exercise. A 300-foot dive only gives you about five minutes of usable work time at the bottom - not a lot of time when you have to search for something or conduct a project," said Runkle.

Multiple dives were conducted during the second week to recover projects that had been laid too deep (or had tumbled down the slope) and were beyond the depth limits of the other countries.

At the conclusion of the exercise the NEDU team had conducted 29 dives and spent 762 minutes in the water.

NDCS Clint Porter sums up the NEDU effort, "With proper planning, the right training and the right people, you can accomplish anything."

"We hope this has laid the groundwork for future involvement of operational dive teams in this challenging and rewarding international exercise," said Runkle.

(In boat left to right) EODCS Rob Womble, NDCS Clint Porter and CWO5(SEAL) Randy Poladian. (In water) ND1 Sam Peterson and LCDR Runkle.

LCDR Michael Runkle is the Executive Officer at the Navy Experimental Diving Unit in Panama City Beach, FL.

Cover photo & all article photos: Doug Elsey / DougElsey.com

Doug Elsey is a Canadian documentary photographer specializing in expedition and adventure photo documentation for corporate clients that have included National Geographic, NATO Special Forces, the Canadian Department of National Defence and the Icelandic Coast Guard - EOD Command.

NAVY DIVING SCHOOL PEARL HARBOR:

A continuation of the history of the Navy Diving School in Pearl Harbor. Part one of this article was published in Faceplate, Volume 12, number 2 released in December, 2008.

Yellow Diver coming up and over from a training dive.

A cartoon titled: "Strange as it seems" was - drawn by Elsie Hix in September 1951 with a caption that says: "Instructors at the Pearl Harbor Subase Training Tank descend 100 feet, cross the bottom in 3 minutes and 10 seconds where the pressure is 44 psi without any breathing apparatus."

I conducted several interviews which follow:

BMCM (MDV) (RET) John Lankford:

Master Diver Lankford was a BM1 and an instructor at the school from January 1958 to January 1962. "Second Class Dive School ran 6 weeks but the instructors had flexibility in determining the length of training which they based on the student's competence. Topics of the course consisted of how to use deep sea gear and how to determine floodable volume of pontoons and patches. When the instructors finished their training day, they would go to work performing underwater ship's husbandry. The instructors would use either the Jack Browne or a modified gas mask. The Jack Browne wasn't very popular, so the instructors would modify a gas mask to accept an air supply valve and hose. The Gas Masks provided a good fit and were readily available, just had to remember to install a non-return valve otherwise that thing would suck right up to your face. The primary submarine repair work consisted of replacing screws. The Divers would use detonating cord to loosen the screw. A typical screw change would take about 4 hours to complete with a crew of 6 Divers. We also did a lot of ballast tank work, replacing valves or finding a loose bracket and welding it back into place. Once, we conducted a demonstration dive for the Prince of Japan, who I think is the Emperor now. We also had Lloyd Bridges come by for a tour. We invited him to dive but he didn't seem too impressed, it seemed like the water was too deep for him. The worst treatment we had was a gas embolism. We did a Treatment Table 4 and it took us 3 days just to get back to 50 feet." The staff consisted of 1 LT as Officer in Charge, 1 Master Diver, 5 Chief Petty Officers and about 26 enlisted instructors.

BMCM (MDV) (RET) Donald Mc Kenzie:

Master Diver McKenzie was an instructor in 1967 and 1968. He remembers that DCCS Buehl was the Master Diver at the time and the school was located in the back room of T-3; which was behind building 1003 on the Submarine Base. "We also performed underwater ship's husbandry on the submarines. We did everything from changing screws to readiness inspections to hooking up and removing waste pipes, normally at night. We had what I believe was the first fly away beach gear which was 500 feet of nylon and an old fashioned anchor. Plus we had a fly away 4 point mooring system complete with an open bell. We flew the system to San Diego and used it off the fantail of an ATF. In those days the command was known as Fleet Submarine Training School."

Diver is required to float over to the descent line, take one end a test line from the instructor (2-100 feet lines separated by a shackle) and proceed down the descent line to the bottom.

QMC (DV) (RET) Mike Fitzpatrick:

"I was sent to SCUBA school at Pearl in 1964. The Master Divers at the school were Charlie Ranger and Stinky Stout. I had to wait about three weeks before class started so I was sent down to help a First Class Shipfitter build the diving boat for the school. His name was John Ortiz. My indoctrination dive was in the MK-5. Several prospective candidates freaked out just putting the hat on. I graduated as a SCUBA Diver and returned to my duty station in Johnston Atoll. I was offered my choice of duty stations when my tour was over but that all changed when an Army General dropped his sunglasses in the water. I went into the water and salvaged the General's glasses. Next thing I know, I got orders to First Class Dive School. I think that was in 1966, John Searcy was a classmate of mine. I worked at the 'tank' from 1978 to 1979 and served as a SCUBA and Second Class Dive instructor; in fact, I was the first one there to qualify to teach the MK-12. The Master Divers at the school during this period were John Ortiz, Mac McKenzie, and Andy Anderson. Occasionally, we would dive the USS ARIZONA (BB 39) to patch oil leaks." The casket story: "Me and Lou attended a 'non-run' marathon downtown Honolulu (code for drinking/costume party). Lou was wearing the MK-5 deep sea dress and I was his tender hauling around a 300 lb anchor. We won 1st place. The prize was a real casket and it wasn't even Halloween! We brought the casket back to the Escape Training Tank. A couple of students were sleeping in the bunk room and BM1 (DV) Bob Yarborough had the duty. Lou's wife called and woke Bob up, said she wanted to thank him for treating her son but that she couldn't find him and asked if he was still there. Of course, Bob had no idea what she was talking about, until he got up and found the casket down below, it was hilarious! We received the Navy Life Saving Medal in either 1979 or 1980. It was presented to us by the Governor of Hawaii for all the bends cases we did. Doctors would come over and perform operations and debride burn patients inside our chamber. I can't remember what holiday it was but

A BRIEF HISTORY *Part 2*

By: NDCM Brick Bradford

we had 8 bends cases going on in one duty day. There were two patients in the chamber below the tank, one in chamber above the tank, an ARS was brought over from Harbor Clearance Unit ONE and moored by the tank. There were two patients in its chamber and we had two people with pain only bends waiting for a chamber to open up. Then we got a call from the outer islands they were bringing a Diver who was embolized, had a pneumothorax, and was unconscious. Captain Claude Harvey was the medical officer, Bob Yarborough was my outside tender, Brad Ingles was my inside corpsman. Me and Dr. Harvey would take turn's visiting all the chambers. We got the embolism guy and ran a Table 4 on him. He regained consciousness but was still paralyzed from waist down so we ran a table 6 on him everyday until we finally got his paralysis down to his left foot."

HTCM (MDV) (RET) John Searcy:

Master Diver Searcy was stationed at the School from 1978 to 1981. He went to Master Diver evaluations when he transferred and reported to the USS DIXIE (AD 14) in June 81. (He was my first MDV!). "We were performing Underwater Ships Husbandry when I first showed up but turned over all maintenance responsibility to the newly formed Subase Dive Locker in 1978. The Subase Divers worked out of the Torpedo Shop back then. We conducted back to back SCUBA and Second Class Classes. Most of our SCUBA students were either from submarines or the Marine Corps. The SCUBA classes fed right into Second Class classes too. Typically, we used 6 instructors for these classes, with a total of 25 or 30 guys stationed at the school. The Submarine Escape Training Tank performed lock out exercises and conducted free and buoyant ascent training for the submarine crews. It seemed like every Friday we were conducting dog and pony shows for local VIPs. There were two chambers, one on top of the tower and a big Submarine Tender Steel Riveted Chamber below. We maintained the Pacific Bends Watch for all outer islands. The worst it ever got was one weekend we ended up with 8 bends cases at one time. People just kept showing up. Fortunately, EOD had an LCM-6 and it was brought around along with an ARS. That was a long day! Another time we had a student pass out during free ascent training. We got him out of the water and loaded him into the chamber but the doc closed that heavy assed chamber door on his foot. Good thing he was passed out, but boy that guy sure was pissed when he woke up!

Red and Yellow Divers are being undressed after a training dive. The instructor is observing and timing the student during the undress process.

ENCM (MDV) (RET) Clifford M. Ellis:

"I was an instructor at the Dive School in Pearl Harbor (NSTCP) from Dec. 1980 to May 1983. I was the lead instructor for Class 8203, which include future Master Divers: Bobby Quant, Steve Smith, Frank Perna, Eric Frank, and Rick Storment. I was also lead instructor for Ray Augustine, Don Curtis, Bob Carmichael, Donny Dennis, Shawn Fanning, and Tom Stogdale. I was stationed at the Escape Training Tank until it was de-commissioned. Greg Lalonde was also one of my students."

BMCM (MDV) Richard Storment:

"I graduated Second Class Dive School and they had me stay as an instructor. I was there from 1982 to 1985. I worked at the Escape Training Tank until it closed, I think sometime in early or mid 1983. I was the guy responsible for draining the tank; unfortunately, I ended up flooding the SUBPAC and Squadron buildings in the process. 240,000 gallons is a lot of water and the Admiral wasn't very happy. I remember that Rusty Hunt and Brendan Murphy were instructors too. We had 3 chambers and there were several times we would end up using all three chambers treating local Divers while we had SCUBA and Second Class classes on board. We were busy. I'll tell you what; I have never seen so many serious cases where the patients would come in paralyzed or unconscious. One of the good things about moving the school to Ford Island is that we were out of sight and out of mind. We used to get into a lot of trouble for Physical Training with the students. Pushups with twin tanks on your back makes you strong!"

MMCM (MDV) (RET) Don Curtis:

"I was a submarine qualified MM1 when I went to Second Class Dive School in Oct. 1982 and was assigned instructor duty upon graduation in Jan. 1983. Eric Frank, Frank Perna and Rick ('Storm') Storment also attended Second Class Dive School during this time frame and were subsequently given instructor duty upon graduation. The Submarine Escape Training Tank had stopped free ascent training but we used the tank - for surface supplied MK-12 training. I made the last inspection dive with Jade the night before 'Storm' drained the Tank in early 1983. MDV Charlie Obrien was relieved by MDV Coy Payne during this period. I was an instructor until Jan. 1985. At first, all training was accomplished on Subase and the open training tank was located at the end of S-15 in front of the Quonset hut. PWC moved the open training tank to Ford Island, and installed it behind bldg. 39. The instructors pretty much did everything else, moved all the equipment, installed the air system and set up the classrooms while conducting SCUBA and Second Class classes. We finished the move in about 3 months and the only chamber left was on the LCM-8. Attrition was pretty high back then, I think we averaged about 65 to 70 percent. The LCM was used for all pierside and at sea training evolutions and the students were pretty good about finding old submarine "hand warmers" (coffee cups without handles) but the most interesting item they salvaged were the old 'Territory of Hawaii' milk bottles. If you missed the ferry you would muster at the Arizona Club and if you caught the Ferry you mustered at Rainbow Marina. Times have changed!

CMDCM (SS/DV) Bob Ashton:

A student's perspective: A very young ET3 attended SCUBA school in May 1983. He was stationed aboard the USS ASPRO (SSN 648). Mike Winter (yeah, the same one) was a shipmate who was also stationed on board ASPRO at the same time. "The school had moved to Ford Island and Frank Perna and Eric Frank were my instructors. Frank Perna would run us around Ford Island and was known for his ability to run like a gazelle. That guy could flat out run us into the ground. Frank Perna and Eric Frank were great instructors. They led all PT sessions by their outstanding example. We would perform our compass swims at West Lock. Jamming SCUBA cylinders was a challenge. We would load the tanks onto a cart, push the cart to the ferry boat landing, catch a ferry to Halawa Landing, then push the cart to Richardson Pool. During lunch, we would load the empty tanks back onto the cart and push the cart to the Submarine Escape Training Tank, fill them up and run them back to the pool for the afternoon training. A lot of us went hungry that week. During final problem solving I was paired up with a guy who freaked out and bolted to the surface, the instructors tried to pull him back down but couldn't stop him from reaching surface, he quit. Next, they paired me up with a Marine, it was the end of a hit and the Marine had no equipment left and somehow my UDT shorts were around my ankles, but we passed the hit! If I had to do it over again (referring to his career)… humm."

