

C.D.A.A. Newsletter  
No. 136 - JUNE 2016

S  
E  
N  
T  
I  
N  
G

CAVE DIVERS ASSOCIATION OF AUSTRALIA

(Incorporated in South Australia)

Print Post No. PP 381691/00020



# Tec Training

## In Mt Gambier

TDI Advanced Nitrox  
 TDI Decompression Procedures  
 TDI Extended Range & Trimix  
 TDI Sidemount & Cave Sidemount  
 TDI CCR Cave – All three levels  
 TDI CCR Courses – Various Units  
 TDI CCR Helitrox & 60m Mixed Gas  
 TDI Cavern, Intro to Cave & Full Cave  
 TDI Tech Instructor Programs

If you hold a current CDAA Deep Cavern Certification and are looking to complete one of the above courses, you can now do these courses in Mt Gambier.

### Benefits include:

- No boat dives
- No Swell or Current
- No bad weather to stop completion of courses
- Most courses can be completed over a long weekend
- Theory and confined water sessions can all be done in the Mount
- Minimum of two students to run courses
- Flexible dates to suit you and your buddy or group
- Discount for groups of 4

For more information please contact Rubens Monaco on

**0413-429-533 or 03 5981-1551**

Email: [info@idcscuba.com.au](mailto:info@idcscuba.com.au) Course Information: [www.idcscuba.com.au](http://www.idcscuba.com.au)

# TECDIVEGEAR

Australia's most competitive technical diving equipment online shop

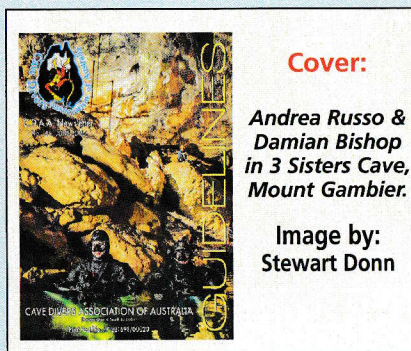
**[www.tecdivegear.com.au](http://www.tecdivegear.com.au)**

## CONTENTS

Editorial - Rowan Stevens	5
National Committee Update	6-7
Instructor List	37
Site Access	38-39

### Articles...

Cave Preservation - Graeme Bartle Smith and Peter Mosse	8-10
Impact by Degrees - Peter Mosse	10-11 (and 36)
Zimbabwe's Chinhoyi Caves - Annie Rademeyer	18-25
Scubapro Gear	26-27
Cave Divers Went Back - William Kremer	28-35



### Cover:

Andrea Russo &  
 Damian Bishop  
 in 3 Sisters Cave,  
 Mount Gambier.

Image by:  
 Stewart Donn

## CAVE DIVERS ASSOCIATION OF AUSTRALIA

ABN 65 062 259 956

P.O. BOX 544, Mt Gambier, SA 5291

GUIDELINES is a newsletter of the Cave Divers Association of Australia. All articles for the following issue are to be sent to the Publications Director, Email: [publications@cavedivers.com.au](mailto:publications@cavedivers.com.au)

All articles and submissions shall automatically constitute an expressed warranty by the contributor that the material is original. We assume no responsibility for unsolicited material. Articles may be reprinted in part or in full in other magazines as determined by the CDAA and authors provide full permission. Private advertising for caving and diving equipment may be advertised free at the discretion of the Editor. Opinions expressed in GUIDELINES are those of the individual authors and are not necessarily those of the C.D.A.A.

