

FACEPLATE

The Official Newsletter for the Divers and Salvors of the United States Navy
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In This Issue...

*La Maddalena Cleanup
Minneapolis Bridge Collapse
Salvage of the "Widow Maker"*

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

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SUPSALV SENDS

Greetings Navy Divers. A quick note from SUPSALV this issue focuses on NAVSEA's efforts to support Diver safety and fleet priorities.

First, our team has logged many weeks away from homeport since our last issue supporting the introduction of diver lock in/lock out facilities aboard the SSGN and VIRGINIA Class submarine programs. Due to a focused team effort by the submarine crews, NAVSEA 00C and a host of stakeholders from both submarine programs, the Navy and the warfighting commanders worldwide have a more robust ability to insert Special Forces covertly in the war on terror. The first submarines from both programs are now certified and are proceeding toward their first operational deployments. SUPSALV's efforts will continue with the certification of the follow ships from both programs.

Similarly, SUPSALV direct support for fleet operations included efforts are highlighted by a number of articles in this issue. Salvage efforts associated with the departure of the USS EMORY S. LAND from La Maddalena, Italy presented an excellent opportunity to utilize the ORCA to support in water decompression with oxygen. This high visibility operation dictated the diving profiles for which the new air diving decompression tables were intended. SUPSALV provided direct training, certification, and material support that enabled the tremendous accomplishments of the Emory S. Land Dive Locker, MDSU TWO detachments, and other dive lockers to salvage tons of accumulated debris.



Captain Rich Hooper

A number of notable diving missions are also documented in this issue including salvage efforts on two submarines. The real world voyage repairs of the USS NEWPORT NEWS by Divers from the numerous Navy dive lockers including the USS FRANK CABLE and NAVSEA's diving support contractor Phoenix International show the indispensable role that Navy Divers played in returning a severely damaged

submarine to a safe condition that allowed her submerged return to homeport for permanent repairs. Similarly, MDSU TWO has accepted a valuable training event in raising a former Juliett-Class submarine which foundered at its moorings in Providence, RI during an April 2007 nor'easter. Rarely, is the Navy afforded a major salvage opportunity that can be performed in a deliberately planned manner like this. The training opportunity is enormous and the lessons learned potential even larger. MDSU TWO leadership has taken on this significant mission with support from U.S. Army Divers and engineering support from the SUPSALV Williamsburg ESSM Base.

Second, when not deployed supporting fleet operations, your NAVSEA team is focused on the priorities you have identified for us. These priorities included:

- Fleet introduction of the Extreme Lightweight Diving System (XLDS), which is completing the Approved for Navy Use (ANU) process and will be rolled out at the 2008 Working Diver Conference.

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Cover: MDSU TWO Diver during Minnesota bridge recovery efforts.

USS NEWPORT NEWS Repairs

By: LCDR Carl Parks

In January of 2007, USS NEWPORT NEWS had a collision at sea with a civilian tanker, Mogamigawa, in the Straits of Hormuz. The Mogamigawa, a Japanese owned tanker, was built in 2001 and is classified as a Very Large Crude Carrier (VLCC). This super tanker displaces 300,000 tons of water, 3 times the amount of water of a modern aircraft carrier. USS NEWPORT NEWS displaces 6,900 tons of water. The tanker's blade caused extreme structural damage to the Main Ballast Tanks (MBT) on the starboard side of the submarine. Eighteen damaged areas were found, sixteen vertical gashes and two large dented areas.

A quick response dive team from USS FRANK CABLE responded on scene to begin the damage assessment. Additional dive teams and personnel from NAVSEA 00C5, Phoenix International, USS EMORY S. LAND, and SWRMC were dispatched to assist with voyage repair.

When USS FRANK CABLE dive team arrived on site in early January, they began by mapping out the damaged area in order to form a complete picture of the overall damage.

This mapping was to be used to formalize a repair approach. The entire Navy dive team, lead by MDV Clouse

of USS FRANK CABLE began templating the entire damaged area (40 ft. by 17 ft.) with herculite covers. The use of the herculite covers as a template was a unique and clever idea. We were able to get accurate measurements of the extent of the damage below the waterline. This new information was provided to Newport News Shipbuilding, the planning yard, so it could be incorporated into a finite element analysis of the ship's structure.

Five days were spent performing videoed inspection dives so all repair activities stateside could form a complete picture for structural analysis repair options.

The original repair approach involved a bolt on plate design for all damaged MBT area below the waterline. After further analysis this approach was deemed not structurally sound. The next plan was to return a certain percentage of ballast control by wet welding doubler plates over certain areas (Tears 1-4). To increase the structural support, 5 doubler plates were welded over tears 9, 12-15. Additionally stiffeners were welded below tears 5 and 7.

The wet welding was performed by Phoenix International Incorporated (PII) Divers. Phoenix Dive Supervisor, Lance Shupe, was the



USS FRANK CABLE (AS 40) Divers before in-water damage assesment.



USS FRANK CABLE (AS 40) Diver returns from Ballast Tank inspection.

lead supervisor for both day and night PII dive crews. He also was the primary onsite advisor for the doubler plate configuration. His repair knowledge coupled with the PII engineering team back in Largo, MD, and the structural requirement directives from NAVSEA 05P made it possible to properly design, size, and shape all of the doubler plates. PII, NAVSEA 00C5, and NAVSEA 05MP2 determined the appropriate welding procedure and weld size for strength concerns.

USS FRANK CABLE dive locker, Phoenix International, USS EMORY S. LAND dive locker, and the SWRMC delta crew, worked around the clock removing special hull treatment (SHT), rigging and removing metal debris, and grinding and prepping the damaged area for welding. Torpedo tubes 1 and 3 shutter doors were rigged and removed and 300 ft² of SHT was removed.

The U.S. Navy dive team recorded 500 hours of bottom time.

PII recorded 430 hours of bottom time and 212 pounds of nickel electrode were consumed for a total of 117.7 linear feet of weld.

Upon completion of all welding and initial NDT, USS NEWPORT NEWS conducted at-sea tests which included an emergency blow to insure the safety and completeness of all repairs. An additional visual inspection was conducted upon the ship's return to the forward deployed site. All welds were sound and all doubler plates and stiffeners intact. A temporary SUBSAFE certification was given to the ship and she sailed back to homeport for permanent repairs.

The total repair time for USS NEWPORT NEWS was over 60 days. It was the first time such a robust repair was undertaken in such a location with so many teams involved. All four dive teams worked and performed as one team. All teams became a cohesive unit that worked and performed off of each other's work and made the entire evolution an outstanding success.

The fact that we were able to weld such large doubler plates over a contoured area was a special feat. This was something that had not been performed before. Plates A and B (forward two



Repair Team; NAVSEA, USS FRANK CABLE, USS EMORY S. LAND, & PII.

doubler plates), were the largest doublers that NAVSEA had installed on a submarine. Most doublers plates are 1 ft by 1 ft. By the end, we had partially or fully restored MBT's 1, 2, and 3 functionality. This permitted a successful submerged transit for USS NEWPORT NEWS.

The damage assessment, repairs, and re-certification of USS NEWPORT NEWS was a combined effort from entities all across the globe. The dive teams were at the forefront of the global effort, providing the onsite eyes and manpower to evaluate, repair,

and return the ship to limited service for transit back to its homeport.

This collision sparked a review of emergent voyage repairs for our submarine assets. NAVSEA is currently researching the design of a fly-away kit for SHT removal, underwater mapping, and underwater metal cutting. This kit will greatly assist the proper and efficient assessment of underwater damage so an accurate and complete technical review of repair options can be conducted.

LCDR Carl Parks is an Engineering Duty Officer/ Diver currently working as a Project Manager at the Underwater Ship Husbandry Division at NAVSEA 00C in Washington, DC.



ND1 (DSW/SW) Williams work on SHT removal and mapping.

SEABEE Divers Train the World

By: LCDR Daniel M. Stoddard

From 9-22 July 2007, Seabee Divers and support personnel from Underwater Construction Team ONE (UCT ONE), based at Naval Amphibious Base (NAB) Little Creek, VA deployed to Odessa, Ukraine to participate in the multinational training exercise Sea Breeze 07 as an element of the Maritime Component Commander of CTF 167. In its tenth year, Exercise Sea Breeze involved 13 different countries with over 2,400 participants including nearly 750 U.S. Navy, Marine Corps, and Army personnel. The annual EUCOM Partnership for Peace exercise focuses on NATO interoperability of maritime, air, and ground task forces in addition to peace support operations for the Black Sea Nations such as Ukraine, Moldova, and Turkey.

UCT ONE's mission was to train Divers from the Ukraine Mobile Diving Unit, Latvia Explosive Ordinance Disposal, and Macedonia Combat Diving Unit in surface supplied diving operations and underwater cutting/welding techniques.

EO1(SCW/DV) James Igoe of Air Detachment Charlie, UCT ONE, was the exercise planner and was tasked to deploy to the Western Naval Base in Ukraine with 20 tons of gear to include the MK-III Lightweight Diving System for surface supplied diving, underwater cutting and welding equipment, hydraulic tools, side scan sonar, and a Remotely Operated Vehicle (ROV). He ensured that all 47 Divers were trained and understood the rigorous safety procedures that had to be followed in order to have a safe and productive training exercise. All foreign Divers at-

tended classroom training covering the diving and underwater construction techniques that are used by the UCTs. Petty Officer Igoe stated, "Previously I have participated in three multinational DIVEX's in eastern Europe, so I was very excited to be given the opportunity to plan and return for a fourth time. It's always nice to see familiar faces and work with friends I have made over the last few years. As always this DIVEX went off without a hitch, thanks to the hard work and true professionalism of all the participants."

The language barrier was eliminated thanks to the assistance of our translator, Sergeant Igor Zolotushkin, from the Defense Threat Reduction Agency (DTRA). He interpreted all diving subjects and dive side terminology which greatly increased

geant Zolotushkin replied, "Great exercise. Sea Breeze 2007 exercise was a great experience for me as an interpreter and as an NCO. I've gotten a lot of great



SSTG Ivars Kuznecovs (Latvian Diver) entering the water.

practice and useful experience by working with the U.S. and national dive teams."

To increase training value and utilize all diving skills and equipment, several realistic scenarios were employed, such as retrieval of a downed helicopter, locating and recovery of jettisoned ordnance, and repair of pier side piping system damaged by exploding ordnance. Once the foreign Divers completed the classroom phase, they performed a dive with a qualified Underwater Construction Technician to ensure they understood the procedures and familiarize them with the equipment such as the MK-21 diving helmet in the water.

During the pier-side operational phase at the Western Naval Base, the dives started at 10 feet for gear familiarization, progressing to underwater cutting and welding. While some Divers were working pier side in the water, other Divers were involved with using side scan sonar, which is used to identify objects on the sea floor. This training proved even more valuable when they located a sunken boat inside the harbor in addition to the

(*"SEABEES" continued on p. 6*)



EO1 (SCW/DV) James Igoe exiting water.

the learning process allowing for more in water training time for the participants. When asked about his participation, Ser-

(“SEABEES” continued from p. 5)

training project. The remote operated vehicle (ROV), which has two cameras on board, was then used to view ships underwater. Following that evolution, the bathymetric system was used to identify the depths and slopes of the sea floor bottom to verify contours and bottom profile.