ENCM (MDV) Mike Winter:

"I was a Submarine Sailor and attended SCUBA school in 1979. I tried to get out of submarines and go to Second Class Dive School, but the boat wouldn't release me. I decided to get out of the Navy and was at TPU just 24 hours away from civilian life when a former instructor saw me milling around Subase. The instructor asked me what I was doing; I explained the situation and told him I wanted to go to Dive school but the Navy wouldn't let me so I was going to get out. The instructor grabbed me, made a phone call and the next thing I know, I got orders to Second Class Dive School."

HTCM (MDV) (RET) Jimmy Johnson:

"You know, you can teach anybody diving in a classroom but you find out if they have what it takes to be a Diver during pool week."

Pearl Harbor Dive School Graduation Class 06-79

Master Diver Johnson was stationed at the school from Oct. 1991 to Mar. 1996. He provided great leadership stories regarding how he handled issues with his instructors and students. "I had one instructor who kept coming in late. The Chiefs couldn't seem to get this guy's attention so I pulled him into the office and told him to muster at the brig and hold 'Colors' in his whites for the next 3 weekends. With the Sailor in my office, I called the Chief who ran the brig, explained what I wanted to do and told him that if the Sailor was late or in a shabby uniform, the Chief was authorized to immediately apprehend the sailor, throw him into the brig, hold him for the entire weekend and if the Sailor gave them any grief, they could give him bread and water, they were also authorized to physically discipline the Sailor as needed, in other words beatings were authorized, hell, I didn't care! Of course, all of it was a show to get the Sailor's attention, there the Sailor sat, eyes big and round not saying a thing and the Chief on the other end of the phone had no idea who I was or what I wanted, he just kept saying, Master Chief, there is no way I can do that, we can't just confine a Sailor, let alone beat him, we just can't do that. I totally ignored the Chief and kept on talking as though the Chief was agreeing with me. Needless to say, the Sailor mustered as directed and I didn't have no more trouble with him. Another time, we had a Second Class Diver who just graduated and checked out of the BEQ. The BEQ was empty and locked up but he got drunk and broke back into the BEQ to sleep it off. Well, he passed out with a cigarette in his hand and caught his mattress on fire. He woke up, put the fire out, then tossed the mattress out the window because it stunk and he goes back to sleep. A little while later the mattress reflashed and started burning again. Security was making their rounds and found the mattress on fire. Security called the fire department and they came and put the fire out. They conducted a search throughout the building and found the Sailor passed out on the second deck. I had 4 of my instructors make Master Diver, Jim Santos, Jim Carolan, Steve Wiggins and Fred Orns. Steve Wiggins wanted to retire so he could sell carpet, he put in his papers but then he starts having second thoughts. I called the detailer and pulled Steve's retirement papers and sent him to evals. He had about 5 days notice before leaving for the show."

NDC Anthony Collins:

"I was in the last Deep Sea class to graduate at Pearl Harbor; 92-50-2C. I was an HTFA and 18 years old at the time. We heard about Master Diver Johnson. Heard about his exploits in Japan and I was so afraid of meeting him. I thought it was all over when we got caught stealing pies out of the galley on Ford Island. It wasn't really our fault though, the instructors would PT us late and we would miss chow. I don't know how, but thank God I never had to stand tall in front of him. One of the things I remember most was that we would load the LCM and get U/W for Halawa Landing and the instructors would make us man the rail in our white t-shirts and UDT shorts. I also saw plenty of Hammerhead sharks in the harbor too; of course they would normally show up just as I was being hatted up to work on a project. Our class started out with 33 students; only 11 graduated though."

ENCM (MDV) (RET) Steve Wiggins:

Master Diver Wiggins was stationed at the school from May 1991 to Dec. 1996. His memory is like an elephant and he has more stories than just about everybody else combined, most of which I cannot publish! "Hi Spalding and Rick Bedard were the Master Divers at the

time; Jimmy John came in shortly after I did. We ran 15 SCUBA and 8 Second Class classes annually. The last Deep Sea class was taught in May of 1992. We would send Mobile Training Teams to Camp Pendleton and Okinawa every year and most of our students were Marines. During the MTT's to Okinawa, we would have a Helicopter standing by for our emergency transportation during pool week. One of the students embolized and we had to transport but the pilot refused to take off because of bad weather. Jimmy John got into the helo talked to the pilot and next thing we know they are taking off. I jumped into the truck to meet them at the chamber but there's nobody around when I get there. Turns out the Air Force does things differently, they wanted to check the patient into the emergency room prior to treating him, I thought Jimmy was going to come unglued! We finally got the guy into the chamber though. In 1995 the Navy was offering early retirements and I decided to get out and take over my dad's carpet business. I already had a seat in a Master Diver Evaluation but I pulled my name and submitted my retirement papers. I started to have second thoughts and talked to Jimmy about it, next thing I know my retirement papers were pulled and I was scheduled to leave for evals in a week. So I made Master Diver and came back to the school and relieved Jimmy John. We had a good bunch of instructors but it was funny though, when we conducted General Military Training the instructor assigned to give the training would be given no slack. The other instructors would critique him like he was teaching a class. The instructors that also made Master Diver included: Jim Santos, Jim Carolan, Ron Irvin, Mike Moser, Fred Orns and Troy Larck. Troy was a master at making booby traps; I think he got just about everybody! I was relieved by JT Reiss."

CDR (RET) Dave Davis:

"I'm a retired Salvage Officer, served as the director at the school from June 1994 to Oct. 1996. Of all my tours in the Navy, none had as great an impact as the dive school. The Divers and Sailors I worked for (and I mean that) are the most incredible bunch you'll ever meet; I've got their photos on the bulkhead and often refer to them when I'm boring some poor SWO with tales of the great Sailors I've known. Most importantly, and absolutely without question the bedrock of the school, was Jimmy John. Jimmy John encouraged Steve Wiggins to stay in the Navy. Steve made MDV and continued on to a great career. Jimmy John encouraged Sailors and one particularly tired and crusty former junkboat XO (me), and all the rest to do our best and excel. His influence was key to my developing command philosophy, and during many operations aboard GRAPPLE, the challenges at NDSTC, and even today, I think back to his leadership and guidance and am proud and thankful to have had the opportunity to work with him. I would literally not be where I am today, without having had the chance to serve at the school."

NDCM (MDV) James Costin:

Master Diver Costin offers a unique account of his experience with the Pearl Harbor Dive School. "The Louisville Courier Journal had an article about Louis "Buddy" Costin who was in the Navy aboard the USS WEST VIRGINIA (BB 48). The article corrected a long running error that had been made to protect the feelings and suffering of the Costin family. The family was initially told that Buddy died during the bombing of the WEST VIRGINIA on December 7th 1941. The article would lay out a different story. Buddy along with two of his Shipmates were found dead differently than the others from that fateful day. According to the article "they had survived the blast and were trapped inside the ship. When salvage crews raised the WEST VIRGINIA six months later, they found the bodies of three men huddled in an airtight storeroom: Ronald Enidcott, Clifford Olds, and Louis "Buddy" Costin. The men in storeroom A-111, clad in their blues and jerseys, were removed like 63 other men, carried away in heavy canvas bags drawn at the top. Clues left in the dry storeroom hinted at their horrific final days: Flashlight batteries littered the floor. The manhole to a supply of fresh water had been opened. Emergency rations had been eaten. And a calendar had a red X scratched through each of the dates from Dec. 7th through Dec. 23." "Truth about Sailor's death haunts brother and sisters" Louisville Courier Journal Newspaper, December 7th 1995. "After reading this I remembered going past Battleship Row on the ferry to Ford Island when I was a student in 1990. When I returned to Pearl Harbor as instructor 10 years later, a good friend, MDV Paul Adams, gave me book 'Descent into the Darkness'. I read the book and loved reading about Deep Sea history. Then I came across the chapter named USS WEST VIRGINIA and when I stumbled on the passage below I was face to face with my family and my career meeting each other head on."

"Work crews from the ship's force and the Salvage and Repair Unit began unloading oil, ammunition, and stores from the accessible areas. In addition, sixty-six bodies in an advanced state of decomposition were recovered and placed in canvas bags for burial. Three bodies were found in a completely dry storeroom. They were dressed in blue uniforms. The three had emergency rations stored at their battle station, and they had ample water, since they had removed the cover to an adjacent freshwater tank. They also had battle lanterns available for their use. Two of them had wristwatches, and one of them carried a wallet-size calendar, which had the days checked off from 7 December to 23 December. It was believed their deaths were due to lack of oxygen."

"Descent Into Darkness: Pearl Harbor, 1941: a Navy Diver's Memoir"
By: Commander Edward G. Raymer, USN

"Re-enlisting as a Navy Diver in Pearl Harbor I had the chance of honoring my Great Uncle and give some kudos to my Deep Sea brethren of days gone by. MDV Westling and MDV Sampson arranged for me to reenlist underwater at the site of the USS WEST VIRGINIA. So you can see that Pearl Harbor Dive School is more than a duty station to me."

NDCM (MDV) Brick Bradford:

My first experience with the dive school was in 1980 during my second West Pac. I completed my diving interview and indoc dive in the MK-5 using the open training tank when it was at S-15. I relieved Master Diver Westling in Apr. 2006, actually, he had transferred in Dec. 2005 and NDC Mike Miller was act-

ing Master Diver. Mike transferred a year later and was selected as Master Diver in July, 2007. In the 76 or so years of this school's existence, I have wondered how many instructors have served here and how many students have walked through these halls. My best estimate suggests that 856 instructors have served here and approximately 18,200 students, including at least 200 midshipmen have trained here not counting the countless scores of students who have trained in the Submarine Escape Training Tank. A sense of sadness hangs in the shadows of my mind with the closing of the school. For those who have served as an instructor here, you should know that this school has maintained an outstanding reputation for safety and professionalism that can only come from the leadership and dedicated effort of its staff and instructors. That certainly has been true during the two years I have served here. As with the generations before us, our staff and instructors who graduated the last class and closed the doors of the school for the last time committed their hearts wholly to the mission. The school has changed over time and the courses taught have been refined over the years but the same basic principles, philosophies, and characteristics of training Navy Divers are timeless. The following excerpt is taken from my last graduation speech:

