

TECHNICAL

E-MAG 16

RESCUE

EMS, EXTRICATION, SAR, AQUATIC, ROPE, DIVE, TACTICAL & USAR



Inset: The actual front cover for issue 58. Same man, different pose! These are from our main article on urban (tactical) climbing looking at use of modified climbing equipment to gain entry or scale a structure. All will be revealed in issue 58.

Cover shots by Michiel Woltering

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1st
NIKON D300S

Issue by Issue, *Technical Rescue Magazine* tries to feature as many large format images as we can and regularly features an additional 'Gallery' page to house them all. With this in mind, we are particularly pleased to announce, the *Canpro Annual Photo Competition* for amateur and professional rescue photographers.

Fantastic prizes of *Nikon* Camera equipment are being sponsored by *Canpro Training Resources – Occupational Health, Safety and Industrial Rescue* of Canada, who are specialists in training of industrial and confined space rescue as well as OH&S and standby rescue services to North American customers.

The competition has two classes of entry – 'Amateur Class' with a winner and runner-up prize and a 'Professional Class' with a winner prize (because no Pro likes to be runner-up!) Throughout the competition, we will try to publish as many of the entries as we can. Unfortunately for one of our entrants - Petty Officer Brandon Blackwell of the US Coastguard we had already purloined one of his contenders and used it for the cover of this issue but he has a few others up his sleeve.

The winning shots will ultimately be given a stand-alone gallery or centre spread, in *TECHNICALRESCUE* and if they suit our cover criterion may even adorn the front of a future issue.

Pro 1st
NIKON WT-4A
wireless file transmitter



This time around we won't be categorising the type of rescue photograph so you are welcome to submit incidents, equipment, training, personnel etc. Our only stipulation is that the photo should obviously be your own work and should adhere to the usual privacy or permission requirements where the identity of a member of the public or a casualty, are concerned. As this is the first annual Photo Competition, we will see

We mostly work remote from the office phone so don't expect an answer. However, we will ring you back if your message hasn't been accidentally deleted. Better still email us because we monitor these most often regardless of where we are:

info@trescue.com
rescuemagazine@aol.com
rescuemagazine@btinternet.com

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Photo Competition

PRIZES

AMATEUR - Winner - Nikon D300S Digital Camera

AMATEUR - Runner Up - Nikon P6000

PRO-Winner - Nikon WT-4A-Wireless File
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2nd

NIKON P6000
with GPS



how it goes and next year hope to expand on the prize base and incorporate a sub-categorisation of pictures so as to separate out operational from training and staged shots. For this first competition, whatever takes your fancy is fine by us.

The **CLOSING DATE** for entries is **1st May 2010** and we would like your entries submitted by email or CD.

Images need to be in high resolution digital format, preferably jpg images and preferably a minimum of 3meg and a maximum of 30meg in size. Please include your name, email and web address if applicable, and the name and nature of your team, service/agency or discipline.

A limit of 5 images per person may be submitted.

The competition will be judged by:
Professional photographer **John Burchan**
TRm Editor - **Ade Scott**
US Editor - **Reed Thorne**
Canpro Media Director - **Mark Pfeifer**

Closing date for competition is 1st May 2010

Start sending your entries now!

PLEASE EMAIL SUBMISSIONS TO:

photo@trescue.com

and please ALSO cc to:

trescuemag6@aol.com

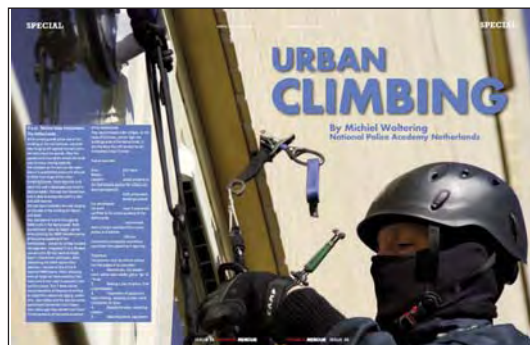


ISSUE 58

OUT NEXT MONTH

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NB: The design, content and titling of pages shown here may be different in the final printed magazine



TOP - Cover shot: A specialist Tactical Urban Climbing officer of the Dutch Police. Our main rope rescue article in issue 58 is centred on the training undertaken by police and tactical forces at the Dutch Police Academy in urban climbing. This is a fascinating insight into the use of modified climbing and industrial equipment to gain access to high rise buildings and structures and by high-rise we really mean anything over shoulder height! Michiel Woltering, TRM's tactical editor will follow up this first article with a back to back review of dog (lift/abseil) harnesses in issue 59.

Above Left: Ivan Hansen spent some time with the Toronto Police Marine Unit while they provided safety cover for the Canadian International Airshow so naturally we've got some great pictures of aircraft and the blue Angels.... and the Marine Unit of course!

Above Right: PWC (powered water craft) or jetbikes as they used to be called, are the subject of this issue's Water Rescue Craft. Not quite as many to choose from as most craft we've looked at in this series.

Left: Rotterdam and Rijnmond Emergency control in Holland is a model of inter-service cooperation utilising state of the art communications interfaces and control room staff from police, fire and ambulance. This is the way it should be.

Right: More works of Hardware Art as we review more new items from DMM, Petzl and Rock Exotica....and as soon we review one batch another lot of new stuff appears - these are industrious times!

Left: More violent trauma from South Africa as 'veteran' Paramedic Steve Daly recounts the nightmare call to treat one of your own. Three years service in South African EMS is a lifetime in most first world agencies.

Right: Meanwhile....if you missed the last issue, you didn't get to read about the Arachnipod Edge System, Airboats, Heavy vehicles/Truck extrication, the USCG's NW Pacific Lifeboats, Helicopters used in inland water rescue, Multi-Point Pre-Equalized Anchor Systems and much more.....



BEST HOME PAGE on the INTERNET



Once again proving that the simple things are the best Tennessee Association of Rescue Squad's Swiftwater Rescue training site has a front page with chilled music to match that is so cool we never actually got to see what was on their website!

ISSUE 59

Summer 2010

- Rescue Dog Abseil/lift Harnesses
- London Fire Brigade - Heavy Vehicle Rescue
- Tactical Lighting comparison
- Flat-bottomed (Dory) rescue craft
- Hampshire Police Force Support Unit OR Swedish Fire-Rescue Training
- Outdoor Clothing Reviews
- UK Coastguard Rope Rescue - Ascent and casualty recovery
- Helicopter Rescue over water
- Climbing Cams
- Ramfan Review
- Harness & Hardware Reviews

REVIEWS in the PIPELINE

We're still battling through a pile of rope rescue hardware including the **DMM Buddy** Back up device, **Rock Exotica Rock Dcarabiners** and **Petzl Rig Descender**. **Omega Pacific** have got a great new camming device the **LinkCam** that we'll mention in issue 58 Product News and hopefully review in 59. Also 3 or 4 harnesses to look at from **Yates**, **Petzl**, **Singing Rock** and **Actsafte** though, to be honest we can probably now be getting new harnesses from all the major players - **CMC**, **PMI**, **Rock n Rescue** etc. so we think the best thing to do is run an in-depth Market guide and hit them all at once. Look out in issue 59 for that unless I can squeeze some last minute space out of 58!

From **NRS Rescue** we have the **Grizzly Drysuit**, one that Ben Waller our Water Rescue Editor had heard good things about. On the clothing front we have a number of items from **Keela** in the UK a mountain rescue specialist we have an excellent **Quantum** trouser and jacket combination as well as their all-rounder **Belay Jacket** and from **Nine-1-One** in the US we have **Ski Patrol** and **SAR jackets** as well as fire-EMS jackets. **Goliath** in the UK have a new **SAR boot** that we have been trialling with another **USAR** model due shortly. Books include **Cases Pre-Hospital and Retrieval Medicine** by Ellis and Hooper which is a UK/Australian collaborative test of how you would approach 50 different detailed incidents.

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PETZL



May 13-15 Tunica, Mississippi

The Board of Directors is pleased to announce the 38th Annual National Search and Rescue Conference will be held **May 13-15 in Tunica, MS**. The Mississippi Department of Homeland Security is the hosting agency and is excited to bring the Annual Conference to the MS area.

Registration information for attendees and Exhibitors and the tentative schedule of events have been posted to the conference website: www.nasar.org. Visit the conference website for updates. New this year, you can register online for the conference! Use the red "Register Today" button! As a reminder, the early bird deadline to receive the deepest discount on the registration fee is April 1st!

Don't miss out on the following pre-conference events: NASAR Man-Tracking – The first step beyond Fundamentals, Lost Person Behavior and SAR Dog Water Shore Recovery. The conference site is the Harrah's Casino Resort Tunica ~ Mid-South Convention Center.

Lodging will be at the Veranda and Terrace Hotels which are a short 2-minute shuttle ride to the Mid-South Convention Center and a quick 4-minute shuttle ride to the Harrah's casino. For lodging at the host facility, please call 866-635-7095. Or, make your reservation online! The room rate is \$65 per night plus tax. The room block cutoff is May 5th!

The **Higgins & Langley Awards** for Swiftwater Rescue will be presented at the NASAR conference.

WORKSHOPS/TRACKS at this year's conference include:

Wilderness and Remote First Aid Training: Essential knowledge and skills for the Backcountry

John E. Hendrickson, American Red Cross, Jeffrey L. Pellegrino, Ph.D, Kent State University

CERT as a SAR Resource

Kenn Silligman, South County Fire Authority CERT, Tracy, CA

Risk Management and Search Operations – Evaluating and Managing the Risks You Face

Mark Jones, White Oak Search and Rescue, White Oak, PA

Recent Advances in SAR

Robert J. Koester, dbS Productions, Charlottesville, VA

Urban SAR for the Wilderness State of Mind

Bill Weber, Alameda County Sheriffs Office – Search and Rescue, Castro Valley, CA

Behavioral Analysis of Victims and Suspects

Sheri Cox Bowling, Virginia College, Biloxi, MS

Wilderness Search and Rescue Training Simulations Using Google Earth

Dr. Don Ferguson, West Virginia SAR Council

Success vs. Failure (It's Up to You)

Paul Falavolito, WOSAR

SAR Unit Growth and Retention

Rob Brewer, Spokane County Explorer Search and Rescue

Decisions For Heroes -

Save More Lives with Web-Based SAR Analytics

Robin Blandford, Decisions for Heroes, Dublin 3, Ireland

Clue Awareness for Search Teams (CAST)

Rob Speiden and Greg Fuller

SAR Manager Toolkit Development Project

Rob Brewer, Spokane County Explorer Search and Rescue, Spokane, WA

GIS FOR WILDERNESS SEARCH AND RESCUE

Dr. Don Ferguson, West Virginia SAR Council, Morgantown, WV

The ICS Tool Box "Branch Tactical Planning"

Division Chief James Mason, Siloam Springs Fire Department, Siloam Springs, AR

ATV Search Tactics

Robbie Houle, High Desert SAR, Wickenburg, AZ

Canine SAR Wellness and Essential First Aid

Dr. Charles Halford, DVM, Memphis, TN

SAR Canine Legal Updates and Opinions

Terry Fleck

SAR DOG SIG -Enhancing the Performance of Canine Teams through Research and Implementation of the Scientific Working Group on Dog and Orthogonal detector Guidelines (SWGDOG)

Professor Kenneth G. Furton, International Forensic Research Institute, Miami, FL

Dogs, Technology, and IC

Ben Alexander, Cen-Tex SAR

TC Crippen

Building the HRD Final Response

Ben Alexander, Cen-Tex SAR

Tiffanie Turner, Cen-Tex SAR

SAR Dog SIG

SAR Dog Community Meeting

Ann Christensen, NASAR SAR Dog Committee Chair

Puppy Enrichment – Raising a SAR Dog Litter

Ben Alexander, Cen-Tex SAR

Tiffanie Turner, Cen-Tex SAR





































Canine Behavior Modification

Craig Schultz, Hill's Pet Nutrition, Inc.

Anubis, Coyote and Lassie: Canine Archetypes for Search and Rescue

Leslie Middleton, J.D., Ph.D, Little Rock, AR.

