TECHNICAL RESCUE E-MAG 15

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

Inset: The actual front cover for issue 57. The E-Mag cover features a Canadian Coastguard MLB and was our original front cover for issue 57. Ultimately we felt that the rescue swimmer in heli-harness with airboat in the background covered more disciplines. 57 Cover by Brandon Blackwell. Emag Cover photo by Mike Mitchell.

Contents E-Mag 15

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

TECHNICAL RESCUE & CA

ANNUAL DIGITAL Photo Compe

Pro1st
NIKON WT-4A
wireless file transmitter

NPRO®

PRIZES

AMATEUR - Winner - Nikon D300S Digital Camera
AMATEUR - Runner Up - Nikon P6000
PRO-Winner - Nikon WT-4A-Wireless File Transmitter

etition

2nd
NIKON P6000 with GPS

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.

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 how it goes and next year hope to expand on the prize base and incorporate a sub-categorsation 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.

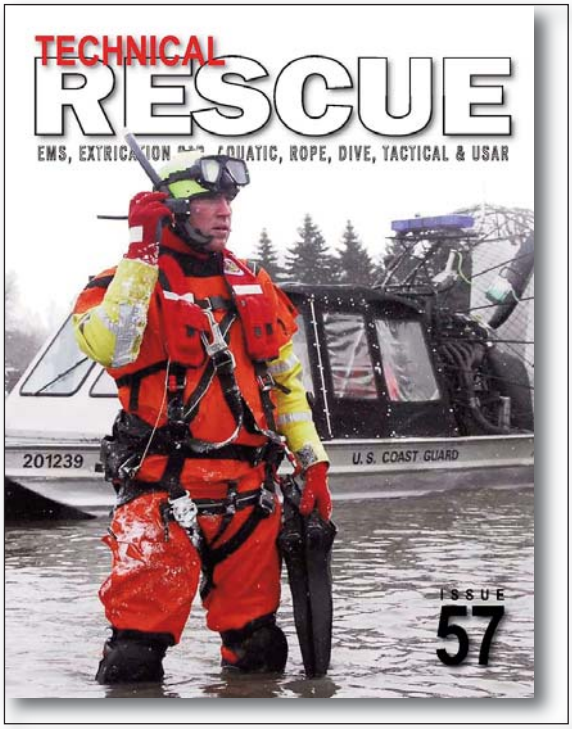
Images need to be in high resolution digital format, preferably jpg images and preferably a minimum of 3meg and a maximum of 30meg in size. Please include your name, email and web address if applicable, and the name and nature of your team, service/agency or discipline.

A limit of 5 images per person may be submitted.

The competiton 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 st May 2010
Start sending your entries now!
PLEASE EMAIL SUBMISSIONS TO:

photo@trescue.com
and please ALSO cc to:
trescuemag6@aol.com



ISSUE 57

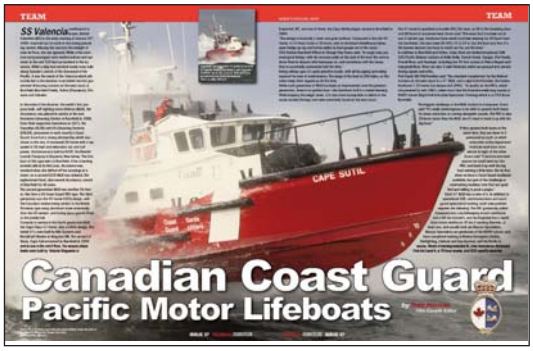
A Coastguard & Rope Rescue **Special Edition**

After our catastrophic hard-drive failure in the summer and subsequent mailing delays with most of issue 56 we had rather longer than usual to put together issue 57 so we made it our largest ever issue at almost 100 pages. We have no hesitation in passing the buck and blaming Rich Hackwell and some advertisers for their inordinately poor time-keeping in just missing our pre-Xmas print deadline but it finally went off and is now printed and off to mailing.

Subscribe via the website: *www.t-rescue.com.....subscriptions*

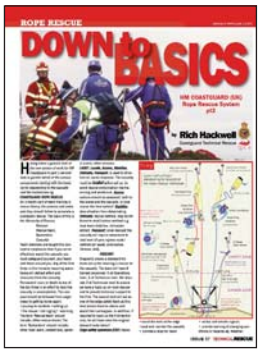
Cover: One of a series of shots taken by Petty Officer Brandon Blackwell (see Photo Competition in issue 58) of the US Coastguard during the March '09 floods in Fargo North Dakota in which rescuers like USCG Rescue Swimmer Christopher Wheeler, operated in freezing conditions. An American Airboats AirRanger sits in the background. Aside from the USCG on the cover, issue 57 also features the Canadian Coastguard Pacific MLBs (**middle left**) by Ivan Hansen and the UK Coastguard's Rope Rescue systems **(opposite top right)** by Rich Hackwell .

***Left*:** Illustrating that not all airboats have a pilot sat in an 'umpire' chair on a dory-style hull. Our title pic highlights that many are low centre of gravity, fully gunwaled hulls with enclosed cabins that are still capable of riding over ice, snow, mud and sand. Like hovercraft in issue 56, airboats of all types have a role to play in certain environments and with the US Coastguard investing heavily in new airboats for the northern states we try to discern where those roles actually are.



Bottom Left: •Sean Johnson provides part one of his *Trends in Helicopter Utilization for Inland Water SAR incidents* - beginning with Command and Control which turned out to be quite a contentious article.

Opposite-top to bottom: •Reed Thorne is thankful for small mercies in finally reaching the end of his epic series of Minimalist Rope Rescue Archetypes. In this final installment we look at the 7th of the 7 MRAs •Greg Churchman examines the merits of twelve autolock descenders in being able to lower and belay a rescue load. • An extensive Gear Review of the Arachnipod Edge Management System from Ferno Australia. When they found out we liked the Arachnipod, Ferno Oz booked a centre spread pullout so there should be no shortage of information for anyone interested! • Our most technical article this issue is on Multi-Point Pre-Equalized Anchoring Systems from six very learned lads from Albuqueque and Ouray Mountain Rescue Teams. Get your calculators out for this excellent followup to our article *S.E.A.s A Myth* way back in issue 37. •Other Gear Reviews this issue are 511 Tactical's Light for Life rechargeable torch which charges in an amazing 90 seconds and a spread of hardware items from DMM and Rock Exotica centring on DMM's Hubs and Rock's swivel 'Biners. We also review River Rescue by Slim Ray and Les Bechdel and Paul Auerbach's Medicine for the Outdoors.Both are the latest edition of a fine dynasty of books •Our first selection of Remote Operated Vehicles for USAR and tactical operations features QinetiQ and iRobot •Brian Robinson tells us about two of the devices now in use on and in New York's Statue of Liberty National Monument •London Fire Brigade's finest weren't available so instead we have Richard Denham and Nick Appleton of LFB's Rescue Training Centre continuing with their excellent series on Extrications involving Heavy vehicles/trucks. • Our medical series has budding neuro-surgeon Jez Hunter explaining why Nerve Blockers could be of interest to rescuers.



ISSUE 58
Late Winter 2010

- Pipe Sealing Airbags
- Dealing with Anthrax
- London Fire Brigade on Heavy Vehicle rescue
- Tactical Lighting comparison
- PWCs (Personal Water Craft) OR Flat-bottomed (Dory) rescue craft
- Rotterdam Joint Services Control OR Swedish Fire-Rescue Training
- Outdoor Clothing Reviews
- UK Coastguard Rope Rescue - Ascent and casualty recovery
- Helicopter Rescue over water
- Toronto Police Service Marine Unit
- USAR & Tactical Robots
- Ramfan Review
- Harness & Hardware Reviews

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

CALL FOR NOMINATIONS

HIGGINS & LANGLEY MEMORIAL AWARDS

IN SWIFTWATER RESCUE

The Higgins & Langley Memorial and Education Fund, working in conjunction with the Swiftwater Rescue Committee of the National Association for Search and Rescue (NASAR), is seeking nominations for the 2010 Higgins & Langley Memorial Awards for Outstanding Achievement in the Field of Swiftwater Rescue, the highest international honors presented for flood and swiftwater rescue.

In addition to individual achievements and swiftwater-flood rescue team efforts, those who have dedicated years of service to developing and implementing swiftwater-flood rescue training programs, as well as public safety media-education efforts, will be considered for nomination. Industry standard swiftwater rescue training and certification is a pre-requisite for all water rescue award categories. Nominations for the 2010 flood and swiftwater Incident Awards may include incidents that were responded to between January 1, 2009 and February 1, 2010.

The awards honor civilian rescuer, Earl Higgins, who lost his life in February of 1980 while attempting to save a child being swept away in the flood-swollen Los Angeles River, and firefighter/paramedic Jeffrey Langley of the Los Angeles County Fire Department, who lost his life in a helicopter accident in March of 1993.

The awards will be presented during the annual conference of the ***National Association for Search and Rescue*** at the end of May 2010.

The DEADLINE FOR SUBMISSIONS is February 19, 2010.

All nominations must be postmarked no later than February 19, 2010. Read instructions with care to avoid having nominations disqualified for lack of completion.
There are a variety of award categories to select from. Not all awards require that noteworthy technical swiftwater/flood rescues be performed. Many award categories recognize significant achievement in the development of swiftwater/flood rescue training programs, flood disaster preparedness and response, flood and swiftwater safety education programs, etc.

The Higgins & Langley
MEMORIAL AWARD FOR OUTSTANDING ACHIEVEMENT IN THE FIELD OF SWIFTWATER RESCUE

The Higgins & Langley Memorial Award is the premier internationally recognized Award for excellence in Swiftwater Rescue. It signifies an intense dedication to the field and a genuine desire to benefit the larger community responsible for the service. Only one Higgins & Langley Memorial Award is awarded in any calendar year.

LIFETIME ACHIEVEMENT AWARD

The Lifetime Achievement Award is reserved for those few individuals who make a significant, lasting and continuous impact in the field of swiftwater rescue. Consequently, Lifetime Achievement Awards are awarded only occasionally.

PROGRAM DEVELOPMENT AWARD

The Program Development Award recognizes agencies that make a significant commitment to swiftwater rescue programs in their area. This award profiles the education, training and resources to develop a successful swiftwater rescue program.

INCIDENT AWARD

Occasionally, a specific Incident is recognized that clearly demonstrates outstanding skill and preparedness, as well as outstanding teamwork in swiftwater rescue.

SPECIAL COMMENDATION AWARD

The Special Commendation Award recognizes the breadth of possible contribution in the field of swiftwater rescue. Awards of this type can be for media contribution, strategic planning, individual heroism or esprit de corps.

For more information, please contact:

Higgins and Langley Memorial Awards
c/o Fred Ray, Treasurer
8 Pelham Rd
Asheville NC 28803

www.higginsandlangley.org

Fred Ray, Treasurer
slimray@higginsandlangley.org
Tel: 828-505-2917

Download Nomination Forms: http://higginsandlangley.org

Higgins and Langley Memorial Awards newsletter:
http://groups.yahoo.com/group/HigginsLangleyMemorialAwards

Reminder: Failure to complete all portions of the nomination form and submit everything on time will result in automatic disqualification.