Another test of interoperability was communications. The UCT technicians did a fantastic job of maintaining the mission critical SATCOM, HF, and VHF nets during the entire exercise to transmit all reporting requirements to the CTF 167 headquarters at the Western Naval Base, the Maritime Component Commander embarked aboard USS DONALD COOK (DDG 75), and other various U.S. and foreign units. In addition to the diving scenarios, we included a communications related scenario to conduct a contingency related damage assessment of a pier facility and transmit data for further engineering analysis. We successfully accomplished this reach back



EAI (SCW/DV) Sang Park conducts pre-dive brief to intergrated multinational dive team.

nicate across the globe from anywhere in the world for contingency engineer support during any hour of the day or night. We received positive responses within minutes of transmission. Thanks to James Gale and his staff at NAVFACLANT for their assistance and prompt responses.

LCDR Jurijs Timofejevs, Commanding Officer of the Latvia Explosive Ordinance Disposal Diving Team explained his goals. “This is the 5th Dive Ex we have been involved with, three in Baltic, one in Georgia, and this one in Ukraine. Our goal is to train to dive in hot

weather environment and to train Ukrainian Divers, with rebreathers. Also participate in surface supplied dive training and underwater cutting and welding with the UCT Divers”.

CPT Phillip Cvetkoski, Commanding Officer of the Macedonian Special Forces SCUBA diving team, was very happy with the training. “Five stars for the Sea Breeze exercise! This is more than a great thing for all of us from the Macedonian diving team. We, the Macedonian “Wolves”, are very much excited to be here and work with all of the

Divers from the USA, Ukraine, and Latvia. This is a very new way of diving for us, but with all of the help and teamwork that we get around here, everything is so easy. Everything is perfectly organized, safe to work, and it is just the right place and the right time for everybody to be here. All of us working here together, we unselfishly combine and share to each other the experience that all of us have, and in this way we learn more and more every day. We also do have some fun working and made a lot of new friends every day. At the end “Two thumbs up” for everything and I hope that we will continue the mutual cooperation in the future!”

As Sea Breeze progressed, so did the depth and complexity. While at 80 feet of seawater in the Black Sea, embarked aboard Ukraine based ship UPN KREMENETS, the previous tasks were performed in addition to light salvage operations using underwater lifting gear. As training for the downed helicopter scenario, the Divers moved more than 1000 pounds of concrete and steel along the bottom with lift bags and used underwater hydraulic tools to drill, grind, and hammer. This proved challenging but successful. The diving experience at sea was the pinnacle of the coordination efforts for all four nations involved and cemented our bonds as diving



EAI (SCW/DV) Sang Park instructs Divers from Ukraine, Latvia and Macedonia while SGT Igor Zolotushkin, U.S. Army, interprets.

capability via INMARSAT transmission to NAVFACLANT, Contingency Operations Engineer Division in Norfolk, VA to analyze the data and provide a notional design for the repair. This reach back capability exercised our ability to commu-



U.S. UCT ONE, Ukraine Mobile Diving Unit, Latvia Explosive Ordnance Disposal Team and Macedonia Combat Diving Unit conducting diving operations on UPN KREMENETC.

professionals. Complete interoperability was achieved.

“Sea Breeze 07 has been a unique opportunity for a variety of Sailors, Airmen and Marines from around the globe to train and operate together. The Divers were a combination of Ukrainian, Latvian, Macedonian and U.S. (UCT ONE). They found that even though their language and equipment were somewhat different, with training and a little help from assigned interpreters, they were able to achieve interoperability. As it turned out, a Diver is a Diver, regardless of nationality,” stated CDR Daniel Daglio, Fleet Diving Liaison Officer from NAVEUR for CTF 167 during Sea Breeze 07.

In closing, the exercise was a successful mission. LCDR Daniel Stoddard, Commanding Officer of UCT ONE, was grateful for the hard work and dedication by everyone. “Sea Breeze 07 was a resounding success thanks to the unparalleled cooperation and participation by the Ukrainian, Latvian, and Macedonian diving units. I would also like to commend Air Det Charlie for their detailed planning

leading up to and incredible professionalism during the exercise... a truly fantastic effort by everyone. Additionally, the amount of knowledge transfer from my Divers to the other countries involving new diving techniques, equipment, and technology was tremendous. Many new friendships were created along with previous friendships renewed. In the spirit of the Partnership for Peace program, I know the positive impacts of the enhanced interoperability will be felt for many years to come. As the only NCF unit to participate in Sea Breeze, my Seabees were not only a shining example of the great things the UCTs do daily, but also fully demonstrated the Can Do spirit resident in every Seabee. I am extremely proud of them,” stated LCDR Stoddard.

If you are interested in Seabee Divers, please visit <https://www.seabee.navy.mil/>.

LCDR Daniel M. Stoddard is currently Commanding Officer of Underwater Construction Team ONE located in Little Creek, VA.

(“SUPSALV” continued from p. 2)

- Contaminated Water Diving. Numerous developments going on here. Interim revision to the USN Contaminated Water Diving Manual was promulgated earlier this year and is the precursor to a complete rewrite of the manual. NEDU is testing modifications to the KM37 helmet which will allow diving in Category I and Category II contaminated water conditions.
- Dive Computer. As with the XLDS, the USN Diving computer is nearing the end of the ANU process and is proceeding toward a 2008 Working Diver Conference roll out.
- Air Monitor. Another significant procurement and fleet outfitting process will allow deployed units to effectively test and utilize commercially available diver air sources. The introduction of the air monitors will significantly decrease the logistics required for diving operations in remote areas.

Looking forward to seeing many of you at the 2008 Working Diver Conference to discuss these efforts and solicit your feedback on your needs.

Until then or until the next issue of FACEPLATE, dive safe.

PMS Corner

The KM-37 Underwater Breathing Apparatus (UBA) is now authorized for Navy use. All commands having KM-37 UBAs must submit a PMS Feed Back Report requesting addition of MIP 5921/163.

All commands using the KM-37 and needing PMS prior to the issue of the next force revision can contact the Diving Life Support System ISEA, Mr. Kerry Duffy to request this MIP. Mr. Duffy can be contacted at (850) 230-3100 or kerry.duffy@navy.mil.

LaMadd Cleanup

Submitted by: NECC PAO

For 35 years the U.S. Navy stationed a submarine tender at the Italian Navy base on the island of Santo Stefano in the La Maddalena Archipelago National Park, located directly off the north east coast of Sardinia. In light of the impending base closure it was decided in December 2005 that prior to the departure of the last U.S. Navy vessels it would be appropriate to clean the debris from the sea floor and leave the harbor floor in a condition befitting a national park. Soon, this noble, and seemingly modest, idea would turn into the largest salvage and recovery operation of underwater debris since World War II.

Initially, the decision was made to utilize Divers attached to USS EMORY S. LAND (AS 39) in order to complete the mission. However, this quickly proved to be a case of over optimism. The first snag appeared early in the operation as planners realized that the primary mission of USS EMORY S. LAND (AS 39) Dive Locker

Following the resolution of budget constraints, help finally arrived when a detachment from Underwater Construction Team ONE and an Ocean Facilities Program officer from the Naval Facilities Engineering Service Center (NFESC) took on the task of a detailed bottom survey. This team attacked the task of completing a bathometric and side scan sonar survey of the harbor area, in addition to taking video footage along the seafloor with the use of remotely operated underwater vehicles. Their efforts provided a critical visual picture of the extent of the debris field, the undersea terrain, and confirmed that additional help was needed.

In June 2007, more assistance arrived from Mobile Diving and Salvage Unit TWO. Eighteen Salvors in the form of a Mobile Diving and Salvage Company led by CWO2 Dale Kasztel and NDCM (MDV) Arne Phillips went to work. At this point, since all were aware of the scope of the job, USS EMORY S. LAND (AS 39) Dive Locker was assigned the debris removal operation as their only mission. Additionally, a four-man

company from Explosive Ordnance Disposal Mobile Unit EIGHT assisted with hyperbaric chamber support and LCDR Jeff Mathis was assigned as Officer in Charge of the entire operation.

Fortunately, Poseidon was smiling down, when CWO3 Ray Schubert and NDCS (MDV) Rotan joined the team.

With this combined team of diving and salvage experts the decision was made to utilize one shore-based and one sea-based



Typical debris field.

dive side working, simultaneously; the mission would be completed mid-December 2007. The one problem with the plan was that there was no platform from which to set up the deep-water dive side, no asset in La Maddalena, and nothing readily available in or out of theater. The answer to this issue was to have the folks at ESSM Livorno and Cheatham Annex design and build a suitable platform. The finished product consisted of a 100 ft. x 30 ft. banana barge with a hyperbaric chamber (FARC) and Morgan Crane to be used as the required diver's davit.

A major constraint to achieving a quick clean up is that the island of Santo Stefano is an Italian national park, so no dredging equipment could be used and every effort had to be taken to minimize disturbing the bottom which basically meant each item had to be picked up by hand. Simultaneously, the shore-based dive stations from MDSU TWO had to be customized by manufacturing ladders to fit various pier side insertion/extraction points while lifting points capable of holding 10,000 lbs. (when filled) salvage baskets had to be identified in order to conduct recovery operations. The Divers used

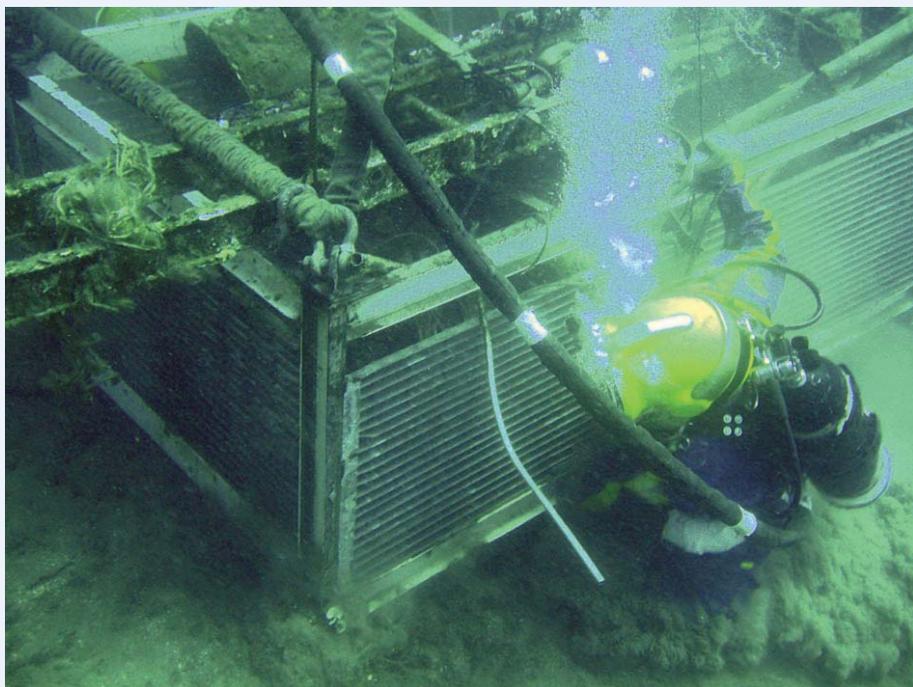


MDSU TWO Diver prepares to go to work.

was to support submarines and other Sixth Fleet ship repair, not salvage recovery. More importantly, following detailed reconnaissance dives of the debris field the true scope of the job became apparent - a 14-acre industrial-style junk yard was sitting under 135 feet of sea water, and some serious help was going to be needed to complete the mission.

lift bags to move the baskets up and down the slopes into these identified areas. Some of the slopes went from 55 fsw to 110 fsw and many times the 5K lift bags were filled to capacity and debris had to be removed to facilitate the up and over phase. A majority of the diving was accomplished using a descent line in depths down to 120 fsw but there was plenty of stage diving to be done as well. The dive supervisors flexed their watches while using both standard air and SURDO₂ decompression tables while completing the transition to the VVal-18M tables which provided much appreciated flexibility for the supervisors.