Who's Who at TRm?

| | | | | | |
|---|---|--|---|--|--|
|  |  | ADE SCOTT Editor - UK 15yrs Head of Technical Rescue Unit (TRU) (ret) Rescue/Defence conslt. past NASAR presenter |  |  | REED THORNE Rope Rescue Editor - USA Rope Guru, Sedona SAR, ex-Firefighter, Stonemason and past NASAR presenter |
|  |  | JIM SEGERSTROM US Editor - USA (died Feb 2007) Water Guru, Founder Rescue3 International, Flight paramedic, Tuolumne County SAR, |  |  | IVAN HANSEN Contributing Editor - Canada Acting Fire Captain, Advanced Emergency Medical Care Assistant, ex-Coastguard Aux. |
|  |  | KELLY MATTHEWS Sales & Admin Director- UK Law Costs Draughtsman, The real Boss of TRm |  |  | LEE LANG SAR Editor - USA Ex-firefighter & EMT, current LCSAR team member and past NASAR presenter |
|  |  | DR STEWART BOYD Medical Editor -RSA Top Medical Dog - KZN, Trauma Doc, Flight Medic, War-zone junkie |  |  | GARY CROSS Senior Chimp - UK Firefighter, ex-TRU, HMCoastguard, Extrication Team Medic, Marine Incident Response Group |
|  |  | BRIAN ROBINSON Con-Space Rescue Editor - UK National Confined Space Rescue Instructor ex-Mines Rescue, ex-TRU |  |  | RICH HACKWELL SAR Editor - UK HM Coastguard-Head of Technical Rescue, Lifeguard, ex-TRU,(ex Tree Surgeon) |
|  |  | BEN WALLER Aquatic Editor - USA Water Rescue expert. Battalion Chief, Training Chief, Paramedic, US&R tech & HazMat tech. |  |  | JEZ HUNTER Contributing Editor - UK ex-Royal Marines, Water Rescue, USAR & , Rope instructor, now a medical student |
|  |  | SEAN JOHNSON Contributor - Dive Rescue -USA Fresno Fire Dept Firefighter, USAR & Dive Team |  |  | JIM HUTCHEN Researcher - UK Firefighter, ex-TRU, Tree surgeon, Extrication Team Snr Medic, USAR Team |
|  |  | GREG (CHURCH) CHURCHMAN Contributor - USAR/ Rope - Canada Fire Officer, Pilot, Rope Rescue Instructor |  |  | CHRIS WALKER Researcher - UK Ex-Technical Rescue Unit, National RNLI Instructor (HQ),Regional SAR Team Member. |
|  |  | RICH (DINGER) BELL Contributor - UK Paramedic, Dir. Extreme Medics , ex-Police, Tactical medic, ex-TRU |  |  | MICHEL WOLTERING Contributor - Tactical Ropes - Holland Instructor at Dutch National Police Academy for access in tactical, USAR, hostage rescue etc |

ALAN (AL) BANNON

It is with great sadness that we have to report the Line of Duty death of our friend and colleague Al Bannon. Al died in a flashover along with firefighter James Shears while tackling a fire in a multi-storey building in Southampton, Hampshire, UK on 7th April 2010. Al (38) was one of the original members of the Technical Rescue Unit which he joined on the strength of his climbing and rope work prowess from years of being a highly proficient caver. At the time he was employed as a mechanic/engineer by Hampshire Fire and Rescue Service but switched to wholtime firefighting 8 years ago. Al was fantastically enthusiastic and practical, a witty individual, a husband to Charlotte and father to 5 yr old Abi and will be very sadly missed by all that knew him.

WHAT HELMETS DO WE USE?

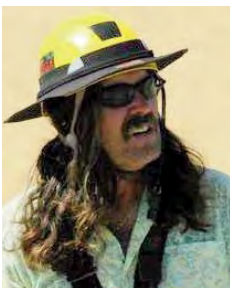
NEXT ISSUE: Boots



Ade in 'napalm' pose! The standard F2 was supplied with Bolle Commander goggles.

ADE: We used the **Gallet F2** on the Technical Rescue Unit from the time it was first introduced and it now seems to be the standard rescue helmet across all UK fire services and the majority of world disaster response teams. I continue to use the later version **MSA-Gallet F2 Extrem** which has a better chin cup and adjustable cradle. Some items of equipment become habit because it takes effort (and money!) to look around for an alternative but despite my very fortunate position of being able to choose from anything on the market I've so far not moved far from the Gallet. For chainsaw and power tool work Gary and I use a **Manta USAR** with Peltor ear defenders. My alternate helmet for tree and access work

(as distinct from rope rescue) is a yellow Petzl Best because it's quite light and less bulky than the F2 and because it also doubled (rightly or wrongly!) for use in water. But to be honest I don't find it particularly comfortable for long periods, unlike the thousands of rope access workers who seem to favour it. For dedicated water rescue/boat work I have always used the Gecko (latterly the Mk10 until it was purloined by one of my lot and I haven't seen it since!) I need to renew my water helmet and will probably go for Gecko's latest model or the **WRSI** - not sure I'd want to be seen in the urban camo option shown above but WRSI have a great range of options.



REED: I wear so many "hats" in my business, that it defies labels. I mean, one course I am teaching improvised techniques with minimalist materials and the next I am up on a power line hanging from the wire. Remember, I do not sell equipment, only knowledge. Remember also that I have a huge Scottish head and there are very few helmets that will fit. The Petzl (pictured) barely fits IF I let out all the adjustments to their MAX. And then, with that being done, the chin strap is STILL TOO SHORT!



RICH: **Predator** full cut for swiftwater (left). For rope rescue the **Gallet F2 Extrem** (a hangover from my TRUnit days) or the **Manta**. When I'm with my inshore rescue/Lifeguard team we use **Gecko Mk 10** (right) for boat work because it's comfy, excellent fit and I can use it in the boat, swimming whatever. The **FutureSafety Terrain/Manta**; multirole is a jack of all trades, one in the truck does all disciplines; rope, water, Boat, SAR, tree surgery and it has good features, like being fluorescent yellow- can't miss it or me in it!

HIS F600



GARY: For water and mud rescue I use the **Predator** half and full cut and the **Manta multi role**. For rope, general rescue and extrication I use the **Gallet F2 Extrem** or the **Manta multi-role (left)**.



BRIAN: For general rescue I use the **Gallet F2 Extrem** but if it's a fire situation I use the **HIS F600 (Helmet Integrated System)**



MA-Gallet F2 Extrem



Future Safety Manta



Trango CPU



Petzl Vertex Vent



Gecko Mk10



ProTec Ace Wake



Gath Gedi

LEE: Trango helmet - My choice because of its lightweight and suspension system. As a wilderness SAR person, weight is important and the suspension system keeps your head cooler than today's foam based helmets. Trango is also offered in a selection of colors, making possible for color schemed command systems in the field.

CHURCH: I currently use a **Pacific helmets** or **Kiwi R5**. It's an older model, although it appears that PMI still carries them. I use it because it is an all-round helmet that satisfies the NFPA USAR requirements for structural collapse etc. So it's a good compromise for VX, rope rescue, structural collapse, confined space, etcetera. It's a little heavy compared to a lighter duty rescue helmet, but not nearly as heavy as a fire rescue helmet. I like the brim that extends from the front also, particularly because I wear glasses. It's also expensive.

Most popular for rescue is the **Petzl Vertex Vent**. Nice and light and adequate for access or rope rescue. Decent price. Too many teams use them in the wrong places though. It won't meet some standards for structural collapse.

JEZ: For rope rescue I always used the Petzl - Ecrin Roc then Best/Vertex. For water rescue I tend to use the **WRSI Creeker** as I use it for kayaking and cannot be bothered to buy another!

CHRIS: **Rescue Access - MSA-Gallet F2** more from habit from my TRU days than anything else but it gives the protection and comfort needed and doesn't feel like a lead weight. Royal National lifeboat Institution (RNLI) uses the **Gecko Mk 10**. Light and comfortable it provides required protection in the most demanding of sea conditions without being too heavy and without getting waterlogged increasing weight. Can have various attachments accommodating radio configurations and other lighting/torch/ video camera configurations. With built in visor for eye protection and general rough weather comfort. **Swift Water Rescue - Pro-Tec Ace Wake**. Light, comfortable and has low profile to prevent scooping. My personal preference is away from the full cut to prevent any issues with hearing however the Ace Wake gives the ear protection (warmth/earfull of water) without compromising hearing. **Climbing - Petzl Ecrin Roc** - Keep it simple. Tried and tested and easy to use. I have used it as a stand in for water rescue as well and does the job grand. A good all round helmet

SEAN: my favorite helmet for water rescue is the Gath Gedi. It's lightweight and has ample foam padding. It has ear protection which is removable which is a great feature to have, an optional radio mic and the most useful feature, the visor. I don't have to wear sunglasses which tend to get fogged up in swiftwater ops and its great for powerboat ops because the rain hits and rolls right off the shield. Great for Helo-water ops interface.

Cairns Metro 660C



Cairns N5A New Yorker



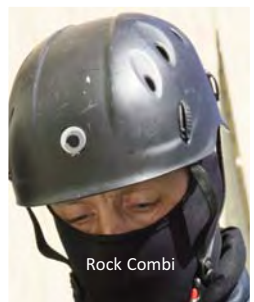
Pacific R5



WRSI Current



Petzl Ecrin Roc



Rock Combi

Rabintex RBH 303



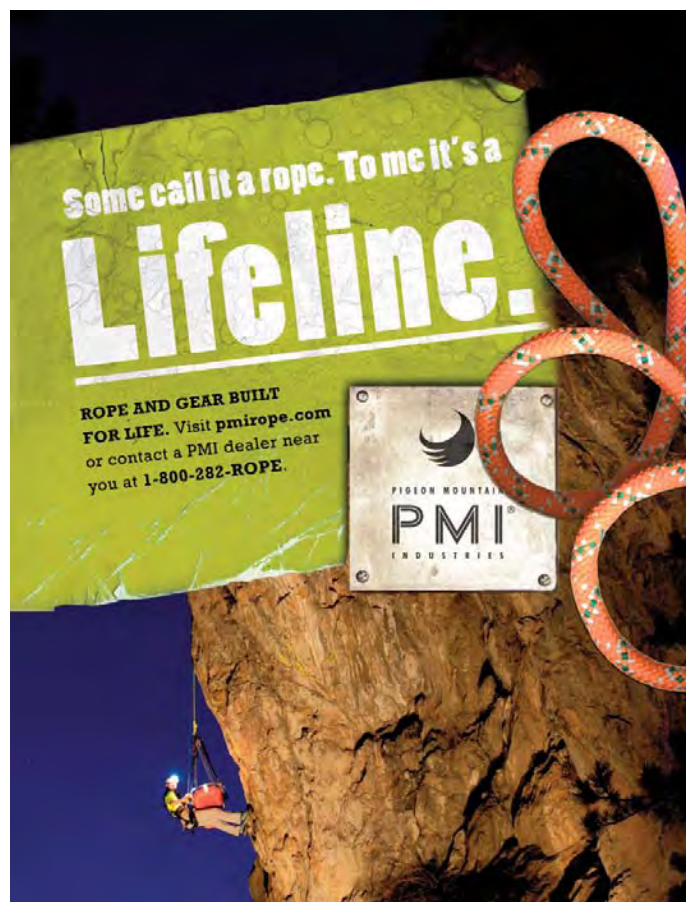
IVAN: As with most firefighters we don't really have a choice, we must use what is provided. We have just switched fire helmets to a new kind which is crap, and lucky for me doesn't fit, so I've got my old **Cairns Metro 660C**, which I like. Water/ ice/ rope helmets, not on our truck so it's the Cairns again.

BEN: Firefighting - **Cairns New Yorker, Model N5A** (Leather) Helmet. It is a little heavier than similar helmets made from composite materials, but it provides the best heat resistant, especially when exposed to repeated fires. The ratchet headband makes it easy to adjust the helmet to a flash hood and SCBA for interior work, the flash hood alone for outside work, or just the helmet at the command post. Cairns has numerous eye protection options and accessories available for this helmet. Technical Rescue and US&R - **Pacific R5** Technical Rescue Helmet. This is a lightweight, low profile helmet that is well-ventilated and works well in our hot, humid climate. It has good attachment points for Passport Accountability ID shields, safety goggles, and helmet lights. The sculpted side profile mates up well with shooting-style ear muffs - an essential when spending a few hours operating concrete saws. It does not have the impact cap that some US&R helmets have, but if a few tons of concrete fall on your head, the impact cap won't make a difference. Avoiding a helmet model with an impact cap makes this helmet much more comfortable in hot weather, keeps the extra weight off of the neck during high-angle rope work, and has a smaller profile than the impact cap models. This helmet also doubles as an extrication helmet for either tool work or patient care. Swiftwater & Flood Rescue - **WRSI Current** Helmet. This helmet is lightweight, well-ventilated, and is the most comfortable helmet that I have ever worn, particularly for long-term wear during flood responses. The helmet has a custom adjustment system and comes with a variety of pad sizes to help with the custom fit. The add-on ear protection gives additional side impact protection with minimal hearing interference. The short front brim gives protection from low-hanging tree limbs and helps create an air pocket for working pour-over entrapments, but it's small enough that it doesn't interfere with paddling or aggressive swimming.