## CONTACT LIST

Please contact the most relevant person or, if unsure write to:  
 C.D.A.A. P.O. Box 544 Mt Gambier SA 5291 [www.cavedivers.com.au](http://www.cavedivers.com.au)

**NATIONAL DIRECTOR** - John Vanderleest  
 Email: [national@cavedivers.com.au](mailto:national@cavedivers.com.au) Mobile: 0419 775 771

**STANDARDS DIRECTOR** - Linda Claridge Mobile: 0408 052 070  
 Email: [standards@cavedivers.com.au](mailto:standards@cavedivers.com.au)

**Quality Control Officer** - Linda Claridge Mobile: 0408 052 070  
 Email: [quality@cavedivers.com.au](mailto:quality@cavedivers.com.au)

**Risk Officer** - Andy Rands Mobile: 0403 825 590  
 Email: [risk@cavedivers.com.au](mailto:risk@cavedivers.com.au)

**Search & Rescue Officer** - Richard Harris  
 Email: [sar@cavedivers.com.au](mailto:sar@cavedivers.com.au) Mobile: 0417 177 830

**Instructor Materials** - Deb Williams  
 Ph: 0419 882 800 Fax: 03 5986 3179 Email: [materials@cavedivers.com.au](mailto:materials@cavedivers.com.au)

**BUSINESS DIRECTOR** - Peter Horak  
 Email: [business@cavedivers.com.au](mailto:business@cavedivers.com.au) Mobile: 0403 349 122

**Treasurer** - Treasurer - position vacant, refer to Business Director

**CDAA Products** - Mike Valle - Email: [mvalle@hpe.com](mailto:mvalle@hpe.com)  
 Email: [products@cavedivers.com.au](mailto:products@cavedivers.com.au)

**SITE DIRECTOR** - John Dalla-Zuanna Mobile: 0407 877 060  
 Email: [site@cavedivers.com.au](mailto:site@cavedivers.com.au)

**Kilsby's Booking Officer** - Craig Larkin  
 Email: [kilsby@cavedivers.com.au](mailto:kilsby@cavedivers.com.au) Mobile: 0418 821 191

**Tank Cave Booking Officer** - Noel Dillon  
 Email: [tankcave@cavedivers.com.au](mailto:tankcave@cavedivers.com.au) Mobile: 0407 530 103

**Shaft Booking Officer** - Peter Horak  
 Email: [shaft@cavedivers.com.au](mailto:shaft@cavedivers.com.au) Mobile: 0403 349 122

**PUBLICATIONS & RECORDS DIRECTOR** - Rowan Stevens  
 Email: [publications@cavedivers.com.au](mailto:publications@cavedivers.com.au) - Mobile: 0417 550 509

**Records Officer (Members & Instructors)** - Meggan Anderson  
 Email: [records@cavedivers.com.au](mailto:records@cavedivers.com.au) - Mobile: 0415 291 904

**Guidelines - Graphics & Advertising** - David Bryant  
 Email: [guidelines@cavedivers.com.au](mailto:guidelines@cavedivers.com.au) - Mobile: 0417 125 710

**Webmaster**: Simon Roberts Email: [web@cavedivers.com.au](mailto:web@cavedivers.com.au) Mobile: 0433 069 751

### AREA REPRESENTATIVES - All Positions vacant

**ACT**: Alasdair BLAKE. Mob: 0404 823 007 Email: [actrep@cavedivers.com.au](mailto:actrep@cavedivers.com.au)

**NSW**: Robert MAIN. Mob: 0411 519 825 Email: [nswrep@cavedivers.com.au](mailto:nswrep@cavedivers.com.au)

**N.T.**: Jeffrey SWANN. Mob: 0419 561 515 Email: [ntrep@cavedivers.com.au](mailto:ntrep@cavedivers.com.au)

**QLD**: Terry CUMMINS. Mob: 0439 945 123 Email: [qldrep@cavedivers.com.au](mailto:qldrep@cavedivers.com.au)

**SA**: Damian BISHOP. Mob: 0433 345 743 Email: [sarep@cavedivers.com.au](mailto:sarep@cavedivers.com.au)

**S.E. SA**: Leon RADEMEYER. Mob: 0467 070 740 Email: [sesarep@cavedivers.com.au](mailto:sesarep@cavedivers.com.au)

**WA**: Geoff PAYNTER. Mob: 0407 445 112 Email: [warep@cavedivers.com.au](mailto:warep@cavedivers.com.au)

**VIC**: Peter WOLF. Email: [vicrep@cavedivers.com.au](mailto:vicrep@cavedivers.com.au)

**Public Officer** - Andrew Seifried Email: [publicofficer@cavedivers.com.au](mailto:publicofficer@cavedivers.com.au)  
 Mobile: 0404 275 637

### CDAA INSURANCE

**Policy Type**: Affinity Combined General & Products Liability Policy - LIU-CAS-AEAL-14-01  
**Insurer**: Affinity Insurance Brokers Level 1, 1265 Nepean Highway, Cheltenham. VIC 3912.  
 Underwritten by Liberty International Underwriters ABN: 61 086 083 605. Incorporated in Massachusetts, USA.