Additional forces arrived in mid-August when USNS GRASP (T-ARS 51) arrived on-site with MDSU DET SIX embarked. Det SIX quickly commenced diving operations with a second deep water dive side from GRASP fantail which corresponded with a flurry of activity with the bottom line being the shifting of the end date by two months. There would now be 75 Divers working simultaneously on four dive sides with four separate crane equipped dive platforms. An LCM was converted into a garbage scow so it could rotate between dive sides to pick up and drop off salvage baskets, two 80-ton pier cranes and three forklifts were constantly carrying debris-filled salvage baskets down the 30 ft. wide pier to properly dispose of the refuse. As the work tempo



Picture of typical bottom.

picked up, support personnel from USS EMORY S. LAND and NSA LaMadd were utilized and NAVFAC EURSWA brought in the Crofton Divers and Shaw Environmental for technical assistance and additional resources. The three pillars of the salvage community, MDSU, NAVSEA and independent contractors were in full swing.

With everything in place, on 7 September 2007, Operation Catfish lit off full steam. It was intense. On average, 75

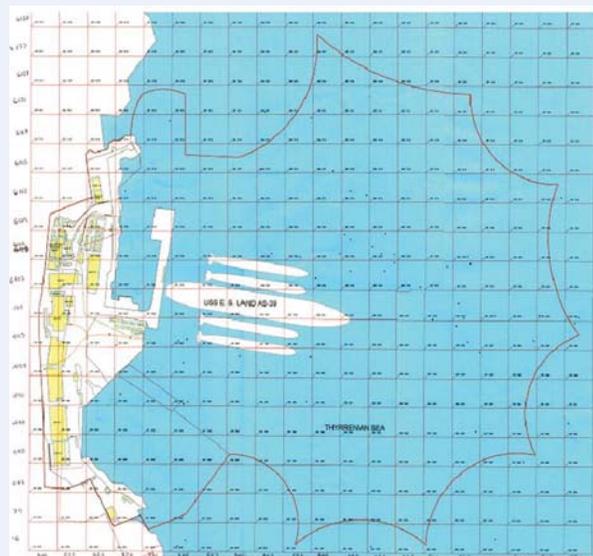
Divers dove to their max limit everyday to depths of 130 ft. Each available Diver dove: Second Class, First Class, DMTs (it's true), MDVs, Diving Officers, and DMOs. The team recovered an average of 23,000 lbs. of debris per day; scanned it for radiation, and the process continued through mission completion on 27 September 2007, three days ahead of schedule.

Operation Catfish was a truly unique event. The dive operation had many obstacles to overcome and its

success is attributed to all personnel who participated. This was also the first time seven decompression chambers were located on one site in continuous operation. Almost every community in the diving Navy was represented: Salvage, OFP, EOD, UCT, Medical, civilian Navy, and NEDU. Their combined hard work ensured the largest salvage project since WW II was a success. Fourteen acres and 1,147,594 lbs. of debris removed, 1,415 incident free dives totaling 1,311 hours of bottom time and a total of 88,000 man hours expended during the operation. Items picked up from the bottom ranged from Military ID cards from the 1990s to 5,500 pound steel pier structures.

People ask what the most HOOYAH item found was ...well being DEEPSEA I have to say the MKV dive boot has that distinction. Though at the end of the day it wasn't what we were picking up that was impressive but the enthusiasm and can do spirit of the Navy Divers who accomplished an epic mission!!! Dive Safe.

Submitted by Naval Expeditionary Combat Command, Public Affairs Office, Norfolk, VA.



Grided survey area for LaMadd Harbor cleanup.



USS RONALD REAGAN

By: CW05 Rick Armstrong

On May 1, 2007, SWRMC Divers (Code 990) commenced waterborne repairs on USS RONALD REAGAN (CVN 76) to include installation of 36 (200 lbs. - 1000 lbs.) separate large cofferdams with NAVSEA 00C5 flooding sensors, wet welding zinc anodes onto sea chests in various location, wet welding two large rope guards, single valve repair/replacement standby dive team and replacement of two of four 32-ton propellers.

The complexities of safely removing and reinstalling a propeller of this magnitude while underwater is difficult at best, and conducting two waterborne simultaneously is unprecedented on the West Coast. This repair work was expertly supervised and managed by NDCS(MDV) Anthony Shepard, NDC(DSW) Grady Morris, and ND1(DSW/SW) Ken McCormick of SWRMC dive locker Code 990, and Mr. Jack Meirs of Puget Sound Naval Shipyard (PSNS). They superbly led a 25-person dive team consisting of SWRMC, PSNS and military Divers from Yokosuka, Japan, and Everett,

WA, during one of the most complex Underwater Ships Husbandry (UWSH) repairs attempted by West Coast Divers. NAVSEA 00C5 UWSH on-site representative was Mr. Scott Heineman who provided superb technical oversight during these arduous and technically difficult propeller replacement evolutions.



SWRMC Code 990 Divers along with PSNS dive and NAVSEA 00C5 Underwater Ships Husbandry representative Scott Heineman take time before Divers enter the water to commence rigging the new propeller for USS RONALD REAGAN.

Divers first set up various tools and heavy rigging equipment on a 34-foot by 100-foot YC barge requisitioned from NAVSTA, San Diego, CA with an assortment of NAVSEA 00C5 UWSH and rented equipment to support this huge undertaking, including a small crane to transport gear from the barge to the waters edge, a unique floodable CONEX box and lifting beam used to counter balance the weight of the propeller as it was transferred to and from the shaft to the barge, and pneumatic tuggers used to transport gear to and from the work site utilizing rigging tunnels and snatch blocks. Divers from SWRMC Code 990 wet weld crew first removed rope guards utilizing hydraulic grinders. This allowed access to the gland seal ring. Next SWRMC

Code 990 Alpha and PSNS Dive team removed fairing plates from the dunce cap and placed a balance beam and a five ton chain fall to assist in removing the dunce cap.

Once the ancillary gear was disconnected, the boss nut (used to secure the propeller once pressed on) was removed from the shaft utilizing a mechanical lifting bridle and the pilgrim nut method (hydraulic press) gear was positioned using the same lifting bridle utilized to remove the boss nut from the shaft. The pilgrim nut was threaded onto the shaft and dual three foot by four inch studs were threaded into the propellers aft hub face. A five-ton backing plate was rigged in conjunction with the studs and two 20-pound fasteners were used to secure the plate in place against the end of the shaft. The pilgrim nut was positioned against the backing plate and pressurized in intervals up to maximum de-

signed pressure to unseat the propeller off the shaft taper. Numerous attempts by Divers to unseat the propeller proved unsuccessful to the point that explosives became the last option to successfully remove the propeller.

This endeavor required many meetings with USS RONALD REAGAN, PSNS, COMAIRPAC, NASNI and NAVSEA; e-mail exchanges and numerous naval messages written and answered to ensure the explosive event went off safely as planned. Navy Divers successfully used less than half a pound of prima detonation cord in conjunction with the hydraulic pilgrim nut to unseat the propeller from the tapered shaft (the force impact from the explosion shocks the propeller while the pilgrim nut applies hydraulic pressure on the propeller). After the explosive event, the pilgrim nut procedure was operated two more times



ND1 McCormick briefs SWRMC Diver NDCS/MDV Tony Shepard and PSNS Diver DW Adams prior to the next waterborne rigging evolution on USS RONALD REAGAN double propeller change out.

bringing the propeller off the shafts taper. The pilgrim nut assembly was replaced with heavy rigging (two 50-ton chainfalls) for the next stage of the evolution, removing the propeller.

Divers positioned the 50-ton chain falls onto two lifting tunnels built in USS RONALD REAGAN's hull design specifically for the purpose of propeller replacement. These heavy rigging pieces were used to take the weight off the shaft and yard and stay the 32-ton propeller slowly the Divers YC barge. The term "Yard" (to move) the propeller from the shaft, off the tapered end and onto a pre-



USS RONALD REAGAN damaged propeller coming out of the water as Divers look on.

positioned 50-ton chain fall "STAY", which was rigged onto the heavy lifting beam which was positioned on the YC barge with the floodable CONEX box (counterweight). During the transfer of weight from USS RONALD REAGAN shaft to the YC, the empty CONEX box was filled with 80,000 lbs. of water, safely countering the 32 tons of weight transfer. Once the weight had been successfully transferred to the Divers YC barge, the barge was carefully towed with the old propeller secured just 10 feet below the water line to NASNI Kilo pier for swap out with the new propeller. After

the new propellers arrived they were visually inspected and "Ready for Issue" (RFI) and installation on USS RONALD REAGAN's shafts.

The damaged propeller was rigged off the barge and the new one set in place on the lifting beam which had a 50-ton chain-fall rigging to receive the 32-ton propeller. This allows to Divers to move the propeller from the barge to the 50-ton chain-falls rigged in saddles above the shaft (Yard and stay). The barge was moved back into place utilizing NASNI Port Operations Pusher Boats onto

the starboard side of USS RONALD REAGAN. As the new propeller was rigged in place the removal process is reversed as the new propeller was carefully rigged onto the shaft using the 50-ton chainfalls. This evolution requires extreme skill by Divers on-site, damage to a keyway or the threaded shafting (wrapped with fiber line and lead sheeting) can set back the diving operations for days if not weeks. The new propeller was walked up the shaft onto the taper. However, after the pilgrim nut (used to push the propeller onto the shaft and seat it) was pressed up and retracted, the propeller followed the hydraulic press (pilgrim nut) back down the taper. Numerous attempts to press the new propeller on the shaft proved unsuccessful. After consulting with NAVSEA and PSNS engineers, number one propeller was removed and placed back on NASNI Kilo pier. Divers then shifted their efforts to removing the number four propeller, which was much more cooperative and came off using the pilgrim nut procedure.

The new number four propeller was safely rigged onto the shaft and successfully pressed on after 10 days of arduous diving in near zero visibility, with heavy currents and five-foot swells from passing ships. This evolution was a testament to the skill and determination of the SWRMC and PSNS Divers working on USS RONALD REAGAN

to ensure this job was successfully and safely completed.



Divers enter the water to commence rigging the new propeller for USS RONALD REAGAN.

In the meantime, number one propeller was cleaned using pressure washers and the shaft power washed and scrubbed as the propeller change out barge rigged the new propeller onto the lifting beam and was moved into position on the starboard side of USS RONALD REAGAN. The propeller was rigged and successfully pressed onto the shaft taper without incident using the heavy rigging gear and pilgrim nut.

After 37 straight days of working for 12 to 16 hours with heavy waterborne rigging and topside personnel conducting prep work for Divers, this repair evolution encompassed over 340 hours of safe diver bottom time without accident or injury to personnel. SWRMC and PSNS Divers completed the task of changing two 32-ton propellers on schedule. These complex Underwater Ships Husbandry repair efforts saved the Navy and COMNAVAIRPAC over 10 Million dollars (conservatively) in limited Fleet repair funds and returned this national asset to full duty. The exemplary efforts of SWRMC and PSNS Divers were instrumental in safely and efficiently completing one of the Fleet Diving Navy's toughest underwater rigging intensive repairs on time and under projected cost.