"You sat through 78 hours of classroom instruction, completed 33 hours in the lab, spent 59 hours on dive station, and performed 31 hours of PT. Every aspect of this course was designed for one purpose, to develop Navy qualified Divers. The banner displayed in front of the building asks the question: Do you have it in you? Implying, do you have what it takes to be a Navy Diver, but what is the recipe, what is the secret ingredient? I can tell you this: We took 25 students, a whole bunch of staff and instructor personnel, mixed them together vigorously for 5 weeks, carefully adding just the right amount of PT, bay swims, classroom instruction, and practical diving experience to create the next generation of Navy SCUBA Divers. All the while, we were testing you, evaluating you, and challenging you mentally, physically, and academically. This course of instruction is not easy, nor was it ever meant to be. We are not recreational Divers, we are Navy trained professional Divers who are expected to competently operate in a variety of environments using various tools and techniques to accomplish the objectives set before us. From this day forward, anyone of you could be called upon to plan, organize and safely execute a dive that requires urgency. It may be in the middle of the night, out in the middle of nowhere, in frigid waters with no visibility and in heavy seas with a strong current. Ultimately our goal was to develop your competence and confidence in yourself, your buddy, and the procedures and equipment we use. To prepare you for the challenges ahead where you are expected to exercise good judgment in determining the safest method to get the job done and not become part of the problem. What we do is dangerous business. Navy doctrine states that "Diving and working in inherently hazardous underwater environments presents considerable risk of mishap. The danger of injury and death is always present; however, these risks can be significantly reduced through safe diving practices." It is because of our adherence to safe diving practices that the Navy Diving program has earned the reputation of being the safest in the world. I know you have heard this before, but it is worth saying again. Train the way you dive and dive the way you train. Always remember that complacency is your greatest enemy. We have provided you with the tools, training, and resources you will need to fight this enemy and never forget the dive manual is your single best resource. You will find that training is emphasized throughout the manual. The best training is practical training. Never forget that an accident or casualty can occur at any moment and most often it will occur without any warning. The question I want you to ask yourself is: How would I react if that happened to a member of my dive team, would I be prepared? Today, each of you has earned the distinction of being the last class to graduate from the Pearl Harbor Dive School. Equally important, each one of you is entitled to wear the breast insignia of a Navy SCUBA Diver. I know you will wear it proudly. I ask you to honor this community with the same commitment, tenacity and can do spirit you demonstrated here. Do not let this day be your best or brightest. I challenge you to go forward building on the foundation you established here. It is a great day to be a Navy Diver, we have a motto that says: We dive the world over: The Atlantic Ocean, Mediterranean Sea, South China Sea, the Red Sea, the Gulf of Aden, the Persian Gulf, the Indian Ocean, and the Great Pacific Ocean. Yeah, we dive the world over because it is our domain. Congratulations."

Countless scores of Navy Divers have walked these decks either as instructors or as students. I wish I could have listed all of you, past and present. The staff and instructors who closed the school include:

CWO2 Charles Senter, OIC, NDCM (MDV) Brick Bradford, Master Diver, NDC (DV) Craig Simon, LCPO, NDC (DV) Josh Cole, Training Officer, ND1 (DV) Jason Tangalin, LPO/SCUBA, ND1 (DV) Greg Howe, LPO/Maintenance, ND1 (DV) Derwin Leiva, Supply Officer, EN1 (SW) Greg Smith, HM2 (DMT) Brad Okeefe

My favorite quotes (as shared by those interviewed) include: "Blood makes the grass grow!"; "Nasty Pac photographers should not leave their cameras unattended!"; "Mary Point Landing is no longer an issue!"; "Master Grind Warfare Specialist: Quality and Quantity over time (immediate qualification granted by consuming 3 plates of nachos!)" ; "Golden Coconut!"; "Yes it does get cold in Hawaii—just spend the day at Richardson Pool!"

References:

(1) Into the Deep (The History of Man's Underwater Exploration) By Robert F. Marx (Copyright 1978)

(2) Torpedo from Wikipedia

(3) Early History of US Navy Diving Department of the Navy Historical Center 805 Kidder Breese SE Washington Navy Yard Washington DC

(4) Navy Diver: The Incredible Undersea Adventures of a Master Diver By Victor Boesen (Joseph Sidney Karneke, Master Diver) copyright 1962-2001

(5) Angels in Lead Boots By Bob 'Dex' Armstrong: Story found at: www.olgoat.com

(6) US Navy Diving Manual 1943

(7) Shallow-Water Diving Mask: Use of Gas Mask. Navy Department Bulletin. (Cumulative edition, 1943): 1118-1121 Department of the Navy -- Department of the Navy Historical Center 805 Kidder Breese SE Washington Navy Yard Washington DC

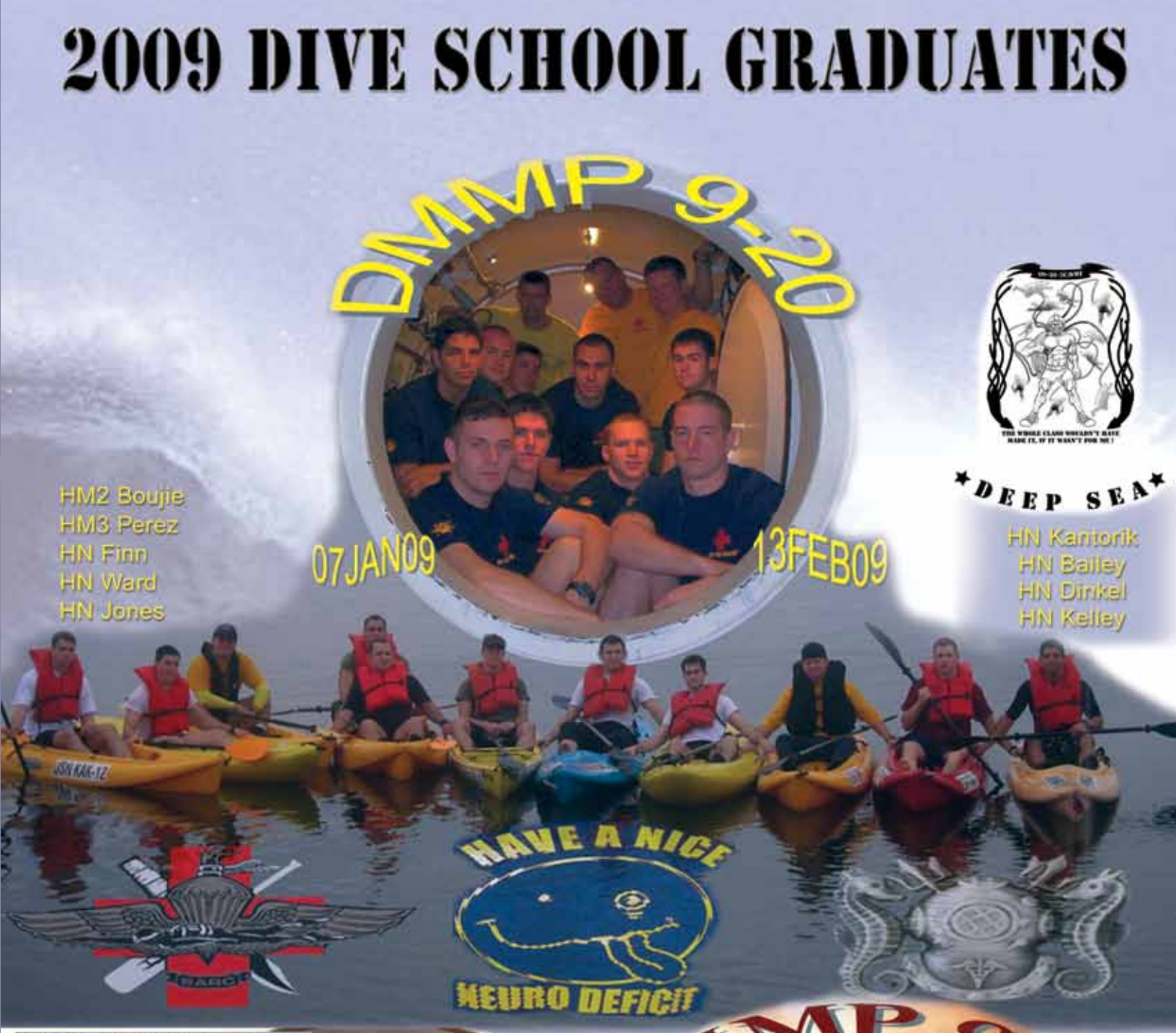
(8) Bureau of Ships Diving Manual 1 July 1952

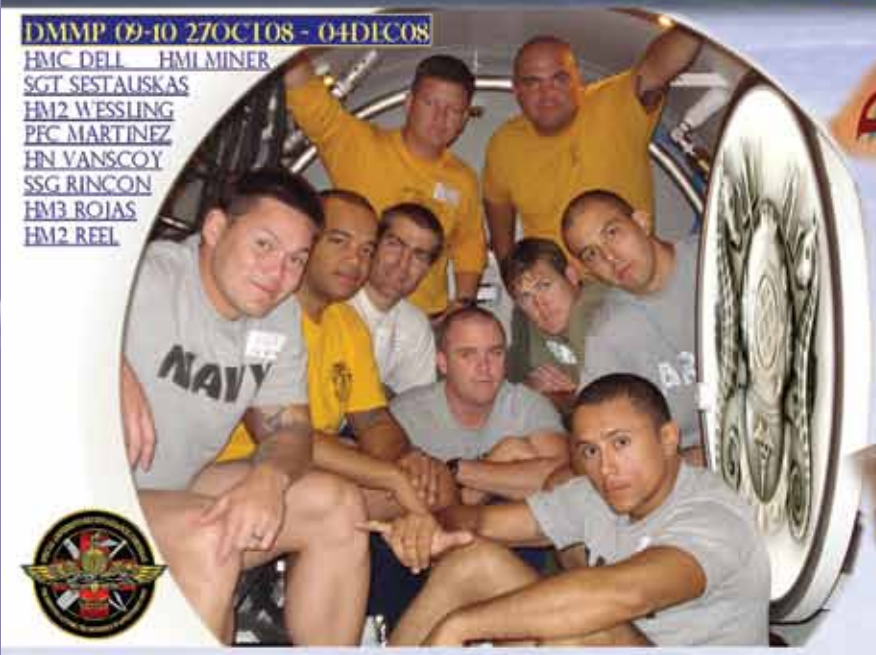
(9) Salvage Diver: Men Who Wear the Iron Hat Who Lighten Our Ship Losses by Robert C. Fay Our Navy Magazine Mid-September 1944

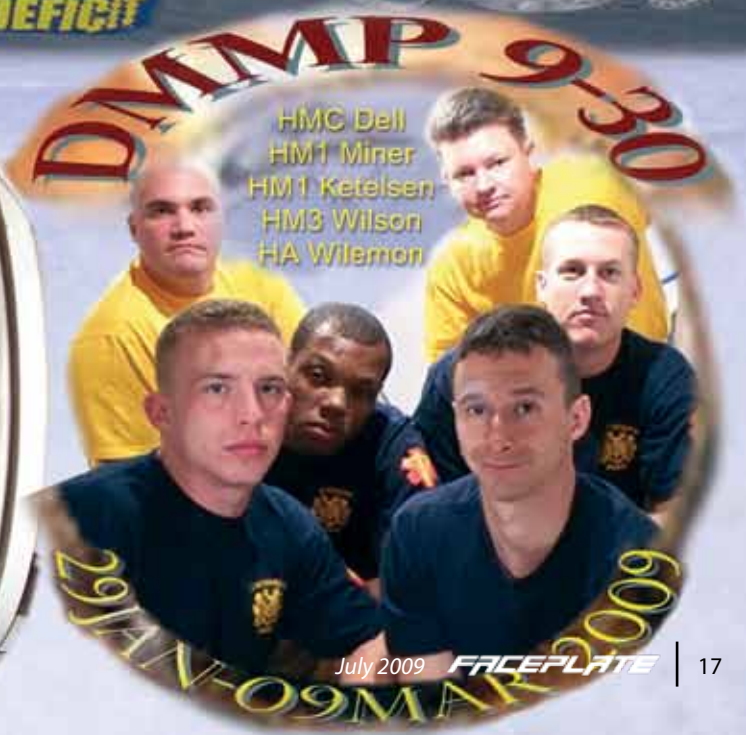
NDCM Brick Bradford is recently retired from MDSU-ONE in Pearl Harbor, Hawaii.