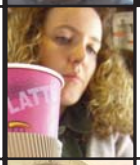
If you have any questions, please don't hesitate to contact us:
nominations@higginsandlangley.org

Thank you.

Who's Who at TRm?

ADE SCOTT
Editor - UK
15yrs Head of Technical Rescue Unit (TRU) (ret) Rescue/Defence conslt. past NASAR presenter

JIM SEGERSTROM
US Editor - USA (died Feb 2007)
Water Guru, Founder Rescue3 International, Flight paramedic, Tuolumne County SAR,



KELLY MATTHEWS
Sales & Admin Director- UK
Law Costs Draughtsman, The real Boss of TRm

DR STEWART BOYD
Medical Editor -RSA
Top Medical Dog - KZN, Trauma Doc, Flight Medic, War-zone junkie

BRIAN ROBINSON
Con-Space Rescue Editor - UK
National Confined Space Rescue Instructor

BEN WALLER
Aquatic Editor - USA
Water Rescue expert. Battalion Chief, Training Chief, Paramedic, US&R tech & HazMat tech.

SEAN JOHNSON
Contributor - Dive Rescue -USA
Fresno Fire Dept Firefighter, USAR & Dive Team

GREG (CHURCH) CHURCHMAN
Contributor - USAR/ Rope - Canada
Fire Officer, Pilot, Rope Rescue Instructor

RICH (DINGER) BELL
Contributor - UK
Paramedic, Dir. Extreme Medics , ex-Police, Tactical medic, ex-TRU

REED THORNE
Rope Rescue Editor - USA
Rope Guru, Sedona SAR, ex-Firefighter, Stonemason and past NASAR presenter

IVAN HANSEN
Contributing Editor - Canada
Acting Fire Captain, Advanced Emergency Medical Care Assistant, ex-Coastguard Aux.

LEE LANG
SAR Editor - USA
Ex-firefighter & EMT, current LCSAR team member and past NASAR presenter

GARY CROSS
Senior Chimp - UK
Firefighter, ex-TRU, HMCoastguard, Extrication Team Medic, Marine Incident Response Group

RICH HACKWELL
SAR Editor - UK
HM Coastguard-Head of Technical Rescue, Lifeguard, ex-TRU,(ex Tree Surgeon)

JEZ HUNTER
Contributing Editor - UK
ex-Royal Marines, Water Rescue, USAR & , Rope instructor, now a medical student

JIM HUTCHEN
Researcher - UK
Firefighter, ex-TRU, Tree surgeon, Extrication Team Snr Medic, USAR Team

CHRIS WALKER
Researcher - UK
Ex-Technical Rescue Unit, National RNLI Instructor (HQ),Regional SAR Team Member.

MICHIEL WOLTERING
Contributor - TacticalRopes/Dive- Holland
Instructor at Dutch National Police Academy for access in tactical, USAR, hostage rescue etc

THERE'S GOTTA BE A BETTER WAY!

Several years ago TRU was tasked to an area of Southampton Container Port (UK) that had been evacuated due to a precariously balanced pallet of acetylene cylinders that had slipped during loading and was now perched between the lorry and a forklift. The immediate danger was deemed to be the risk of the pallet continuing it's pivotal rotation and falling on the cylinder valves with a resultant adios muchachos. The OIC agreed that the safest option would be to swing around a nearby dock crane and rig the pallet of cylinders such that when the forklift was removed the crane took the strain and the pallet would swing upright, evenly supported. Feeling that a bullet-proof vest, Oakley sunglasses and Gallet F2 helmet were ample protection I proceeded to rig the pallet with some gingerly applied basket weaving. Meanwhile, attending fire crews and dock personnel remained behind barriers outside a 50m exclusion zone secure in the knowledgle that if the worst happend they would at least be able to identify me by my hair, torso and eyeballs. With a skilled crane-driver it actually worked OK and my eyeballs remained intact. ***Ade Scott***

In the wake of the Haiti earthquake and its immense death toll, Nancy Rigg has asked to spread the word about some very useful written resources developed by the Royal Hospitals Trust in Dublin for dealing with sudden death, grief and trauma for professional rescuers:

http://higginsandlangley.org/death_grief_information.shtml

WHAT HARNESSES DO WE USE?

Ade: Never far from his Paradynamics or a Starbucks!

ADE: I use a custom built rescue sit harness from **Paradynamics** in Australia coupled with a US DoD tac Vest which ties nicely into the Paradynamics. It's coming up for renewal but is still my favourite because it's got two parallel hard point D-rings and a soft eye behind, it also has two side-Ds and soft hanging eyes all round for gear loops. In my case I use a full strength carabiner as a gear loop in each just in case I run out! The tacVest has a built in drop-down harness (hence the ability to tie-in as a load bearing element to the sit harness) that I otherwise don't actually use. The whole rig is adjustable (in a corset kinda way) to allow for use in winter, over protective clothing or even over a drysuit and it has more pockets that a herd of kangaroos. Did I mention it also acts as a corset - no bad thing when you get to my age! My alternate harness has always been the **Petzl Navaho** which, truth be told is a better harness and was our standard issue on the Technical Rescue Unit principally because it was about the best available - I used the full body version a helluva lot for rescue and still use the **Petzl Baobab** tree harness on the odd ocasion I'm let loose with a chainsaw. Finally, my now underused and cobweb covered climbing harness is a **Black Diamond Bod**, back in the day it was an excellent mix of lighweight, easy-on with crampons and comfort - I preferred the padded waist to the more stripped down Alpine Bod. Can I gabble on a bit?....An interesting evolution in the multi-front-hardpoint connections of my Paradynamics is the Actsafe Harness (left) which I have been interchanging with for almost a year. This is a much more comfortable harness with its heat-formed contoured padding but it stands out thanks to this integral rigging plate used as the hardpoint connection giving 5 carabiner connection points; e.g. for descender, ascender, belay and pick-off attachment.

Actsafe front hardpoint

REED: To be quite honest, I do not have a preferred harness or helmet. The harness I wear and love is the one I designed with John Yates and has our RTR logo on it: The ***#390 Tower Access Harness*** available from Yates Gear. It is hands down the best all around harness for tower work. But if I am doing canyons and mountain courses, I love my ***Black Diamond*** or ***Yates*** seat [sit harness]!

Yates RTR Tower Access

CHRIS: ***Heightec Matrix DeluXe*** - Full Body Harness for Rescue and Access. Why? - Mostly because its the harness I have used the most and have a strong sentimental ties to it, but I do find it gives all the lumbar support I need and the flexibility and freedom of movement needed even in confined space environments. Also there are more than enough gear loops and hard fixing points with side D's for positioning. An all round reliable, comfortable and practical harness. For leisure my first choice would be the ***Wildcoutry Pat Little-John*** sport harness. Back to the sentimental reasons again. Sadly it is more retro than most would like but has served me well through the years and I'm on No.3 now for use on short sport routes. I have recently moved to a ***Petzl Calidris*** (Bottom of page 9) for big wall Sport climbing and Trad routes, and have been pleasantly surprised at the comfort achieved without being over bulky with padding. Light weight and space for gear.

Petzl Navaho Bod

Yates Big Wall

Metolius SafeTech

Abtech AF-FB1

SRTe FunnelWeb

RICH: ***Petzl Navaho Bod*** for rescue work; comfy, easy/ quick to don, good adjustability. Still love my ***Petzl Falcon*** sit harness for its light weight - it's always in the vehicle, easy to pack.

JEZ: I am very happy with my ***Navaho Bod*** ***Croll Fast*** (all in black so no one can see me!!)

GARY: Simple - ***Petzl Navaho***.

LEE: So for rescue and big walls.. I love my ***Yates Big Wall*** harness. If I didn't already own one of these however, I would go with the ***Metolius Safe Tech*** harnesses. They're also comfy (not as comfy as the Yates) but they have full strength gear loops.. a really nice feature. I also see they now offer a Big Wall version so that might be as comfy as the Yates.
Now for climbing or if the rescue has serious access issues (like 5+ miles back), I go with a much lighter harness. The one I have used for years is no longer made, and the one I have now I really don't like. I actually expect to purchase a ***Metolius Safe Tech All Around Harness*** this spring to replace my current climbing harness. For myself, any harness must have adjustable leg loops and front and rear belay loops.

BRIAN: For general confined space entry and light rescue I use the **Abtech AB10** single point harness.For Structural and heavy rescue I use the **Abtech AF-FB1**

CHURCH: For rope access or rescue my favourite older harness made by SRTE is a Funnelweb rescue harness. A little heavier than it could and should be, but the most comfortable harness I have ever used. The attachments for equipment are not good, small metal rings instead of cord loops, and the delta links used to allow you to change out the shoulder straps from a V shape to circumferential could be rethought, and may have been in a newer model. Other than that it is excellent and as I mentioned, very comfortable. [ADE: I used the funnelWeb for 3 years when in Oz and also found it to be a great harness, really comfort-

Yates Voayger

able but quite complex as a full body so not the quickest to put on in a rush, I'd still use it now if i hadn't accidentally left it in Oz]. Current favourite and best seller is the Petzl Navaho bod fast. Reasonably comfortable, and the quick release leg loops are a very nice bonus. However, the size of webbing used for the leg loops is very tight in the adjustable buckles which makes them difficult to let in and let out. (A royal pain actually). Other than that a great harness. They also offer an item called a Caritool, which is very handy. You can add several to the back of the harness and clip in tools, carabiners, prusik loops etc. Save you from hanging things from carabiners. Great for rope access work or rescue. They could be a problem in very tight confined spaces, but otherwise a bright idea.
Yates Voyager harness is another comfortable and mid-weight harness. They also incorporated quick release leg loops several years ago and then discontinued the option. I didn't find out until I ordered some and at the last moment asked to make sure that I was getting the correct model and they told me they stopped that feature not long after offering it. But you still see them advertised everywhere. Go figure. Anyhow, an excellent harness for rescue work if you can live without the quick release.

Ben's CMC Harness
but not Ben!

BEN: My personal harness is a CMC Instructor Class II with the attachable chest harness that converts it to a Class III full-body harness. It is a little heavy, but so am I. The best feature is the wide padding. It makes this harness more comfortable, especially for long days while teaching.
We use Yates at work - I'm drawing a blank on the exact one.We also use the victim version of the Yates for confined space.
My previous Class III harness was a Troll Eagle, and I've also had several Petzl sit harnesses from my rock climbing days.

Petzl Falcon

SEAN: Ok I like the Yates. They are comfortable, durable and have a rear attachment point which I like to use for the backup line

Petzl Falcon-Mountain

MICHIEL: For rope rescue our teams use the Petzl Navaho full body harness. At the moment USAR.NL use the Troll Ibex but these will soon be replaced by the new Petzl Falcon with Top combination. I've advised them to choose this harness because of their transport weight limitations by plane, the harness is easy and fast to put on, and the soft attachments on the sides for access in narrow spaces. Our special units also use the full body Petzl harnesses but we expect them to change tot a lighter harness like the petzl Falcon, these will be more compact and silent.
When looking at special operations (covert) and urban climbing the use of sport harnesses is most common. We use sport harnesses like the Petzl Pandion when operation covert in urban areas and use a variety of more padded sport harnesses from Petzl and Singing Rock when climbing buildings and structures

Petzl Calidris

Next E-mag - Helmets

HAITI RESCUE EFFORT

After a difficult intervention by international teams in Indonesia with relatively few persons pulled out alive the earthquake in Haiti on Tuesday 12th January 2010 with it's densely packed brick and concrete housing, (most of it well below 1st world building code), enabled USAR teams to have a real impact in saving lives. Unfortunately, efforts were once again hampered by the very poor logistical infrastructure which is only to be expected in Haiti which was poor even before the earthquake. With the port cranes mostly inoperative and the airport air traffic control destroyed it was up to the US military and Coastguard to coordinate top-tier communications as best they could. There were some misgivings about the US Military's handling of Air Traffic but with nobody else capable of stepping into the breach on this one it's difficult to be overly critical.