CWO5 Rick Armstrong is Diving Production Division Head of SWRMC Divers (Code 990) located in San Diego, CA.

Minneapolis Bridge Collapse

By: MC2(SW/AW) Elizabeth Merriam

August 1, 2007, began as just another normal summer day in Minneapolis - bridge construction, bumper to-bumper traffic - when the 40-year-old, I-35W bridge collapsed, cutting the city in half and dropping the vehicles crossing it 65 feet into the Mississippi River.

The bridge collapse caught the city and the nation by surprise, triggering rapid rescue response from the military as well as bridge inspections across the country.

After the bridge collapsed, commuters driving home from work became rescue workers, and city police and emergency personnel faced the daunting task of trying to save people in cars that were sinking into the river. By the end of the night, five people lost their lives and 79 were injured. Eight were still missing.

Local officials began working to recover the missing while looking for why this disaster occurred.

After a couple days of searching, officials determined the local SCUBA Divers were not equipped to dive in the tight areas around the debris. The Hennepin County Sheriff in charge of the recovery operation requested the assistance of Navy Divers.



Navy Divers prepare to enter the water of the Mississippi River.

“There came a point where we maxed out our capabilities and had to ask for additional assistance,” said Hennepin County Sheriff Richard Stanek. “That’s when we asked for the Navy Diving and salvage team. They are performing beyond our expectations of what they



The site of the I-35 bridge collapse over the Mississippi River with a diver line visible just under the surface.

could do operationally in terms of debris removal, the equipment they brought on site and the speed in which they deployed.”

Members of Mobile Diving and Salvage Unit (MDSU) 2 and Underwater Construction Team (UCT) 1, both part of Navy Expeditionary Combat Command, Naval Amphibious Base Little Creek, Virginia Beach, Va., arrived August 6, and by 2 a.m., August 7, the first Navy Divers entered the water to survey the area around the wreckage.

“We’re taking our time to try to be as safe as possible; it’s really dangerous down there,” said Navy Diver 2nd Class Sean McCann, MDSU TWO. “There were a lot of hazards in the water; rebar, cement, automobiles, and sharp metal. It’s a tough job, but at the end of the day, I’m really glad to be here helping.”

For the next week, the Divers worked in two teams, each standing 12-hour shifts. Their biggest obstacle was visibility. The murky water of the Mississippi was so thick they could see only a foot in some areas and had to feel their way through the wreckage.

“Underwater there was zero-to-one foot of visibility; you had to find your way around by touching,” said Chief Hospital Corpsman (DSW/SW) Dean Delfavero of MDSU TWO. “This is what we do for a living, and these are the conditions we deal with all the time. It’s very hazardous down there with lots of loose concrete coming down around you and scraping your helmet. With these obstacles it’s very dangerous.”

MDSU TWO has experience working in difficult conditions. As experts in expeditionary combat salvage, MDSU TWO has earned its reputation during combat salvage operations to open the Al Faw waterway in Iraq and through unique operations, such as the recovery of TWA Flight 800, the Challenger and Columbia Space Shuttles, Swiss Air Flight 111, re-

floating of YFU-83 in Puerto Rico, the deep salvage of USS Monitor wreckage, and recovery of Haitian ferry victims. MDSU TWO also responded to Hurricane Katrina.

“When I first saw this site, I thought this is Hurricane Katrina all over again,” said Navy Diver 2nd Class (DSW/SW) Noah Gottesman, MDSU TWO. “There was devastation, cars, metal, and concrete everywhere.”

After a few days into the operation, Divers found some areas more difficult to navigate than their gear would permit.

“The area we searched on Aug. 8 included under the bridge platforms and I-beams,” explained Cmdr. Dan Schultz, Commanding Officer of MDSU TWO. “It was so restrictive that Divers had to remove their dive gear to crawl into these areas, some as narrow as 12 inches wide.”

While the Divers were searching the river, Minnesota’s Secretary of Transportation Mary E. Peters visited the site for a third time to meet the Divers and thank them for responding in the state’s time of need.



Navy Divers prepare to enter the water of the Mississippi River.

“I think the DOD response has really made the community appreciate how much the military ... supports our nation, not only in a time of war, but in a time of human need and crisis,” said Peters. “DOD came in with Soldiers and Sailors to really help this community out immediately.”

Finally, on Aug. 9, the Divers found the first victim in the water. During the course of their search in Minneapolis they would recover all eight of the missing.

“This is what we are trained to do,” Delfavero said. “We bring closure to families, recover things that are lost in the water, provide humanitarian aid, and be Navy Divers. This is what it’s all about. This is our job.”

Even though their task was grim, the Divers felt it was their duty to give closure to the families of the missing.

“Helping the people out in Minnesota is a privilege for me, and it’s a privilege for the Navy,” said NDC(DSW/SW) Justin M. Scarborough, MDSU TWO. “It’s not a glorious job that we’re doing, but it’s an honorable job. “I am a Diver not a hero, but I do what I can for my country and the community.”

Another Diver, Electrician’s Mate 1st Class (SS/DV) John Miller, is not a member of MDSU TWO. He is stationed on fast attack submarine USS NORFOLK (SSN 714) but he volunteered to work with the team because of a personal need to help his home state.

“It was one of those things that felt crazy – I must have driven over



Automobile being lifted from the river.

that bridge a million times,” Miller said. “So I called around and learned that MDSU TWO was coming to Minneapolis. Then I called the XO and told him I wanted to come and help, too.”

Miller was not trained in hard hat diving but after his arrival he helped in every way he could; such as manning the dive station, charting dive times, tending to the Divers and their equipment.

“Being in the Navy and from Minnesota, I never thought I’d be coming back here to work,” Miller said. “This is something that has to be done to help bring closure to the victims’ families.”

While the Divers worked in the river, mourners gathered at a nearby bridge to watch. Some even found ways to contact the Divers and express their appreciation. “We had a small container of baked goods brought down to the site one morning and there was a note on it from the mother who made them,” said Lt. Li Ping Sung, diving officer from UCT ONE. “Her note said, ‘Please look out for our loved ones, and expressed how grateful her family was. For me it really struck home what we were doing and the significance of our mission.’”

MC2(SW/AW) Elizabeth Merriam is assigned to Fleet Public Affairs Center Atlantic in Norfolk, VA.

Divers of MDSU TWO with President George W. Bush

August 2007, Minneapolis, MN.



ORCA Update

By: MDV Brian Pratschner



ORCA with MK-III.



ORCA-II with FADS-III.

With the release of USN Diving Manual Rev 6 planned for this summer, I want to update you on the ORCA program. To support the requirements of AIG 07-07 (New Air Decompression Procedures), NAVSEA 00C procured and certified four ORCA units. These are held at the Emergency

Ship Salvage Material (ESSM) depot in Virginia. These original ORCA are sent to a command for a specific mission that requires the use of in-water oxygen decompression. Upon completion of the specific job they are returned to ESSM. It was never intended that these units be issued permanently to Fleet units.

A new design of ORCA, the ORCA-II has recently completed the first Fleet certification at Mobile Diving Salvage Unit ONE (MDSU ONE). 00C has a sufficient number of ORCA-II for the initial delivery to both MDSUs and the Underwater Construction Teams. These are historically the commands performing the majority of the decompression diving. 00C will procure additional ORCA-II based upon Fleet demand.

The combined dive teams from MSDU ONE and Pearl Harbor Naval Shipyard (PHNSY) all preferred the ORCA-II over the ORCA for ease of set-up and use. In the near future SUPDIVE will release an AIG 239 detailing the Fleet implementation plan for both the Dive Manual Rev 6 and ORCA-II delivery to the Fleet.

I want to thank the Divers from MDSU ONE for their work in making this certification go off without a hitch. I especially want to thank MDV John Klukas for his flexibility and efforts in working to certify the ORCA-II.

MDV Pratschner is Command Master Diver at NAVSEA 00C.



ORCA-II connections.

MDSU ONE Receives The Coast Guard Meritorious Unit Commendation

THE COMMANDANT OF THE UNITED STATES COAST GUARD
WASHINGTON 20593

11 June 2007

The Commandant of the Coast Guard takes pleasure in presenting the **COAST GUARD MERITORIOUS UNIT COMMENDATION** to:

MOBILE DIVING AND SALVAGE UNIT ONE PEARL HARBOR, HAWAII

for service as set forth in the following

CITATION:

For meritorious service from 19-26 January 2007 while responding to the damaged Chinese Motor Vessel (MIV) TONG CHENG. On 17 January, TONG CHENG requested a refuge in Hawaii due to a fracture in their number two cargo hold. The vessel was taking on water, leaking diesel oil, and in danger of sinking. The U. S. Coast Guard, Customs and Border Protection, and the State of Hawaii's Department of Health held the vessel offshore for fear of the vessel sinking and polluting Hawaii's pristine shores. Demonstrating exceptional adaptability, ingenuity, and perseverance, U. S. Navy Mobile Diving and Salvage Unit (MDSU) ONE executed superb diving and salvage operations on the TONG CHENG which ultimately prevented the ship from sinking, averted the catastrophic release of 140,000 gallons of fuel, and contributed to the strengthening of goodwill between the U. S. and the People's Republic of China. While operating 80 nautical miles (NM) off the southern coast of Oahu, MDSU ONE performed a critical underwater hull survey that confirmed the vessel's damage. Despite the challenging sea conditions, MDSU ONE expertly completed underwater repairs that temporarily restored the vessel's water tight integrity. In addition, the team's follow-on detailed assessments provided important decision-making information to the unified command that ultimately allowed the ship to anchor 1 NM off Honolulu Harbor. With no other means available to dewater the vessel at anchorage, MDSU ONE swiftly conducted diving operations to install three underwater flanges outside the flooded cargo hold which were used to safely remove 210,000 gallons of fuel contaminated water and raise the vessel's draft. This allowed TONG CHENG to safely enter Barbers Point Harbor to make permanent repairs. The pride, professionalism, and devotion to duty displayed by Mobile Diving and Salvage Unit ONE personnel are in keeping with the highest traditions of the United States Navy and the United States Coast Guard."

The Operational Distinguishing Device is authorized.

For the Commandant,

For the Commandant,
Rear Admiral, U. S. Coast Guard
Commander, Fourteenth Coast Guard District



Left to Right CMDCM(MDV) Rick Bettua (MDSU ONE CMDCM), CDR Roger Laferriere (USCG Sector Honolulu Deputy Commander), CDR Dan Colman (CO MDSU ONE), and CAPT Vincent Atkins (USCG Sector Honolulu Commander).

CAPT Vincent Atkins, Coast Guard Sector Honolulu Commander presenting the Coast Guard Meritorious Unit Commendation with Operational Distinguishing Device to Commander Dan Colman, CO MDSU ONE, CMDCM (MDV) Rick Bettua, and crew.