**Name Insured**: Cave Divers Association of Australia Inc. Policy# 441680  
**Public Liability**: \$20,000,000 any one claim. Expiry: 30 September 2016.



# Pine Tank Lodge



**Just 5 minutes drive from the best Cave & Advanced Cave dive sites.**

## Lodge Features:

- Accommodates 14 divers in 7 rooms; three double bedrooms and four rooms each with two single beds.
- Two separate socialising areas
- Endless hot rainwater showers in two separate bathrooms.
- Airfills, Nitrox, Trimix, high pressure O<sub>2</sub>
- Undercover gear drying
- Barbeque facilitates

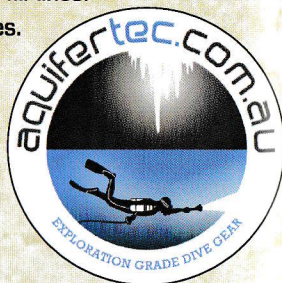
## Courses:

- Deep Cavern to Cave
- Approved TDI Facility offering full range of TDI Technical Courses, Nitrox, Trimix, Deco Procedures and Extended Range.
- CCR Training KISS
- Sidemount



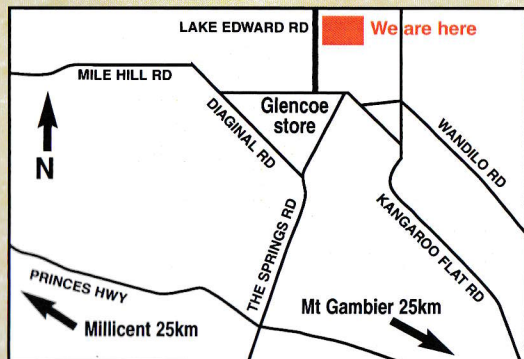
## AquiferTec Australasia

- Specialist importers of Technical Cave Diving Gear.
- **Scurion Dive Lights: best prices!**
- Shearwater Computers: Full range Petrel 2 and NERD Best prices in Oz.
- Best prices in Australasia for the range of SANTI drysuits, undergarments and after-dive wear.
- **Sole Australasian importer for SITEC boosters.**
- **Light Monkey lights: Australia's Original and still the best Importer, best prices any day, just ask.**
- Armadillo Side Mount systems.
- All O<sub>2</sub> Cells, Dive Soft Trimix and O<sub>2</sub> analysers.
- **CCR,s KISS Sidemount SideKick, Explorer.**
- 300mtr high pressure fill lines.
- Fill whips, digital gauges.
- Remote fill manifolds.
- Spools & Reels.
- Narked@90.



## Pine Tank Dive Lodge AquiferTec Australasia

Lake Edward Rd Glencoe, Sth Australia  
Mobile: 0438 833 103  
Email: [stay@ptdivelodge.on.net](mailto:stay@ptdivelodge.on.net)  
Email: [admin@aquifertec.com.au](mailto:admin@aquifertec.com.au)  
Web: [aquifertec.com.au](http://aquifertec.com.au)



## EDITORIAL ROWAN STEVENS



Dear members,

Welcome to the mid-year issue of Guidelines.

From the National Committee - exciting things are afoot which includes progress towards opening up a new Nullarbor Dive Site - see the report for further details.

AGM 2016 is not far away and nominations are now open for Business Director, Standards Director and Site Director including member motions and amendments to the Constitution. The closing date for nominations are Friday July 29, 2016.