•As usual the **US Coastguard** was able to respond quickest with helicopters and C130 aircraft followed by cutters offshore by wednesday.

•Troops from the **82nd Airborne** arrived from Thursday to provide medical assistance and the ability to assist with a deteriorating security sutuation.

• Arriving on Wednesday a very prompt arrival of the 37-strong team from **Iceland** was rapidly augmented throught the next 24 hours by **US USAR Task Force Teams** each approx 70 strong from Miami (**FL-TF1**), LA, Orange County and Sacramento (**CA-TF1, 2 & 5**) and Fairfax (**VA-TF1**). These were the first to assist poorly equipped but enthusiastic local emergency crews, United Nations Peacekeeping forces, neighbours and family members with coordinated heavy rescue. From Thursday, additional US teams from **CA-TF1** and **Texas TF1** arrived together with a steady stream of teams from around the world (later joined by **NY-TF1**): **• Canada's Disaster Assistance Response Team • French Civil Security Rescue team • Belgium • Spain • Germany's THW • Taiwan • Dominican Republic • Italy • China's 50-strong International SAR team • Peru • Nicaragua • Venezuela • Russia • a 60-stong Dutch team • Switzerland • Guadalope• Israel's Home Front Command SAR team.** On friday personnel from **RAPID UK**, the **UK Fire Service** and two **South African** teams also arrived in Haiti. Numerous dog teams either embedded or attached to the SAR teams workied tirelessly and it is interesting that one of the world's leading robotics experts conceded that the dogs could be deployed much quicker and move much faster than the currently available search bots in this particular event. One of the most important , if not *the* most important element of rescue aid has been the doctors, paramedics and medical personnel again either embedded or attached or arriving as part of organisations like Medicins San Frontier and ERT (UK). Our old mukka, the raving mad but quite brilliant Doc Rob Dawes is one of many who's major trauma skills are invaluable but will sadly barely scratch the surface of what is needed in Haiti. As always the teams continued to pull people out of the rubble for several days after the event but again, though very welcome to those saved it is but a drop in the ocean compared to the more than 100,000 killed and a spectacular number of injuries. Once the order was given to cease rescue operations and begin dismantling collapse sites so that bodies could be cleared away most teams left. But several stayed and one french team actually succeeded in rescuing another victim after 9 or 10 days. Survivebale voids are always possible in eathquake collpases and in one case an entrapped victim had access to soft drink and packet food that would have enabled surviveable for several more days. The decision to switch from Rescue to Recovery is never taken lightly.

Humanitarian aid and long term relief lasting for years may actually, in time, improve the lot of the Haitians who have long suffered as one of the poorest (and most violent) societies in the world. With over 120 lives saved from collapsed structures this was very probably the most successful ever intervention by international SAR teams and coupled with the thousands saved and treated by medical personnel Haiti provided an opportunity to get in on the ground quickly and do at least some good in amongst all the mahem and suffering. Some argue that this degree of international SAR response (as distinct from medical aid) is more about making the wealthier responding nations feel like at least something is being done given that the number saved is normally relatively low. But the rescued victims and their families might see things differently. There will be a number of SAR teams not listed here - our apologies for any ommissions. *FOOTNOTE: Highlighting some of the financial constraints one of the original disaster response teams, the UK's International Rescue Corps was unable to mobilise for the first time ever because it had spent so much money mobilising in good time to the Indonesian 'quake it had not had time to build up funds for a mobilisation on this scale.*

ABOVE: after chartering a plane ICE-SAR were an impressibvely early arrival. Here Icelandic search and rescue team members pull earthquake victims out of the rubble of the Caribbean Market in Port-au-Prince. *Courtesy of ICE-SAR.* BELOW: A Coast Guard MH-65 Dolphin helicopter launches off the flight deck of the 270-foot Coast Guard Cutter Forward, Jan, 13, 2010. Coast Guard personnel have been mobilized to provide support to the country of Haiti after suffering a 7.0 magnitude earthquake. *U.S. Coast Guard photo by Coast Guard Cutter Forward.*

LEFT: PORT-AU-PRINCE, Haiti – Coast Guard crewmembers photographed damage in Port-au-Prince Jan. 13, 2010. Coast Guard personnel arrived in Haiti to assess the damage after an earthquake ravaged the island Jan. 12, 2010. U.S. *Coast Guard photo by CGC Forward.*

MIDDLE: An injured American arrives at U.S. Naval Hospital Guantanamo Bay, Cuba by U.S. Coast Guard helicopter at approximately 10:37 a.m., Jan.13, 2009. He is one of four Americans from the U.S. Embassy in Port-au-Prince, Haiti brought to the Naval Station to receive medical care for traumatic injuries sustained in the earthquake that struck the region Jan. 12. The victims were evaluated and stabilized by hospital personnel before they were medically evacuated to the U.S. for further treatment. *Photo by Mass Communication Specialist Chief Bill Mesta, U.S. Naval Station Guantanamo Bay, Cuba Public Affairs.*

BOTTOM: A Coast Guard C-130 Hercules fixed-wing aircraft crew from Air Station Clearwater, conducts an overflight assessment above Port-au-Prince, Haiti, January 13, 2010. The assessment follows a 7.0 magnitude earthquake that damaged the region January 12, 2010. U.S. *Coast Guard photo by Petty Officer 2nd Class Sondra-Kay Kneen.*

US COASTGUARD
Deploys to Haiti within hours of earthquake

The U.S. Coast Guard, the first Department of Homeland Security agency to provide assistance to Haiti following the [12th January earquake] , continue[d] to provide support to the U.S. Government's humanitarian assistance and disaster response efforts.

The aircrew of a Coast Guard H-60 Jayhawk helicopter medically evacuated four, critically injured U.S. citizens from the U.S. Embassy Wednesday morning and a second medevac of five people was conducted Wednesday afternoon. The injured were transported to the U.S. Naval Hospital in Guantanomo Bay, Cuba. Two Coast Guard C-130s arrive[d] Wednesday evening... to evacuate up to 140 personnel to Santo Domingo, Dominican Republic. Two other Coast Guard C-130s from Air Station Elizabeth City, N.C., [were] prepositioned to Air Station Miami to support the relief efforts. Among the pending aircraft missions for Coast Guard aircraft is an airlift to Haiti from the U.S. of two Urban Search and Rescue Teams which is being coordinated through U.S. Southern Command.

The Coast Guard Cutter Forward arrived in the waters off Port Au Prince, Haiti, at about 8 a.m., Wednesday and together with Maritime Intelligence Support Team 0410, was able to assess some of the damage caused to the Port Au Prince port. Coast Guard personnel observed multiple oil and fuel spills as well as possible sewage spills in the area of the port, about one to one and a half miles from the coast. They also reported seeing multiple small fires along the shoreline and significant damage to or destruction of infrastructure at the port.

Damage to port infrastructure is reported to include the port's container crane and other cargo cranes. Some of the cranes are reported to be completely submerged and others appear damaged but the extent of the damage cannot yet be fully determined.

Overflights of Haiti conducted by two, Coast Guard C-130 aircraft from Air Station St. Petersburg, Fla., revealed much less observable damage along the Northern shore of Haiti than in the area surrounding Port Au Prince.

The Coast Guard Cutter Mohawk also arrived in the coastal waters of Haiti Wednesday afternoon.

The Coast Guard Cutters Tahoma and Valiant arrive[d] in Haitian waters Thursday. The Tahoma [was] loaded with relief supplies for earthquake survivors.

"When the sun came up this morning in Port au Prince there was a Coast Guard cutter off-shore providing command and control, assessing the situation, providing situational awareness," said Adm. Thad Allen, U.S. Coast Guard Commandant. "So within 24 to 36 hours we had three cutters with the capacity to support hundreds if not thousands," said Allen.

- The Coast Guard Cutter Valiant is a 210-foot medium endurance cutter homeported in Miami, Fla.
- The Coast Guard Cutter Mohawk, a 270-foot medium endurance cutter, is homeported in Key West, Fla.
- The Coast Guard Cutter Tahoma is a 270-foot medium endurance cutter homeported in Portsmouth, N.H.
- The Coast Guard Cutter Forward, a 270-foot medium endurance cutter, is homeported in Portsmouth, Va.
- Eight members of the U.S. Coast Guard Maritime Safety and Security Team San Francisco, also deployed Thursday to assist with earthquake relief. The team specializes in port and waterway security.

THIS REPORT AS AT 20.1.2010

A NEW DEFINITION OF DROWNING:

towards documentation and prevention of a global public health problem

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ABSTRACT

Drowning is a major global public health problem. Effective prevention of drowning requires programmes and policies that address known risk factors throughout the world. Surveillance, however, has been hampered by the lack of a uniform and internationally accepted definition that permits all relevant cases to be counted. To develop a new definition, an international consensus procedure was conducted. Experts in clinical medicine, injury epidemiology, prevention and rescue from all over the world participated in a series of "electronic" discussions and face-to-face workshops. The suitability of previous definitions and the major requirements of a new definition were intensely debated. The consensus was that the new definition should include both cases of fatal and nonfatal drowning. After considerable dialogue and debate, the following definition was adopted: "Drowning is the process of experiencing respiratory impairment from submersion/immersion in liquid." Drowning outcomes should be classified as: death, morbidity, and no morbidity. There was also consensus that the terms wet, dry, active, passive, silent, and secondary drowning should no longer be used. Thus a simple, comprehensive, and internationally accepted definition of drowning has been developed. Its use should support future activities in drowning surveillance worldwide, and lead to more reliable and comprehensive epidemiological information on this global, and frequently preventable, public health problem.

Keywords: Drowning/epidemiology; Epidemiologic surveillance (source: MeSH, NLM).

THE GLOBAL BURDEN OF DROWNING

Drowning is a major, but often neglected, public health problem. At the end of the 1990s, the World Bank and WHO released the first global burden of disease (GBD) study. It showed that, worldwide, drowning is one of the most common causes of death (1). For many, this was an unexpected result. The Lancet published an editorial on this study, stating that "further down the list come the real surprises: in 1990, suicides (786 000, number 12) far outnumbered deaths from HIV infection (312 000, number 30); death by drowning (504 000, number 20) was more common than death through war (502 000, number 21)" (2).