I've found that having these three helmets gives me the head protection selection I need for a variety of incident types with the minimum possible number of helmets in my response vehicle.

MICHIEL: The helmets we use for work at height are from different European manufacturers - the photos in the issue 58 article show the **(Rock) Combi Helmet** (left) sold under various trade names including Liberty Mountain in the US.

For special operations we may choose to use only a ball-clava or a ballistic helmet (without the visor) from Rabintex. The **Rabintex helmet** has a IIIA classification and weight of 1150 grams. Not EN certified for work at height but I believe a bullet is a larger risk. Some teams need a helmet for marine and boarding operations. When combining water and height I think the **Manta** helmet from **Future Safety** is a good option.



AIRBOATS AGAIN SEE ACTION IN NORTH DAKOTA FLOODS



Ironically, our cover shot from issue 57 featuring a US Coastguard Rescue Swimmer working the 2009 floods in Fargo North Dakota has caught up with events this year. As the picture below shows, it would be hard to discern which photos are from 2009 and which are 2010. As wisely predicted by USCG local commanders, advice just as wisely heeded by USCG Command, the original Ranger Airboats from American Airboats were not mothballed and are instead still being used despite their planned replacement by a new model from MidWest Airboats. Our congratulations to USCG personnel that participated in the 2009 floods for their award of the 2010 Higgins & Langley Outstanding Achievement Award in recognition of their fine efforts in North Dakota. Back to the 2010 floods:



USCG report: ST. LOUIS – Coast Guard airboat crews have rescued nine from flood waters in the Fargo, N.D., area as of Saturday 18th March 2010.

These rescues are part of a multi-agency operation that is responding to major flooding along the Red River in North Dakota. Coast Guard personnel, airboats and aircraft are assisting in this effort led by the state of North Dakota and the Federal Emergency Management Agency. In total, there are 27 local, state and federal agencies involved.

The Coast Guard has a total of 49 people in the region to support this operation. The resources on scene include:

- HH-65 Dolphin helicopter and crew from Traverse City, Mich.
- MH-65 Dolphin helicopter and crew from New Orleans
- Airboat and crew from Marblehead, Ohio
- Airboat and crew from Belle Isle, Mich.
- Airboat and crew from Alexandria Bay, N.Y.
- Helicopter crew from Houston
- Helicopter crew from Corpus Christi, Texas
- Two Coast Guard Auxiliary communications units
- 6-person boat maintenance and support team

Also, an incident management team comprised of 23 personnel is working at Sector Upper Mississippi in St. Louis.

“Our primary goal is to provide the necessary support to the state of North Dakota, who is leading all response efforts, as well as integrate into the federal support team headed by FEMA,” said Capt. Steven Hudson, commander of Sector Upper Mississippi. “Our crews will work with our fellow agencies to conduct welfare checks and perform rescues and other critical functions to ensure the safety of the residents affected by this flooding event.”

HIGGINS & LANGLEY AWARDS 2010

ASHEVILLE, NC. April 3, 2010-The Higgins & Langley Memorial and Education Awards Committee is proud to announce the 2010 Higgins & Langley Memorial Awards in Swiftwater Rescue, which recognize excellence in the dangerous technical rescue discipline of swiftwater and flood rescue.

The awards will be presented on Friday, May 14, 2010, at 7:30 p.m., at the annual National Association for Search and Rescue (NASAR) conference at Harrah's Casino Resort Tunica ~ Mid-South Convention Center (Tunica, MS, 866-635-7095; www.nasar.org, 877-893-0702)

Team Incident Award

**Miles City Fire Department,
Miles City, MT, USA**

On March 4th, 2009 the Miles City Fire Dept. responded to a call about a car in the frozen Tongue River to find a truck pinned against an ice floe. Backed by units of the department, FF/EMT Branden Stevens, who had recently graduated from a swiftwater rescue course, along with FF Tim McGlothlin, successfully rescued the truck's driver from the ice-choked river.

**Potomac River Rescue Association
VA, MD, DC (US Park Police, OWL**

**Vol Fire Dept, Fairfax County Fire
Dept. Swift Water Rescue
Team, Fairfax County Police
Dept. Aviation Division)**

On May 31, 2009 at approximately 12:45 PM, Fire and Rescue Units from the Occoquan-Woodbridge-Lorton (OWL) Volunteer Fire Department responded to the Occoquan Reservoir Dam for a water rescue. Two fishermen were stranded at the top of a seventy-two foot dam after their boat had been swept over it. OWL VFD rescue boats deployed on the reservoir 100 yards from the lip of the dam, while Fairfax County Fire Department's (FCFD) Swift Water Rescue Team, Fairfax County Police Department's Aviation Division (Fairfax 1) and the United States Park Police Department's Aviation Unit (Eagle 1) responded. FCFD's Swift Water Rescue Team set up below the dam while Fairfax 1 lowered PFDs to the fishermen, then towed one to waiting boats while Eagle 1 rescued the other with a Billy Pugh net.



Individual Incident Award

Rodney O. Seals,
Pennington County Water
Rescue Team



On May 24th, 2009 a slow-moving thunderstorm flooded Rapid Creek, a watercourse near Rapid City, SD. Three adolescent boys became trapped by the rising water, one of them clinging to a tree branch in the current. Rodney Seals, who had just returned from a swiftwater rescue technician course, was the only trained and equipped responder available in the area. Seals was instrumental in rescuing not only the three trapped boys but in assisting six rescuers back from an island where they had become marooned during a rescue attempt.

Program Development



Clackamas County SWIFT Team

Clackamas County, OR
Clackamas County SWIFT Team is drawn from the Clackamas County Sheriff's Office and Clackamas County Fire, a unique collaboration between fire and police agencies. It is a FEMA Type 1 (14 member) Swiftwater and Floodwater Rescue Team, which responds both in and out of Oregon through the Federal EMAC program, and is the first team of its type in the state. All members are currently training to meet qualifications for a Type 1 designation, including qualification as swiftwater rescue technician, rescue specialist, rescue boat operator, EMT and animal rescue technician, as well as additional training in helicopter and flood operations.

American Medical Response NW River Rescue Team

American Medical Response (AMR) created the Oregon River Safety Program and developed a river rescue team. Prior to its formation in 1999 an average of two people drowned each year in the Sandy River at Glenn Otto Park in Troutdale. AMRs River Rescue Team endeavored to prevent drowning deaths by providing lifeguard services and public education. In 2002 it expanded to a second site on the Clackamas River near Gladstone, Oregon. No swimmers have drowned at either park in the years that AMRs River



Rescue life guards have been on duty. Each spring AMR hires a team of full and part-time Oregon state-certified paramedics, emergency medical technicians, and first responders who must first pass a rigorous swim fitness test. Team members are then trained to conduct surface rescues, perform hazard mitigation, and provide public education on water safety. In 2009 AMR celebrated the completion of its eleventh season.

Maryland Helicopter Aquatic Rescue Team (MDHART)



Maryland Helicopter Aquatic Rescue Team consists of the Baltimore County Police Department Aviation Division, Baltimore County Fire Department Special Operations Division and the Maryland Army National Guard (Co. C, 2nd Bn., 224th Aviation Regiment). MDHART training started with pilot extrication drills, equipment loading, victim capture devices, dunker training, and swim requirements, then progressed to airborne hoist drills beginning with empty field insertions/extractions and then to aircraft to roof drills, aircraft to trees, aircraft to drill tower and aircraft to car exercises. After a final swim test and dunker training in 2007 personnel conducted in-water and short haul system training. It took approximately 2 years of planning and training before the MDHART became fully operational. Training continues with quarterly aviation training with the MDARNG as well as annual recertifications on the dunker, HEEDS, victim contact and device drills.

Special Commendation



Lisa Stuart - Safe-Tay Project (Scotland)

Lisa Stuart began the Safe-Tay project following the 2006 drowning death of her brother, Graham Motion, in the Tay River in Perth, Scotland. Since then the project has actively campaigned to raise awareness of the hazards associated with water, working with local fire & rescue services, police, media and government agencies to actively promote water safety within the Tayside area, including poster campaigns and community events. They have also raised funds for the fitting of alarms linked to the city's lifebelt stations. In the event of the lifebelt being removed from its station an alarm will sound and the CCTV camera linked to the system will activate enabling emergency crews to locate incident faster as well as preventing malicious use of lifesaving equipment. Although a civilian and the charity director, Stuart completed an operations-level

swiftwater rescue course to gain a better understanding of the hazards involved for crews responding to a water rescue incident.

Outstanding Achievement

US Coast Guard Red River Flood Response, ND 2009

In late March and early April 2009 the Red River crested at record levels in the area of Fargo and Grand Forks, ND, placing tens of thousands of citizens at risk. The Coast Guard began mobilizing members from units nationwide, and their aircraft, airboats and rescue crews assisted local agencies in North Dakota during the worst flooding yet recorded. Aircrews navigated across nearly 600 miles of treacherous upper Midwest territory with 60 knot winds, significant turbulence and blowing snow showers to reach Fargo, while boat crews experienced blinding snow storms, freezing temperatures and dangerous patches of ice, forcing them to make daily repairs to their airboats. Their combined efforts, however, resulted in 103 lives saved and provided assistance to over 7,000 people. Through close coordination with Sector Upper Mississippi River in St. Louis and liaisons from other Coast Guard units as well as other county and local emergency operations centers, the Coast Guard took the lead for search and rescue operations and accounted for over 75 percent of all lives saved by the interagency response.



Background to Higgins & Langley Awards

The Higgins & Langley Memorial Awards were established in 1993 by the National Association for Search and Rescue in honor of Earl Higgins, a writer and filmmaker, who lost his life in 1980 while rescuing a child who was swept down the Los Angeles River, and Los Angeles County Firefighter Paramedic Jeffrey Langley, a pioneer in swiftwater rescue who lost his life in helicopter incident in 1993.

The Awards have increased awareness about the need for specialized swiftwater and flood rescue training and preparedness. Today, worldwide training certifications have increased and agencies have been inspired to develop viable water rescue programs to protect the public and rescuers alike.

The Higgins & Langley Memorial Awards are sponsored by CFS Press, CMC Rescue, Inc., K38 Water Safety, Rescue 3 International, Rescue Source, Rescue ONE Connector Boats, Rig Systems, San Marcos, Texas Fire Rescue, SkyHook Rescue Systems, Inc., and Zodiac Maritime Training Academy. Additional support for the Awards is provided by the family of Adam Bischoff, the Rudi Schulte Family Foundation, Jon Stephen and Karen Langley Stephen, and Shirley A. Rigg, as well as contributions from other generous individuals.

THE WISDOM OF JIM SEGERSTROM

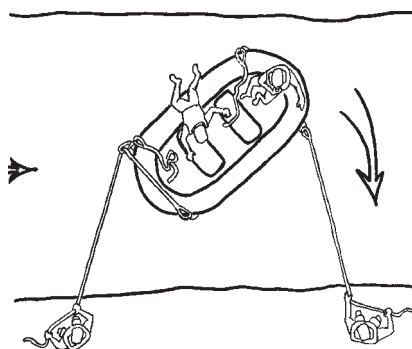


It's been just over 3 years since the untimely death of TRM's US Editor Jim Segerstrom. It was a particularly difficult demise for those who knew Jim because he was such a robust and active individual, much younger than his 62 years and he certainly put me to shame - we might have half expected to hear that he'd been killed on a river somewhere or even in a transport accident given that he was forever travelling the world. But a stroke was hard to take.

Jim was in the middle of the 10th in a fantastic series of articles for TRM on water rescue. Jim even drew his own illustrations of which this is an example. We're currently compiling all of Jim's articles into one section on the magazine website under 'articles'.

This and a number of his later illustrations were penciled in mid-flight and finished off at home in Sonora, California.

When we look back at Jim's articles and his course teachings it's apparent that he was a visionary in the field of inland water res-



cue. He never laid claim to the birth of swiftwater rescue, citing folk like Barry Edwards, Mike Crosslin and Jim Lavally as co-conspirators in its conception but there is no doubt that he led the way in pushing the development first of swiftwater rescue and later its evolution into the more widespread risk of flooding. Jim set up Rescue3 - (the '3' being Jim, Jim Lavally and Mike Crosslin) and even though he retained an interest in a company that is synonymous worldwide with quality water rescue train-

ing, he moved on with his training plans. He was keen to push IRIA, the International Rescue Instructors Association, an organisation that he helped set up with the aim of maintaining the skills of a burgeoning number of instructors. Paid of course! This was a worry for him. There was beginning to be a lot of money in training, prompting all manner of instructors to appear in all manner of companies. Most are very good, a few have instructors with a limited, if not dubious pedigree. Jim was a fantastic teacher and orator and with skill levels to match and decades of operational experience he was one of the finest instructors any student could want.