In this issue Graeme Bartle-Smith and Peter Mosse presents the importance of Cave Conservation with tips and techniques to keep our dive sites preserved for the enjoyment of current as well as future divers. Peter also explores the impact of poor diving practices on Tank Cave, a site which has rapidly deteriorated over the past 2 decades.

Annie Rademeyer entices us with a dive trip to Zimbabwe's Chinhoyi Caves. And William Kremer shares the extraordinary story of cave divers who risked death to retrieve their friends who met tragedy is one of Norway's extensive cave systems.

For the equipment minded, ScubaPro present their premium high performance MK25 EVO/A700 Carbon fibre regulator.

Until next time, safe and happy diving.

Rowan Stevens #3177 | Publications and Records Director  
M: 0417 550 509 | E: [publications@cavedivers.com.au](mailto:publications@cavedivers.com.au)

**...been cave diving locally or overseas?  
done a cave course?  
had a new cave diving experience?  
bought some new gear that you absolutely love?**

**We Want Your latest Experience in Writing...  
So come on, write us Your story for Guidelines!**

Email to: [guidelines@cavedivers.com.au](mailto:guidelines@cavedivers.com.au)

**Articles for Guidelines SEPT. 2016 - Deadline is Aug. 10th**

- Send articles and jpeg images by email to [guidelines@cavedivers.com.au](mailto:guidelines@cavedivers.com.au)



# NATIONAL COMMITTEE UPDATE

JUNE 2016

With Winter now well and truly upon us, it's a lot harder to strike up the enthusiasm needed to brave the cold and remain in the water, but for many the cold weather is merely an excuse to take time off work and go on a diving holiday. As I write, there is a large contingency of members enjoying the caves in the Nullarbor, while others are in Mexico, Florida and Europe.

So while many of our members have been quite busy with their diving, the National Committee and other CDAA volunteers quite active working on things that will give us all better access to dive sites.

Recently, we met with the Nullarbor region District Ranger in WA, to discuss the opening of Pannikin Plains for CDAA members. The CDAA engaged a mining geology company to visit and assess this site. A positive report, along with a good risk management approach by the CDAA, led to this meeting.

The upshot of the meeting and spending some time on site with the mining geologist was that the belief that the site could sustain visitation, but would need to be appropriately managed to ensure protection of the ecology and stability of the rocks. The site itself is home to some unique invertebrate species, and good colony of bats.

For diving access, the site would best be described as technically challenging when compared to other Nullarbor sites. As a consequence of both the ecology and technical access, some strict access protocols will be developed and agreed with the land manager before final access is approved. This will still take 3 or 4 months to complete and we will let you know more as we progress. My ask is the NO MEMBER approaches or disturbs the landowner seeking a pre-booking, information or offering their opinions on this matter.

The CDAA has invested considerable finances and effort to reach this point and any members who choose to muddy the waters and ignore this request will be considered in breach of our Regulations. Please allow us to complete this negotiation for the good of ALL members. Special thanks go to Geoff Paynter, who has been working with me for a very long time help bring this about.

We are also hopeful of once again gaining access to Warbla. On this front, Ian Lewis has also been working with me for some time to help bring this site access about. Work on this front we are aiming to do some access trials around the end of the year.

Back in the South East, work on retaining access to Kilsby's sinkhole continues. This has been a complex arrangement due to the Kilsby family's desire is to open the site to all divers, be those CDAA members, other cave divers, open water divers or open water students. Doing so comes with unique challenges not faced in any other site. For the Kilsbys it has meant finding appropriate insurance and developing a raft of legal, procedural and safety documentation. For the CDAA it has challenged us in that our own Regulations do not allow us to support non-cave divers diving listed cavern or cave sites. While this sounds like a simple change to our Regulations to cater for the Kilsbys, doing so has insurance, legal and other site access implications that go beyond this site.

The unfortunate fact is that while this sort of access arrangements happen in the USA, the ripple effect is that divers visiting these sites gain a false sense of security and begin to sneak dive into other sites. Our counterparts in the USA are now facing law suits and the potential loss of their land from the actions of people who are not members of their Association. We will be holding State meetings to discuss this in more detail and gain your direction on how best to manage this in Australia.