This surprising impact of drowning on public health was again demonstrated by more recent GBD data showing that the global mortality rate from drowning is 6.8 per 100 000 person–years (3). This places drowning as the second leading cause of death from unintentional injury, after road traffic injuries. Drowning affects all age groups throughout the world, but certain groups are particularly vulnerable. Over half of the global mortality occurs among children less than 15 years of age. Furthermore, 97% of all deaths from drowning occur in low- and middle-income countries (3). In the eastern and south-eastern regions of the world, more children die annually from drowning than from pertussis, measles, diphtheria, plague, cholera, dengue fever and typhoid fever combined (4).

The impact of drowning on public health can be greatly reduced, as shown by the history of drowning statistics in many high-income countries. In the Netherlands, for example, death rates from drowning dropped from 14.4 per 100 000 person–years in 1900 to 0.6 per 100 000 person–years by 2000. The 1900 rate for the Netherlands was about equal to the current average mortality rate for drowning observed on the African continent (14.2 per 100 000 person–years). Much of this spectacular decrease in drowning rates can be attributed to preventive measures, including improved swimming abilities (5).

NEED FOR SURVEILLANCE

Drowning must be recognized as a major global public health problem with significant opportunities for prevention. Effective prevention of drowning requires programmes and policies that address known risk factors. Local data collection or surveillance is needed to identify specific factors associated with drowning in a particular region. There may be large variations by time and place because drowning may be related to several types of daily and/or recreational activities (e.g. fishing, boating, swimming), various types of exposure to water (e.g. in oceans, garden wells, lakes, swimming pools and bath tubs) and other risk factors (e.g. behavioural risk factors, including alcohol use and product safety-related factors). For many decades, the collection of data for epidemiological purposes has been hampered by the lack of a uniform and internationally accepted definition which includes both fatal and nonfatal drowning.

To improve surveillance, a simple but comprehensive definition is needed. Within the framework of the first World Congress on Drowning (WCOD), held in Amsterdam, Netherlands in 2002, such a definition was developed by means of a consensus procedure (6). This procedure was initiated in 1999 with the release of a discussion paper on the definition of drowning on the website of the WCOD (www.drowning.nl), which provoked lively "electronic" discussions among experts around the world. On the basis of these discussions, a draft of a tentative new definition was published in 2000 by the International Liaison Committee on Resuscitation in collaboration with the American Heart Association (7). The debate continued in the years preceding and during the WCOD, in the course of which many experts in the fields of injury epidemiology, prevention, rescue and clinical medicine participated in a series of discussions and workshops focusing on the suitability of previous definitions and the requirements for a new definition.

SUITABILITY OF PREVIOUS DEFINITIONS

In the past it has been customary to use separate definitions for fatal (referred to as drowning) and nonfatal cases (referred to as near-drowning) and to make a further distinction between cases with or without aspiration. Modell proposed a series of definitions in 1971 (8) and slight modifications in 1981 (9), which led to the adoption of the following terminology:

- drown(ing) without aspiration: to die from respiratory obstruction and asphyxia while submerged in a fluid medium;
- drown(ing) with aspiration: to die from the combined effects of asphyxia and changes secondary to aspiration of fluid while submerged;
- near-drown(ing) without aspiration: to survive, at least temporarily, following asphyxia due to submersion in a fluid medium;
- near-drown(ing) with aspiration: to survive, at least temporarily, following aspiration of fluid while submerged.

These definitions were judged by the 2002 consensus experts to be difficult to use in surveillance and epidemiological research, because they mix characteristics of the event (e.g. submersion and immersion) with the pathophysiological changes (e.g. asphyxia, electrolyte and blood volume changes, and a wide variety of alterations in respiratory function), and the outcome (mortality and morbidity). During the consensus procedure, the advantages and disadvantages of having separate definitions for fatal and nonfatal cases were intensively debated. The consensus was that having an outcome classification (drowning = death, near-drowning = survival) as part of the case definition was still cumbersome. Such a classification is different from what is customary with respect to other medical conditions and injuries. Furthermore, such a classification is not in accordance with the internationally accepted Utstein style, which was developed by investigators from different specialties to provide a common language and terminology for cardiac arrest studies (10). It was also rec-

ognized that the use of two separate definitions might lead to a continued underestimation of the drowning problem. In the GBD studies, for example, the consequences of nonfatal drowning have been neglected.

MAJOR REQUIREMENTS FOR A NEW DEFINITION

The consensus experts agreed that the new definition should be simple, inclusive (including all relevant cases), and specific (excluding irrelevant cases). Furthermore, the terminology should be in accordance with the Utstein style and with common definitions of other medical conditions and injuries. Therefore, the definition should not be confused with systems to describe the etiology or to classify the outcome of the drowning process. The definition should ensure that all victims of drowning have some important unique characteristic in common. This unique criterion is respiratory impairment due to exposure of the patient's airway to liquid. This induces a cascade of reflexes and pathophysiological changes, which, if uninterrupted, will lead to death, primarily due to tissue hypoxia. Impairment of the respiratory system is secondary to voluntary breath-holding, involuntary laryngospasm and aspiration of water, and the consequences thereof. The definition should include cases of drowning in all kinds of liquid, except body fluids (vomitus, saliva, milk and amniotic fluid) and should exclude a water rescue case (i.e. all submersion or immersion events in which no respiratory impairment is evident, whether with or without other injury).

A NEW DEFINITION OF DROWNING

On the basis of an analysis of the problems with the existing definitions, a list of requirements, and major input from many experts, the following definition was adopted by consensus of the conference attendees in 2002: "Drowning is the process of experiencing respiratory impairment from submersion/immersion in liquid." Furthermore, drowning outcomes should be classified as: death, morbidity, and no morbidity.

A very slight modification of the wording of this definition, but no change in substance, has been published by Idris et al. (11). To fully understand the breadth of the physiological responses that occur during "drowning", a familiarity with the "drowning process" is essential. The "drowning process", as described in the definition and by Idris et al. (11) is the continuum that begins when the victim's airway lies below the surface of the liquid, usually water, at which time the victim voluntarily holds his or her breath. Breath-holding may be followed by an involuntary period of laryngospasm secondary to the presence of liquid in the oropharynx or larynx. During this period of breath-holding and laryngospasm, the victim is unable to breathe gas. This results in oxygen being depleted and carbon dioxide not being eliminated. The victim then becomes hypercarbic, hypoxaemic and acidotic. Because hypercarbia stimulates respiration, the victim's respiratory movements become very active, but there is no exchange of air because of the obstruction or impairment at the level of the larynx. As the victim's arterial oxygen tension drops further, laryngeal spasm and obstruction abate, and the victim actively breathes liquid. The amount of liquid inhaled varies considerably from victim to victim. Changes occur in the lungs, body fluids, blood–gas tensions, acid–base balance and electrolyte concentrations, which are dependent on the composition and volume of the liquid aspirated and the duration of submersion.

A victim can be rescued at any time during the drowning process and may not require any intervention, or may receive appropriate resuscitative measures, in which case the drowning process is interrupted. The victim may recover from the initial resuscitation efforts, with or without subsequent therapy to eliminate hypoxia, hypercarbia and acidosis, and normal organ function may be restored. However, if the victim's lungs are not ventilated in a timely fashion, or he or she does not start to breathe air spontaneously, circulatory arrest will ensue, and, in the absence of effective resuscitative efforts, multiple organ dysfunction and death will result, primarily because of tissue hypoxia. All these events are covered by this new definition of drowning.

Recent publications (12, 13) have raised questions as to whether "dry" drowning actually occurs or whether its victims died of another cause. Also, victims labelled as having experienced "passive" or "silent" drowning may not have been passive or silent at all but simply were not observed. Finally, "secondary" drowning is a misnomer because people who develop acute respiratory distress syndrome after drowning have not undergone a second submersion episode. Thus, we believe the terms "wet", "dry", "active", "passive", "silent" and "secondary" should no longer be applied to describe a drowning victim.

The proposed new definition of drowning is expected to support future activities in worldwide drowning surveillance. This should lead to more reliable and comprehensive information on this public health problem. Only following worldwide implementation will it be possible to determine whether the new definition is actually better suited for epidemiological purposes and whether the major requirements listed have been met. Researchers are invited to use the new definition and to report on the advantages and disadvantages they observe. It is recommended that all water safety and health organizations involved follow WHO (3) and Centers for Disease Control and Prevention (14) in adopting the new definition and include it in their glossaries. We expect that this will lead to a more inclusive description of the global drowning problem and the identification of specific risk factors in specific regions. If our expectations are correct, the new definition of drowning will more accurately quantify, and finally help to reduce this global, but frequently preventable, public health problem.

Funding: We wish to acknowledge the Society to Rescue People from Drowning in the Netherlands for initiating and supporting the World Congress on Drowning 2002 and the international consensus procedure on a new definition of drowning.

Competing interests: none declared.

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GRIMP DAY '09

Namur - Belgium - October 10th 2009

REPORT from sponsor Petzl and our own Jim Hutchen who was medic with the Hampshire Team:

Groupe de recherché et d'intervention En Milieu Perilleux
(Very roughly translated – rescue from perilous situations)

PETZL: GRIMP day is an international, multi-disciplinary technical rope rescue competition which takes place every October in Namur. This fourth event was a face-off between 23 teams, from Belgium, France, Great Britain, Switzerland and Germany. The participants were firefighters, soldiers, police officers and rescuers.
This event is less about a competition, and more about a gathering that allows participants to share rescue techniques, which vary significantly from country to country. Speed is also not the only criterion: the grading includes the level of coordination and calm of the team, the attitude of the leader, and of course the respect of all safety standards. And of course the most important element: that the victim is rescued without injury.


pic by G.Oudot, Petzl

In teams of six and observed by evaluators, participants carried out a series of practical exercises on a timed and graded course: vertical evacuation of a victim, Tyrolean traverse, rappelling, underground progression, stretcher evacuation on a hill, etc. This year's winner was the British team from WEST MIDLANDS FIRE SERVICE, ahead of the Swiss team from S.I.S. NEUCHATEL and the Belgian C.E. COMMANDO team. (full results at the end)

JIM HUTCHEN: The event consists of the best rescue teams from Europe, who are invited to carry out a course of both Physical and Technical based Rope Rescue skills which are timed, scored both technically and medically on a journey around the city of Namur in Belgium. This event is keenly organised and run by highly enthusiastic key members of the Namur Fire station namely Johan Demanet with huge support from Petzl and Jeep, and a number of multi- lingual locals that provide translation for non native teams. The competition has been held for the past


pic by G. Oudot, Petzl

three years and Hampshire Fire and Rescue USAR Technical Rope Team have attended them all and it is pleasing to see many more U.K and foreign teams entering, we have had enquires from Canadian and Hungarian rope teams and happily put them in touch with the relevant people.
Grimp day is an annual event, becoming more popular with 23 teams competing this year from all Fire services, Cave rescue Teams and Rescue organisations across Europe and involving the Belgium Commandos who assist by providing resources and assessors.

pic by G.Oudot, Petzl

This years team consisted of the following members from HFRS :
WM Roper (Oic) from Winchester R/W
FF Brown (Tech) from USAR
FF Hutchen (medic) from Winchester R/W
FF Marsh (Tech) from USAR
FF Hartley (Tech) from Basingstoke B/W
CM Taylor – (casualty) from Whitchurch RDS

The course itself challenges the teams to mental and physical tests at height carrying a casualty in a stretcher who had to be medically assessed and packaged. All equipment used has to be carried amongst the five team members and all Safe Working at Height Regulations (SWAH) have to be adhered to. Penalty points are awarded if any unsafe practices are observed.
The course takes approximately four hours to complete and all skills are tested in access work, abseiling (120M), ascending and descending, casualty handling and packaging crawling through tunnels, travelling in speed boats, traversing ravines with complex cable-ways around an ancient castle Citadel, which is the perfect venue for a ' ropies playground'


pic by G.Oudot, Petzl

The event concludes with a death slide from the castle battlements to the city streets below approx 600M length with a 200M drop (watch it on Youtube –Grimp2009) .After landing and a traditional kissing of the dummy. In true European style plenty of cheese and wine is served. The socialising is then continued with free excellent food and drink supplied by the ever friendly and eccentric Namur firefighters. It was won this year by West Midlands Fire Service Rope Team in their first year of entry in the competition. Well done. There are some arduous Mountain Rescue 'competitions these days, I'm particularly thinking of the Czech competition sponsored by Singing Rock that we reported on a couple of issues ago but for firefighters there is no other event like this in Europe with the exposure, technicality, physicality and unrivalled entertainment.