I always felt (and Jim agreed) that the definition of an instructor should include operational experience in the discipline being taught. There is a common axiom - *'those that can't, teach'* which may be true of some of the largest agencies and perhaps some training companies around these days but on the whole it's just plain wrong. Never be overawed by an 'instructor', the best are always the most self-effacing, and interesting to talk to NOT the aggressive USMC drill sergeant-type. Don't be afraid to ask about your instructor's experience - it doesn't have to be a challenge, a simple, how did you get into this?' will normally do the trick.

Regular readers will be familiar with my contention that many folk breathed a private sigh of relief when Jim died because he was quite vocal in his advocations and these were often contrary to the views and ambitions of many officials. As we now know Jim was ENTIRELY CORRECT in his assertions that flooding was on the increase and that ALL agencies needed to prepare not just for specialist swiftwater but for more widespread flood rescue. It is astonishing to think that as little as 5 or 6 years ago, (let alone a decade or even the 3 decades that Jim has been preaching on this), flooding was being dismissed by many large agencies as a low priority. Now in 2010 there aren't many agencies that don't have water rescue/flood response as their *primary* special incident concern - even if they don't necessarily have any budget left to properly address it. I say 'special interest' because day to day, vehicle rescues for fire services and 'wilderness' mishaps for SAR teams still represent by far the highest volume of rescue calls.

The collective wisdom of Jim would fill a book quite apart from an article within an Emagazine but these are some of my favourite of Jim's wry observations some of which were born in conjunction with Jim Lavally, Jay Bowder, Barry Edwards and others.

When driving a boat on the river, the time delay between danger and purposeful response is inversely proportional to the time spent on training

When the motor pukes (as boat motors do frequently), the teensy cute wooden paddles that come with most boats will serve only as emergency badminton rackets or firewood if one is marooned on a desert island

Several years ago while driving to Utah for a swiftwater class, my partner Barry Edwards and I started to notice the number of large trampolines in the front yards of the houses we passed as we drove through 3 states. We didn't see any kids jumping on them, but there was at least one every few miles. Why so many trampolines? Was there some kind of inter-state trampoline competition league? No. What there was, was one hell of a trampoline salesman! Hovercraft fall into a similar category.

[for swiftwater use, Jim felt they had a place in on ice and on mud but were being marketed as proficient in swiftwater]

If two emergency workers were placed on two PVCs in a lake 5 miles square and allowed to cut loose with them, within 5 minutes they would collide with each other.

In the epic battle between aluminium and river rocks the rocks continue to win.

*in issue 44 Jim ended his article on flood preparedness: -
Time to get ready, the flood is coming.
Before our next issue came out Katrina hit.*

Never go out in a boat unless you are prepared to come back without the boat

if you're going to eat an elephant, do so a spoonful at a time!

Experience, a wise man once wrote, is an accumulation of personal bad judgement that one manages to survive

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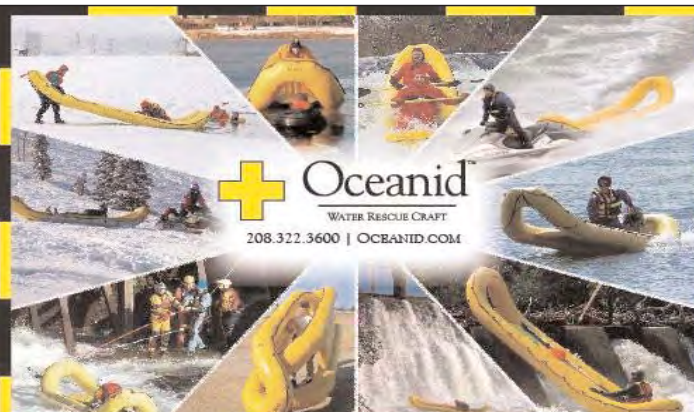
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MINE RESCUES

This Easter period has been particularly bad for Mine workers with large incidents in China and West Virginia, USA claiming the lives of 38, 19, 9 and 29 respectively. In the case of the first Chinese incident where miners inadvertently broke through into a flooded chamber no less than 153 or so were initially reported to be trapped or dead so it is quite astonishing that the figure, according to authorities, ended up being 38 with 115 saved. On the face of it, a PR disaster turned into a success if losing 38 workers can ever be deemed a success.

The NY Times produced the following detailed report on 6th April:

BEIJING — From the start, China's latest coal mine disaster seemed likely to end as so many others had in a country where an average of seven miners die every day: a failed rescue effort, grieving relatives, few if any survivors.

But then, more than a week after the half-built Wangjialing mine in northern China was flooded with millions of gallons of water, rescuers heard taps on a metal pipe. They furiously pumped water out of the shaft and sent glucose injections down through a pipe. By late Monday, rescuers had dragged 115 men up to safety, though 38 others remained missing [as at 6th April 2010].

Survivors said they had strapped themselves to shaft walls with their belts so they would not drown, hung there for days, then jumped into a mine cart that floated by. Others said they ate bark from the pine pillars used to construct the mine.

By any standard in the dangerous world of mining — and certainly by those of China's especially deadly industry — it was a marvel of good fortune....

David Feickert, a coal mine safety adviser to the Chinese government, told The Associated Press, "This is probably one of the most amazing rescues in the history of mining anywhere."

Investigators blamed the usual culprit in China's regular mine accidents: a lack of safety precautions. For days before the mine flooded, managers ignored water leaks that presaged trouble, according to preliminary findings by the State Administration of Work Safety. Miners had been ordered to step up the pace of construction to meet an October deadline to begin production at the mine, the agency said. "The miners should never have been put in this situation in the first place," Mr. Feickert said.

Had rescue efforts failed, the mine disaster would have been China's deadliest in more than two years. Although the government has managed to significantly reduce the death rate at coal mines since 2002, its safety record remains among the world's worst.

The accident occurred on March 28 as workers digging tunnels broke through a wall into an old shaft filled with water, flooding their V-shaped shaft. Five of the workers' nine platforms were submerged. The

exit out of the pit was blocked.

Of the 261 miners underground that day, 108 made it to safety. The rest were trapped and feared dead. More than 3,000 workers participated in the rescue operation. At least half a dozen pumps were installed, draining the mine of more than 11 million gallons of water a day, officials said.

By Friday, the water level inside the mine had dropped nearly 11 feet. Workers had drilled a hole through the dirt and pumped oxygen to the area where they hoped to find survivors, according to news reports. But there were no signs of life until rescuers heard the tapping on the pipe Friday afternoon.

Rescuers tapped and shouted into a pipe in response. They also sent down bags of glucose, milk, a pen, paper, a phone and a plastic bottle. And, requisite for a high-profile rescue effort that could have political consequences, they sent exhortations from both Communist Party and government leadership bodies. "Dear fellow workers, the Party Central Committee, the State Council and the whole nation have been concerned for your safety," one letter began. It ended, "Hold on to the last."

When rescuers pulled one pipe to the surface, they found an iron wire tied to the end, apparently a signal from survivors, according to Xinhua, the state-run news agency. Rescuers also spotted swaying lights at the opposite end of the shaft, another possible sign of life.

On Saturday afternoon, a team of divers was sent down. But the divers returned within a couple of hours, reporting that the black murky water made it hard to reach the workers' platforms. On Sunday, as water levels continued to drop, rescuers in inflatable rafts paddled into the dark, watery pit, letting air out of the rafts when they got stuck in the narrow passages.

They found survivors that night, most of them stranded on a single platform. One miner spotted a raft and called out, "Can you get me out of here?" "Since we got in, we will definitely will be able to take you out of here," a rescuer yelled back, The Associated Press reported.

The first nine survivors were carried out of the mine's mouth very early Monday morning, seven and a half days after the accident, on a holiday called Tomb-Sweeping Day when Chinese commemorate the dead. Rescuers burst into tears and hugged one another in relief.

Thousands of people keeping vigil along the roadside cheered as ambulances raced the miners to the nearest hospital. The number saved grew throughout the day as hundreds of rescuers entered the mine.

CCTV, the state-run television network, showed rescuers clad in blue and orange jumpsuits carrying out stretchers laden with barefoot miners, wrapped in green blankets, eyes covered with towels to shield them from the light.

One reached out his blackened hands to grasp those of rescuers in thanks. Another was still gripping his miner's lamp. A third showed rescuers a pocket full of sawdust, describing it as hard to chew.

The rescue team's chief medical officer told reporters that the survivors were weak, severely dehydrated and suffering from hypothermia and skin infections. Some were in shock. Although none were in critical

condition, he described 26 as more seriously ill than the rest. (Jing Zhang contributed research).

Not widely reported outside of China was a second and third incident in which a massive blast killed at least 19 and a fire killed 9. This report is from AP with picture from AP/Xinhua



The death toll from an explosion at a mine in central China has risen to 19 people, with 24 still trapped underground, the government said on Friday, in the second major mine disaster in the country this week. A gas leak caused the blast in the most recent mine accident, according to a report on the Web site for Luoyang city in China's central province of Henan. It said 24 miners were believed to be trapped.

The official Xinhua News Agency said 20 workers escaped after blast Wednesday night and another 31 were rescued.

The city government report said 15 of the 19 dead were miners working underground at the time of the explosion and four people died above ground. It did not say if they were workers or passers-by.

Calls to the Luoyang city government office ran unanswered on Friday.

Xinhua said the mine boss, Wang Guozheng, has disappeared and authorities have ordered that his assets be frozen. Four county officials have been fired over the accident, but it did not say what they may have done wrong.

Blasts and flooding are common in Chinese mines.

The flood at the Wangjialing mine in Shanxi province started when workers digging tunnels broke through into an old shaft filled with water, a government safety body has said. It accused mine officials of ignoring safety rules and danger warnings in a rush to open the mine.

In a third accident, a coal mine fire in northwestern Shaanxi province killed nine people Thursday evening, Xinhua said. Another 17 miners managed to escape after the fire. Xinhua did not say what caused the accident.

China's coal mines are the world's deadliest, despite a successful multiyear government effort to reduce fatalities. Most accidents are blamed on failure to follow safety rules or lack of required ventilation, fire controls and equipment.

Accidents killed 2,631 coal miners in China last year, down from 6,995 deaths in 2002, the most dangerous year on record, according to the State Administration of Coal Mine Safety.

Meanwhile in West Virginia an equally tragic incident was unfolding with 29 dead in an initial blast This from Associated Press and Reuters at at 7th April 2010 with an update on the 9th April:

Draeger Refuge & Rescue Chambers

This is a concept used in the West Virginia incident (not this Draeger version but a pod-style refuge) which can be used in any potentially hazardous atmosphere and maybe even where there is a risk of flooding - it would at least buy some extra time if properly sealed:



Rescue chamber: If the escape route during an emergency is too long or even cut off, a rescue chamber provides protection for the affected individuals until external rescue workers reach them. This can be up to 48 hours. The available air will be regenerated.

Chamber equipment

- Seating
- Lighting/emergency lighting
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- Gas detector
- Chemical toilet
- Air curtain
- Emergency provisions: drinking water, blankets, food, first aid equipment.

www.draeger.com

MONTCOAL, W.Va. - No response has been heard after rescuers banged on pipes in a West Virginia coal mine where four miners are missing after a deadly blast, the state's governor said early Wednesday. Gov. Joe Manchin told a briefing that rescue workers had finished drilling a first vent hole in an attempt to remove toxic gas from the Upper Big Branch Mine. They are trying to make a section of it safe enough for rescuers to search for the miners.

Two days after the blast killed 25 and left two hospitalized, the buildup of methane gas and carbon monoxide was too dangerous for anyone to enter and look for the last of the missing or to recover the bodies of 18 known dead. Seven bodies were brought out after Monday afternoon's blast rocked the facility, site of the worst underground disaster in the U.S. in more than a quarter-century.

Once the mine is ventilated, teams would need four or five hours to reach the area where officials believe the miners are about 1,000 feet beneath the surface, said Chris Adkins, chief operating officer for Massey Energy Co., which owns the mine. The long section is about 20 feet wide with barely enough room to stand, a safety official said.

Searchers would have to navigate in the darkness around debris from structures shattered by the explosion and around sections of track that were "wrapped like a pretzel," said Kevin Stricklin, an administrator from the federal Mine Safety and Health Administration.

"There's so much dirt and dust and everything is so dark that it's very easy, as hard as it may seem to any of us

outside in this room, to walk by a body," Stricklin said. Crews were also performing a seismic test Wednesday, transmitting a sound underground to alert any survivors that rescuers are coming for them. The miners are supposed to tap on the roof to signal they heard the sound — however, officials said it's a long shot because they are so deep inside the mountain. Manchin said it could be midday before much progress is made on the four ventilation shafts.