With all the talk around new and complex site access arrangements, we have needed to discuss in far more detail with our insurance and legal advisors, the liability risk to the CDAA. One thing that was recommended is that the CDAA should have Tank Cave in a Trust. Initial investigation shows that the cost of doing this now is not significant. However, if we were to develop the land and then later move it into a trust, the cost of doing so may be an inhibitor. There are many questions that need to be answered before we create a trust and we want to start the process by discussing with you at the State meetings

your thoughts around the concept and what questions that you need answered before you can vote on such a decision.

Speaking of development of our land at Tank Cave, the Management Committee has prepared a master plan. This plan does NOT mean we will do all this development, but it does ensure that ANY work we do fund, is done in a manner that will not restrict member options in the future. It also allows us to discuss with Council what is possible on what is still classed as agricultural land. The master plan will be presented at the State meetings so members can help direct the National Committee.

On the training front, we will be looking to add more endorsement options to your membership card. Our members are having site access issues when they go to the USA because some of their sites now require scooter and side mount qualifications. Also, within Australia, access to Pannikin plains will require a vertical access endorsement.

For all of this, we have to look at how we can recognise the experience people already have and formally endorse their skills, and for those members who do not have the experience, provide workshops or training to give them the skills needed to obtain these endorsements.

While we have been having all these discussions around access and training, our Business Director, Peter Horak, has been working to move all our financial accounts over to a cloud accounting software, Xero. This online accounting software will allow us to better automate many of our financial processes, and provide the rest of the directors better access to the accounts and up to the minute finance reports.

Speaking of our accounts, we are once again in a strong and healthy position. This once again, gives us the opportunity to make investments. While we have nothing in the pipeline, members have suggested to us the purchase of more land, developing the land we have by putting in a climbing frame and compressor, buying group equipment that people can use for Nullarbor dive trips, sponsoring expeditions and simply not charging membership fees for a year. At present, our non operational funds are placed into high interest bearing accounts, but the question for the National Committee, is 'should we do more?' During the State meetings we will be asking what you think we should do.

Finally, this year you will be asked to make a constitutional change. This change seeks to add non-cave diver non-voting members to our ranks – namely, family and friends.

Fees would be free or minimal as the primary intent is to allow us to cover them with our insurance. This means that we can then approach landowners and request permission for you to bring them onto their land while you are diving.

As always, may your drysuit remain wet on the outside.  
John Vanderleest, National Director



John Vanderleest,  
National Director



John Dalla-Zuanna,  
Site Director



Peter Horak,  
Business Director



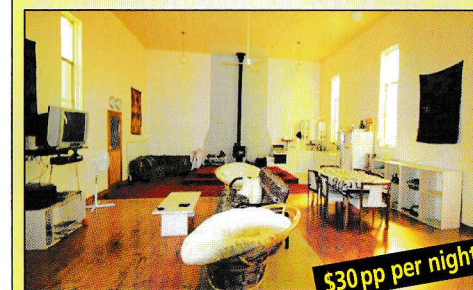
Rowan Stevens,  
Publications and  
Records Director



Linda Claridge,  
Standards Director

## Come stay at the Divers Church, Kongorong

The Huge open plan living room and kitchen is warmed by a wood burning stove with all the cooking appliances you could ever need.



- Several sofas, LCD television, DVD, Stereo
- Bunks for 10, 1 double upstairs
- Private double downstairs
- Doonas and pillows supplied
- 2 spacious bathrooms
- Drying areas – indoor and out
- Compressors welcomed
- Plenty of parking
- Gas BBQ
- Whiteboard
- Trestle tables for teaching/gear setup
- Large outdoor table and bench seats

Bring 6 friends  
and stay for free!

E: deb@bbkk.com.au Ph: 0419 882 800

[www.debwilliams.com.au](http://www.debwilliams.com.au)



CAVE DIVERS ASSOCIATION OF AUSTRALIA Inc.