PLACE	EQUIPE	PAYS	POINTS
1	WEST MIDLANDS FIRE SERVICE		875/1000
2	S.I.S. NEUCHATEL		852/1000
3	C.E. COMMANDO		822/1000
4	BRANDWEER ANTWERPEN		818/1000
5	GRIMP 84		811/1000
6	S.R.I. NAMUR		801/1000
7	BRANDWEER GENT		782/1000
8	POMPIERS SAINT-LOUIS		778/1000
9	RED TEAM BRANDWEER KAPELLEN		770/1000
10	SIAMU BRUXELLES 1		765/1000
11	SDIS 78		735/1000
12	HÖHLENRETTUNG BADEN-WÜRTTEMBERG		715/1000
13	BRANDWEER ARENDONK		702/1000
14	MERSEYSIDE SEARCH AND RESCUE TEAM		699/1000
15	BRANDWEER ANZEGEM		698/1000
16	SIAMU BRUXELLES 2		681/1000
17	S.P.S. LAUSANNE		680/1000
18	HAMPSHIRE FIRE & RESCUE		638/1000
19	S.R.I. CHARLEROI		631/1000
20	NOTTINGHAMSHIRE FIRE & RESCUE		630/1000
21	GRIMP DINANT		628/1000
22	S.I. COUVIN		627/1000

Conflicting Dive and DiveRescue Signals?

PADI has agreed a standardisation of dive rescue signals. This would seem to be at odds with those currently in common usage with a number of dive rescue training agencies and operational dive rescue agencies but is welcomed by others if only because it is an attempt at broad standardisation.

The Standard PSD Line Signals presently used by DIVE RESCUE INTERNATIONAL, IANTD, ERDI, NAPD, and PSDA are:

TENDER TO DIVER

1 pull - Okay. Okay?
2 pulls - Stop, take out slack, reverse direction
3 pulls - Come to the surface
4 pulls - Stop, don't move

DIVER TO TENDER

1 pull - Okay. Okay?
2 pulls - Advance line
3 pulls - Object found
4 pulls (or more) - Need assistance/back up diver (This may or may not be an emergency depending on how firmly the signal is sent. Four EASY pulls would not be interpreted as a diver in dire trouble yet four sharp pulls or continuous line pulls would obviously indicate a more urgent need for a safety diver.)

THE "NEW" PADI SIGNALS

TENDER TO DIVER

1 = Stop
2 = Okay
3 = Take up slack
4 = To be determined by the team
5 or more pulls = Come to the surface

DIVER TO TENDER

1 = Stop
2 = Okay
3 = Give more line
4 = Target located
5 or more pulls = Something wrong or help

CMC Rescue MPD

A major advance in Rope Rescue Hardware- Pulley • Rescue Belay • Descender

We mentioned the MPD last year but it has now reached full evolution and is available for $550. MBS: 8,093 lbf. (36kN) Weight: 2 lbs., 8 oz. (1.1kg)

- Variable-friction descent control device for rescue systems and rappels
- High efficiency pulley with an integral rope-locking mechanism (ratchet) for a haul system
- Rescue belay device
- Meets BCCTR Rescue Belay Competency Criteria
- Becket allows rigging cleaner and more efficient pulley systems
- For use with 1/2 in. (13mm*) rope
- Allows the main line and belay line rigging to be mirror images
- Functions as lowering brake and as ratcheting pulley for raising
- Rapid conversion to a retrieval line makes it ideal for confined space operations

Developed during four years of research & testing, the MPD is the next major advance in technical hardware for professional rope rescuers - a multi-purpose device that performs all functions for main lines, belay/safety lines, tag lines and hoisting lines. The MPD can be used to tension high lines and guiding lines. Training and on-scene rigging can be greatly simplified by having a single device. Rescue system changeover from a lowering system to a raising system becomes faster and safer by eliminating the need to switch out and replace hardware.

*Designed for use with 12.5mm-13mm rope. Rope used for certification rounded up to 13mm per NFPA 1983.

UL Classified to NFPA 1983 - General Use www.cmcrescue.com

FAST-mask®

A NEW POSITIVE PRESSURE BREATHING APPARATUS FOR HAZMAT APPLICATIONS

Excelerate Technology, the leading supplier of satellite and wireless-based data, voice and video solutions to the emergency services, has announced the immediate availability of FAST-mask®, a new positive pressure breathing apparatus.

FAST-mask® has an automatically inflating head harness that enables it to be safely donned and fully operational within just three seconds providing immediate protection in a wide range of HAZMAT and CBRN applications.

The silicone mask automatically tensions to form a positive pressure seal without having to adjust any harness straps or buckles and switches the demand valve regulator to positive pressure helping to purge the facemask of any trace of hazardous gas.

According to David Savage, CEO of Excelerate Technology: "The new FAST-mask® is safer and delivers significantly higher levels of performance than most of the commonly used breathing apparatus sets that are still based on national standards and designs from around 30 years ago. It will form an essential part of the HAZMAT kits being carried on mobile incident command units that are increasingly being deployed by police, fire and ambulance services across the UK."

Excelerate Technology will be providing additional versions including FAST-cowl®, which features a specially formulated hood or cowl material applied to the facemask to provide CBRN resistance, flame retardancy and certification to EN136 Class 3 for Fire Fighting. It also includes the self-tensioning head harness whilst delivering a much higher protection factor performance, particularly for use by operational personnel with facial hair.

Excelerate is also providing a short duration, compact unit for CBRN tactical forces and counter-terrorist operations that instantly activates on removal from the carry bag and automatically inflates the head harness to protect personnel for up to 20 minutes.

FAST-mask® represents a major advance over conventional positive breathing sets. It features a spring loaded spool valve instead of cylinder valve hand wheels which releases the high pressure air from the cylinder when activated by the removal of a moulded spring clip from the spool, attached to the facemask by a strong webbing lanyard. This spool valve also incorporates o-ring seals in balance under pressure to ensure that there is no long-term creep or leakage from the cylinder for maximum operational performance. An optional 'QuickFill' high pressure charging coupling facilitates rapid refilling of the breathing air cylinder to extend the duration of the escape set for special applications if required.

www.excelerate.info

INFLATABLE RESCUE KIT

UK- based SIT (Specialised Inflatable Technology) produces a range of rescue inflatables designed specifically for the Emergency and Rescue Services. These include *ResQcrafts*, *ResQsleds*, *ResQpaths*, *ResQrafts*, *boats* and *air jacks* that have all been developed to meet the requirements of rescuers in the current climate of high flood risks and the need to get to casualties in the fastest possible time.

The Strathclyde Fire& RescueService currently has SIT's smaller ResQsleds and several other services are looking closely at the full range. Merseyside Fire and Rescue Service's trials stage was rapidly turned into front line rescuing when major floods hit the region.

SIT's range of products includes RIB sponsons (pneumatic and hybrid foam), retubing and repair services, self-righting bags and systems, and emergency rescue inflatables (sleds and paths for mud, water and ice rescue as well as stretchers, inflatable boats and mass evacuation rafts). The main end-users are fire and rescue services, mountain rescue, MCA and other rescue teams and organisations. Each product in the range can be adapted to meet individual requirements and SIT will develop new products to meet clients' specifications.

• SIT's ' proven' ***ResQcraft*** was developed for urban flood rescue. With its shallow draught and low weight, it's designed for rapid deployment and has the ability to gain easy access to casualties. It can be guided by hand or on ropes; or it can be fitted with an outboard engine. The *ResQraft*– which can carry up to 12 casualties - was developed with simple stowage, low weight and fast deployment as high priorities. It can handle mass evacuations, white water rescues and act as a mustering point. When fitted with a 40 HP outboard the 5m *ResQcraft* performs well in flood and swift water rescues and can achieve over 20 knots (with eight people aboard). What's more, its fully inflatable structure (which eliminates the need for floor boards) enables it to be operational within five minutes of deployment from the valise. This makes it ideal for rescue teams specialising in inland, river, lake and swift water rescue incidents

• Another of SIT's other specialist products - the ***ResQsled Extra*** - combines the characteristics of a rescue sled with those of a paddle-able kayak. It fills a gap in the 'first responder' rescue market, and appeals to rescue services that are expected operate on water, mud and ice. After many trials and exercises the ResQsled has won commendation from some of the most demanding rescue services in the UK and overseas (MCA, MFRS, and others). The *ResQsled Extra* is offered with a rapid CO2 inflation system and is transported in an integral backpack valise. So it can be deployed within seconds of arriving on the scene of an emergency. The specification of the *ResQsled Extra* makes it fast to deploy, and it is claimed to be the lightest and easiest to use sled currently available. The sled's versatility means that it is being assessed by end users who have vastly different requirements and methods of deployment; ranging from vehicles, hovercraft, jet skis, RIBs and back packs for mountain rescues.

• The ***ResQpath*** is another versatile SIT product. Inflated by a10 litre bottle in less than two minutes, it makes an effective path for rescuing casualties on mud flats. Used in pairs, the *ResQpaths* enable rescuers to reach a stranded casualty by using them in a 'stepping stones' style to cover unlimited distances over mud, sand and water. Other rescue equipment can be towed along the mud on a *ResQsled* as the *ResQpaths* are being deployed. These lightweight paths are designed and built to prevent undesirable movement on the mud as they are walked on. And they can be lifted easily; with none of the suction often experienced with other paths. • SIT's other recent development is the ***ResQjack*** range. These inflatable air jacks are very versatile and can handle all automotive and commercial vehicles as well as fallen trees.

SIT's sister company, Marine Specialised Technology Ltd (MST) was established in 2002 and has grown into a major supplier of RIB's to military, commercial and rescue services clients.