Deep Submergence Unit Diving Capabilities

By: LCDR Joseph Dituri

Deep Submergence Unit's (DSU) mission statement is a bold tasking for the next generation of Navy Divers in light of changes in manning and equipment. We are in the process of certifying the Navy's newest submarine rescue asset, the Pressurized Rescue Module (PRM). The PRM is a tethered, manned Remote Operated Vehicle (ROV) that can hold two Internal Attendants (IAs) and 16 rescues from a downed submarine in up to 2000 fsw. In the future, NAVSEA PMS 394 has plans for a Transfer Under Pressure (TUP) system that will consist of two 32-man chambers and a deck transfer lock along with flexible manways to allow saturated rescues to be evacuated and decompressed from a submarine. The IAs need to be Divers because of the disabled submarine's pressure. Meanwhile the PRM descends to the submarine's watery vault to retrieve another load from Davy Jones' Locker. The transport requires at least two C-5 type aircraft to get it to the scene of the incident illustrating its enormity. The entire PRM and TUP system as well as other parts are encompassed in the Submarine Rescue Diving and Recompression System (SRDRS). This entire system will take five C-5's to transport it to a rescue site.

In addition to the PRM, we host the only two remaining Submarine Rescue Chambers (SRC) in active service for the USN. Navy Divers and submariners operate and maintain these systems. Some of the old salts remember these from the old Submarine Rescue Ships (ASRs). The SRC is capable of rescues to a depth of 850 fsw with a capacity of six rescues. A large set of air racks and a valve console make this reminiscent of hyperbaric chamber operations, but on a larger scale. This system offers a lightweight and highly portable alternative to other systems because it can fit on a single plane. The last remaining active Deep Submergence Rescue Vehicle (DSRV), called "Mystic", also resides at DSU and is expected to be relieved by the PRM this year. Divers are required to support the launch and recovery in purportedly the most

Be the world leader in Submarine Search and Rescue Operations through improvement and innovation of today's assets, delivering expert direction in the development of tomorrow's technology and procedures providing United States Submarines with 24/7 rescue coverage, conducting challenging global deployments in support of national interests, all the while maintaining peak rescue readiness to go anywhere in the world at any hour, to assist submariners in distress as the world's premier Submarine Search and Rescue Organization.

-Deep Submergence Unit mission statement

perilous SCUBA diving evolution that the US Navy performs. Divers have also been used for emergency egress of DSRV personnel when a problem occurred.

DSU also hosts all four of the world's only 2000 fsw One Atmosphere Diving Suits (ADS). This ADS is portrayed in the picture on page 19. Each piece of the suit is made of a solid block of aluminum that is milled out to fit a Diver inside. The multiple pieces allow a Diver to move with much more dexterity than would normally be afforded by a ROV. The ADS suit also allows topside to have "live eyes" on the project with a person in the suit. The Diver enters the suit and is sealed inside at one atmosphere. Oxygen is trickled in for metabolic make-up and a large scrubber and fan remove the natural by product of oxygen metabolism maintaining the pressure at one atmosphere inside the suit. Life support is monitored and the dive is supervised from the surface. The "pilot" flies the suit up, down, left and right with the use of foot controls while the hands remain free to work on projects through the use of manipulators. Because of the innovative design, the suit affords no-decompression diving to 2000 fsw for up to six hours. This asset is used for intervention, defined as surveying the disabled sub, clearing the escape hatch and connecting a downhaul cable for the SRC.

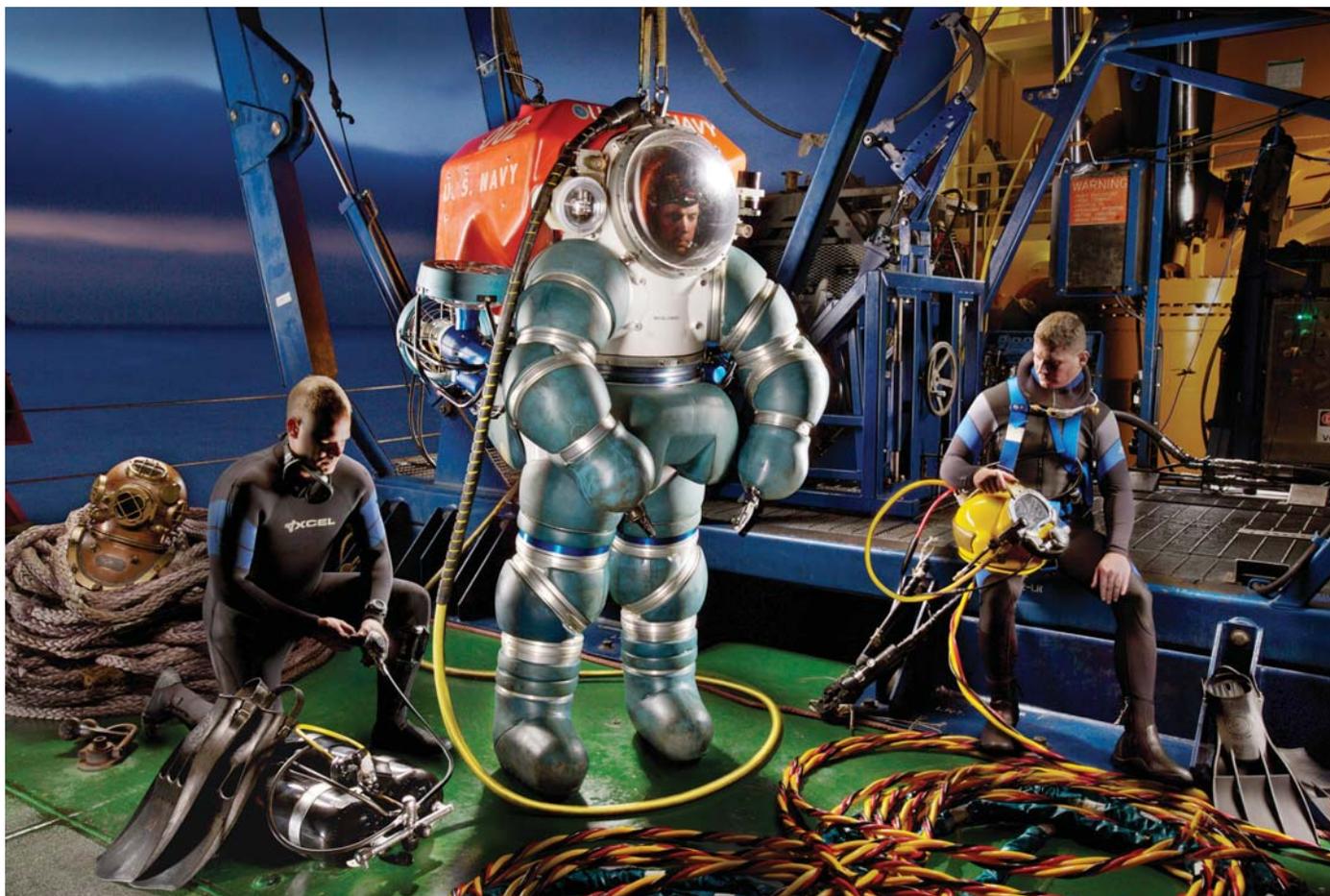
If the aforementioned "toys" were not enough to entice you, we also have MK 21 and MK 20 UBA's as well as a surface-supplied MK 3 Light Weight Diving System (LWDS) system with the 600-foot umbilicals and the extra air rack to attain depths of up to 190 fsw. This asset is used for intervention in the more shallow depths and for training and proficiency of the Navy Divers who come to

the command. As mentioned before, we maintain a robust SCUBA locker for emergency procedures as well as Mystic launch and recovery and to maintain diver proficiency. What command with Navy Divers would be complete without a recompression chamber? We have a Transportable Recompression Chamber System (TRCS) for treatment, practice, and to serve as a mobile transfer lock for the new TUP system. Lifting and rigging evolutions are a plenty and we regularly lay legs of our lightweight mooring systems. The sidescan sonar system and small ROVs are also used in our operations.

DSU is steeped in tradition. Our building is named after MMC William Badders who was one of the Congressional Medal of Honor recipients from the rescue of USS SQUALUS. Our one atmosphere suits are named after the four Navy Diver Medal of Honor recipients and the PRM is aptly named after the salvage ship USS FALCON from which the rescue was mounted. As you can imagine, we are very busy with training and maintaining proficiency. There is no shortage of opportunities to get underwater at DSU. Divers can earn the Deep Submergence Insignia for their efforts at the command. If you are up for a challenge and are looking for a command that has significant diving with multiple opportunities to excel, DSU may be for you. You will also have the opportunity to learn and use the newest diving equipment the world has to offer. At DSU, beyond all other commands, pride and tradition run VERY deep!

LDCR Joseph Dituri is the Deep Diving Detachment OIC at DSU San Diego CA.

Atmospheric Diving System 2000 (ADS)



Pictured in the shot, from left to right are NDCS (DSW/SS) Daniel P. Jackson, NDCS (MDV/SW) David Glidewell, and ND1 (DSW/SW) Kiwini Turner.

Photo courtesy of Eric William Curry.

The following are comments by the photographer on the above photo by Eric William Curry.

This is a photograph of Deep Submergence Unit of San Diego, CA and the Atmospheric Diving System 2000 (ADS) on board the vessel "Kellie Chouest." This photo is a tribute to the history of Navy Divers with the old-fashioned brass hard hat sitting on the left side.

ADS 2000, made by Ocean-Works of Vancouver, BC, is rated to a depth of 2000 feet. Operational limits are 24 hours of life

support, but a diving duration of about 6 hours is the norm because of pilot fatigue and safety. Maneuvered via foot controls, the pilot "flies" hands free in order to perform the necessary operations under water. There are four suits in the world rated to that extreme depth, two of them are on deck of this ship now. Compared to an old brass diving helmet, or even the far superior modern fiberglass helmets with the ability to attach cameras, lights, welding lenses and the benefit of using an oral na-

sal mask for air, the hard suit gives the Navy an ability unimagined previously.

One of the interesting visual elements is that the background sky/horizon is super blurry. While photographing all the elements of the suit, Divers, hardware and ship, we all rocked and rolled together, camera included, from the stormy sea. But the very long 15-second exposure needed to capture the darkening sky and sea resulted in a very soft image.

Salvage of the “Widow Maker”

Submitted by: NECC PAO

They say that April showers bring May flowers, however, on April 17th 2007 the showers that relentlessly pounded the state of Rhode Island proved to be too much for Russian submarine K-77, more commonly known as JULIETT 484. In a mere 30 hours, the former cruise missile submarine went from museum attraction to a storm casualty.

JULIETT 484 belongs to the Saratoga Museum Foundation. Modified in Finland, it was transformed into a museum to help generate funds to secure the procurement of the USS SARATOGA and establish an “Air, Land & Sea Heritage and Technology Park in Rhode Island...with the SARATOGA being the center piece.” Modifications included the cutting of the forward and aft weapon loading hatches to accommodate tourist access into the submarine. Though the accesses were considered to be weather-proof, they were not water tight. A number of factors contributed by the storm, such as strong winds, heavy rain, and an abnormally high tide, resulting in a torturous thirty-

hour sinking of the precious piece of history.