## Notice of 2016 Annual General Meeting, Election of National Committee Members and Voting for Member Motions & Constitutional Amendments

This notice is issued pursuant to Clause 12 of the Constitution and serves to advise members that the Annual General Meeting of the Cave Divers Association of Australia Inc. will be held on **Saturday October 22, 2016 at the Main Corner Dress Circle, Mt. Gambier, SA.**

The Annual General Meeting will commence at 1:00pm and will conclude no later than 2.30pm.

This notice also serves to call for:

- \*Nominations for Business Director, Standards Director and Site Director
- \*Member motions
- \*Amendments to the Constitution

The Returning Officer must receive nominations for the National Committee positions no later than the close of business Friday July 29, 2016.

Mail to: Returning Officer, CDAA - PO Box 9286, Mt. Gambier West, SA 5291

The Business Director must receive member motions and proposals for amendments to the Constitution no later than close of business Friday July 29, 2016.

Items received after this date will not be accepted nor will any extensions to this date be granted.  
Mail to: Peter Horak, CDAA Business Director - PO Box 113, Collins Street West, Victoria, 8007.

Members intending to nominate for a National Committee position must be eligible members of the Association as defined in the Constitution. Nominations should be accompanied by a précis not exceeding two hundred and fifty (250) words detailing skills, experience and achievements relevant to the duties and responsibilities of the nominated position. The responsibilities of National Committee members are contained in the Constitution of the Association. Nominations must be in writing and be signed by the nominee, the proposer and the seconder all of whom must be eligible members of the Association.

**The polling date close for the election (if required) is Friday October 14th, 2016.**

The election of National Committee members and voting on amendments to the Constitution will be conducted entirely by postal ballot.

If you wish to vote you must be an eligible member of the Association and you must only use the ballot papers to be provided in the next issue of Guidelines (#xxx), on the Association website [cavedivers.com.au](http://cavedivers.com.au) or by special mail out.

The ballot papers must reach the Returning Officer (Darren Walters #3555) no later than close of business, Friday October 14th, 2016.

Please note that Australia Post quote 3 days or greater for standard delivery from capital cities to Mt Gambier.

Detailed voting information will be provided with the ballot papers.

Questions may be directed to the Returning Officer at [returningofficer@cavedivers.com.au](mailto:returningofficer@cavedivers.com.au)

Peter Horak, Business Director - [business@cavedivers.com.au](mailto:business@cavedivers.com.au).

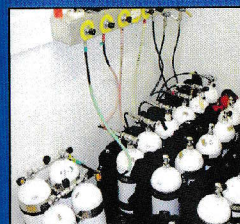
# Blue Lake Diving & Just a Bed Lodge

- Air Fills • Nitrox Fills • Minor Repairs
- Scuba Cylinder Testing\*

(\*Prior arrangement required)

## Trimix and High Pressure O2 available

Guaranteed o'night Air / Nitrox fills...  
drop off before 8pm, filled by 7am next morning!



**All enquiries:**

**Darren Walters - 0408 845 511**

Email: [darren@justabedlodge.com.au](mailto:darren@justabedlodge.com.au)

## ACCOMMODATION

**\$33pp per night**  
**Linen Included!**

- Linen consists of fitted bottom sheet, top sheet, doona, pillow & pillow case, quilt and a towel..
- Each bedroom is individually lockable allowing for a secure area for personal effects.
- Spacious room with kitchenette (sink, refrigerator, two microwaves, crockery & cutlery, toaster and kettle), kitchen table, lounge area, TV & DVD/video.
- 2 individual toilets and a spacious bathroom with instant hot water shower & vanity.
- Barbeque, seating area and provisions for drying of diving equipment if required.