"I don't want to give anybody any false hope, but by golly, if I'm on that side of the table, and that's my father or my brother or my uncle or my cousins, I'm going to have hope," he said Tuesday.

The missing miners might have been able to reach airtight chambers stocked with food, water and enough oxygen for four days. But rescue teams checked one of two chambers nearby, and it was empty. The buildup of gases prevented them from reaching the second chamber. Officials said they were 90 percent sure of the miners' location.

On Tuesday, bulldozers carved an access road to make way for drilling crews, who planned to dig four shafts to vent methane, a highly combustible gas that accumulates naturally in coal mines, and carbon monoxide from the blast site about 1,000 feet beneath the surface.

Crews began drilling two side-by-side holes that start at 12 inches in diameter and narrow to 6 inches.

Massey Energy Co., which owns the Upper Big Branch mine, was fined more than \$382,000 in the past year for repeated serious violations involving its ventilation plan and equipment.

The company's chief executive said the mine was not unsafe, but federal regulators planned to review its many violations.....

At the time of the explosion, 61 miners were in the mine, about 30 miles south of Charleston.

Nine miners were leaving on a vehicle that takes them in and out of the mine's long shaft when a crew ahead of them felt a blast of air and went back to investigate, said Kevin Stricklin, an administrator for the federal Mine Safety and Health Administration. Manchin said seven of the nine were killed but two survived.

"Before you knew it, it was just like your ears stopped up. You couldn't hear. And the next thing you know, it's just like you're just right in the middle of a tornado," miner Steve Smith, who heard the explosion but was able to escape, told ABC's "Good Morning America."

The chief executive of Massey Energy, Don Blankenship, said Tuesday that a carbon monoxide warning was the first sign of trouble. Mine crews were checking on the alarm when they discovered an explosion had occurred.

Some may have been killed by the blast and others when they inhaled the toxic gases, Stricklin said. He described how the rescue teams gradually descended through a long, sloping shaft where the miners were operating a huge machine that carves coal from the walls. He said the teams increasingly encountered debris from the mine's ventilation system and other materials.

Seven bodies have been recovered and identified....

The death toll was the highest in a U.S. mine since 1984, when 27 people died in a fire at Emery Mining Corp.'s mine in Orangeville, Utah. **The remaining 4 miners were unfortunately found dead having been overlooked in heavy smoke in an earlier search.**

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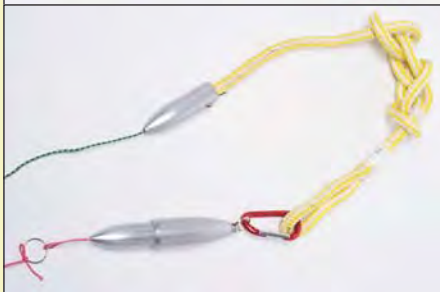
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2) Efficient movement of lines through and around obstacles that may be encountered in a rescue environment i.e. structures, rubble, debris, rocks, plant growth etc.

3) Multi-purpose. Durable projectile, rope transition device to smooth rope and line connections with diameters $\geq 2\text{mm}$ and up to $\leq 7/8"$ or 22mm, pull handle and knot smooth over device

4) Optimal geometric form allows for ease of movement ~ two way torpedoing

5) Many throw weights use toxic Lead as the weight component. Treepedo is an environmentally friendly alternative with a life time guarantee.

6) Safe with protective

sleeves to protect people, non targets and device (Impact dampening)

Adaptable ~ Attach an additional line, rope or Treepedo to aid in accessing target

7) Exterior and interior connections for lines and ropes. Ability for knotless and knotted connections

8) Potential to save time, material and lives. Reduces the efforts in positioning ropes and lines (smooth and conical ends), life time guarantee and replaces a disposable, toxic and limited traditional throw weight and reduces wear to messenger line. The traditional method tends to jam and snag and can place rescuers at risk and increase rescue time. www.treepedo.com

RnR Rescue Dog Harness



[ED: As a precursor to a comparative review article of lift-capable dog harnesses in issue 59 this is the Rock n Rescue model which is in use throughout North America with fire depts and FEMA teams]. A full body harness for SAR dogs. This harness enables you to safely and securely lower or raise

your dog down cliffs, into collapsed structures or from helicopters. The removable back pack straps allow one person to carry a tired or injured animal. Adjustable four point strap system eliminates the need for a bulky heavy spreader bar when lifting or lowering. Includes a harness bag. **Color:** Orange or Black. **Weight** 30 oz. (849g). Made in USA.

Lifting Harness. The lifting harness is a 4 point, adjustable harness that attaches to the large "D" rings on the top of the harness. Adjust the harness so that the dog hangs with its head slightly higher than its tail. In most cases the "D" rings furthest towards the front will support the majority of the dogs weight. Then use the furthest back "D" rings for the hind end. Adjust so that the dog hangs comfortably. **Backpack Straps.** The two pack straps can be attached to the harness so you can carry the dog on your back or front. Attach one end of the straps to a "D" ring towards the belly of the dog and the other to a top "D" ring on the same side. Use which ever rings are the most comfortable for carrying the dog.



www.rocknrescue.com

Leg Spacing "LS" = Measure the length between the inside of the front and rear legs on the same side. Chest Circumference "CC" = Measure the total circumference of the dog's Chest.

| size | Max "LS" in (cm) | Max "CC" in (cm) | Suggested Size By Breed |
|--------|------------------|------------------|---|
| Small | 10.5 (27) | 31 (79) | Small Border Collies, Small Labs, Small Golden. |
| Medium | 13 (33) | 35 (89) | Small Shepherds, Large Boarder Collies, Large Labs, Large Golden. |
| Large | 16 (41) | 40 (101.5) | Large Shepherds, Rottweilers, Bloodhounds |



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CBRN Suits approved by Police and Fire

Lion Apparel's **MIGZ3**, a two-piece CBRN ensemble specifically designed for crowd and perimeter control and chem-bio incident response, has been tested and recommended by members of the National Tactical Officers Association (NTOA). The NTOA is a nationally recognized leader in law enforcement training, information and networking for first responders. The MIGZ3 is certified to National Fire Protection Association (NFPA) 1994 Class 3, 2007 edition. Utilizing the latest in lightweight, selectively permeable GORE® CHEMPAK® fabrics, the MIGZ3 yields ultimate comfort while still protecting against the world's worst threats. NTOA reviewers awarded the MIGZ3 a score of 4.04 out of 5. The suit was judged using the following criteria: design, performance, ease of use, size, quality, durability, storage, versatility, convenience, application, comfort, accuracy and cleaning and maintenance. The Fire Department City of New York (FDNY), the largest fire department in the USA, has taken the lead in upgrading its response protocol to improve its ability to respond to chemical, biological and WMD incidents. As part of the upgrade to its chemical protective clothing program, the FDNY has selected Lion's **MT94** CBRN protective ensemble to fit its mission-specific needs and increase its response capabilities for technical rescue, patient rescue, decontamination and air monitoring. The revamped program provides FDNY's hazmat response teams with a more functional alternative than wearing traditional Level A suits to respond to such incidents. Lion's MT94 is a one-piece ensemble designed to protect against some of the world's deadliest chemical and biological threats. It combines rugged GORE® CHEMPAK® Ultra Barrier Fabric laminated to a tough Nomex® outer textile to offer lightweight and comfortable multi-wear, multi-threat protection. The MT94 is certified to NFPA 1994, Class 2 and NFPA 1992. Providing the highest level of protection in a Class 2 suit, the MT94 helps block out high levels of CBRN agents that may be encountered in the "hot zone." www.lionapparel.com.



SNAG PLATE from Wild Water

"The Wild Water Snag Plate™ is both simple and brilliant. It is a much needed improvement to traditional throwbag design and current rescue techniques. This product could save lives and every throwbag should have one." Julie Munger, Owner, Sierra Rescue, 2006 Rescue 3 Instructor of the Year



The Need: Current throwbag technology does not allow for fast and efficient access to another throw rope in the water when conducting emergency river rescue. Swiftwater rescue requires immediate response and reliable equipment, training and technique. Efficiency is a necessity, and having the right equipment can make the difference when every second counts.

The Product: The Wild Water Snag Plate™ (Patent Pending) allows the user to snag and pull in a rope with a standard throwbag. Once installed in the bag, it will always be ready when needed. The Wild Water Snag Plate™ is made of a strong composite material. To use the Snag Plate™, simply empty the bag of rope, expose the plate, add weight to the bag using rocks or other available objects and proceed with your rescue.

The Benefit: There is no longer a need to carry costly additional equipment, and the Snag Plate™ can be added to any standard throwbag. Once installed in the bottom of the throwbag, it does not interfere with normal throwbag use. www.wildwater.com

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* Leg harness attaches with quick release buckles.

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next generation SCBA from MSA

IAFF and DHS Select MSA to Build Next-Generation SCBA Prototype

The International Association of Fire Fighters (IAFF), under contracts with the U.S.

Department of Homeland Security, has selected global safety equipment manufacturer MSA to build a prototype of a new self-contained breathing apparatus (SCBA).

The IAFF's next-generation SCBA prototype will rely on pressure-vessel technology, which promises to make fire fighting breathing apparatuses smaller, lighter and more efficient than SCBA currently in use.

MSA, based in Pittsburgh, Pa., was selected to build the prototype after an extensive solicitation process.

The IAFF received more than \$2.7 million from the Department of Homeland Security's Science and Technology Directorate (DHS) to fund research and development of a next-generation SCBA. A fully-functional prototype SCBA that incorporates the new pressure-vessel technology is to be field tested in fire and law enforcement departments later this year.

Development of a prototype SCBA by MSA is expected to demonstrate the superiority of new pressure vessel technology that would replace the

single air cylinder design of conventional fire fighting breathing apparatuses. As part of its development efforts, the IAFF and DHS Science and Technology Directorate worked with Vulcore Industrial LLC to create the new pressure-vessel technology to make SCBA lighter with a greatly reduced profile when compared to current SCBA cylinders. The new technology, referred to as a "flat pack," uses a special high-temperature lining in place of conventional aluminum liners used in current SCBA cylinders. These linings are then braided with Kevlar and wound with pre-impregnated carbon fiber. The entire array is inside a soft, flexible cover, allowing the design to flex horizontally and vertically at the connection points. "This is certainly an exciting endeavor for all of us at MSA," said William Lambert, MSA president and CEO. "The IAFF has long been an advocate and leader in the effort to advance fire fighter health and safety, and now MSA has the unique opportunity to help support this mission in a very direct way. Needless to say, the opportunity to be involved in the development of revolutionary new SCBA technology - at a ground level with the IAFF - is a partnership of which we are most proud to be associated."

This first phase of this research and development



effort involved extensive testing to support a request for a special permit from the U. S. Department of Transportation to gain clearance to use the technology in SCBA. Approval from the Transportation Department is expected within the next two months, enabling field testing of an SCBA prototype. The timeline for fire service availability is currently under development due to the need for cooperation from the many industry entities instrumental to the commercialization of this revolutionary technology.

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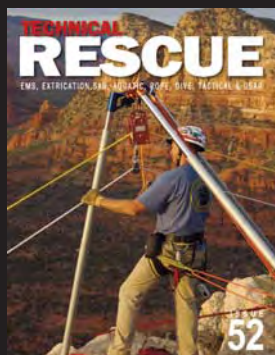


more **ARTICLES** are now being
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Thorne and Rope Rescue and Jim's will
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Aquatic Rescue.

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THE REALITY of EMS-RESCUE in South Africa

EPILOGUE to our TRAUMA article in issue 58:

Treating One of Your Own by Paramedic Steve Daly

I started My National Diploma In Ambulance and Emergency Care at Technikon Natal in 1993. We were at tech and ambulance training college for 3 days of the week and then did practical on the road for the other 2 days. My second shift on Ambulances operating out of Wentworth Base in Durban, I was working with two diploma students who had not passed their first year and were now working permanently on the road. We were dispatched to a motor vehicle accident in Duff's Road Phoenix, which is notorious for its bad accidents. On scene there was one Indian male entrapped in the car – deceased, they were doing CPR on a female next to the car and then they loaded the third critical male into our ESV. Two minutes out from scene the patient arrested and the trained crew started CPR. I was just a new-be and wet behind the ears. The ALS on scene looked at me...sitting there all wide eyed and said "Hey Dipshit...you retarded or something, come over here and do CPR" and so my life in EMS began.

In the Government Ambulance services in KZN during the 1990's if a de-brief was called after a major MVA you knew it was going to be a "Dung On" session and management would harp on about what you and the ambulance crews had done wrong on scene and it is the old Philosophy, cowboys don't cry and Paramedics don't cry. If you show any form of emotion you are not deemed worthy and are weak.