***Photos provided by: John Thompson HT2/DV2**, Enlisted 1977-1981, stationed aboard the USS Kirk FF-1087 & USS Orion AS-18.*

2009 DIVE SCHOOL GRADUATES







HYPERBARIC OXYGEN
For Traumatic Brain Injury

By: CAPT John Murray, (MC) USN

What is Traumatic Brain Injury?
According to the National Institute of Neurological Disorders and Stroke website, Traumatic Brain Injury (TBI) occurs when a sudden trauma causes damage to the brain. Closed TBI can result when the head suddenly and violently hits an object or in the case of the recent OEF/OIF conflict, a Service member is exposed to a blast. Symptoms of a TBI can be mild, moderate, or severe, depending on the extent of the damage to the brain. A person with a mild TBI may experience loss of consciousness for a few seconds or minutes, but more commonly, experiences a transient alteration of consciousness such as being dazed. Other symptoms of mild TBI can include headache, confusion, dizziness, blurred vision, ringing in the ears, fatigue, a change in sleep patterns, behavioral or mood changes, and trouble with memory, concentration, attention, or thinking. A person with a moderate or severe TBI may show these same symptoms, but of greater severity.

TBI During the Iraq and Afghanistan Wars

It has been reported that the number of service personnel suffering serious brain injuries is approximately five times the number who have experienced amputations. The reasons for the increase in diagnosis of closed TBI likely include the effectiveness of body armor in protecting vital organs from injuries that would previously have proved fatal, increased awareness of closed TBI and the potential sequelae of mild and moderate closed brain injury, and the prominence of blast as an injury mechanism. Identification of mild to moderate closed brain injury in a war zone is more difficult than recognition of penetrating or severe closed head injuries. Corpsmen and Medics are now receiving training to help them recognize closed TBI, and assure injured personnel are assessed, rested, and monitored while they are recovering from their concussion, and when appropriate medically evacuated.

What about Hyperbaric Oxygen?

A White Paper from the Hyperbaric Oxygen (HBO_2) Steering Committee recognizes HBO_2 as an effective treatment in dive-related injuries, soft tissue healing, and carbon monoxide poisoning. The Department of Health and Human Services has not approved HBO_2 therapy for the treatment of TBI due to the lack of evidence for clinical efficacy. There is evidence from trials in humans with severe TBI to support that HBO_2 initiated within a day of injury may improve survival, but not functional outcomes. There are no high quality clinical trials in humans of HBO_2 for acute, mild to moderate TBI or for sequelae from TBI of any severity. Scientific evidence is essential to determine if HBO_2 improves clinical and functional outcomes of patients with TBI-related sequelae. Optimally, large, well-designed clinical trials are recommended to further evaluate HBO_2 for TBI.

HBO2 Background

The Undersea and Hyperbaric Medical Society (UHMS) defines HBO_2 as the breathing of 100% oxygen at a pressure greater than or equal to 4 times higher than the atmospheric absolute pressure at sea level (1 atm abs). A typical HBO_2 clinical treatment uses 2.0 to 3.0 atm abs pressure for 90 to 120 minute durations. The total number of treatments per patient and the time elapsed between treatments varies widely depending on the clinical indication. HBO_2 increases the oxygenation of the blood and tissues of the patient and has immune modulating properties. The use of HBO_2 for acute TBI is based on the theory that marginal brain cells around the destroyed areas of the brain may potentially be revived. Improving oxygen availability to these cells may stimulate them to function normally ultimately resulting in neurologic improvement. In addition to restoring proper cellular function, HBO_2 may reduce brain swelling. The benefits of treatment may diminish the greater the time from injury to treatment. HBO_2 applied months to years after TBI may involve stem cell migration to the injured brain, down regulation of inflammation and stimulation of living, yet non-functional neurons by mechanisms that are unknown. Side effects from HBO_2 are uncommon and severe or permanent complications are rare. For chronic sequelae from TBI, HBO_2 is commonly offered at 1.5 atm abs for 60 minutes, which is a protocol with low risk. However, while using HBO_2 "off-label" in a child with cerebral palsy, a chamber fire resulting in fatality recently underscores the critical importance of strict adherence in hyperbaric chamber operations.

Proposed Randomized, Multi-center, Controlled Clinical Trial of HBO_2 for TBI Principal Investigator, Dr. Lindell K. Weaver

Dr. Lin Weaver provided the following overview of the study to CAPT Pat Keenan, Supervisor of Salvage and Diving, NAVSEA 00C, and to CDR Mark Matthews, Commanding Officer of the Navy Experimental Diving Unit, which has enthusiastically agreed to support this important study:

"Let me review the high points of this study for you. We will enroll Active Duty military that have had brain injury more than four months prior to enrollment, that can participate in outcome assessments, and willing to travel, plus provide self consent. They will not have any contraindication for hyperbaric oxygen, of course. An initial outcome assessment, which will include questionnaires, neuropsychological test and brain MRI imaging, will take approximately one week. Next we need to randomize them to one of two interventions. The chamber interventions are sham (1.2 atm abs breathing air x 60 minutes) or hyperbaric oxygen (1.5 atm abs, 100% oxygen x 60 minutes). The total number of sessions is 40, or 10 weeks from start, whichever occurs first. Then they have a second outcome assessment battery of tests. The same outcomes as before chamber interventions will be administered to permit comparison by intervention.

Hyperbaric Oxygen *continued on pg 19.*

The Navy and Marine Corps Dive Team:

The Importance of Navy Divers Serving in Marine Reconnaissance Units

By: Master Sergeant Chad Ramsey USMC

Navy Divers are an essential element to the development of a credible USMC ground reconnaissance combatant diving capability. They have been an integral and valued asset to Marine reconnaissance dive lockers since 1997. Their firsthand experience, professionalism, and wealth of diving knowledge have made an immediate impact on each reconnaissance unit they have served with.

In the late 1990's, due to the lack of qualified USMC combatant Divers and manning shortfalls, the pivotal decision was made to staff Navy Divers at active duty and reserve reconnaissance units. This addition freed up more Marine combatant Divers to be used in other operational areas within the Marine reconnaissance battalions. Due to their often transient nature and constant focus on maintaining operational readiness for upcoming deployments, Marine combatant Divers were unable to achieve and maintain the advanced skill levels, knowledge, and experience that Navy Master Divers, 1st Class Divers, and Diving Medical technicians possess. This consistent level of experience and knowledge base is required to effectively support a fully operational diving locker. Additionally, the maintenance requirements and certification processes are very complex. This identified gap was filled immediately by the addition of Navy Divers.

The most crucial contribution of U.S. Navy Divers in Marine Reconnaissance was the addition of a Master Diver billet within the Marine Reconnaissance units. The Senior Navy and USMC leadership made the decision in early 1997 that the life support mission of the TRCS (Transportable Recompression Chamber)/ EHCS (Expeditionary Hyperbaric Chamber System), coupled with the medical complexity associated with treating diving related injuries at remote locations required senior experienced Navy Divers for the mission.

In addition to freeing up Marine Reconnaissance men for operational reconnaissance duty, the integration of the Master Diver and his team brought several unique qualifications and capabilities to the dive lockers. A few examples of these capabilities are: Diving supervisory skills, the management of all preventative and corrective maintenance on all diving life support systems and equipment, and technical expertise in the following areas: the operation of Navy approved and certified underwater breathing apparatuses, life support systems and recompression chambers, and diagnosis and treatment of diving injuries and illnesses, particularly those requiring recompression therapy. The Master Diver and his team also possess a comprehensive knowledge of the scope and application of all Naval instructions and publications pertaining to diving, and diving operations.

NDC Keith Barker of 2nd Reconnaisance Battalion and NDC Milligan of 2nd Marine Special Operations Battalion train on KMS 48 along with numerous other Navy and Marine Corp Divers. With this training they will return to their respective commands and be able to train Reconnaissance and Special Forces Marines on KMS 48.

The U.S. Navy Divers currently serving in Marine reconnaissance units are a valued asset to the Marine Corps. They serve harmoniously with leathernecks in dive lockers around the globe continuing the long and historic traditions of the Navy/Marine Corps team.

Master Sergeant Ramsey currently serves as the Reconnaissance Occupational Field Sponsor, and Combatant Diving Advocate at PP&O HQMC.

Hyperbaric Oxygen *cont'd from page 18.*

Six months after enrollment, the research subjects repeat these same tests to determine durability of any possible favorable effects. One year after enrollment we will administer final outcome measures by telephone."

"Intervention blinding is critically important! The study coordinators will educate the chamber sites about blinding methods. The fewest number of chamber operations and inside attendants that must know is optimal. They can talk about the allocation amongst themselves, but cannot reveal the blind to any clinician. Anything that could reveal the allocation must be covered or concealed. The operators and inside attendants conducting the sham must act like it is a real hyperbaric oxygen exposure, and take blinding seriously. If research subjects discover the blind, the study integrity could be compromised. In the event of a chamber-related adverse event, we will have protocols to follow, as well as immediate availability of Coordinator Center personnel to guide what then happens, including appropriate documentation."

CAPT John W. Murray is an Undersea Medical Officer/Family Physician who serves as the Diving Medical Officer for the Supervisor of Salvage and Diving.

CAPT Willard F. Searle, Jr. USN (Ret.)

Oral History Preservation and Digitization Project

By: Dr. Bornmann *Rubicon-Foundation.org*

In his initial Navy career, which began during World War II, and in his subsequent civilian activities "Bill" Searle has been an active force for development and progress in international maritime salvage, diving and work under the sea - in Ocean Engineering. Practically no phase of those activities has been untouched by his review, supervision or active participation. Divers with modern protective equipment and effective tools work at previously only dreamed-of depths and times to accomplish once impossible tasks. Archaeologists can investigate history hidden underwater for centuries and millennia. Underwater structures for an amazing number of useful and necessary purposes are now installed in previously impossible locations. From among the technical development programs initiated by him in the 1960's have arisen Remotely Operated Vehicles {ROV's} and Autonomous Undersea Vehicle's {AUV's} which safely [and quietly in necessary] penetrate all areas and depths of the ocean and perform important tasks which are emblazoned in newspapers and headlines [or never mentioned]. All these are the result of a truly prodigious career.

The story that is told by this man from the Naval Academy to Submarine Salvage on to the H-bomb and the Deep Submergence Program; CAPT Searle saw it all.

Willard F. Searle Jr. was born 17 January 1924 in Columbus, Ohio. The attack on Pearl Harbor occurred during his initial year at Washington and Lee University, and he transferred to the US Naval Academy where he graduated in 1945 [wartime Class of 1946]. On 14 April 1945 he marched with his Naval Academy Company in the funeral cortege which accompanied the casket of the late President Franklin D. Roosevelt from Union Station to the White House. His subsequent naval career focused primarily on salvage, diving and ocean engineering. He was designated as an Engineering Duty {ED} Officer in 1952 after graduate study in Naval Architecture at the Massachusetts Institute of Technology. In 1982 he was elected a Member of the National Academy of Engineering.

After graduation from the Naval Academy in 1945 Bill Searle was retained there as an instructor in Marine Engineering, and used the assignment as an opportunity for graduate study in physics at George Washington University in DC. His first short-course diving instruction came at Norfolk in 1946 while serving in the fast attack destroyer USS MEREDITH (DD-890). He transferred to the USS WEISS (APD-135), which transported Underwater Demolition Team personnel, where he became familiar with their operations. From this ship he went to MIT and afterwards, in 1952, was a student at the Navy Salvage and Diving School, then in Bayonne NJ.