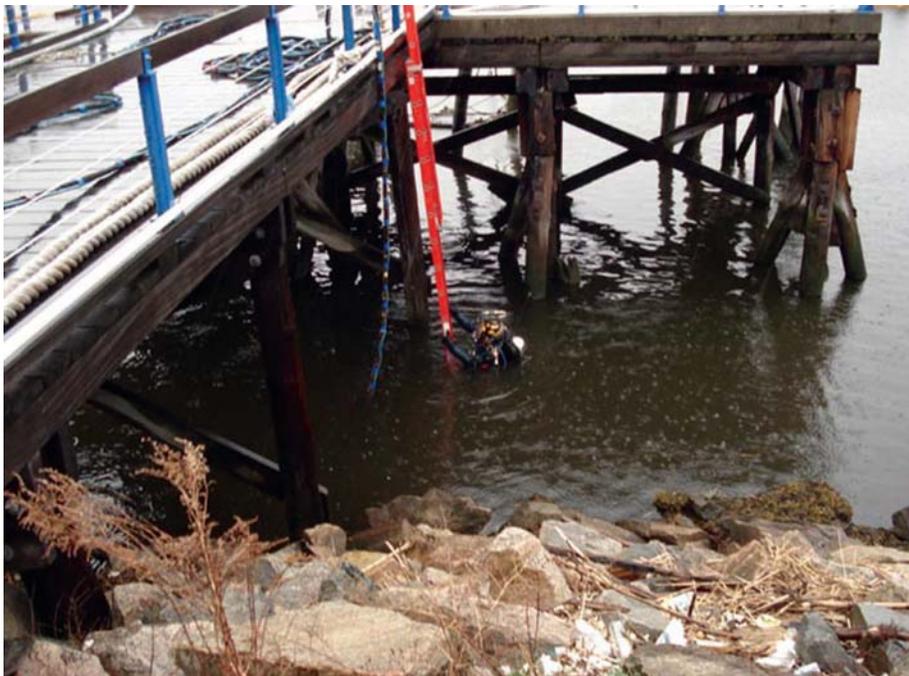
The sinking progressed slowly enough that it was not initially thought possible. It was documented by a series of photographs which can be viewed at the website <http://www.oakhamgraphics.com/K-77/sinking.html>. In fact, it was originally assessed to be only swamped. But as the submarine tilted away from the pier it was thought that it could be stabilized by securing it to the pier with heavier lines. In the early morning of 18 April, the duty officer of the museum reported hearing a loud “shotgun” blast as lines parted and the submarine rolled over and slipped deeper into the Providence River. As the morning sun began to beat the darkness away, it revealed what was left to be seen of JULIETT 484... just a few remaining

antennae and periscopes, peeking above the waterline.

The President of the Saratoga Museum Foundation, Mr. Frank Lennon, began the daunting task of figuring out how to rescue the famous JULIETT 484 which had shared a leading role in the movie “K-19: The Widow Maker”



JULIETT 484 after storm.



Diver surveying JULIETT 484.

with actor Harrison Ford. Contractors were hired using both Divers and ROVs to survey the sunken submarine and the river bottom on which it lies. In the meantime, NAVSEA 00C informed Commanding Officer MDSU TWO of the scenario and CDR Shultz elected to “jump on the opportunity to conduct some unique training.” So, in April MDSU TWO MDS Company TWO conducted a Leadership Reconnaissance of the submarine and site in preparation for the possibility of follow-on tasking through the Office of the Secretary of Defence (OSD) Innovative Readiness Training (IRT) program. IRT, a program established in 1993 by the Clinton administration, is designed to help build and improve civil-military readiness through the execution of joint military training ventures which support civil community efforts. Once IRT assistance is established it allows the military to help in civil matters based on the amount of training opportunities and joint inter-operability that can be utilized

by the individual commands who can accomplish certain tasking – a by-product of the training is the end product for the customer.

In August of 2007, MDSU TWO and Army Divers combined forces to conduct their own joint initial assessment of the JULIETT 484 and to further stabilize her hull. Results of the survey indicated she was firmly planted in the mud at a 48 degree angle, listing to her port side. Decisions were made to further stabilize JULIETT 484 for additional safety prior to commencing future salvage operations which would prevent additional rolling to the port side. This was accomplished by burying 7,000 lb. Stato anchors into the east bank and attaching wire rope from the anchors to strong points along the unit.

MDS Companies TWO-FIVE and TWO-SIX (formerly Dets Six and Eight) of MDSU TWO conducted several dives around the exterior and eventually into the sunken submarine to assess the condition of the submarine. The information acquired from those dive sets will be the basis of the salvage plan which will ultimately be used when floating the submarine. Traditional resources that would normally be readily available for this undertaking have been difficult to gather. Technical drawings or docking plans have been impossible to obtain from the Soviet Union since they are still deemed to be confidential by the Russian government. Information that has proven to be helpful has been pre-production movie pictures, videos and drawings that were developed for the movie “K-19” when the submarine was slightly modified to accommodate filming.

Currently plans are underway to return during the summer of 2008 and continue the salvage of the JULIETT 484. Raising sunken vessels traditionally has been the hallmark of Navy Divers but as years have gone by, opportunities to practice the fine “art” of salvage of this magnitude have become a rare occurrence. It is one thing to retrieve pieces of aircraft off the bottom of the ocean but to raise an entire vessel like a submarine is another – it is going to be a great summer!!

Submitted by Naval Expeditionary Combat Command, Public Affairs Office, Norfolk, VA.

TDM Future

By: NDCM/CMDCM/MDV Ross Garcia

“Bottom time is a premium” has been a tenet of U.S. Navy Diving since its inception. From July to October 2007, HM1 Daniel Stevens and HM1 Shannon Johnson from Mobile Diving and Salvage Unit TWO Companies TWO-ONE and TWO-FIVE worked with HMC Mike Lewis from NEDU to bring Navy Diving into the new millennium. The Topside Decompression Monitor system (TDM) was tested providing Divers with real-time decompression obligations in the waters of Sardinia, Italy. The data gathered from the hundreds of dives was a critical element in bringing the TDM to full integration into Navy Diving. The TDM consists of a pressure-sensitive transmitter attached to a cable, which is married into a standard surface-supplied diving umbilical. The sensor and cable feeds information back to a laptop computer providing the diving supervisor real-time information as to the Divers decompression obligation.



MDSU TWO Diver operates ORCA.

Current decompression tables use the maximum depth and time to calculate a decompression table and schedule. This has been to the exclusion of how long the Diver was actually at that deepest depth. The sea story of a Diver working on the underside of a ship who drops a tool illustrates this perfectly. The Diver initially on a “No D” dive at relatively shallow depth drops his tool to the bottom which is at 62 ft. he would now owe decompression on a 70 ft. table for the entire bottom time. Logic naturally says that with an excursion of one minute to the deeper depth the Diver would not on-gas enough nitrogen to justify the deeper



MDSU TWO Dive team.

table and schedule. Until now supervisors had no other choice but to go with the deepest table and schedule.

Giving Divers even more flexibility with how to contend with their decompression time are the VVal-18 tables. The Divers of MDSU TWO performed over 400 dives with an average depth of 100 fsw on the new tables without a single incident. These tables are an integration of standard air tables, in-water on oxygen tables and SURDO₂ tables into one single operational table. The integration is possible only because of the Oxygen Regulator Console Assembly (ORCA), and now the lighter and more capable ORCA-II, which provides the capability of switching to in-water on O₂ by simply turning a few valves. This is especially useful for contaminated water diving where Divers can now drastically cut their in-water decompression time then come up and over for decontamination. This gives diving supervisors flexibility from having to obligate to one type of decompression and to make a seamless transition between the three types of decompression.

In the near future Navy Divers will be able to integrate both the TDM and VVal-18 tables into a single system. The VVal tables will provide greater safety and flexibility while diving supervisors monitor their Divers in real time on the TDM. Together these two systems will safely maximize the bottom time while minimizing decompression to only what is necessary, because as we all know “bottom time is a premium.”

Ross Garcia is Command Master Chief of MDSU TWO.



Command in the Spotlight

Mobile Diving & Salvage Unit TWO

By: CDR Daniel Shultz

LEAD, TEAM, TRAIN, FIGHT. What do those four words mean? Sound like a mission statement to you (the reader)? That is certainly what it sounded like to me when I first heard them spoken by Commander Daniel Shultz, Commanding Officer of Mobile Diving and Salvage Unit TWO. Senior Leadership quickly realized that this was not a mission statement but a roadmap, literally, taken from RADM Bullard's leadership at Naval Expeditionary Combat Command (NECC) to how we were going to build the Expeditionary Combat Diver without losing the long standing skill sets of our mission to be the best at Diving and Salvage Operations.

With the CO's "Four Words" at the forefront, the command set forth with the daunting task of achieving the true essence of their meaning which has culminated in



Diver preparing lift bag.

ground breaking opportunities for Navy Divers that were non-existent until now. Building Expeditionary Combat Salvage skill sets is what NECC leadership charged commanders with in order to effectively use the diving community in present and future mission sets. Land navigation, skilled marksmanship, communications, anti-terrorism force protection, and



MDSU TWO Dive team.

Tactical Combat Casualty Care are just a few of the training disciplines Navy Divers were introduced to, and mastered during recent training cycles. With the addition of these capabilities the MDSU's now have highly skilled, fully trained Expeditionary Combat Salvage Companies and Platoons deployed to every sector of the middle-east theater.

At present there are seven companies (formerly Detachments) consisting of approximately 15 personnel, each of which has an OIC, a Master Diver and two Leading Chief Petty Officers. Each Navy Diver LCPO, or Platoon Chief, has personnel to manage through the day-to-day training in required diving, salvage, and expeditionary warfare disciplines. The command also consists of various departments to manage operations, readiness and training, administrative and medical issues, and additional technicians to

direct and assist the companies. Each company operates independently during normal operations or while deployed and can obviously combine assets for larger missions such as the I-35 Bridge Recovery. Processes developed by our predecessors have paved the way we operate and have been refined to ensure "Big Navy" receives the required support and is fully cognizant of our newly acquired capabilities.

Diving and Diving support systems range from Light Weight and Mixed Gas DLSS to Emergency Hyperbaric Stretchers and Standard Navy Double Lock chambers.

"The primary focus of the CWO/MDV Community is forward progress in Navy Diving while preserving the Salvage Pedigree," stated Command Master Chief Ross Garcia. This was accomplished through the myriad of real-world salvage work accomplished by the separate companies. CWO2 Tim Axline and NDCS(MDV) John Coffelt took Company 22 to Panama for a MINEX and were quickly diverted to supply humanitarian



Divers reach surface, T-ARS in background.

relief for those affected by Hurricane Felix and at the completion of the relief support, deployed to the Gulf. NDCM(MDV) Arnie Phillips and NDC(MDV) Billy T. Gilbert transported companies to La Maddalena, Italy to conduct light salvage operations in support of the San Stefano site clean-up operation. CWO2 Donovan Motley and NDCS(MDV) Dave Schophoerster (Shep) took Company 24 to Broward County, Florida and removed over 10,000 potentially toxic tires from Osborne reef. Personnel led by ND1(DSW) Sawyer completed a successful Carrier Strike Group deployment aboard USS ENTERPRISE (CVN 65) while NDC(DSW) Michael Woods led four Divers during Deep Dive 2008 to a depth of 1000 feet.



MDSU TWO Detachment conducting field exercise.

Divers, hit the deck running, completed their individual qualifications, refined their diving knowledge attended and passed MDV evaluations – we now call them Master Diver. Another milestone for a pair of MDSU sailors is the promotion of NDC Michael Woods and NDC Justin Scarbrough to Chief Petty Officer. A very special congratulations goes to ND1(DSW) Jason Potts for his selection as MDSU TWO Sea Sailor of the Year from an outstanding, competitive group of First Class Petty Officers.