Never did we sit down after a MVA with a school bus full of children and say. "How do you feel that went? What feelings do you have about holding that child while he/she took it's last breath?"

I Qualified as an Advanced Life support Paramedic in October 1995 and completed my National Diploma in December 1995. The first time I was called to a debrief about any one of my cases was in May 1997 for a motor vehicle accident where a the Chairman of a leading Black Varsity Students Representative Council had died after being treated by us and now it was turning into a racial incident. Even though it was a mass casualty incident on the N2 freeway involving 5 light motor vehicle with entrapments in all vehicles. The vehicle where he was a passenger was split in 2. The front half was on the right hand side of the freeway with two people trapped and the rear end of the car was 40 meters on the other side of the freeway with 3 people trapped inside.

I remember going to the old Dlangubo clinic at 00h00 on a Sunday morning for a family massacre. The one household had a feud with their neighbors for years and tonight it was settled by kicking in the door to the Kraal and opening fire with G3 Assault rifles, which use the 7.62mm Nato round. Inside the kraal were the grandmother and 8 children, no other adults present.

When I arrived at the clinic I did a quick triage, first patient was an 18 month old baby with a gunshot wound to face and 3rd degree burns to the entire back, as after they opened fire into the kraal they petrol bombed the people inside. The child was red-code / priority one,

The next patient was a 6 year old kid GCS 15/15, looking into my eyes. He had a trauma pad that stretched from his upper chest to his navel area. I looked at the sister and said "What's wrong with him??" her answer was,

HIS HEART IS HANGING OUT.

I said no ways, I lifted the trauma pad and true as S#*T his heart was outside his chest cavity, still beating away. He had been asleep when the gun men broke in and the High Velocity round had hit him in the sternum, tumbled and took off ribs 3, 4, 5 and 6 from the sternum to the thoracic vertebrae, gone. You could see the whole inside of the chest cavity as well as the lung sitting there on it's pedicle. The 13 year old girl next to him had suffered a gunshot to abdomen and was deceased. The 8 year old boy lying next to her had a gunshot to head, deceased. In the next room were another 3 kids all red code - priority one with High Velocity gunshots to different area's of the body. I went though to my control center and

Treating One of Your Own

By Stephen Daly
FRCGS, FRCR, FRCR (S)

The incidents and aftermath of ambulance service work in KZN, South Africa

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asked them to update Ngwelezane ResusUnit that we were coming in with critical paediatric patients and required a full surgical team in the R.U., 3 pediatricians and as many interns as they could find. Our ETA was 30 minutes. When we arrived I got my wish as there was a full surgical team, 2 pediatricians and 3 interns in the R.U waiting.

On Christmas day 1997 I nearly lost my life at the same clinic... I got dispatched to Dlangubo Clinic for a patient multiple gunshots to body. The ESV and I arrived on scene together and the old Dlangubo clinic was behind a beautiful old church. As I got my equipment out and approached the steps I had just taken the first step when I felt the cold of steel against my forehead and looked up into the barrel of an AK47 assault rifle. I walked back slowly and put down my A.L.S bag. The guy with the gun said "I am not going to kill you yet, but you touch the patient, I will kill you, if you treat the patient, I will kill you. The only reason I have not killed you yet is that we are on Holy ground. You try and leave these ground, I will kill you" I just stood there with my hands up, offering no resistance, I am no hero.

He put down the AK47 to chest level so I could see inside the clinic and there on the clinic bed was a guy with multiple gunshot holes. They were having a family feud and it was this guy's day to die. I sat down with my ambulance crew and looked out over the rolling hills of the Dlangubo – Emoyeni area, I had never noticed how green and beautiful they were until now.

After the patient had expired the nice gentleman with the AK47 started to walk towards the front of the church and I phoned a friend of mine in the Prevention of Crime Unit. I said we were in deep shit and needed a Caspir or Nyala armored vehicle to get us out of the Dlangubo area as these vehicles are bullet proof as long as my new found friend did not have an AK47 amour piercing rounds in his magazine.

That wait for the SAP was the longest of my life, but it brought a tear to my eye as I saw the beautiful sight of a Nyala coming up towards the Church grounds. Having seen my new friend mounted on the front bumper like a hood ornament would have made my Christmas day but alas Santa had other plans for him...Ho Ho Ho.

Working on the road in South Africa is like working in a war zone. I have sat on a plane with an ex-SAP Special Forces member coming out of Iraq and he said he felt safer outside the Green Zone in Iraq doing close quarters protection, than on the streets of Johannesburg.

I have had cases much worse than the ones cited here but this article is not meant to scare people. What did get to me was when the local Isangoma's (Witch Doctors) told the people that a cure for AIDS was having sex with a Virgin, Now a Virgin is considered from a day old baby to 12 years old. That is when I started to see red and had to get out.

[ED: and such incidents also marked the end of my own 5 years of 'tours' with South African crews - when my last two tours included two gangraped (and as it turned out- murdered) teenagers, another gangraped and murdered mother, two dead babies and with national news also reporting the rape of another baby by 3 HIV+ male relatives I felt that the element of seat-of-your-pants 'rescue' that had first attracted us was no longer there. We went to Gaza and the West Bank during the second Intifada for an altogether more civilised war! read more from Steve and Doc Stew Boyd in issue 58.]

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AGENDA

Wednesday - Thursday October 20. - 21.

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Thursday - October 21.

Evening reception for our international guests.

Friday - October 22.

Conference 11.00 - 17.00

Saturday - October 23.

Conference 09.00 - 17.00

Trade show 11.00 - 17.00

Trip to the Blue Lagoon (19:00) and official dinner at Lava, the Blue Lagoon Restaurant

Sunday - October 24.

Conference 09.00 - 12.00

Monday - October 25.

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International Search & Rescue conference

Since 1990 ICE-SAR, Icelandic Association for Search and Rescue, has hosted a search and rescue conference called "Björgun" ("Rescue"). Through the years the conference has developed and grown into a full blown SAR conference with 50-60 interesting lectures in four different halls so everyone should find something of interest. In 2006 it was for the first time held in both English and Icelandic with international participants as well as lecturers.

MAKE THE MOST OF IT.....

Rescue 2010 will be held October 22.-24. 2010. Participants will be able to attend pre conference courses at various locations in Iceland before the conference starts and take part in various other activities outside the conference. That way you can make the most out of your visit to Iceland

LANGUAGE

The lecturers will belong to many different nationalities, and the lectures will be held in either Icelandic or English. As a gesture for our foreign guests, the Icelandic lectures will be translated into English, and for our Icelandic guests, the lectures in English will be translated into Icelandic. That way, all our participants should gain as much as possible from the lectures, which they attend.

SAMPLE LECTURES

"Haiti Earthquake"

presenters: Gisli Olafsson and Olafur Loftsson

7/7 lessons learned?

Presenter: Chris Arculeo

Building Urban Search and Rescue Capacity in Pakistan
Presenter: Solveig Thorvaldsdóttir
Understanding Risk Perception, Informing Behaviour and Improving Resilience: 'Do As I Say, Not As I Do'

Presenter: Dr. Brooke Rogers
European Union Mechanism for Civil Protection

Presenter: Chris Arculeo

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A Bates ad shows the 2-section tongue - the raise part at the back provides the padding and can be detached.



Those of you in Mountain Rescue who have traditionally shunned the hi-vis, dayglow of mountaineering Koflachs or Scarpas and have instead favoured the all black La Sportiva Lhotse will be very interested in the US made Tora Bora from Bates. I mention 'US-made' because until recently the Tora Bora was the ONLY US made Alpine boot and it's only been around for a few years so prior to that I'm guessing that a lot of personnel 'made do' with either the Lhotse or high-end trekking boots which can take a binding but are a bit of a compromise. Having said that - with more flex in the sole, away from technical climbing, they would be more comfortable to walk in than the rigid sole Tora Bora. It's safe to assume that those using the Tora Bora are well versed in the mountain and inter-alpine environments and in the fantastically capable boots available in the civilian sector. So it may seem a little odd for Bates to try and usurp mountaineering giants like Scarpa, Asolo and LaSportiva but they had sound economic and operational reasons. For starters, the US military is bound, where possible, to purchase US-made products (Barry Law); obviously not a problem where no such product exists so European mountaineering brands have filled the needs of special forces and mountain troops for decades though a lot are obviously privately purchased. Having identified the need and having worked with Special Operations Command for 3 years from 2005 to 2008 the entirety US-made Bates Tora Bora found itself a handy little niche and at least 8000 boots were supplied in its initial procurement. And make no mistake, this is a very nice boot. But even allowing for a preference for military colours it's not quite as stylish and refined as those pesky Italian geniuses at Asolo, Scarpa and La Sportiva or as targeted as a Koflach or Millet.

For rescuers, the Tora Bora adds another boot to the purchasing dilemma since there is no 'Barry-law' to adhere to for civil organisations but it does have one or two differences that might swing it for you. The most obvious and superficial is that it's a mean looking boot; no namby-pamby flashes of primary colour here and you'd be wearing the same boot as the Special Forces lads in Afghanistan, solidarity. If that's a bit of a push then how about the ruggedness of

the uppers. The suede leather is Wolverine Warrior which is impregnated with Scotchguard during tanning making it waterproof and tough. Even tougher is the main panel material in between, it's called Superfabric and is actually a sheet of tough ballistic nylon covered in tiny hard 'pimples' of plastic - akin to some stab vests. And like a stab vest or high-end drysuits (because I have something similar on my Mustang) this makes for a very flexible material while providing excellent durability and intrusion resistance. I thought I had also seen this kind of fabric on a Brasher mountain boot but couldn't actually find it in their range to verify. So let's go with this being relatively unique to Bates and commend them for a tough-as-old-boots product. Searches in and around scree and rock fields can be punishing on civilian alternatives and I can well remember being devastated when the side panel and toes of my all-nubuck red LaSportivas (it was red, blue or nothing in those days!) were trashed on some kind of volcanic rock from hell. You wouldn't get the same problem with Tora Bora - they are nothing if not rugged and this could well be the key reason for rescuers to take a look.

What I'm not so sure of is the intended upper range of its operational use - this is labeled as an Alpine boot and it's certainly capable well above the snow line but this is a single boot with quite low levels of insulation so you're not going to want to spend time on Denali or overnighing on the South Col. Short sharp forays at higher altitudes or more convoluted operations at lower altitudes (but above the tree line) are all well within the Tora Bora's remit. The kind of thing in fact, that typifies many a mountain rescue mission.

The sole is a rigid block Vibram capable of accepting technical crampons, ski bindings and snowshoes but there is some flex (believe it or not) after prolonged breaking in. I think that's a good thing for all but the most technical of climbs and to be honest such climbs call for a good shell boot not Tora Bora. The angled outer lugs shed snow and ice pretty well but the 3 foremost lugs that provide that all-important purchase on thin flakes has no gap for ice build up that would ruin your traction. The boot is available in regu-

lar and wide fitting and my typically anglo-saxon fat-footed 10 prefers the wide. This is something you need to get right though so beware of mail ordering unless you're sure, a skinny foot swimming around in a wide-fit is bad, a fat foot wedged into a narrow-fit is worse.

Having mentioned that insulation is at a minimum, it does have a 200g layer of Thinsulate; thin enough for this boot to be worn on warm days making it a very multi-functional boot for teams with mixed terrain on their patch. There is also some very targeted padding which acts, to some extent, as extra insulation though it won't do your toes much good as it doesn't appear to extend that far. This padding is located at the ankle and on up into the collar as well as the top of the foot and is immediately behind the anti-microbial/bacterial facing fabric which is called X-Static. X-Static is entirely backed by a sheet of silver should you ever need to barter your way out of a tricky situation. After the strategic padding comes the 3-layered Goretex barrier providing the ultimate water proofing along with Scotchguarded nubuck leather from Wolverine....the company not the animal! The reinforced toe is standard on all sport mountaineering boots but I have heard it described on the Tora Bora as a protective asset when prone - unless your Rescue team routinely deploys snipers this is probably not going to get you too excited. The tongue has minimal padding but is detachable in case you need more room or prefer your lower leg/shin to be in close contact with a simple layer of nubuck leather.

The overall construction is excellent on the exterior, perhaps a little rough and ready on the inside and there are some obvious points at the tops of the gusset that could have been better finished as they

are showing signs of wear.

There are 8 sets of eyelets with the middle five sets being hinged, and articulated. These work really well, the best that I've had on 'combat' style boots though there are obviously many mountain/alpine boots that do the job equally well. The only easily-remedied downside with the Tora Bora is the laces. I'm sure there was a good reason for having such narrow laces but doing them up in the cold wasn't one of them - these are way too skinny for comfort and unless Bates can tell me that these have inbuilt GPS or double as a cordite charge I'd recommend you switch to fatter cord before you leave the shop.