1924 - 2009

Two shipyard tours followed, at Charleston SC and then at Subic Bay Ship Repair Facility in the Philippines. At Subic he ran the shipyard Diving School. Also during this period he participated in and managed the salvage/clearance of several hundred wrecks from World War II, as well as being Technical Advisor for salvage operations in Manila Bay which were then being performed by the Japanese as part of their war reparations. In 1956 Searle was ordered as Engineering Research Officer to the Experimental Diving Unit, which was then located in Building 214 of the Washington Navy Yard [Naval Gun Factory]. After training at the adjacent Naval School, Deep Sea Divers, he was qualified as a Navy Deep Sea Helium-Oxygen diving officer, and received additional indoctrination in the diving activities of the Navy Underwater Demolition and Explosive Ordinance Disposal programs. At EDU he also has Additional Duty to the Bureau of Ships, which entailed assignment to a number of salvage, clearance, wrecking and towing operations worldwide. After two subsequent years at sea as Chief Engineer on the missile cruiser USS PROVIDENCE (CLG-6), he went in 1961 for a year of study at the Command and Staff Course of the Naval War College in Rhode Island. His next two-year assignment was as Pacific Fleet Salvage Officer in Pearl Harbor. In 1964 he returned to Washington and the Bureau of Ships as Supervisor of Salvage. It was then that, with his characteristic intelligence and energy, Bill Searle completely revamped and expanded the office and accomplishments of SUPSALV, established the Navy Directorate of Ocean Engineering, and placed his signature stamp on the character of Navy diving and underwater intervention which has endured for the subsequent quarter century.

As Navy Supervisor of Salvage from 1964-1969 he was responsible for the planning and buildup for the salvage and harbor clearance forces in South Vietnam, as well as major salvage and deep ocean search and recovery projects such as the H-Bomb lost off Palomares, Spain, the location of the sunken nuclear submarine SCORPION, and many others. He conceived and engineered the procedures which successfully recovered the Woods Hole research submersible ALVIN. He also assisted with the management of the United States' first major oil pollution incident: the OCEAN EAGLE at San Juan, Puerto Rico. He was actively involved in the development of modern Navy deep dive systems, and of the Deep Ocean Technology (DOT) programs. He is a co-designer of the Navy's heavy-duty TSF Oil Boom and was instrumental in initiating many of the NavyÕs early oil pollution control plans. Additionally he served on the interagency committee and co-authored (1970) the first National Oil and Hazardous Materials Pollution Contingency Plan.

His final assignment in the Navy was as Project Manager (Ship Acquisition) for auxiliary vessels including responsibility for all the Navy's towing-types and (though the term was not used at that time) ocean engineering ships. His attention focused on the new-construction heavy duty ocean rescue and salvage ships of the EDENTON (ATS) class which were being built in England. These ships were the culmination of conceptual recommendations made by his predecessors in the Pacific Fleet Salvage Officer billet, and which Captain Searle has shepherded through the Ships Characteristics Board and the contract design phases. His interest in their design was in depth and in great detail, and it was only after the first ship (of three) was about ready for sea trails that Captain Searle retired from active Navy duty in 1970.

Beginning his retirement that summer Captain Searle was the founding Chairman of Searle Consortium, international consul-

***CAPT Searle** cont'd on pg.31*

HOW HOOYAH ARE YOU?

NDC (DSW) Russell Dean McCormick (a.k.a. Rusty), his blood truly must run blue and gold. Chief McCormick has been in service for close to 21 years with 18 of that being a Deep Sea Diver. He has served on the USS CHANDLER (DDG 996), USS DIXON (AS 37), USS SAFEGUARD (ARS 50), CDU, EODMU FOUR, SPECWARGRU ONE, and is currently stationed at NEDU. When asked which Divers influenced his career the most, he responded with two retired MDVs, Scott Heineman and Rick Storment. His future career intention is to follow in their footsteps and become a Master Diver. You may ask what would possess a man to build a car such as this? His response was I wanted a rolling tribute to all Navy Deep Sea Divers, both past and present. His car sports a Corvette engine, Turbo 350 transmission and a Ford 9-inch rear end. For those of you that know cars, you realize this car must fly! The most unusual question he has ever been asked about the car was "Can it drive underwater?" And I do believe if Rusty could make it, it would. Now ask yourself, "How Deep Sea can you get?" If you have a Deep Sea story let us know.

The Authorized for

Within the Department of Defense, the United States Navy is the lead agency in military diving technology and training, utilizing the most modern diving equipment available to perform tasks related to salvage, ship husbandry, underwater construction, and submarine rescue. Without having the necessary safe diving equipment available, today's Navy Divers would not be able to operate in the wide spectrum of conditions that their specialized missions require. The Supervisor of Salvage and Diving (SUPSALV), Diving Program Division (SEA 00C3), provides cradle-to-grave service for diving equipment, policies, and procedures from basic research through prototype development, acquisition, publication, and life-cycle management.

Approved thermal protection equipment and surface supplied diving equipment can be found on the ANU list.

U.S. Navy diving equipment can be authorized for use by the Authorized for Navy Use (ANU) list or by holding a current NAVSEA or NAVFAC system safety certification certificate. The U.S. Navy Diving Manual restricts the use of life support diving equipment and hazardous diving equipment to ANU items or diving equipment that is certified. Waivers may be obtained in order to use equipment that is not authorized, but a necessary mission requirement must exist which cannot be fulfilled by an authorized piece of equipment.

As the U.S. Navy's diving technical authority, SEA 00C3 is responsible for maintaining the Diving Equipment Authorized for Navy Use (ANU) Program, which is utilized to designate diving equipment safe for Diver use. SEA 00C4 acts as the System Certification Authority for U.S. Navy diving systems and is responsible for system certification of surface supplied diving systems, hyperbaric chamber systems, and selected free swimming SCUBA underwater breathing apparatus. System Certification is not the focus of this article, but more information about this formal technical review process can be found in the U.S. Navy Diving and Manned Hyperbaric Systems Safety Certification Manual.

The ANU Process:

The Office of the Chief of Naval Operations Instruction (OPNAVINST) 3150.27B requires SEA 00C3 to prepare and publish a list of diving equipment Authorized for Navy Use (ANU). The ANU list acts as a directory of diving equipment, tools, and accessories, which have undergone an independent technical design review and/or testing and evaluation to ensure that the equipment satisfies SEA 00C standards, Diver safety standards, and Fleet operating requirements. The ANU list is available to the public on the SUPSALV website (www.supsalv.org), providing a centralized index of diving equipment that can be used by U.S. Navy Diving Commands to support diving operations. Inclusion of a commercial manufacturer's piece of equipment on the ANU list does not constitute as an endorsement of the U.S. Navy, but simply cites items authorized for U.S. Navy use.

The ANU process focuses on three categories of diving equipment. Category I encompasses life support diving equipment, such as SCUBA regulators and decompression computers. Category II covers all non-life support diving equipment that is potentially hazardous to the Diver, such as explosive actuated tools and Diver heating equipment. Category III includes all non-life support diving equipment that enhances mission capability but is not considered hazardous or essential to safe diving operations, such as fins and wet suits. Each item is assigned a category rating and once approved is placed on the ANU list under one of the following ten sections:

1. SCUBA Equipment
2. Thermal Protection Equipment
3. Surface Supplied Diving Equipment
4. Recall Devices
5. Diver's Breathing Air and Mixed Gas Compressors
6. Air Purification Systems, Air Filters, and Filter Elements
7. Recompression Chamber Instrumentation and Equipment
8. Gas Analysis Equipment
9. Diver's Underwater Tools
10. Medical

Category I equipment must undergo testing and evaluation prior to ANU inclusion in order to ensure that the equipment will function properly in its intended operating environment. Category II equipment will undergo a design safety review at minimum, but testing and evaluation may also be required to demonstrate and mitigate any possible existing hazards. Category III items do not require technical design reviews or formal testing because of their non-hazardous nature, but they are still presented during the ANU Board Meeting, which will be further discussed in the following paragraphs.

A piece of diving equipment may be proposed for ANU evaluation through Program Office tasking, NEDU or NAVSEA internal memoranda, and Fleet requests. Requests from commercial vendors to test and evaluate equipment must be appropriately endorsed by Fleet sponsors in order to be considered for ANU evaluation. NAVSEA 00C may self sponsor an item. Currently, NAVSEA Instruction 10560.2C is utilized for ANU procedures and includes the outline for the ANU Data Package under Enclosure 1, which is designed for ANU submission requests and acts as the documentation for the ANU evaluation process. There are upcoming revisions to the current NAVSEA Instruction, including a revised ANU Submission Data Form.

Navy Use Process

By: Robyn McGinn

In order to submit an item to SEA 00C3 for ANU evaluation, the sponsor must fill out the ANU Submission Data Form, which can be found on SUPSALV's website at https://secure.supsalv.org/anu/home.asp, and provide the required supporting documentation. As outlined in the submission form, the sponsor of the proposed submission item is responsible for providing and collecting information for the appropriate level of ANU evaluation. Once the requirements for submission are fulfilled, the form and supporting documentation are forwarded to the ANU Coordinator (SEA 00C39) for review. The position of ANU Coordinator exists to serve as the Program Manager for the ANU evaluation process, for the equipment designated as ANU, and for organizing the formal quarterly ANU reviews and informal meetings of the ANU Board Members.

The ANU Coordinator works directly with the NAVSEA Supervisor of Diving (SUPDIVE, SEA 00C3B) to assign ANU Board members, whose responsibility is to formally review documentation within the ANU Submission Data Package and recommend ANU action to the Supervisor of Diving (00C3B). The ANU Review Board may include technical sponsors, NAVSEA 00C, Fleet or Program Office representatives, or others as designated by SUPDIVE. Other responsibilities of the ANU Board include discussion of configuration management issues related to equipment already on the ANU list. After an independent review of the supporting documentation, the ANU Board may recommend that the item requires further testing and evaluation, which is usually conducted by the Navy Experimental Diving Unit (NEDU). Once all the documentation is reviewed by the ANU Board, SUPDIVE maintains the technical responsibility for all ANU equipment and retains the final approval signature for ANU inclusion.

Once an item is approved by SUPDIVE for ANU inclusion, the ANU Coordinator updates the ANU list and sends notification to the item sponsor and the equipment's manufacturer as required. All the supporting documentation related to the new ANU item, including the ANU Data Package and ANU Review Board meeting minutes, is cataloged and filed by the ANU Coordinator for future reference.