“LEAD, TEAM, TRAIN, FIGHT”; MDSU

is a command that cultivates sailors into successful Navy Divers and war fighters. From light, expeditionary salvage operations to weapon skills required to shoot, move and communicate in a warfighting environment, to lifting a submarine off the sea floor, MDSU is the place for sailors to test their leadership abilities, gain advanced watch station qualification and ultimately make a difference in the Diving Community. If you're interested in new challenges and testing your leadership abilities give one of the Master Divers a ring, they

will answer all your questions.

As CMDCM(MDV) Ross Garcia likes to advise Navy Divers, “At MDSU TWO everyone learns the expeditionary weapons, communications and mobility skills required for the shoot, move, and communicate environment of expeditionary warfighting. Everyone gets demolition training, small craft and Tactical Combat Casualty Care training. Divers routinely

achieve HeO₂ Mixed Gas Supervisor, MK-16 Supervisor, Surface Supplied Air and SCUBA Supervisor, Range Safety and Demolition Operations Supervisor qualifications; and I mean ALL OF THE ABOVE. Our Coxswain and Craft Master Qualification Programs is alive and kicking, and we are adding voluntary language training for Arabic, German and Latin American Spanish. Here you have the opportunity to qualify Diving Warfare Specialists (DSW), Expeditionary Warfare Specialists (EXW), and Enlisted Surface Warfare Specialists (ESWS). Come to MDSU TWO and take on the Complete Diver Challenge. Hope we have the opportunity to serve together – Dive Safe!”

Excerpt from the President of the United States' letters to the men operating in Minneapolis, MN upon completion of the I35 Bridge Recovery.

“It was good to be with you in Minneapolis. Your heroic efforts in the face of terrible devastation represent the best of our Nation. I am grateful for your hard work and dedicated service, and I am honored to be your Commander in Chief. Best wishes, and may God bless you.”

CDR Shultz is Commanding Officer, MDSU TWO.



MDSU TWO Detachment conducting field exercise.

While all of these successful missions and the accumulation of over ten thousand hours of bottom time is extraordinary, the greatest opportunities at the command are gaining war fighting knowledge and superior level diving qualifications. Air Diving Supervisors, Mixed Gas Diving Supervisors, DSWS, and Expeditionary Warfare Specialist are just a few of the qualifications attainable at MDSU. A pair of beneficiaries from the MDSU experience are NDC(MDV) Billy Gilbert and NDCS(MDV) Michael Sonnenburg. Both checked into MDSU as First Class

Osborne Artificial Reef Cleanup

By: CWO2 Donovan Motley

The crystal blue water and extensive beaches of Fort Lauderdale, FL seem like an unlikely spot for old tires. Over the years tires from a failed artificial reef have been washing up on Florida beaches. But thanks to the cooperative efforts of Coastal America, the U.S. Navy Mobile Diving and Salvage Unit 2 (MDSU TWO), and other federal and state partners, the Osborne Reef is finally evolving from an unsuccessful artificial reef venture to a training opportunity for military salvage teams and a recycled fuel source for Georgia and Florida.

The Osborne Reef, or as it may be better known, the Tire Reef, 1.3 miles off the coast of Fort Lauderdale, was conceived in 1972 in an effort to resolve an overabundance of old tires that was choking landfills and creating potential health risks in southern Florida. A group of local interests, including fisherman, boaters, Divers and politicians received the blessing of the Army Corps of Engineers to gather nearly two million old tires, lash them together and anchor them to the ocean floor as an artificial reef.

The concept of artificial reefs has been around nearly as long as man has gone to sea. Artificial reefs have been created by ships, army tanks, oil rigs and washing machines. What most intentionally placed materials have in common is a hard and varied surface that can provide shelter for fish and a substrate to which corals, sponges, algae and mollusks can attach.

Tires as Reefs

Tires as reefs were appealing for two reasons. First, during the 1960s and 1970s used tires were accumulating in landfills after restrictions on other disposal methods were imposed. Second, by grouping large numbers of tires together, the openings provide shelter for fish and other species.

But tires have a certain amount of buoyancy, causing them to move and eventually break loose of their restraints. And their slick surfaces appear to be more attractive to a limited range of algae than coral and other more beneficial reef organisms.

As hurricanes moved through each hurricane season, and other storms and currents pulled at the Osborne Reef tires, their nylon and steel lashings eventually gave way. Within three years of their placement, tires had been moved by regional storms. Eventually, the tires spread over roughly 34 acres, began washing up on beaches and, more critically, damaging nearby natural reefs.

Solutions Sought

As the tire reef's failure became apparent, scientists and conservationists pondered how to get the Osborne Reef tires out of the ocean. In the simplest terms, the solution comes down to three issues: Who has the legal authority to manage the project? Who has the technical expertise to perform the task? Who will pay for it?

Projects on this scale easily run into the millions of dollars and no one single agency or government could finance the operation.



Members of the Osborne Reef salvage training mission.

In 2001, Robin Sherman of NOVA Southeastern University initiated a small-scale tire retrieval pilot program after re-



Navy Diver retrieves tires.

ceiving a \$30,000 grant from the National Oceanic and Atmospheric Administration (NOAA). Approximately 1,600 tires were retrieved at a cost of \$17 per tire. That cost made a full project cost-prohibitive.

Productive Partnership

Two federal programs that have cooperated on other projects seemed to offer a possible answer. The Coastal America program is a federal program that coordinates resources from various federal agencies to help address needs in coastal communities. The Department of Defense Innovative Readiness Training (IRT) provides the military with a way to gain hands-on training while providing benefits to communities.

In 2006, Coastal America project coordinator William Nuckols contacted the Broward County Department of Environmental Protection (DEP). He suggested that Coastal America coordinate with Broward County DEP on a major project to remove the tires and in August 2006 the NOAA Marine Debris Program funded a reconnaissance project for developing a tire removal and disposal strategy. The project removed only 30 tires, but it enabled the participants to determine processing suitability, handling, staging, transportation methods and end uses for

the reef tires. It also made clear that a project of this magnitude can't just be done as a volunteer effort and that removing a few tires wouldn't alleviate the problem.

Nuckols suggested that this type of project might fall within IRT guidelines and proposed contacting the military about the project as a training exercise. He recognized that Navy Divers from MDSU TWO, located at the Naval Amphibious Base Little Creek in Norfolk, VA, had the qualifications and experience to handle a job of this size and scope. He contacted the MDSU TWO Operations Officer to determine whether the tire reclamation project would have value from a real-world training mission point of view.

The tire reef project offered multiple training components, including salvage diving at depths of 60 feet or more. More importantly, it offered experience in logistics and communication coordination (i.e., interoperability) with multiple federal, state and county agencies involving the Navy, Army, Coast Guard, the State of Florida and Broward County. Each has its own policies, procedures and terminology, all of which had to be coordinated for safety and project success. The ability to develop a coordinated approach quickly is critical in emergency situations, such as natural disasters.

"By aligning military salvage training exercises with this real world problem we accomplish a coral protection project that government natural resource agencies would not have been able to accomplish on their own," Nuckols said.

Having determined suitability, secured funding for travel and completed required applications, CWO4 Dan Mikulski lead a team of six MDSU TWO Divers to Fort Lauderdale. Mikulski, along with the other Divers from his unit, dove the reef and performed a site survey.

"Once we completed the site survey, we came up with a plan to complete the mission and determine the number of tires we could bring up per day," Mikulski said.

Local Interest

Fort Lauderdale residents have seen tires wash up on their shores for almost 30 years – not realizing that they were coming from a reef a little more than a



The crew observes a bundle of tires emerging from the reef.

mile off shore. Once word spread that a cleanup effort was underway, community volunteers and supporters came to help.

"In Broward County where the reef is located, most people including the dive shops, didn't know it existed even though it covers almost 34 acres," Nuckols stated.

A photographer and local reporters covered the site survey, resulting in widespread reporting of the clean-up beginning with a Miami Herald article in August 2006 and

continuing through September 2007, every major news outlet in the country had picked up on the story.

The Project Gets Rolling

After the State of Florida committed two million dollars to transport and recycle

the tires, MDSU TWO support was approved and the Army and Coast Guard were onboard. Beginning 1 July 2007, MDSU TWO led a salvage mission to remove nearly 1,000 tires a day. Supporting the effort were diving and watercraft assets from the Army's 7th Transportation Group, two Coast Guard detachments from Homestead, Florida, the Broward County DEP and the State of Florida. Coastal America provided guidance through the initial stage of the project.

During the retrieval process, Divers worked in approximately 60-70 feet of water and have to place 50-70 tires in 4,000 pound cargo lift nets under water. Then, using inflatable airbags, floated the tires to the surface where a crane mounted on an Army Landing Craft Unit lifted them out of the water onto two 48-foot trailers.

The Navy Dive team leader Mikulski pointed out that the rigorous work Divers are performing limits the amount of time they can stay under water. The heat is also a factor, as summer ocean water temperatures in Florida reaches 80 degrees.

This tedious cleanup of between 500,000 and one million tires from a 34 acre area, equivalent to about 31 football fields, is expected to take nearly seven years. Each year, work is slated to begin on 15 May and continue for 90 days to minimize conflicts with the end of Florida's tourist season and avoid working in rough seas at the beginning of hurricane season. So far, the cooperation among the groups has resulted in a seamless project that can continue as planned at a cost of \$2/tire, a significant savings from the previous \$17/tire estimate.

Tires For Fuel: Local Recycling

An important part of the operation is not only getting the tires to the surface but then being able to dispose of them. The tires are transported to Port Ever-
(*"REEF"* continued on p. 26)



A MDSU TWO Diver receives instructions and a safety check before submerging to the reef.

New Air Decompression Procedures Provide Increased Safety

By: MDV Brian Pratschner

I want to take a moment to touch on a topic that will affect all of us very soon – the release of the U.S. Navy Diving Manual Rev 6, which will contain the New Air Decompression Procedures. I routinely receive phone call asking when Rev 6 will be out. I understand why you are calling – it is later than advertised, but for good reason. Here’s why.

In May 2007, Diving Advisory AIG 07-07 authorized the use of VVal-18M, New Air Decompression Procedures. This is new Chapter 9 in the Diving Manual. Additionally, it directed these tables be

in the La Maddalena effort for their patience and hard work in helping “fix” Chapter 9. Especially, MDV Sam Mata, MDV Mat Rotan, MDV Arne Phillips, and MDV Billy Gilbert. They made all of this come together.

This operation provided another potentially more valuable opportunity, a real world application of VVal-18M. I know there are people that don’t think we should change our 50 year old decompression tables. Some believe that these tables have worked fine for years. To you I say, never mind the experimental DATA,

Unmodified Diving Manual REV 5 (USN 57)	DCS %	Modified Diving Manual REV 5 (USN 57)	DCS %	Diving Mual REV 6	DCS %
34 dives	15%	340	1%	238	0%

never mind what the statistics say, compare the results of real world operations and it’s obvious we have made the right decision.

The dives performed on the La Maddalena operation

used for any dives with greater than 15 minutes of decompression time. Within months of releasing AIG 07-07 the salvage effort in La Maddalena was beginning to take shape. (See article on page 8.) This was the ideal opportunity to give the new Air Diving Chapter 9 a Fleet evaluation. It was decided that Rev 6 would benefit from the feedback from this operation. In order to capture the lessons learned, a revision to the procedures in AIG 07-07 was planned for.