Comfort levels are excellent - notwithstanding that this is a rigid sole that always takes some getting used to and assuming you get the right size and width fitting. The ergonomic internal padded areas give the boot a firm feel without being too tight at the ankle and make kick stepping entirely comfortable without the forward travel I sometimes got with certain types of shell boot. My size 10 - fit aircraft carriers provide enough room for decent sock layering with padded outers but are tricky to pack for a trip without sacrificing every other item of clothing in the case! I strongly suspect that the SF lads that concentrate most on high mountain ops still buy the top civilian models but Bates can be justifiably proud of their first foray into Alpine boots.

FOR:

- Fantastically rugged, able to withstand more than its fair share of abuse
- High quality materials including a great Vibram sole.
- Good waterproofing and breathability

AGAINST:

- Get rid of the laces which were obviously intended as an emergency garrotte
- Not enough stitching on the high wear points internally and finish is a bit rough in places (on the inside).

www.batesfootwear.com www.wolverine.com

MYTHBUSTERS

with Slim Ray

Mark Phillips, the prominent Dive Rescuer prompted an interesting question on the SwiftH2O news group recently when he asked whether the wearing of fire kit (bunker gear) really was as catastrophic an undertaking near water as we've all been saying and if so, why? His question was prompted by the fact that most fire clothing will hold a lot of air unless you're tumbling around in fast moving water and therefore probably wouldn't drag you down to the murky depths in seconds. Never the best thing to wear in water because it makes swimming incredibly difficult and getting out of water even harder and these are probably the key concerns but not quite the suit of chainmail we tend to imply it is. Slim raised the following extremely valid point based on this discussion thread..... I guess we should puncture one more myth while we're at it -- that water-filled waders, water-soaked clothing or turnouts, or dry suits with torn seals will "drag you down" and drown you. They won't.

I got into testing this when dry suits first appeared in the 80s. There was a lot of concern that if the seals of a dry suits tore and allowed water in that you'd be "dragged down" and drowned.

But think about it. Yes, there might be 40 pounds of water in the suit, but it weighs just the same as the water surrounding it, so there's no way it can drag you down. Your buoyancy is neutral. Same with soaked clothes or turnouts.

That doesn't mean it's a good thing, tho -- that water's heavy and wants to follow where the rest of the water is going, and the weight resists your attempts to swim and tires you rapidly, so yes it can help drown you even if it isn't actually pulling you down. You really will feel the weight when you try to climb out of the water or if someone else pulls you out, since you are then leaving the water.

One of the issues here is that fire depts are being turned out to water incidents and floods and many outside of the larger cities, simply do not have the budget to provide appropriate clothing, footwear or helmets to their personnel. And if only for warmth issues we will continue to see footage of fire crews wading or boating in full bunker/fire kit because it is far from a perfect world. It is certain that most crews would rather have an appropriate drysuit and pfd but if their department's dilemma is to purchase one or the other then, to turn the usual analogy on its head, crews will be happier turning up at a flood in fire kit than turning up at a fire in a drysuit.



Ignore the bright yellow Vibram logo that could give away your position to the Taliban - it's all black on the Tora Bora

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HYPERBARIC STRETCHERS ON THE FRONTLINE OF TRAUMA?

By Ade Scott
Editor TRm



Regular readers may have spotted a small ad in the past few issues of the print edition of Technical Rescue that seems to show four heli-med personnel carrying a big red cylinder out of a helicopter. If Helis aren't part

of your operational tasking you probably thought it was nothing to do with you and moved on. We almost did but we took a closer look because we feel we ought to know what's being advertised in the magazine in case it's a front for drug smuggling or money laundering. And it turns out

that the red cylinder is a portable hyperbaric chamber - or, effectively a pressurised stretcher. The words in the ad say as much but had you already moved on? If the ad had shown a sand-coloured version of the 'cylinder' sat on the ground next to a downed soldier in Afghanistan or some helmeted mountain rescuers with one next to a fallen climber or some fire and ambulance personnel with one at a major road accident or a disaster response team with one on a rubble pile post-earthquake you'd have taken more notice right?

Well you should. Because having delved into a veritable rain forest of US military research papers it turns out that this rather understated device could.... and I use the term 'could' advisedly because all that I have read so far seems to be compelling research rather than stated fact.... be a categorical lifesaver for all forms of rescue especially when the time from scene to well equipped medical facility is protracted. And even then, the chances of your well equipped medical facility having a hyperbaric chamber that can be used for trauma are slim to none. Mostly, in fact almost exclusively, where they exist they are used for treatment of decompression sickness or 'the bends'. There are some like the You don't yet hear of many road accident victims being treated on scene

and then taken away in a hyperbaric stretcher. But there is no question that if money were no object and assuming that immediate and ongoing resus or medications weren't required en-route this is something you could see on any ambulance or rescue 4x4 and could make a considerable difference to the survival and speed of recovery of the patient. Why? Because all of those research papers and field use over the past decade point to very real and immediate benefits of being transported in an 'atmosphere' of pressurised oxygen, oxygen that in the newer system not available to the initial USAF and USN trials, can be pressurised to the equivalent of 60ft sea water depth (18m) which can be maintained to an altitude of 18000ft or 5500m above sea level. It turns out that Michael Jackson wasn't far out in his estimations of the health benefits of breathing pure oxygen and add to that the pressurisation that aids in oxygen uptake and you get highly perfused blood, tissue and organs that would otherwise be working hard during any major trauma just to maintain a semblance of life force to the central mass. Surprisingly, there also appear to be tangible benefits for severe psychological trauma resulting in PTSD and depression where hyperbaric oxygen therapy (HBO) seems to prompt marked improvements. I have no doubt that as the hyperbaric stretcher becomes more widely used and the range of injuries treated either intentionally or in conjunction with a known treatable condition increases we will see the list of benefitting conditions multiply. Currently you would consider a hyperbaric stretcher for:

- Neurological improvement in blast injuries
- Improved healing time for major wounds
- CO2 & smoke inhalation
- Decompression & Altitude sickness
- Hypovolaemia
- Mild Traumatic Brain Injury (mTBI)
- Crush injury

Hyperbaric treatment is nothing new, we had heavy steel chambers, very large bolts fixing them to the ground and miles of pipework for most of the last century - its the range of trauma that can be treated and the frontline delivery of that treatment that has changed. The SOS Hyperlite system is a UK product that was the only one to meet the criterion required of



the US DOD in what they call their FCT program or Foreign Comparative Testing Program. Here's what they had to say about the original design but bear in mind that things are now very much more developed and refined, they weigh less and pack smaller as we'll discuss shortly: The FCT evaluation initially identified two candi-

SPOTLIGHT

dates systems to be evaluated, one obtained from the United Kingdom, SOS Ltd., and another from Giunio Santi Engineering, Italy. During the program's early evaluation phase it became evident that the latter system would not meet DoD needs, thus the SOS, Ltd. System was the only candidate system advanced to the final testing phase described herein. The emergency evacuation/treatment hyperbaric stretcher (EEHS), a system currently commercially available, is a collapsible vessel constructed of composite materials, approximately 30 inches in diameter, [ED: actually 23.5"] and about seven feet long, when inflated. The pressure vessel proper, excluding hoses and gas supplies, weighs approximately 150 pounds and is self-contained, easily transportable, and capable of withstanding at least 3 Atmospheres Absolute (ATA). Current pressurization procedures employ available air sources (SCUBA cylinders). EEHS is easily set up and pressurized in minutes with minimal training and has a built-in breathing system for oxygen administration with overboard dumping capability during air transport. Three aspects of the deployable hyperbaric stretcher were evaluated during this collaborative evaluation venture. The USN contribution to the effort was the conduct of a battery of evaluations including component system quality assurance audits, environmental and performance evaluations. The USAF complement to this venture was to demonstrate aeromedical transport compatibility assuring the EEHS and all its components were safe for transport aboard USAF, and to the extent possible, USN and US Army fixed and rotor wing aircraft. Tests by the USAF included a series of system environmental challenges, and several aircraft fit and function evaluations. Both the USN and the USAF performed operational evaluations to assure the EEHS would be usable in a deployed operational environment. The objective of these evaluations was to provide DoD with a hyperbaric stretcher system that meets the needs of the forward deployed units, as well as provide access to hyperbaric oxygen for victims of natural or terrorist caused mass casualties.

What are the actual mechanics of operating one of these stretcher systems which, aside from the ancillary components is entirely non-metallic? The latest version of the stretcher weighs 50kg/110 lb and while the



stretcher itself collapses down to a neat package when not in use, there are some control boxes, regulators, high pressure tubing/connectors and some cylinders to consider which take the total transport weight to 87kg (including cases). This is a reduction in weight over the models mentioned in the US military trials of about 15kg/33lbs for the stretcher alone and 37kg for the overall package which is quite substantial. We believe this is partly due to the use of a new super-tough braided outer fabric called Vectran which was co-developed by boffins at RFD Beaufort and picked up by QinetiQ as a covering for bridging components that a tank could drive over! This covering is tougher and more flexible than that previously used so the stretcher is easier to pack down. The system packs into one large Peli 0370 cube-shaped case which is 67 x 67 x 64cm/27x27x25" plus two regular 1500 briefcase-sized cases. The 0370 can be used with wheels making moving across flat surfaces much easier. Monitoring equipment is obviously essential for a pressure-sealed casualty and EKG, SPO2 etc can either be hard wired or used via bluetooth. Hyperlite offer the Vitalink monitoring sys-

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PELI

Case report: Treatment of mild traumatic brain injury with hyperbaric oxygen

by Colonel James K. Wright¹,
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E. Schlegel⁴, Kirby Gilliland⁴

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Abstract

Two United States Air Force Airmen were injured in a roadside improvised explosive device (IED) blast in Iraq in January 2008. Both airmen suffered concussive injuries and developed irritability, sleep disturbances, headaches, memory difficulties and cognitive difficulties as symptoms of mild traumatic brain injury (mTBI). Six months after injury, repeat Automated Neuropsychological Assessment Metrics (ANAM) testing showed deterioration, when compared to pre-injury baseline ANAM assessment, in all measured areas (simple reaction time, procedural reaction time, code substitution learning, code substitution delayed, mathematical processing, and matching to sample). The airmen were treated with hyperbaric oxygen in treatments of 100% oxygen for one hour at 1.5 atmospheres absolute, resulting in rapid improvement of headaches and sleep disturbances, improvement in all symptoms and resolution of most symptoms. Repeat ANAM testing after completion of the hyperbaric treatments — nine months after initial injury — showed improvement in all areas, with most measures improving to pre-injury baseline levels. The airmen received no other treatment besides medical monitoring. Repeat neuropsychologic testing confirmed the improvement. We conclude that the improvement in symptoms and ANAM performance is most likely attributable to HBO treatment

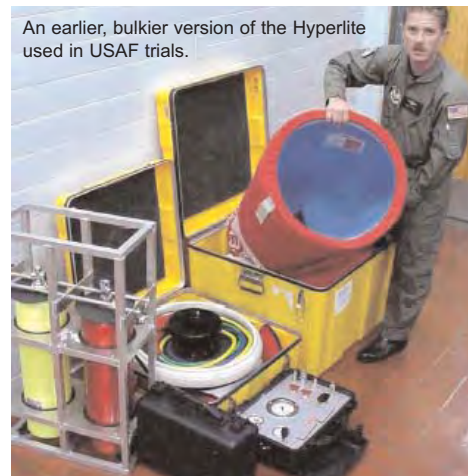


tem by Telemedic Systems which is now tried and tested with the stretcher system so probably a better bet than trying to interface your existing kit and finding some operating quirk further down the road.

At 50kg and 2.24m or just over 7feet long the stretcher is easily carried by two crew and easily transported via aircraft or road ambulance or long wheel base 4x4. The casualty is loaded into one end and at just under two feet in diameter



Early version partly assembled.
There are now 4-variants to choose from.



An earlier, bulkier version of the Hyperlite
used in USAF trials.



photo by Karl Huggins

(54cm) might be deemed claustrophobic if serious injuries weren't otherwise occupying the mind. Both ends are clear aside from a central cap - one end for helping to secure the closure and the other end housing the umbilicals. The necessary cylinders and case containing control equipment still seems to be somewhat ad-hoc in the way it is transported with the stretcher. In the picture above the cylinder has been ratchet strapped to the top but I wonder whether a sewn pocket on top and either side might be better to slide it into without adding too much to the weight or cost. It would certainly be more secure and more rapidly secured for transport? And on the subject of cost, it's time to bite the bullet and accept that this kind of highly specialist item doesn't come cheap. The most basic version costs \$40,000 - (about £26,000. at today's rates).