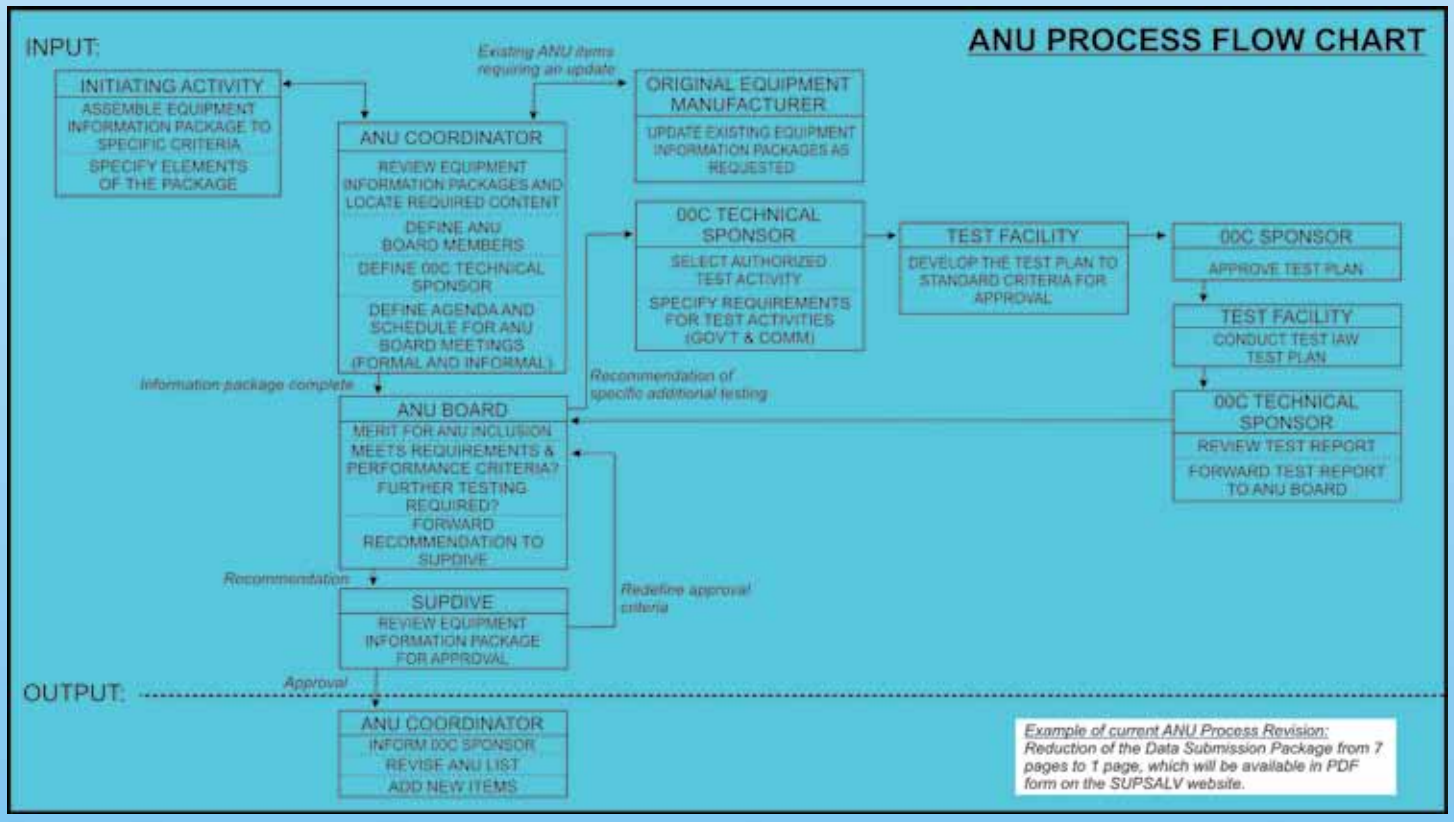
ANU Coordinator Contact Information:

Currently, the ANU Coordinator has actions to identify, analyze and improve the existing ANU process and to develop new goals for the ANU program. In order to better streamline the process, NAVSEA Instruction 10560.2C is currently being reviewed and restructured to improve response time for submission items. A phased plan is in place to review items that currently exist on the ANU list and to remove items that have become obsolete.

Further information regarding this initiative can be found at www.supsalv.org/00C3_anulist.asp.

Contact SUPSALV's ANU Coordinator, Ms. Robyn McGinn, via email at 00C39@supsalv.org, for any questions regarding the content of this article, the ANU equipment designation process, or the ANU List.

Ms. Robyn McGinn is currently serving as the ANU Coordinator at NAVSEA 00C, while providing engineering support to diving programs.



Cold Water Regulators

- Smithsonian Institution's Dive in Antarctica

By: John R. Clarke, Ph.D.

You are 100 feet down using SCUBA, with your dive light spotlighting the most exotic looking Sea Hare you've ever seen. It's noon at McMurdo Station, Antarctica but it's dark at your depth because between you and the surface of the Ross Sea lies 19 feet of snow covered ice. Your dive buddy has drifted about 100 feet away, but you can see him without hindrance in the gin clear water of the early Antarctic springtime. The 800-foot water visibility also means you can easily see the strobe light hanging on the down line 200 feet away, the line leading to the three and a half foot diameter hole bored through the ice.

Under these conditions, you should not have to worry about your regulator, but you do, because you know that any SCUBA regulator can fail in 28° F water, given enough opportunity. You also know that some regulators tolerate these polar conditions better than others, and you are using untested regulators, so yours might free-flow massively at any moment.

Should that happen, you have a back-up plan; you will shut off the free flow of air from your failed regulator with an isolation valve, remove the failed second stage from your numb and stiff lips and switch to a separate first and second stage regulator on your bottle's Y-shaped slingshot manifold, after first reaching back and opening the manifold valve. Of course, that backup regulator could also free flow as soon as you start breathing on it – as has already happened to one of your fellow test Divers.

In that situation you would have no choice except to continue breathing from what feels like a torrent of liquid nitrogen, teeth aching from the frigid air chilled to almost intolerable temperatures by unbridled adiabatic expansion, until you reach your dive buddy and convince him that you need to borrow his backup regulator. Once he understands that two of your regulators have failed, then the two of you would buddy-breathe from his single 95 ft^3 bottle as you head slowly towards the strobe marking the ascent line. And of course he will be praying that his own primary regulator doesn't fail during that transit.

Once you reach the ascent line you are still not out of difficulty. The two of you cannot surface together through the narrow 19-foot long borehole. So you would remove your regulator once again and start breathing off a pony bottle secured to the down line. Once it is released from the line, you can then make your ascent to the surface, but only if a 1,300-lb Weddell seal has not appropriated the hole. In a contest for air, the seal is far more desperate following an 80-minute breath-hold dive, and certainly much more massive than you. Weddells are like icebergs – their cute small face sits atop a massive body that is a daunting obstacle for any Diver.

But you even have a plan for that — you've heard that Weddell seals don't like bubbles, and they get skittish about having their fins tugged on, and will thus relinquish the hole to you. … At least, that's what you've been told. You certainly hope he would leave before you consume the meager amount of air in your pony bottle.

The U.S. Navy, through a Navy Experimental Diving Unit representative, was invited to observe an October 2008 series of 134 regulator test dives for the Smithsonian Institution Science Diving Program. This test series, based at McMurdo Station, was funded by the Smithsonian for the benefit of the U.S. Antarctic Diving Program (USAP). The National Science Foundation (NSF) Office of Polar Programs was a primary financial contributor. The preceding year the Smithsonian and NSF partially funded the author's travels to the high Arctic (Ny-Ålesund, Svalbard) for an Ice Diving Workshop for science Divers (Lang and Sayers, 2007).

Sea Hare

Scuba Regulator

Weddell Seal

Divers surfacing through a narrow 19-foot long borehole.

The Antarctic regulator testing expedition began with participants gathering in springtime Christchurch, New Zealand to be fitted for extreme cold weather gear, including the famous red parkas reserved for Antarctic scientific personnel who venture out on the ice. After being on hot standby for five days waiting for the weather to clear at McMurdo, the team finally embarked on a cavernous C-17 Globemaster for the no frills 2,400 mile trip to McMurdo. A plane departing for the ice the day before had boomeranged; they were within sight of McMurdo but could not land due to low visibility in blowing snow.

Our flight, packed full of USAP employees attempting to head south for the season, broke the bad weather spell. Conditions were clear on approach to the ice runway at McMurdo.

For first time visitors like myself, our exit from the aircraft onto the ice was just what we had anticipated – biting winds and bitter cold. The extreme weather clothing we wore could not conceal the fact that we had landed on the coldest continent on Earth, Antarctica.

Mr. Michael Lang of the Smithsonian, the Diving Officer for the USAP and Principle Investigator of the study described the genesis of this dive testing as follows: At its inception in 1947 (through the U.S. Naval Support Force Antarctica) through 1967 the USAP diving program issued double-hose regulators to NSF scientific Divers. In 1991, double-hose regulators were retired from service and replaced with single-hose, modified Sherwood Maximus SRB3600 regulators. A heat retention plate was fitted over the second-stage exhaust valve and around the air delivery lever and the intermediate pressure detuned from 145 to 125 psi to reduce the probability of free-flow in supercooled sea water at -1.86°C in McMurdo Sound. The decision to investigate replacement regulators was influenced by the age of the 1991 Sherwood models, their less than optimal breathing characteristics, and the lack of continued parts availability in 2008 to avoid potentially catastrophic regulator failure.

Eleven Divers from the U.S., U.K., Switzerland, and Australia, three of them female, were recruited by the Smithsonian as test Divers. All Divers had passed extraordinarily stringent medical qualifications and logged no fewer than 10 drysuit dives in the previous 6 months.

The manufacturers represented by the test regulators were Poseidon, Apeks, Mares, Aqualung, Zeagle, and Sherwood. In all, nine regulator models were tested, all having been approved for Navy use or showing promise as cold-water regulators. All dives were no-decompression dives, and included a mandatory safety stop at 15 feet. Dive profiles were recorded on UWATEC One dive computers.

Most of the dives were conducted on the Ross Ice Shelf just off McMurdo Station, but a remarkable series of dives were conducted at the foot of a glacier a long and cold Pisten Bully's ride away, riding on narrow lanes on the sea ice marked only by flags.

Dives conducted at the foot of a glacier.

Typical dives lasted between 30 and 40 minutes at depths between 60 and 100 fsw, with one series of dives down to 165 feet using the better performing regulators. Out of 134 under-ice dives, there were 28 free flows, for an approximately 20% free flow incidence. Some regulators performed far better than the others; regulators were dropped from testing whenever their free flow incidence reached 33%. All the Poseidon regulators and the one Sherwood regulator had a combined free flow incidence of 5%, whereas the others had a combined incidence of 44%. Two of the worst regulators reached an alarming 50% failure rate after only 6 dives each.

One of the first regulators to be dropped from testing in Antarctica was the Mares V32 Proton Ice Extreme, the subject of a recent Diving Advisory (09-07). At the other end of the spectrum, the Poseidon Xstreme was the only regulator that suffered no free flows at McMurdo, and is also the only regulator that never free flowed during the NEDU rigorous 2004 testing program for cold water regulators. The prototype Mares regulator that was the progenitor of the Proton Ice

***Cold Water Regulators** cont'd on pg.27*

Ice runway at McMurdo

Sherwood Regulator

Driving on narrow lanes on sea ice marked only by flags.

HMS ENDURANCE
Heavy Lift

By: Jim Ruth

On 25 Feb, 2009 a joint US/UK heavy lift team conducted a successful lift of the HMS ENDURANCE on the Dockwise Heavy Lift ship M/V TARGET in the Falkland Islands.

The HMS ENDURANCE experienced a hull valve casualty in mid December while operating in the Straits of Magellan off Punta Arenas, Chile. The casualty occurred while conducting routine maintenance causing severe flooding of the main machinery spaces which required extensive damage control efforts to save the ship and restore its stability. Following these efforts, the ship was towed to the Falkland Islands for safe stowage while awaiting its final disposition decision by the Royal Navy. In late January the Royal Navy made the decision to heavy lift the ship back to the UK for repair. The UK Ministry of Defense (MOD), Chief of Salvage and Mooring Office (CSALMO), requested technical on site assistance from NAVSEA's Director of Ocean Engineering, Supervisor of Salvage and Diving (SUPSALV), code 00C. SUPSALV enthusiastically agreed and provided two engineers, Vince Jarecki and Jim Ruth, from 00C2 as well as LCDR Elmer Roman from the SUPSALV NR Heavy Lift and Dry Docking Detachment (HLDD). SUPSALV and its UK counterpart CSALMO established an International Exchange Agreement (IEA) on Towing and Heavy Lift in 2005. The IEA was an outgrowth of joint salvage operations conducted during Operation Iraqi Freedom in 2003. The initial concept was to establish common practices and standards for conducting towing and heavy lift operations utilizing lessons learned from the lifts of the USS COLE and the HMS NOTTINGHAM. Since that time SUPSALV and CSALMO have been conducting monthly phone-cons and annual meetings to establish personnel qualifications, interoperable standards and table top exercises. Both Navy Offices have provided observers during heavy lifts which have included the Canadian Submarine CHICOUTOMI and the AFDM 10 RESOLUTE. The ultimate goal of the IEA is to be able to conduct joint operations and in the event of a USS COLE type casualty on either Navy's side of the pond, the U.S. or the UK could provide experienced qualified first responders until the responsible Navy could get their own personnel on scene.