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Better *Decisions* save more lives

Technical rescue unit Howth Coast Guard is one of 55 voluntary Irish Coast Guard rescue teams. Howth specialises in coastal technical rescue with 24 rescue volunteers on-call, fully qualified in sea cliff rescue, high-angle rescue, water rescue, missing person search,and first aid response.Looking at how to make teams 'smarter' with their training, and improve preventative measures, the Irish Coast Guard have supplied their teams with an official trial of a webapplication for rescue team management. Just launched by an Irish company, the tool called *Decisions For Heroes* helps organisations like Lifeboats, Coast Guard, and other team-based emergency services record and analyse their rescue operations. Identifying that better decisions save lives, the software was created to monitor rescuers response readiness, availability, qualifications, and experience. Armed with a laptop and internet connection, 999/911 responders can record the details of rescue operations and their training exercises. The software automatically performs analytical charting, draws heatmaps, and benchmarks reports to outline areas of strength, weakness, and domain expertise.Officer in Charge of Howth, Colin Murray, has limited time for paperwork but still needs to know his team's status at all times. Colin has configured *Decisions For Heroes* to send him an automated weekly briefing email every Monday, containing a report of every team members' activity and scheduled training plans.This week, the report outlines the 3 incidents the team attended at the weekend and alerts him that 4 members are off-call for 48 hours

from Tuesday. *Decisions* has calculated they will be short a cliff rescue climber for training on Wednesday and prompts Colin to confirm extra cover, targeting his message to only qualified cliff rescue climbers on-call this week using the integrated email. Communications and team management are drastically improved by providing a central information store that members can access from home, work, or their mobile handsets in the field. As a team enter their records, the software builds a profile of each rescuer,tracking their qualifications, experience, training hours, and skill-sets automatically. Before the Wednesday training exercise, Colin signs in to *Decisions* and runs his regular report on team attendance hours, getting a break-down of members skills requiring attention. Now he can determine what they trained in, who trained in it, and when theylast practised a technique. Easy-to-generate statistics can be used to observe patterns and reduce accidents in a community. With integrated mapping, teams can generate heat maps of their callouts and compare them to their training locations. Howth uses the mapping to observe hotspots where incidents are repeatedly recurring year after year. With this data the team have now approached the local council with real measurements to show wherewarning signs should be located and public safety awareness focussed. *Decisions For Heroes* has already been used by over 2,000 rescuers in 5 countries.

If you're part of a team and would like to try the software out get started by calling UK (020) 323 999 04, US (408) 844 4965 or IRL (01) 442 9217 and ask to speak to the Team Contact for your area.

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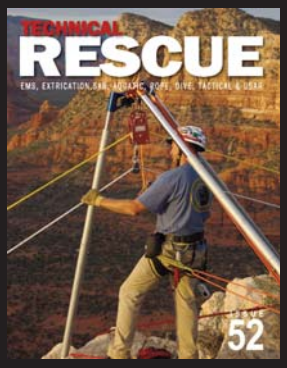

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2365 LED FLEX-NECK

2365 LED Flex Neck Flashlight

DIRECT LIGHT WHERE YOU NEED IT
The new 2365 LED flex neck light from Pelican lets you shine light where it's needed. Whether you are working in the engine bay of your car or under the fuselage of a jet, the 2365 ensures you can work hands free in bright LED light.
A magnetic base attaches metal surfaces and the 15" flexible neck directs 56 lumens of bright LED light. A push button tail switch activates the efficient 2365 for 7 hours of burntime on two standard AA batteries.

2365 LED Flex Neck Flashlight Specifications

Light Source	Tested Lumen Value	Tested Lux Value (@ 1 meter)
LED	56.0	1848
Batteries	**Battery Burn Time**	**Battery Pack/Charging Time**
2 AA Alkaline (Not Included)	7 hrs.	
Watts	**Voltage**	
1	3	
Length	**Weight w/Batteries**	**Weight w/o Batteries**
21.92" (55.7 cm)	9.3 oz. (0.26 kg)	7.6 oz. (0.22 kg)

0500 TRANSPORT CASE

Yet another incredibly useful design from Pelican. This time we're not just talking box the 0500 Transport case can be inverted and the lid entirely removed so that it can be loaded pallet-style and then be covered, clipped and carried by what was the bottom of the case.
There are wheel options andspacers which act as stacking legs.
At about a metre/3.3' in length the0500 Transport Case can accommodate a huge amount of technical and very heavy equipment.
As always we look forward to a full review.

0500 Transport Case

- Can be inverted and used as a pallet with an airtight cover
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- Optional Pallet Riser Kit
- Optional Caster Wheel Kit complete with brakes
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- Open cell core with solid wall design - strong, light weight
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- Stainless steel hardware and padlock protectors
- Lid is completely removable
- Store documents outside the case with our Document Container
- Watertight, crushproof, and dust proof

0500 Transport Case Configurations

Cat. #	Description
0500	0500 Transport Case
0500NF	0500 Transport Case (No foam)


Black

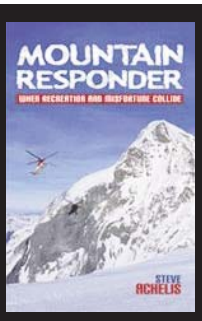
0500 Transport Case Specifications

Exterior Dimensions (L x W x D)	Interior Dimensions (L x W x D)	
39.95" x 23.45" x 28.65" (101.4 x 59.5 x 72.7 cm)	34.95" x 18.45" x 25.25" (88.7 x 46.8 x 64.1 cm)	
Lid Depth	**Bottom Depth**	**Total Depth**
2.25" (5.7 cm)	23.00" (58.4 cm)	25.25" (64.1 cm)
Weight with foam	**Weight without foam**	**Buoyancy Max.**
58.6 lbs. (26.58 kg)	50 lbs. (22.68 kg)	780 lbs. (353.8 kg)
Range Temperature	**No. of Wheels**	
-40 / 210° F (-40 / 99° C)	4 (Optional)	

Personalized Nameplate Available

MOUNTAIN RESPONDER

by Steve Achelis



Steve Achelis, the creator of the RescueRigger computer software spent eight years rescuing people in the mountains as a member of a Utah SAR team. From a head-injured (and combative) patient who was still dangling on his climbing rope, to avalanche victims (he recovered nine of them), to victims trapped in tumbling swiftwater, to a group of four winter mountaineers who tumbled almost 400 feet, he's witnessed his share of calamity.

Many of these rescues involved technical rope work, such as the climber who landed on a shelf in a waterfall, still precariously perched 70 feet off the ground, or the above-mentioned mountaineers, where his team were inserted on a snow-encrusted ridgeline by a helicopter, climbed rock-and-ice for several hours, and then rappelled 600 feet to reach the multiple victims.

As commander of a busy mountain rescue team, Steve Achelis participated in hundreds of rescues that frequently made the evening news.

In *Mountain Responder*, Steve takes the reader along on these life-and-death rescues as he and his teammates dig people out of avalanches, hang on a thin cable below a helicopter, and rescue climbers stuck on rock walls.

Threaded throughout these unforgettable rescues, Steve shares the exhilaration of saving a life, the fears and uncertainties during the struggle to keep a patient alive, as well as the doubts and second-guessing when someone doesn't make it.

In this picture a solo, unroped rock climber slipped and landed on this precarious shelf 70 feet up a waterfall. Steve and his teammates prepare to lower the now-paralyzed climber to waiting rescuers.

Mountain Responder, shares the most memorable of Steve's experiences, including the sometimes bizarre events that lead people to call 911 for a mountain rescue.

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THE IMPACT OF ENVIRONMENTAL EXPOSURE ON NYLON WEBBING

by Raleigh Burt - Monte Vista, CO, USA

How does natural sunlight, temperature cycling, and moisture over a long period of time alter high-strength textile strength, and at what point does the webbing become dangerous to use?

INTRODUCTION

Synthetic polymers spun into long fibers and woven into uniform strips of high-strength textiles (commonly called webbing), are major components in personal fall protection systems, personal restraints, and load securement systems. In essence their sole purpose is to keep people alive and safe.

Many industrial professions and recreational activities utilize these products to minimize the risk of serious injury or death. Construction, tree trimming, tower maintenance, rescue situations, rock climbing, skydiving, and even various carnival rides are examples where if these materials failed, impacting the ground would likely result in serious injury or death. At the same time, commercial transportation companies depend on high-strength textiles to secure their freight and cargo keeping highways safe. The polymers used to construct these textiles are amazingly strong and durable when new. During the course of normal use, they are exposed to the degenerative effects of sunlight and weather. Eventually the textile's strength is compromised to the point that it becomes unsafe for normal use and must be retired. .

From time to time rock climbers encounter a piece of webbing abandoned on a climb which has obviously been exposed to the sun and weather for weeks, months, or even years. Amazingly, some climbers will use it as an anchor to rappel off the route. However, at some point the webbing properties become so altered due to environmental exposure that a normal day could end in tragedy.

Many manufacturers of high-strength textiles have investigated the performance of exposed webbing by subjecting new pieces to ultraviolet (UV) light from lamps in a laboratory setting for weeks at a time and subsequently testing the tensile strength of the material. Manufacturers know that UV light quickly reduces webbing strength, but admit there is no direct correlation between time under a UV lamp and exposure time in a real world setting. They also admit that their testing methods fail to incorporate temperature cycling, rain, or humidity.

In contrast to accelerated laboratory simulations, this long-term experiment was a real world investigation that will integrate all forms of exposure in a controlled, but natural setting. Two colors of nylon and one form of polyethylene webbing were examined to determine the effects environmental factors have on webbing strength.

ENGINEERING GOALS

The goal of this project was to create and conduct a more detailed and realistic experiment to plot the strength degradation profile of different types and colors of climbing webbing when exposed to natural sunlight and weather. Then, attempt to establish a correlation between light and weather exposure, material color, texture, handling characteristics, and the webbing's tensile strength.

METHODS

The execution of this experiment required six primary steps:

Prepare sample materials
Construct material exposure rack
Construct sunlight recording system (SRS)
Initiate exposure procedure
Strength test exposed samples
Conduct physical and visual assessment of samples

The details of each step are as follows:

Prepare Sample Materials

Photo shows webbing exposure racks. White - Dyneema Runners, Black & Red - 1" tubular nylon slings

Preparing the webbing samples consisted of three steps: cut, tie, and preload each piece of nylon webbing. Preloading decreases the chance of the knot slipping during strength testing.

Using an electric knife each piece of webbing was cut to length and the ends tied with a water knot to form a loop or sling. Then each piece was pre-loaded to a consistent weight using a forklift and pallet with approximately 500 pounds of building material on it; samples were looped around a cylindrical forklift boom and attached to the pallet load using steel

Photo shows jaws of Material Testing System (MTS) 810 clamping chain link with webbing being attached to Maiilons to be pulled until failure

chains and a climbing carabineer. The boom was then raised until the pallet left the floor. These steps were completed as uniformly as possible on every sample.

This procedure produced 150 samples of equal sized preloaded slings of nylon webbing ready for exposure. The polyethylene samples arrived joined by the manufacturer using a special computer controlled stitching technique, preloading was not necessary.

MATERIAL EXPOSURE RACK

A structure allowing every webbing sample equal exposure to sunlight and weather for the extended duration of this experiment needed to be constructed. Using metal "T" fence posts, bailing wire, and plastic fence insulators, the racks were built; one for the two colors of nylon and one for the polyethylene samples. The structures were assembled in a field with no trees or other objects that could block the sun from horizon to horizon. They were angled based on latitude, similar to a solar panel to maximize the webbing's exposure to the sun. The system needed to securely hold the samples in a way that avoided wear at the attachment points and prevented tangling, also the system had to allow for easy removal of the webbing samples at the two-week sample intervals. Lastly, the webbing had to be suspended off the ground to prevent animals, vegetation, or snow fall from influencing the exposure.