To date the use of the hyperbaric stretcher has been almost exclusively driven and funded by the military who see it as the perfect tool for aeromedical intervention in the case of major battlefield trauma. Since battlefield trauma can often be directly compared to civilian incidents, whether they be terrorist implemented or industrial accidents, it is certain that civil emergency services would benefit greatly from the more widespread introduction or availability of a hyperbaric stretcher. Perhaps the most obvious storage and deployment method would be air ambulance and SAR helicopters able to deliver such a stretcher close to virtually any incident and have all ground crews trained in its use?

I have to confess to having a vested interest in the more widespread availability of the hyperbaric stretcher having just lost a friend and colleague to a flashover. This is purely conjecture on my part but I wonder if pressurised oxygen would give a casualty with heat-seared airway at least a slightly increased chance of survival? Since recovery from smoke inhalation is certainly improved it would be reassuring to think that some day very soon a hyperbaric stretcher could be made available on-scene at every major fire so that victims of fire and firefighters of course can be given a greater chance of survival by commencing pressurised oxygen saturation immediately and benefitting from it throughout the journey to hospital.

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Case Report:

Carbon Monoxide Poisoning

Robert John Lueken, MD, Alan Christopher Heffner, MD
Phillip D. Parks, MD (all US Navy, VA)

A 40-year-old British man in Kabul, Afghanistan, was found unresponsive in his apartment after being absent from a morning meeting. Elevation was 3,000 feet, ambient temperatures in the region ranged 30°F (-1°C) to 40°F (4°C), and a portable propane space heater was being used to heat the apartment. According to his associates, the patient appeared well without complaint on the evening before his illness and throughout his assignment to the region. There was no history or evidence of trauma or ingestion. The patient had no significant medical history and was taking no medications. When found, he was transported to a local hospital and subsequently transferred, while receiving high-flow oxygen, to a combat support hospital at Bagram Airfield in Afghanistan (elevation 5,000 ft). At that time, vital signs were normal: blood pressure 123/60 mmHg, pulse rate 83 beats/min, respiratory rate 14 breaths/min, temperature 98.4°F (36.8°C), SaO₂ 100% on oxygen at 15 L per minute delivered by non-rebreather mask. Physical examination was remarkable for a Glasgow Coma Scale (GCS) score of 7 and pupils that were reactive to light. Diagnostic testing revealed normal serum electrolyte levels, urine toxicology screen results, and non-contrast head computed tomography results. Arterial blood gas showed pH 7.43, pCO₂ 22.5, pO₂ 300 mmHg, and base excess of 7 mmol/L. CBC count was normal, except for an elevated WBC count of 18.1103/mm³. Administration of 2 mg of naloxone intravenously did not improve his condition. With other common causes of altered mental status such as alcohol, opiate abuse, uremia, electrolyte disturbance, endocrine disorder, sepsis, trauma and psychiatric

and neurologic disorders considered, carbon monoxide poisoning was the presumed diagnosis. Confirmatory testing for carboxyhemoglobin was not available, and high-flow-oxygen therapy was continued. The diving medical officer was consulted. After a combined 6 hours of high-flow surface oxygen therapy during ambulance transport and at the combat support hospital, the patient exhibited a GCS score of 9 (Eyes 2 Verbal 2 Motor 5), gross auditory deficits, symmetric 2 to 3 out of a possible 5 in strength in bilateral upper and lower extremities, dysmetria, dysdiadochokinesis, and poor immediate and remote recall. Operational security and risk prevented emergency transport to the nearest fixed hyperbaric facility. The portable hyperbaric chamber was declared the best available option for immediate treatment. After 10 hours of continuous surface oxygen therapy, the patient had persistent neurologic impairment, but he was able to safely cooperate with hyperbaric treatment. The first hyperbaric treatment was abbreviated and a lower dose than originally intended because of patient discomfort at 34 feet seawater pressure, or approximately 2.0 atmospheres absolute. One hundred percent oxygen between 1.6 and 2.0 atmospheres absolute was provided for a total of 40 minutes, with irregular air break periods. At post-treatment examination, the patient was awake but drowsy, with a GCS score of 15. He complained of a frontal headache and difficulty hearing. Physical examination revealed Teed class I middle ear barotrauma (erythema and injection at the handle of the malleus) to bilateral tympanic membranes. The patient continued to receive oxygen by mask. Reassessment 24 hours after the initial hyperbaric treatment demonstrated persistent deficits. The patient was treated with a complete US Navy treatment Table 9 to a maximum pressure of 2.4 atmospheres absolute, with 330-minute oxygen breathing periods separated by 5-minute air-breathing periods. He tolerated the procedure well and exhibited significant neurologic improvement. Subsequent ancillary testing results were unremarkable. The peripheral leukocytosis returned to normal, and initial culture results were negative.

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FOCUS ON ISSUE 18

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Issue 18 came out in the summer of 1998 and was a very full issue crammed with equipment reviews. The front cover and our featured team was the Turkish Mountain Rescue service as championed by AKUT and ORDOS. AKUT went on to a much broader spectrum of operations, mainly due to the prevalence of earthquakes in the region which has seen them activated several times in the intervening decade

(give or take a couple of years). The author of our Team article was Lochaber Mountain Rescue's Brian McDermott, a broadly northern Irish MR veteran who had developed an affinity with Turkish Mountain Rescue that saw him out there most years to lend a hand. My COMMENT, for those were the days when I felt the need to vent! was a call to arms aimed at all Rope Rescue teams in the UK from police, fire, coastguard, industry, cave and mountain rescue with the intention of forming a national body specifically for rope rescue. The main reason for this was the tendency for the independent trade organisation IRATA, to which dealt solely with the larger commercial rope access companies, to be consulted on matters of rope rescue by the government and HSE. Our argument was that not only was there a distinct difference between rope access and rope rescue but that IRATA was a wholly commercial organisation that had a vested interest in steering rescue agencies down the road of paying for their members' training courses. In the end nothing came of a national coordinating body and instead everyone did indeed end up paying commercial training companies vast sums of money to provide a certificate of competency to statutory and voluntary rescue teams across the nation. Ah well, you can't say we didn't warn you!

Elsewhere in the magazine we had Gear Reviews on the Draeger Danny Water (child) Rescue manikin (as it was then), Zumro stabilisation block - the kind that looked like giant Lego and were made from reconstituted car tyres, Hi Tech Magnum boots just as they were getting into the tactical boot market in a big way, so big in fact that they dropped the name HiTec from their title in a bid to distance themselves from the sport footwear market. We also reviewed the Garmin GPS 12XL and III. This was state of the art at the time and we very excitedly drove to incidents guided by the GPS III even when we knew where we were going - this turned out to be foolish indeed as the older technology proved fallible when it came to identifying exactly where the land stopped and the sea started! The SSE Stop & Go was a travelling fall arrester which we found was perfect as a free-running belay for suicide interventions. We still have it now - stainless steel you see - heavy but long-lasting. Back in the days before water rescue became 'main-stream' we took a look at Line throwing devices for swiftwater rescue (and ice/mud rescue) including throw bags, the Balcan Bell, the Sherrill Slingshot and Rescue Rocket. Our Market Guide was on Traction Splints where we looked at 8 models which

are all still sold today. We also took a look at Electric hydraulic cutters and spreaders - we were very keen even then and used the PowerHawk and later Ogura systems operationally to very good effect. This article entitled Batteries Included looked at battery tools generically and discussed how they could be used effectively. Our rope rescue article was on Constructing Tyroleans in which I incorporated any differences between our understanding and Reeds. In fact, reading through issue 18 it is astonishing that, aside from the GPS we could include all these articles in issue 58 and they would still be relevant!



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SPECIALS:

EMS During Civil Unrest - by Kevin Mellot
Confined Space Rescue Training Course
Turkish Mountain Rescue - by Brian McDermott

MARKET GUIDE

Traction Splints

ROPE RESCUE:

Tyroleans by Ade Scott

GEAR REVIEWS:

Draeger CPR DANNY Manikin
SSE Stop & Go. Garmin GPS
Zumro ResQ Stabilisation blocks
Insmat Halogen Torch. Hi Tech Magnum Boots
Troll CPS (AZTEC style)mini pulley system
SLIM RAY Swiftwater Rescue Field Guide

WATER RESCUE

Rope throwing devices - by Ade Scott

EXTRICATION

Battery Powered hydraulic tools by Ade Scott

NEW BOAT-DEPLOYMENT KIT FOR PINGER RECEIVER



Acoustic receivers are in use by a diverse range of underwater search and recovery groups including the military, commercial diving companies, law enforcement agencies, and public safety dive teams. The receiver, which looks similar to a large flashlight, is carried by a diver and picks up acoustic signals transmitted by a pinger. There is a broad spectrum of applications for pingers which includes putting them in the "black box" flight recorders on aircraft. They can also be used to mark an underwater site, be affixed to oceanographic instruments, attached to a mine or bomb, or carried by a diver. Any submerged object that needs to be relocated is typically equipped with one. The pinger stays submerged for weeks or months, emitting its unique signal, until a diver with a receiver finds it.

JW Fishers has now introduced a faster and easier way to relocate pingers by attaching a boat-deployment kit to the receiver. The kit consists of a hydrophone and a 6 foot sectional pole handle to lower it into the water. Thirty feet of cable connects the directional hydrophone to the receiver which stays on board the vessel. The operator slowly rotates the shaft, changing the "listening" direction. When an acoustic signal is detected, an audio alarm sounds and LEDs illuminate on the receiver's control panel. A compass on top of the handle indicates the direction of the sound wave. As the receiver gets closer to the source, more LEDs illuminate and the audio increases.

Lebanon's Ministry of National Defense was one of the first agencies to acquire a PR-1 receiver with the new boat-deployment kit. Warrant Officer Ghassan Maatouk reports, "...having the ability to use the receiver from the boat saves our search and recovery team a great deal of time. Now, a diver doesn't hit the water until they have a good fix on the pinger's location." In addition to the receiver, the group also picked up Fishers MFP-1 multi-frequency pinger with extended housing. This larger housing allows more batteries to be installed, which significantly increases the pinger's operating life. Other agencies using these acoustic devices are the Federal Bureau of Investigation (FBI), UK's Ministry of Defence, US Navy's Underseas Warfare Center, the University of Delaware, Harrisburg River Rescue in Pennsylvania, and Associated Terminals in Louisiana. Each one has a different use for these tools. The military put them on torpedoes and other explosive devices, and law enforcement use them to mark the location of underwater crime scenes. At the University of Delaware's College of Marine, Ocean and Environment, senior research fellow Bill Parnella reports, "We use them to locate a small unmanned research sub when it doesn't do what it's told". Public safety dive team Harrisburg River Rescue put a pinger on each diver that enters the water. If a team member gets in trouble, he can quickly be found with the help of the receiver. Associated Terminals, a full service marine facility near New Orleans, use their pingers and receivers to relocate mooring chains that get lost on the muddy harbor bottom. Attaching a pinger to the chain can save days of dive time searching for it says operations manager Kerry Robertson.

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FRONT COVERS

That didn't quite make it



The last time we had a 'tactical' front cover that wasn't a robot was issue 41 with the NYPD Emergency Services Unit patrolling Ground Zero on Wall Street following the 9.11 bombings. Since this issue's main rope article is on tactical roping we thought it

was a good opportunity to feature some more 'black stuff'. Our usual problems were alignment of the subject relative to the titles. Michiel Woltering is our new Tactical Editor and is an instructor at the Dutch Police Academy. He and his photo subjects were incredibly understanding about being sent back out into the yard time and time again to tweak the shots for the sake of fitting the title page and in the end we were spoilt for choice! The cover top right was actually the most appropriate because it showed all kinds of rope equipment in use from taped up carabiners and technical ice axe to flexible cams and window suction plate.



However, we couldn't get any more width from the shot which meant that our officer's actions were lost behind the S and C of RESCUE. You also couldn't tell that he was climbing a wire rope ladder which has been placed on a flexible cam in the brickwork of the window

lintel. So onto the second shot which framed really well but with no safety equipment evident we felt it might be seen as OK to freeclimb a drainpipe! A few adjustments and we had a belayed, protected climber and our stand-out choice for the cover of this Emag. The next shot had everything we wanted - formatted well with the titles, face on to the reader and lots of interesting kit on show. The only reason it didn't make it was because I wanted a similar style to the cover of issue 57 so the pose along with the duo-tone colour effect of black, grey and sky tipped the scales. So Ivans' Toronto Police Marine Unit shot didn't make it because with no PFD in evidence someone would complain and neither did the Bell 212 rescue helo shot which we all really liked but just wasn't black enough. It stands out here though doesn't it?



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