ENDURANCE Cribbing and Guide Posts

The lift of ENDURANCE is the first time the interoperable joint integrated team concept has been implemented.

Per the heavy lift contract the M/V TARGET transited from Cape Town, South Africa to Rio De Janeiro, Brazil for pre-load mobilization. This included the construction of 30 sea fasteners and building of the landing blocks. The U.S. team departed for Rio on 13 February and rendezvoused with the UK team on the 15th. Over the next several days, inspections of ship preparations and block build were conducted. On 19 February M/V TARGET departed for the 6 day transit to the Falkland Islands. The joint team departed Rio on the 19th for the Falkland Islands via Santiago, Chile through Punta Arenas, Chile arriving in the Falkland Islands on 21 February. The team was housed at the RAF Base in Mt. Pleasant approximately 40 miles from Port Stanley, Falkland Islands.

ENDURANCE on Blocks Port 4

TARGET arrived in the Falklands on the 23rd. Final inspections were conducted, and the heavy lift operation was scheduled for the 25th. Weather forecasts indicated if the lift could not be conducted on the 25th, the next favorable weather window would be 2 or 3 March. On the evening of the 24th, the team was split into two teams, one team deployed to the M/V TARGET to monitor heavy lift ship operations and the other team deployed to ENDURANCE to monitor cargo stability and landing. On the morning of the 25th at approximately 0500 ENDURANCE was towed from the dock to the heavy lift loading site with the intention of commencing loading operations at approximately 0800. Upon arrival at the heavy lift site, M/V TARGET had not reached her load ballasting condition and ENDURANCE was held in place by tugs awaiting the go decision. By 0900, the weather conditions at the load site were deteriorating rapidly and the loading operation was placed on hold until 2000 when the winds were predicted to diminish.

The winds began to diminish as predicted and the go decision was made at 2030. At 2130 ENDURANCE was in position over the deck of TARGET as deballasting operations commenced. Deballasting operations were suspended at approximately 2200 to launch the Remotely Operated Vehicle (ROV) to verify ENDURANCE's position over the blocks prior to landing. While preparing to launch the ROV, the forward guide post separated from the TARGET's load deck causing it to deflect approximately two feet to port raising concerns as to whether landing on the keel blocks and side blocks was going to be possible. Inspection by the ROV confirmed ENDURANCE's bow was swinging approximately two feet off center line over the keel blocks. The primary concerns were would ENDURANCE topple over if she did not land on the blocks as designed or if the hull were breached during landing could refloating be accomplished. ENDURANCE was without power and dewatering could not be accomplished should the side blocks collapse during initial touch down. After several consultations and further inspections by the ROV the decision to continue with the lift was reached. ENDURANCE touched down at approximately 2230 and was up and dry at approximately 0100 on 26 February. The team deployed on ENDURANCE returned to the RAF base while the TARGET team continued to monitor deballasting operations.

The following morning sea fastening for the three week transit back to the UK began in earnest.

On the evening of the 27th while conducting lessons learned and consolidation of observations, the MOD, CSALMO Team commented that while things were getting a bit dodgy during the landing operations that they had no reservations about turning to the U.S. Team for input and handling of critical functions during the operation. The operation was proof positive that the interoperable joint integrated team concept was a success. The U.S. team departed for home on 28 February.

The heavy lifting of the HMS ENDURANCE provided an excellent opportunity for the US/UK team to sharpen their heavy lift skills, build team confidence, and most of all prove that the hard work to develop joint standards and personnel qualifications has resulted in a truly integrated team that enhances both Navy's abilities to conduct heavy lift operations in the event of a USS COLE type incident.

ENDURANCE Bow on Blocks

Jim "Doc" Ruth is an Ocean Engineering Graduate of Florida Institute of Technology serving as the Towing and Salvage Engineer at NAVSEA 00C.

***Cold Water Regulators** cont'd from pg.25*

Extreme, then called the Mares Proton Ice Teflon V32 CWD, did free flow occasionally in NEDU testing. At this point, the regulator's poor performance in Antarctica is inexplicable. Further NEDU testing should soon reveal the cause of the problem.

Cold water regulators are the only piece of diving equipment that NEDU tests and recommends for Navy use based solely on unmanned testing. Manned testing of new regulators by Navy Divers under field conditions is simply not practical.

The Navy's participation in the Smithsonian's field trials was made possible by a Memorandum of Agreement (MOA) between NEDU and the Smithsonian Institution Scientific Diving Program, Office of the Undersecretary of Science. Through this MOA the Navy provides technical information to the Smithsonian relating to cold-water regulators and access to sophisticated equipment testing facilities. In turn, the Smithsonian provides cost-effective NSF sanctioned access to Polar Regions for field-testing of cold water regulators by civilian divers.

As demonstrated by both this Antarctic dive series and ICEX 2009 recently held in the Arctic, partnering between the U.S. Navy and civilian science Divers is a mutually beneficial and financially responsible way to conduct work in the harsh Polar Regions. We can anticipate this trend continuing, to the betterment of all Navy Divers as NEDU pushes to qualify only the very best life support equipment.

John R. Clarke, Ph.D., Diving Researcher at the Naval Medical Research Institute from 1979-1991, Scientific Director of the Navy Experimental Diving Unit from 1991 to present.

Contributing Author:
Lang, M.A. and M.D.J. Sayer (eds.) 2007. Proceedings of the International Polar Diving Workshop, Ny-Ålesund, Svalbard, March 15-21, 2007. Smithsonian Institution, Washington, D.C. 213 pp.

Photography By: Dr. Martin D. Sayer and Dr. Sergio A. Angelini

Southern California ROV Operations

By: Ric Sasse and LT Sal Saurez

SUPSALV ROV operations included recovery of a dipping sonar transducer for NAVAIR, inspection of 'Deep Seat' for PMS 394, video survey of the Weapon Set To hit Threat Target (WSTTT), and video documentation for NUWC of an acoustic range off of San Clemente Island.

In late October 2008, an MH-60 helicopter from HSM 71 was in a fleet exercise in the Southern California operating area. During the exercise, the AN/AQS-22 ALFS dipping sonar from the MH-60 came into contact with a submarine participating in the exercise and was subsequently lost at sea. The squadron requested salvage of the Airborne Low Frequency Sonar (ALFS) sonar to assist in the aviation mishap investigation.

Upon receipt of the salvage request, SUPSALV began to coordinate the details of the salvage operation with the C3F Salvage Officer, CPF Salvage and Diving Officer, CNAF, NAVAIR, HSM-71, SEALOGPAC, and Phoenix International. Various courses of action were presented to NAVAIR and CNAF, but the decision was made to wait until an MSC salvage vessel was available to support the recovery operation as contracting a commercial vessel of opportunity was cost prohibitive. The next availability window for a west coast MSC vessel was in the January-February 2009 timeframe.

During the coordination of the ALFS sonar recovery, PMS 394 (Advanced Undersea Systems Program) and the Deep Submergence Unit (DSU) contacted SUPSALV regarding the potential for performing an underwater inspection of the DSU training asset 'Deep Seat'. This seat is a submerged training fixture used during submarine rescue exercises to simulate a submarine mating surface. SUPSALV provided PMS 394 with several inspection options. It was decided to perform the survey in conjunction with the ALFS sonar recovery to take advantage of the mobilization and demobilization costs already covered by the sonar recovery.

At the same time, the NAVSEA technical warrant holder for the NUWC Undersea Range Tracking Systems program contacted SUPSALV with a request to perform an inspection and video survey of an acoustic range near San Clemente Island. The program needed a survey of the sea floor around the proposed site for a new array installation. A year earlier, SUPSALV had removed the previous non-working array assembly and assisted with capping off the trunk cable, preventing water intrusion so a future array could be spliced in. It was determined that there was a good possibility of combining this mission with the other ones being planned for the region.

On 9 January the SEALOGPAC scheduler notified SUPSALV that the USNS NAVAJO (T-ATF 169) had become immediately available due to a change in schedule, but would have to depart for a maintenance availability no later than 3 February 2009. Given the time needed to transport the salvage equipment across country plus mobilize and demobilize the vessel, this provided, at most, a 10-day operational window. The firm mission termination date meant that there was no ability to extend the operational timeline if events required and thus might not provide enough time for SUPSALV to perform the primary ALFS sonar recovery mission and all the follow-on missions. The decision was made to immediately ship the search and recovery equipment to NAVSTA San Diego in order to provide the largest operational window possible. The equipment selected for these operations was the Shallow Water Intermediate Search System (SWISS) and the Deep Drone ROV, both 8,000-fsw capable systems.

Upon arrival of the salvage equipment in San Diego, Phoenix International personnel under the direction of the on-site SUPSALV representative began mobilizing the equipment onto NAVAJO. At approximately 0800 on 20 January, NAVAJO was underway enroute to the search area for the ALFS sonar with all personnel and equipment onboard, ready to operate. By late afternoon, Deep Drone was launched at the position provided by HSM 71 and began a short reconnoiter of the bottom in hopes that the ALFS sonar would be easily found. Approximately 90 minutes later, a strong return was received by the ROV's searching sonar such that the operators determined it to be a viable target for visual identification. This was fortunate, as it was outside the 100 meter square search grid that was designed for the ROV search phase of the recovery operation. The ALFS sonar was found in 1500 fsw, 150 meters from the position provided. The ALFS was recovered shortly thereafter by the ROV using two manipulator clamp tools originally designed to recover items of a similar diameter to that of the ALFS sonar. During the course of two brief dives, the sonar was successfully recovered intact with no damage from the recovery efforts.

When Deep Drone was back on deck and secured for sea, NAVAJO got underway for the acoustic range near San Clemente Island. Enroute, a brief stop was made at the site where the WSTTT was lost 18 months before in just over 300 fsw. The WSTTT is an unmanned

submarine that mimics a submarine at idle on the bottom, allowing the fleet to perform search and targeting drills on it. A previous attempt to coordinate its salvage was cancelled due to budget constraints. As it was deemed a low risk dive on a relatively shallow known position, the decision was made to perform a quick video survey to confirm material condition in order to support any possible future salvage mission. This survey took approximately 90 minutes from taking station over the WSTTT to Deep Drone back on deck and NAVAJO underway enroute to the acoustic range.

At approximately 0630 on 21 January, NAVAJO arrived at the site of the acoustic range and began making preparations to deploy Deep Drone for the video survey. Upon arriving on station, the salvage team was informed that the range was occupied and unavailable for ROV operations from 0800 through 1700 over the next two days. The decision was made to break station and proceed to the site of 'Deep Seat' to perform that inspection, then return to the acoustic range when it was not in use. PMS 394 and DSU representatives wanted to be present during the inspection so DSU was contacted and notified that NAVAJO would arrive at 'Deep Seat' at approximately 1200 that same day to perform the inspection.

NAVAJO arrived on station in the vicinity of 'Deep Seat' as scheduled. Deep Drone was deployed to perform the video survey. The seat was finally located approximately 800 yards from the position provided. Two personnel from DSU arrived via small boat at the time Deep Drone reached the seat. The inspection was completed by 1500. Deep Drone was back on deck by 1545 with NAVAJO underway for the acoustic range. The underwater video survey showed that the seat was in good condition allowing PMS 394 to certify it for continued DSU use.