SUNLIGHT RECORDING SYSTEM (SRS)

In the early stages of this project it was decided that the amount of sunlight exposure samples received would need to be monitored. A device was developed to measure and record the amount of accumulative ambient sunlight the webbing samples were subjected to during the experiment.

MAIN EXPOSURE PROCEDURE

Once all the samples were prepared, the exposure rack constructed, and the Sunlight Recording System (SRS) calibrated, 216 pieces (72 of each type) of webbing were attached to the exposure racks using small pieces of bailing wire.

Every two weeks, three samples from each webbing type were removed from the exposure rack and stored for future strength testing in a controlled dark environment. The target duration for this experiment was 48 weeks.

STRENGTH TEST EXPOSED SAMPLES

Each of the stored samples was pulled until failure using an MTS 810 Universal Testing Machine (UTM) in the Colorado State University College of Engineering Lab.

The samples were looped through two steel quick-links, clamped in the jaws of the UTM; these provide a relatively realistic attachment point for the webbing samples. The UTM was set to pull at 8 in/min, recording 100 data points per second while elongating samples to failure.

PHYSICAL AND VISUAL ASSESSMENT OF SAMPLES

After failure, a quick visual analysis of each sample was completed. Using a grading rubric, every piece of webbing is subjected to a physical and visual assessment to rank the appearance, texture, handling characteristics, and breakage location of the sample. All comparisons were made against an unexposed control sample of webbing.

Preloading individual nylon slings to 500 lbs in order to decrease knot slippage during strength testing

RESULTS

Samples were subjected to 6.98 inches of natural precipitation total during the testing period. Temperature extremes observed throughout the entire testing period were as high as 33°C in July and as low as –36°C in December. This experiment was conducted at an altitude of 7,650 feet above sea-level. At this elevation

the samples were subject to higher UV levels due to thinner atmosphere and lower humidity.

Tensile Strength Testing

Prior to failure, it was observed that nylon webbing made a pinging sound under high tension and then failed in a sudden release of energy. The sound was assumed to be individual strands of nylon failing. Common beliefs are nylon slings tied with a water knot will fail at the knot. 100% of the black and 95% of the red nylon samples failed at the attachment points.

The polyethylene samples behaved differently and were more unpredictable. Some samples produced the same pinging noise as the nylon did prior to failure. Other samples became obviously very taut, but then fell apart into a "shredded mess".

Compared to nylon, there was less consistency in the failure location: 81% at the quick-link, 13% in the middle, and 5% failed at the stitching.

Immediately after the nylon samples failed, it was noticed that the entire sling was warm, not just at the contact point with the quick-link. Just as a rubber band heats when stretched, thermodynamics explains this observation. On the other hand, the polyethylene samples did not exhibit any obvious heating characteristics.

Strength Data Analysis

An analysis of the data showed an average 15.8% drop in tensile strength following the first ten weeks of exposure. After 30 weeks there was only an additional 1.1% loss and after 38 weeks another 2.3%. In the end, the three sample sets lost an average of 1025 pounds (19.2%) of their initial tensile capacity.

A slight increase (hump) in strength was measured near 20 weeks of exposure with the black sample showing this anomaly the best.

When comparing the data from the SRS with the strength loss profile of the webbing there seemed to be no discernable association between accumulative light exposure and a noticeable change in the tensile strength of the samples. The accumulative light profile was a very smooth, steady increase, whereas the strength profile was very erratic and unpredictable. At the same time, the weather data compiled from the National Weather Service's archives does not show any obvious correlation to the webbings decreased strength. There was no apparent pattern in temperature or precipitation to explain the strength loss profile or "hump".

Based on early observations, it was determined that the experimental protocol for exposure should be slightly modified to increase the sample number. It was decided that every piece of webbing left on the exposure rack (18 samples of each) at the end of 38 weeks would be removed and tested to form one large final sample set. The percentage difference between the minimum and maximum breaking force values for a given set were as low as .57% (30 pounds force difference) and as high as 18.6% (1000 pounds force difference). Testing more samples would improve the accuracy of the data.

Webbing degradation over time

SUNLIGHT RECORDING SYSTEM (SRS)

Because of powering issues at the remote test location, impacting consistent data collection and what appeared to be corrosion on the unfiltered light sensor, the data was incomplete and collection ended after 30 weeks.

Physical and Visual Assessment

The qualitative changes observed in the appearance of the samples show subtle and obvious changes over time. The black nylon samples did show some fading, but it was difficult to tell unless an unexposed sample was examined side-by-side. The red nylon samples change in color was pretty obvious, going from a deep red to a light pink. The white Polyethylene samples looked almost unchanged.

The black and red nylon slings exhibited a distinct change in handling characteristics over time. The samples became stiffer to handle and sounded crunchy when flexed. The Polyethylene samples showed an almost undetectable change in handling and did not exhibit any noticeable sounds when flexed.

CONCLUSION

The data strongly supports sunlight and weathering to be major contributors to the decreased performance of high-strength safety textiles. After 38 weeks of exposure, the three sample materials lost an average of 19.2% of their maximum initial strength which translates into 1025 pounds (4.56 KN) of decreased tensile capacity. The data also suggests the possibility of other chemical reactions caused by exposure to light, heat, and moisture contributing to the strength degradation of the webbing.

In contrast to common belief the knot in the tied webbing samples was not the point of failure for more than 95% of the samples, instead the samples failed at the attachment point with the quick-link. One suggestion is that the knot slips under high tension causing the nylon to slide across the quick-link while the two sides of the sling are attempting to balance the load. The resulting friction melts the material at the contact point with the quick-link. This idea is supported by test samples having one "tail" at the knot shorter than the other, after testing, and the melted appearance of the broken ends.

Trying to understand the "hump" and the flattening of the results stimulated consideration of many different possible explanations:

Change in machine calibration during testing

Polishing of the quick-links by successive testing allowing webbing to pass more easily over the radius surface

Fibers left over on the quick-link from previous tests acting as a lubricant

The oxidized coating on the outer surface of the webbing protecting the inner portion from further UV degradation

Molecular cross-linking occurring within the webbing polymer

The most intriguing of all explanations for this observation was the possibility of molecular cross-linking. When polymers oxidize from UV exposure, molecular bonds are broken and free radicals are formed. If the free radicals are in close enough proximity with other polymer strands, new bonds can be created with adjacent strands, known as cross-linking. If this process was truly occurring, it might manifest itself as seeming like the webbing was getting stronger the longer it was exposed.

Also supporting this hypothesis was the elonga-

tion data, showing the nylon samples loosing their elasticity as the exposure time increased. Background research indicates that cross-linking could change the properties of the material in a manner that would make the webbing feel stiffer which was observed.
Counter to this line of thought, polyethylene samples actually showed an increase in elasticity in the middle of the test period and then decreased almost too initial levels at the end. Additional testing would have to be conducted to support the cross-linking theory.
In conclusion, unfamiliar pieces of webbing should not be used for sport climbing or rescue protection if at all possible. After six month of exposure nylon webbing will fade, become stiff, and sound gritty when flexed; at this point the webbing has lost approximately 1/5 of its maximum load capacity and should be retired and replaced.

Hopefully this research will provide valuable information to individuals who rely on these materials' performance in a variety of situations, and to help manufacturers better understand what changes their products are experiencing in the real world.

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Budapest Fire Service Ice Rescue Training. Ironic that the victim is better prepared than the rescuer, who with this degree of firefighting PPE is likely to struggle if he ends up in the water. Unfortunately use of fire PPE in a water or ice rescue situation is still prevalant across the world even in more 'enlightened' countries like the USA, Canada and UK. However, it is always likely to be the case that an impromptu rescue like this dealt with by the first arriving fire crew will be tackled with the gear they have available. Most would feel that full fire kit is warmer and more dignified than being stripped to your undies even if those heavy boots, jacket and helmet would drag you down if this ladder breaks through.

BACK ISSUES

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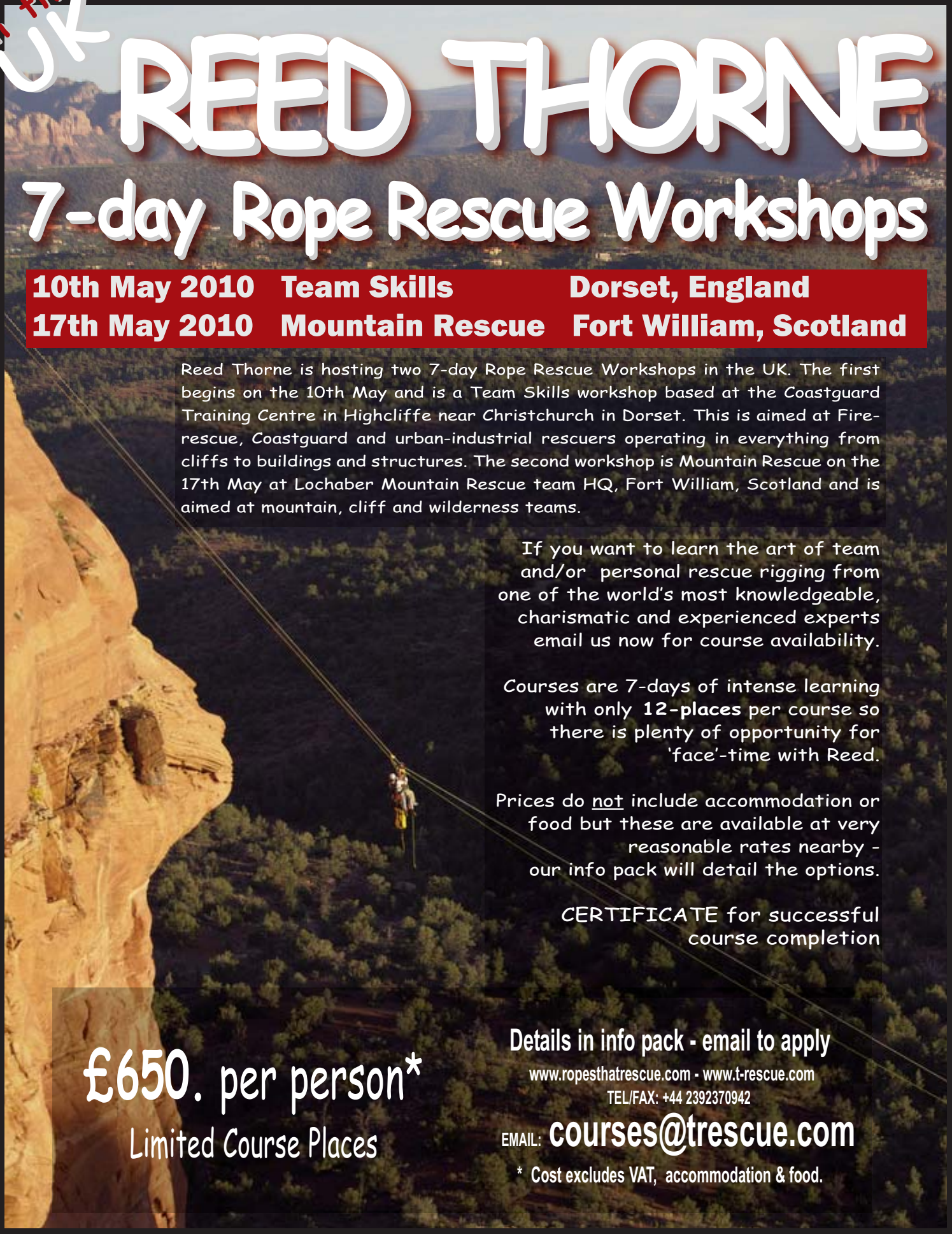
27 CONTENTS