All necessary equipment, Oxygen Regulator Console Assemblies (ORCA) was delivered to USS EMORY S. LAND (AS-39) and MDSU TWO Divers. Training was conducted and system certification was granted to modify their PSOBs for VVal-18M. Working with the Master Divers running the operations in Italy, 00C kept in constant communication, some times answering questions but more often taking their suggestions for inclusion into Rev 6. This did slow down delivery of Rev 6, but I believe that this resulted in a much better, Diver-tested, Chapter 9. I want to thank all of the Divers involved

are very similar to those during the salvage of TWA flight 800. Using the SURDO₂ tables, as written in US Diving Manual, Rev 5 we experienced a high rate of DCS, most were serious Type-2, chokes, paralysis, ect. The operation continued by modifying the Rev 5 tables, adding up to three “jumps” into the schedule until an acceptable margin of safety was reached. The New Air Decompression procedures (Rev 6) tables were used as written with no cases of DCS. See the table for a comparison of dives performed and incidents of DCS. The chart lists all dives between 110 fsw and 130 fsw, for both TWA 800 and the La Maddalena site jobs.

Tell the youngest Diver in your locker you used to dive MK-12 (or Jack Browne if you’re old enough) then show them one, and they’ll say “What were you thinking?” In five years if you tell the new Diver you used to decompress without oxygen they will say “What were you thinking?”

MDV Pratschner is Command Master Diver at NAVSEA 00C.

(“REEF” continued from p. 25)



This tiny fish represents one of the few specimens of marine life one can find along the reef.

glades and ultimately shipped to Georgia, typically for processing into either an energy resource for cement kilns or municipal solid waste facilities. The tires can also be chipped and used as light weight fill-in aggregate for highways or turned into tire-derived fuel, displacing fossil fuels providing energy for power plants and paper mills.

The Miami Herald actually prints its newspaper on recycled paper from one of the mills to which cut up Osborne Reef tires have been shipped for use as TDF.

“The weirdest connection is that I’m reading a story in Miami, a story produced by the Herald, written on recycled paper produced by a plant in Georgia where we send the tires,” Nuckols notes. “It shows how things can come around full circle.”

For decades, tire reefs have been created near coastal states and around the world. And though well-intentioned, people now realize the negative effects those tires can have on the marine environment. Fortunately, technology now allows old tires to be recycled, providing needed energy sources, reducing waste disposal issues, and minimizing the potential for those tires to harm the ocean. With the cooperative efforts of Coastal America, the Navy, and other federal and state partners, the Osborne Reef is finally evolving from an unsuccessful artificial reef venture to a training opportunity for military salvage teams and a recycled fuel source for Georgia and Florida.

CWO2 Motley is currently assigned to MDSU TWO as OIC Company TWO SIX.

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From SUPDIVE... CAPT John Gray

Challenging the Status Quo

Fellow Divers:
I am writing you from Portsmouth England where we are actively working with the United Kingdom, Canada, Australia and New Zealand to improve our integration. In addition, we are discovering what our allies do best and learning from it. More on that in a future edition of Faceplate. I would like to take on two issues for which I hope you have a strong opinion one way or another. Every time I bring them up a passionate response follows sometimes to the point where I feel physically threatened but that's my problem.

The 130 Foot Rule

As you know, the current Dive Manual, and even Revision Six, requires a chamber on-site whenever conducting Air decompression dives to a depth of greater than 130 feet. My question to the fleet is why? Because, honestly, SUPDIVE hasn't a clue as to the reasoning behind that number. Why not 129 feet? Why not 131? The British have a similar requirement at 42 meters (roughly 136 feet). OSHA requirements are set at 100 feet. Some folks, maybe even me, might say that this rule needs to be changed and let the smart folks in the fleet apply a little ORM vice some staff guy in Washington (me) trying to pretend he is an operator. Stick with me as we walk through the history and some arguments on both sides.

Background

Despite a complete search of all the tons of paper work that lines the halls of 00C and interviews with folks that have served here in excess of 25 years, we can not find documentation as to why 130 feet was chosen. Our best guess is that it aligned nicely with the various SCUBA requirements that are implemented at 130 feet. In short, we wanted to draw the line in the sand somewhere and 130 feet seemed like a reasonable depth to do that. There are multiple arguments that can be made on both sides of this issue. I'll outline the top three.

The Case For the 130 Foot Rule

Far and away the number one reason for having a chamber requirement at 130 feet is omitted decompression. Specifically, as we go deeper the odds of accidentally getting into a decompression profile (for whatever reason: entrapment, poorly executed dive) increases. We all agree that it's better to have a chamber around if you are dealing with omitted decompression.

A case can also be made that if no specific requirement is articulated, in a world of limited assets, that we put both billets and equipment (chambers) in jeopardy. Likewise, I think we all can agree that this could be an issue but are we defining the requirement correctly?

Finally, many have pointed out that if no "Top Cover" is given in the dive manual, that many Master Divers and OICs will be prevented from bringing a chamber to an operation by their Commanding Officer. This concern is based on the assumption that the Commanding Officer, who may not be a Diver, will not understand the safety issues at hand and opt to save the cost associated with transport and so forth.

The Case Against the 130 Foot Rule

The best argument against the 130 foot rule is that has no scientific basis. I spend a lot of time with a lot of smart people and I get to look at dive data that many in our community don't have access too. Despite our experience with TWA 800, I can tell you that based on 38,000 dives or so that there is no significant increase in the likelihood of DCS between say a 120 foot dive and a 140 foot dive. We bend most folks on no decompression dives. There are a couple of reasons for that. First, most of our dives are no decompression. Second, there is nothing magical about a 60/60. Two percent risk is built into the equation. Dive 60 feet for 59 minutes enough times and you will get bent. So, in summary, no decompression scientist can look you in the eye and say that there is anything special about 130 feet.

We have been inconsistent for many years. The current dive manual does not require a chamber for MK 16 unless you are diving greater than 200 feet. The new dive manual will suggest 130 feet but, in the end, leaves the decision up to the operational commander.

Managing the Risk.

AGE. Outside of the School House, Ascent Training, and NEDU, AGE simply doesn't happen much. It is a very very rare occasion. When I went to dive school they taught me that you could embolize in four feet of water. Again, nothing special about 130 feet.

As far as DCS is concerned, you are at higher risk for DCS on a 100 foot dive with a long bottom time then say a 140 foot dive for 20 minutes. Again, nothing special about 130 feet.



So Fleet, in the end, we are left with a few options.

Maintain the Status Quo – If it isn't broke don't fix it. I personally have a hard time with that one but it's an option.

Require chambers for shallower dives, perhaps 100 feet, perhaps for any dive. A good argument can certainly be made for this course of action. Aligning with OSHA would be looked upon by most as a good thing. If no risk is acceptable than a chamber on-site all of the time is the way to go.

The final option would be to link the requirement to actual risk of DCS. NAVSEA can develop a simple chart of say five percent DCS risk (in practice, most DCS models estimate high, for example our tables are primarily based on two percent DCS and we actually observe about POINT two percent). Dives above the five percent risk would require a chamber, those below; it's up to the command. This is the option I am currently in favor of. I do my best to define the risk, the commands actually making the dives decide weather to take the risk or not.

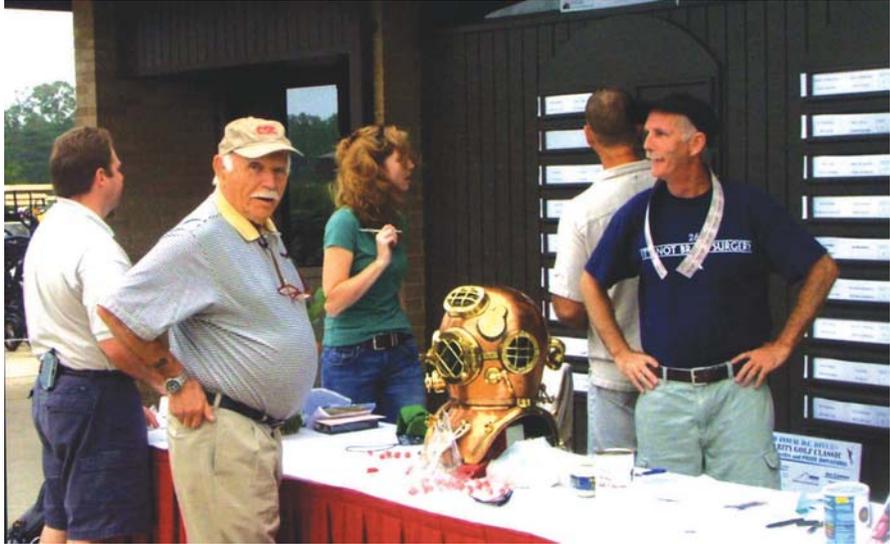
(“SUPDIVE” continued on p. 27)

D.C. DIVERS RAISE \$4000.00 FOR NAVY MARINE CORPS RELIEF SOCIETY By: Paul McMurtrie

The 6th Annual DC Diver Charity Golf Classic was successful in raising over \$4000 for The Navy Marine Corps Relief Society. The tournament was again held at the Andrews Air Force Base West Course on Friday, October 5th 2007. This year the weather cooperated with us and we had a mighty fine day for golf.

Again this year's sponsors were extremely generous, and were instrumental in the success of the tournament. After play was completed all the golfers assembled in the clubhouse to enjoy lunch and some socializing. This year's "Captains Cup" trophy, the MK-V Helmet that resides in the Office of the Director of Ocean Engineering and Supervisor of Diving and Salvage, will go to the team lead by OOC's very own "The Dr. Jim Ruth" and his crew of ringers who shot a score so unbelievably low that it is unfit to print.

After all our earnings were counted out, we were honored to present the \$4,000 check to Mr. John Alexander Vice President of the Navy Marine Corps Relief Society. Mr. Alexander gave a very



Tournament Check-in Table.

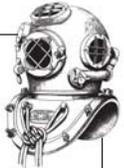
moving speech to all of those assembled, on the accomplishments of the Navy Marine Corps Relief Society past year, and assured us our efforts were for a truly noble cause.

The 2008 DC Divers Charity Golf Classic will again be held at the courses at Andrews Air Force Base during the first week of October. In the next issue of

FACEPLATE you will find a flyer, sign-up sheet and sponsorship form enclosed. Mark your calendars and join us for a round of golf to raise money for the Sailors, Marines, and their families in need. If you know of any potential sponsors, we would appreciate all the help we can get to increase our donation to the NMRCs.

From SUPDIVE... CAPT John Gray

("SUPDIVE" continued from p. 27)



Dive Computers

Dive Computers are currently in field testing. They are coming. Please be mentally prepared for their arrival as they will challenge the way we do business.

The NAVSEA vision for diving in the out years is dive computers running on a

probabilistic algorithm. Now that's three to five years out but the first two steps (VVal-18 and the computers themselves) will happen on my watch. Dive computers running the VVal-18 algorithm, which is more conservative than the VVal-18M algorithm in the new dive manual will be available in the near term.

Our culture will slowly change. The Belgium's, for example, use computers and do almost no topside management. Now that's not us but the way in which we alter our routines on the side with the advent of dive computers will be determined by you and will likely take a generation.

SUPDIVE.

The 2008 Working Diver Conference will be held at the Undersea Museum in Keyport, WA on April 21-25. For more information please visit www.supsalv.org or contact MDV Danny Boyd or MDV Brian Pratschner (see p. 2 for contact information).

The NEDU Change of Command Ceremony will be held on 30 May.