Due to the quick inspection of 'Deep Seat', the SUPSALV on-site representative was optimistic that they could arrive on station at the acoustic range when its operations were complete for the day, perform the survey, then depart the area before 0800 the next morning when it would be back in operation. NAVAJO arrived on station at 2130 on 21 January 2009. Deep Drone was deployed at the proposed location for the new array. The bottom was at approximately 1050 fsw and a 50 meter radius area was surveyed with no obstructions observed. Deep Drone ROV was flown to the estimated position of the bitter end of the cable. It took approximately 3-1/2 hours to locate the cable. The on-site team hypothesized that the discrepancy in the cable location occurred when the bitter-end was released from the surface and the stored energy in the cable catenary caused it to move wildly through the water column before hitting the bottom resulting in a large delta between the surface release point and the final bottom position. Upon locating the cable, it was raced toward shore looking for any kinks, short radius bends or passage of the cable over any steep drop-offs. No issues were found during the survey that stopped at a shallow water depth of 350 fsw. Deep Drone then turned and traced the cable toward deeper water in search of the bitter end. The end was eventually located in approximately 725 fsw with no observed issues along the way. The capped cable end appeared in good shape. It was noted that there was a lot of nylon line piled on the bottom in the vicinity of the bitter end. This was the remnants of a marker buoy and light anchor assembly that was attached to the cable when it was deployed from the surface. No buoy was found suggesting that it had experienced a turbulent ride to the bottom. Deep Drone was then flown from the bitter end to the proposed new anchor location in a search for obstructions, rock formations, or crevasses. The direct line between the two points was approximately 1000 feet. No obstructions were found. Deep Drone was recovered by 0500 on 22 January and NAVAJO returned to port by 1100 that day to commence vessel offload.

This operation was estimated to last a full 10 operational days onboard NAVAJO. Due to the quick completion of each operation, SUPSALV, Phoenix International and the crew of the USNS Navajo were able to successfully complete all four operations in just over 48 hours at sea for a fraction of the estimated cost to NAVAIR, PMS 394, and NUWC.

Pictures left to right: NAVAJO's stern deck with the Deep Drone ROV system; ALFS Sonar unit in the ROV Manipulators; Deep Drone being recovered with the sonar in it's grasp; Conning tower of the sunken WSTTT; Crumpled bow damage from impact with the bottom.

Ric Sasse is the Deep Ocean Search & Recovery Program Manager for SUPSALV. LT Sal Suarez was an Engineering Duty Officer/Diver serving as the Assistant for Salvage at NAVSEA 00C, and was the on-site project manager during operations.

The Old Master

In opening let me say what an honor it is to share my thoughts with my Navy Diving family. I truly believe that there is no better job than that of a U.S. Navy Diver (ND). From day one, which was 27 years ago, I was and continue to be amazed at the level of comradery, community pride, and "Can-Do" spirit within this community of Sailors.

NDCM Westbrook, Master Diver, Naval Surface Warfare Center Panama City Dive Locker.

In recent years we have seen many changes in the diving community. Becoming our own rate (ND), like it or not, was a good thing and necessary to align our community with the big Navy. My personal feelings are that the diving community has benefited greatly by the course we have taken. Specifically, structuring a career path from cradle to grave has removed the wonder and speculation from what is the best path to advancement. It's laid out for you to look at and plan years in advance.

With that being said, there have been some sad times also such as the fading away of the Basic Diving Officers (BDOs) that guided our community for so long. I had the privilege of working with a number of BDOs who I consider some of the best officers in military service. A few by name are Navy Captains Wilkins, Herb, Scholley, Barcus, Helmkamp, and Murray, and Army Captain Menendez. Obviously there are many more but hopefully you see my point. I personally feel that I was spoiled working for some of these senior leaders that I know came up through the same diving channels as I did, and have the same love of Deep Sea in their heart as I do.

The reason I write this is because I have recently heard it said that our new guiding lights may not have the Navy Diving and Salvage Community's best interest in mind when directing employment and managing community longevity. I say have faith! It's hard for me to imagine that our leadership is not aware of the importance and necessity of these skills. There may be no significant demand signals now, but history has shown us that there has been and always will be an existing requirement for diving and salvage skill sets. It's up to us as a community to maintain these proficiencies and as before, be ready to carry out that mission when called to do so.

Until then it's the task at hand supporting one common goal. And as in years past we make ourselves valuable with our "anywhere, anytime, anything, "Can-Do" attitude that makes us who we are. Never let the tradition die!

HOOYAH DEEP SEA!

SUPDIVE SENDS ...CDR Mike Egan

Yes SUPDIVE is an EOD Officer. Rest assured though, I know a little about diving. I was trained by the best.As Master Diver Paul Schadow taught me, "plan your dive, dive your plan, and no good dive plan ever started out by saying *#@%&!$, just get in the water!" Bridging the gaps between all our diving specialties is imperative and is at the top of my To-Do List.

I am NAVSEA 00C3B in the Diving Programs office which is one of five offices that work for the Supervisor of Salvage and Diving (SUPSALV). My advocacy is extended to those personnel who represent the communities within the Department of the Navy that breathe compressed air underwater. That said, I address many issues and concerns in trying to keep all diving safe and all Divers well equipped. The other four offices within SUPSALV are Salvage, Underwater Ships Husbandry, Certification, and Finance. All the SUPSALV offices are staffed with hard-chargers that come in early and stay late.

First and foremost, I have had a lot of talks with the "Old Masters" and I listen far more than I talk. There are many facets to my job as Supervisor of Diving (SUPDIVE), but the most important is listening to the Fleet, hearing what they are asking for, and on my word, delivering it. I have tried hard over the last six

months to grasp the "big picture" of Navy Diving. What I learned was no surprise. I saw hard-working men and women supporting the Navy's mission in carrying out the orders of the President and the officers appointed over them. That's what we do. I say we and I mean we Divers. In writing this article, I made it a point to keep notes of things I've seen during my travels outside of the Washington Navy Yard that I wanted to see in FACEPLATE. As ALF said, "When you crawl under people's houses you hear things!" I've been to many of your houses, and I've heard many things.

SUPSALV recently hosted the Diving Leadership Working Group (DLWG) in Panama City, FL. Based on your feedback, it was a success. We accomplished our goal of getting everyone in one room and putting out the word, as well as, hearing the word from many leaders from around the Diving Navy. Have faith in our leadership. They are paying close attention to capabilities, personnel, training, and equipment. I know the way ahead for Diving and Salvage is being examined and its future is in good hands. We adjourned DLWG 2009 with a database of not less than thirty action items that myself and Master Divers Stark, Johnson, and Costin are tracking and providing monthly updates on the SUPSALV Secure website. If you have not been to the SUPSALV website login and visit, it has a wealth of information and gets better every day. The Working Group is something we will continue, so go ahead and put a place holder on your calendar for May 2010.

The Diving Management team currently in place (OPNAV N873, SUPSALV, CEODD, EODTECHDIV, NAVSLOLEOD, NEDU, NDSTC, SUPDIVE…and many others) is unlike any I can remember. It is the most "Can-Do" bunch I've ever seen assembled at one time. HOOYAH Navy Diver!

Commander Michael L. Egan
Supervisor of Diving
(NAVSEA 00C3B)

CAPT Searle *cont'd from pg.20*

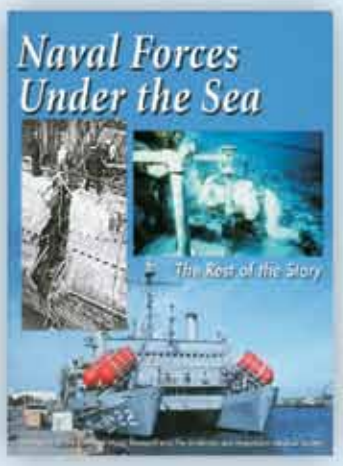
tants in ocean engineering, towing, salvage and diving. Because he had in 1956 interfaced with the World Bank-UN clearance of the Suez Canal, he was called upon by the United Nations, subsequent to a revolution in Bangladesh in 1971/72, to serve with the rank of Ambassador as a Special Consultant for the purpose of taking technical and executive charge of the UN Relief Operation Bangladesh (UNROB) in order to salvage and clear sunken ships from their waterways. In this capacity he supervised the work of four international salvage contractors working in the Port of Chalna and interfaced with the Russian Navy's salvage teams working at the Harbor of Chittagong, the other major Bangladesh port.

He was also a principal in related firms SEAWARD Corporation and TRITON Marine Construction. In 1990 the Searle Consortium changed its name to MacKinnon Searle Consortium when Rear Admiral Malcolm MacKinnon USN (ret) joined its operations. Captain Searle ceased active participation in these enterprises in 1994 because of declining health.

Captain Searle was a senior visiting lecturer on the staff of the Department of Ocean Engineering at MIT. He had also been a visiting professor at the Maine Maritime Academy, and he lectured on salvage and ocean engineering subjects at Webb Institute of Naval Architecture. He also lectured at the University of California, Berkeley, Scripps Institute of Oceanography, and several of the other state maritime academies. From 1970-1989 Captain Searle served two terms as a member of the Marine Board of the National Research Council. He is a member of the Marin Technology Society, the American Society of Naval Engineers, The Society of Military Engineers, the American Society of Mechanical Engineers and the Royal Institution of Naval Architects. He was a founding member of the American Institute of Nautical Archaeology, and chaired the ANSI Committee to develop a standard addressing pressure vessels for human occupancy. The Undersea Medical Society awarded him Special Recognition in 1988 for his continuing support of physiological and medical research in undersea development.

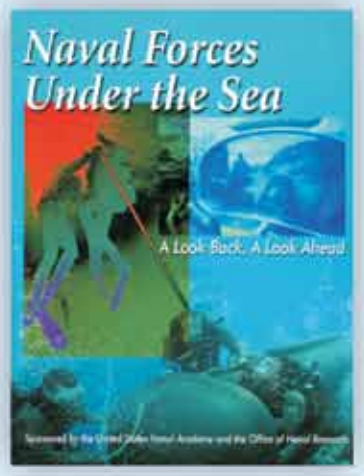
The RUBICON FOUNDATION of Durham NC is developing, digitizing and maintaining an archival repository of material relevant to diving and diving history - including the Oral History of Captain Willard F Searle USN. The Foundation welcomes queries from qualified researchers and from those interested in diving. http://archive.rubicon-foundation.org/

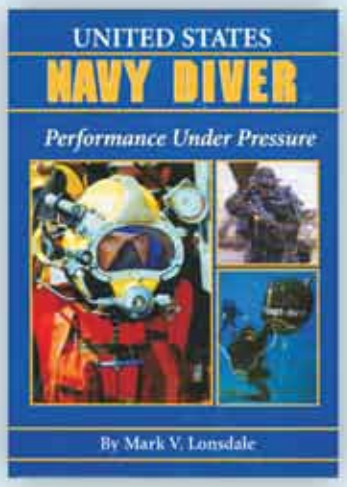
NAVSEA 00C recently had the opportunity to review three books that might be of interest to our readers:



Sponsored by the Office of Naval Research and The Undersea and Hyperbaric Medical Society "Naval Forces Under the Sea: The Rest of The Story" entails the early days of Navy submarine and diving through significant past events, including the evolution of equipment and tactics throughout history.

Sponsored by the U.S. Naval Academy and the Office of Naval Research "Naval Forces Under the Sea: A Look Back, A Look Ahead" includes major elements from a 2001 symposium, sponsored by the U.S. Naval Academy and the Office of Naval Research, which addressed significant developments in science and technology related to diving, special warfare, and submarine search and rescue.





The third book, "U.S. Navy Diver Performance Under Pressure", written by Mark V. Lonsdale, tells about U.S. Navy Divers today, including history, equipment, training, and organization.

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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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