BACK ISSUES

FOCUS ON ISSUE 27

Issue 27 from 2000 was back in the days when we were owned by the Daily Mail Group and had a black bar down the left border (made it more eyecatching on the newsagent stand apparently, which is odd because it's never been sold in newsagents!). The front cover is the only one in 57 issues to feature me (Ade Scott) and probably just as well. This was me hauling my carcass through a grain conveyor in airline fed breathing apparatus. These were messy systems as I rememember with a lot of rat presence so we gloved up and sealed our cuffs in case of urine-borne weils disease. The monitor was for explosive risk associated with grain dust and we maintained constant communications with hard wire radios - the crystal-clear **Con-space Communications** system which was the subject of this issue's main Gear Review. We were always big fans of this system because we were one of very few teams in the UK capable of extreme-duration rescue operations in non-air environments. While our firefighting colleagues would rotate BA crews every 30 minutes or so we could remain on-scene at the end of, in one incident a 220m airline(!) for hours and really appreciated the uninterupted communication with top-side. We also reviewed Dynamed's **HD stretcher,** a wrap-around that I don't think we've seen since! The **Sala Parapet Frame** completed this issue's reviews and was a look at a dedicated piece of rope access hardware that enabled crews to step over and off of a bridge or building parapet - it was heavy and ultimately didn't catch on in rescue but was certainly an item that worked very well. We also had a Spotlight on **Chemical Lightsticks** and a Back to Back comparison of 5 **inflatable shelters** with the kind assistance of MFC Survival, Trelleborg, german company DSB and dutch company ACD. We tried to make sense of the hype surrounding **Suspension Trauma** with two articles from Al Sheehan in Oz and Doc Rob Dawes of the UK's only (at that time) Technical Rescue Unit. The long and the short was that rescuers actions were unlikely to change except to compare the relatively short on-secne time of a rope rescue with a protracted trench resue. As it turned out we never once came across a case and haven't heard of many, if any, so it was probably all a storm in a tea cup! Our Medical Editor Doc Stewart Boyd provided detailed comment on an **incident in South Africa** in which a vehicle crashed off a bridge and onto a river sandbar and we also had Paramedic Paul Swinton retelling another medical horror story from South Africa. For Rope Rescue we highlighted some common areas of **Carabiner Abuse**. In an article that could just as easily have accompanied LFB's latest offering in issue 57, Chris Hole of Somerset Fire & Rescue wrote about **strut stabilisation**. Finally the then Deputy Fire Mashall of Central Scotland Fire Brigade advised on how to manage a collapse incident. Lot of USAR stuff pre-911!


in the UK
REED THORNE
7-day Rope Rescue Workshops
10th May 2010 Team Skills Dorset, England
17th May 2010 Mountain Rescue Fort William, Scotland
Reed Thorne is hosting two 7-day Rope Rescue Workshops in the UK. The first begins on the 10th May and is a Team Skills workshop based at the Coastguard Training Centre in Highcliffe near Christchurch in Dorset. This is aimed at Fire-rescue, Coastguard and urban-industrial rescuers operating in everything from cliffs to buildings and structures. The second workshop is Mountain Rescue on the 17th May at Lochaber Mountain Rescue team HQ, Fort William, Scotland and is aimed at mountain, cliff and wilderness teams.
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10th May 2010

Team Skills

Dorset, England

REED THORNE in the UK

17th May 2010

Mountain Rescue

Fort William, Scotland

The Team Skills Rescue Workshop is ideal for Fire Services, industrial and wilderness rescue teams and is designed to review some practices from the Personal Skills Rescve Workshop, yet carry on into more demanding rescue practices and team-building skills. This, and the PSRW, are the seminars which fulfill the "90% solution" on most rope rescues within industry and wilderness locations. Lectures on intermediate physics and how it relates to rope rigging are common throughout the duration of this seminar. Emphasis is places on "why" we do something, rather than "how". Students, as a team unit, learn how to build seemingly complex arrangements for reaching, treating and extricating a patient from the vertical high angle environment whether in industrial locations or in the wilderness.All the while, emphasis is placed on building everything from the basic materials most teams will have along: rope, carabiners, pulleys, accessory cord, webbing and know how. Specialized equipment, while certainly handy and interesting, is discouraged in this rigging-intensive course. Some rescuers also feel that an intermediate-level program should include highlines. The TSRW includes an extensive lecture and practical section on alternatives to highlines in the form of "offsets". Ropes That Rescue has become known for it's projection of these offsets as an alternative to training intensive highlines in the past 10 years. Offsets employ standard high angle techniques that most rescuers already know and so are more forgiving in the training curve than more elaborate systems.

KEY POINTS

- Safety factors / Safety margins
- Strong emphasis on team-oriented skills
- Knotcraft
- Intermediate pulley systems (simple through complex)
- Physics of rope rescue
- Two tensioned rope systems analysis
- Artificial high directions:
- Gin pole monopods
A frames
- Sideways A frames
Easel A frames
- Directionals and anchor angle force calculations
- Batwing compound pulley systems-AZ Progression
- Complete AZTEK kit orientation for team operations:
- Single and double part hasty rappels
- Belays and self belays
- Dynamic fixed brakes
- Dynamic directionals
- Personal travel restrict and fall protection
- Mid face attendant-based and team-based litter scoops
- Team-based pick offs
- Belays, self belays, conditional belays and conditional self belays
- Sound anchoring principles: intermediate through advanced system anchors
- Focused and focused-floating anchors using opposition anchors
- Patient tie in techniques
- Hot and cold changeovers
- Non-highline solutions to rescue scenarios
- Offsets for the high angle evacuation:
- Tag and guiding line offsets
- Deflected offsets
- Tracking line offsets
- Skate block offsets
- Two rope offsets
- Much more....

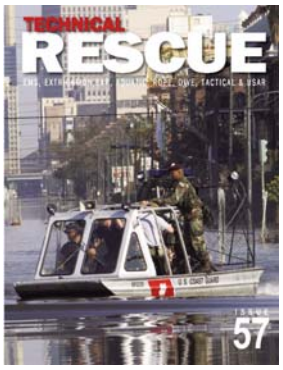
The Mountain Rescue Workshop is a minimalist approach to mountain rescue procedures and teaches the access, stabilization and extrication of patients involved in mid-face free or aid climbing accidents, especially those where the accident site is only accessed from below. The student will learn how to design and build system anchors from bolts, pitons and active and passive rock climbing camming devices. Strong emphasis is also placed on wilderness improvised techniques where specialized or heavier equipment has no place. Rope stretchers (for flat through vertical evacuations) and improvised patient carries are also covered extensively. This, and the Team Skills Rescue Workshop are the courses which fulfill the 90% solution on most rope rescues wilderness locations. This workshops is designed for the serious mountain environment rope rescue practitioner wishing to improve their personal and team rigging skill. The MRW goes well into often overlooked personal top down skills involving solo (one rescuer)and semi-solo (two rescuer) victim evacuations employing the rescuer's personal AZTEK kit. Also, the workshop explores the use of improvised low edge techniques for very difficult litter evolutions as well as artificial high directionals in the remote wilderness location. Gin poles, A frames and sideways (SA) frames are common. The crux of the MRW is where students free climb (or ascend) using the bight-carry technique to position a high directional above the victim on a wall. In this way, a heavy and cumbersome rescue adjunct (litter, etc.) can be brought to the victim high on a wall, under them, and then lowered downward (techniques used in tower rescues). Students also learn the classic differences belays, conditional belays and conditional self belays. Lots of climbing and lots of fun!

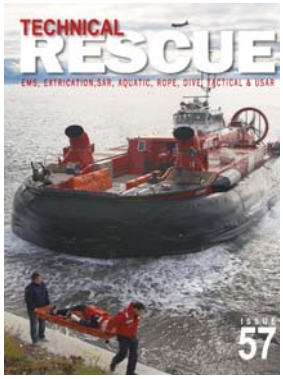
KEY POINTS

- Mountain rescue basics
- Bottom up versus top down rescue techniques
- Introduction to pulley systems
- Physics for mountain rescue
- Use of the AZTEK kit in mountain environs
- Solo rescuer pick off
- Semi-solo rescuer pick offs ("gecko" and hanging) using tools from harness
- Mid face litter scoops
- Lead climbing (optional) using bight carry technique for extreme bottom up rescues
- Belays, self belays, conditional belays and conditional self belays
- Improvisation and a 'minimalist' approach to mountain rescue
- Patient assessment & packaging in mountain environment
- Rappelling techniques with improvisation in mind
- Sound anchoring principles with sketchy rock climbing protection
- Slack backups vs tensioned backties
- Drilled pitons in various rock types
- Active and passive rock climbing protection placement
- Split coil carries; low angle carries
- Wood frame artificial high directionals
- Cocoon stretchers from climbing rope only
- Caterpillar passes and role rotation during litter carries
- Much more....

FRONT COVERS

That didn't quite make it





The cover of issue 57 was always earmarked as a Coastguard (water) rescue cover even though the issue was a combination Rope Rescue/Coastguard Special edition. We get really good support from the US Coastguard who's photography is second to none in terms of world services as they encourage their personnel to take high quality shots and this well known shot from New Orleans seemd to cover the coastguard and airboats angles for us. But this was a short-lived experiment, not because the photo is so well known and perhaps a little dated but primarily because it features all kinds of personnel with no water PPE. We're not quite as anal at TRm as the powers that be about adhering to all the safety legislation that's around these days but flauniting it on the front cover is just asking for a sackfull of hate mail! So for a few months (because there was a helluva gap between issue 56 and issue 57) we had Dave Ahurst's momentous shot of Canadian Coastguard MLB Cape Ann (out of Tofino) punching through surf in Cox Bay, Vancouver Island BC. However, we had concerns about the resolution of this picture which was blown up and cropped from a wider shot, in fact a sequence that we have reproduced in the MLB article in 57 by Ivan Hansen, so in the end we reluctantly moved on. Next up was one of Ivan's shots of the Canadian Coastguard hovercraft Siyay that operates in and around the Fraser River. It is a good pic which ticked all the boxes but something about it didn't quite do it for me. But Brandon Blackwell's sequence of shots from the 2009 floods in Fargo, North Dakota did. This shot of USCG Rescue Swimmer Chris Wheeler gave us our Airboat, aquatic rescuer, helicopter Ops and rope rescue (well he's harnessed up isn't he?) all in the one shot and the colour saturation against the much plainer snowy backdrop made this really stand out. Hopefully the finished cover will be as punchy in print as it was on our layout screens.