**6 individual bedrooms,**  
**All with two single beds & linen.**



Contact Suzanne on 0427 884 729 or Email: [suzanne@justabedlodge.com.au](mailto:suzanne@justabedlodge.com.au)

## [www.justabedlodge.com.au](http://www.justabedlodge.com.au)

280 Cafpirco Rd, Mt. Gambier 5290  
PO Box 9286, Mount Gambier West, S.A. 5291



# Preserving Our Caves

*It's not how far you go, but how you go!*

Graeme Bartle-Smith and Peter Mosse

*Limestone caves are wonderful places to visit. Each cave is unique. But limestone caves are fragile. Immersed in water, limestone is soft and easily damaged by even the gentlest impact from a hand, a fin, a tank or even a diver's bubbles. So fragile is it that you may not even realise you have left a trail of damage behind.*

*These extraordinary environments, once modified, cannot be returned to their natural state. Therefore, preservation is important if we are going to leave a lasting legacy for future generations to explore and enjoy.*

*Imagine the awe of the first divers into a newly discovered cave system.*

*Imagine your awe if the divers before you had left it as they had found it - in pristine condition.*

## Every diver has an impact

Each time we visit, we have a direct impact on the cave environment, both as we fin through an underwater passage, and as we walk, climb, push, pull and drag equipment to the water. We each have a responsibility to use low-impact diving techniques. By remaining aware of the cave every time we dive, we can eliminate most impact.

## How can we minimise the impact?

**Maintain a pro-conservation ethic and plan to preserve.** For every dive, plan to preserve the cave. When you successfully execute a plan to preserve, you cannot cause the passage to silt out. Cave preservation techniques are therefore, safe diving techniques.

Swimming complex circuits with masses of jumps is not what cave diving should be about. Sure, if you can do it without damaging the cave, well and good, but remember:

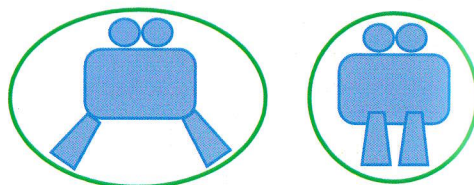
**It's Not How Far You Go, but How You Go.**

## Stay focussed and aware

Concentrate on your movement through the cave. Stay focussed and do your utmost to ensure no contact with walls, floor or roof. Look ahead, observe the cave structure, and plan a route to avoid contact.

## Think small

Think of your "circle of influence" as you swim (Figure 1). In large spaces, you can afford to relax and spread out. In smaller spaces, not so much. Your circle of influence includes your equipment as well as your finning and it also includes the wash from your fins.



## Go slowly

Enjoy the cave. It's easier to avoid touching parts of the cave when you are moving slowly. Manoeuvre through areas where contact may occur and allow time to miss objects.

Maintain space between divers to avoid drifting into the diver in front when they slow to shine a light into a side passage, inspect a line marker or install a jump reel. Drifting into their space can require a sudden stop or change of direction, which can very quickly lead to damage to the roof, floor or walls.

## Select the best finning technique

One of the most important skills in cave diving is selecting the best finning technique to limit impact. This was reinforced to us when diving in Mexico, with all the beautiful underwater stalactites and stalagmites. This is where we first learnt of the tiny shuffle kick, described below, to glide through small passages without touching or stirring the surrounds.

As you swim past these decorations, you really think small, hold your breath and hope for the best. Perhaps, in our not-so-decorated caves, we have become a bit complacent.

Try all these techniques, master them and use them as you need.

• **Frog kick.** The kick of choice you learnt in your cave diving course. It is great in large passages with plenty of room and no obstacles or cave structures because it provides maximum thrust, minimum drag and has a good glide component. It does, however, have a large circle of influence from your fins and their sideways wash because you kick your legs out wide to get maximum thrust.

• **Modified frog kick.** Can reduce your circle of influence. Keep your thighs together and your knees up. Kick out from the ankles, keeping your knees still. It has a medium circle of influence because of the wash from your fins.

• **Modified flutter kick.** Can be used in narrow caves to limit sideways and downward kicking and wash. Kick from the knees with feet pointed slightly upward to stop downward wash to a silty floor. In tighter spaces, kick from the ankles only.

• **Shuffle kick.** It has the smallest circle of influence for low flatteners. Keep your knees together and your feet above your knees. Shuffle your feet back and forward horizontally, pivoting at the knees to glide through. This technique has minimal fin blade movement, which minimises wash and protects the roof and floor. Use breathing for fine buoyancy control.

• **Finger-walking and pull-and-glide.** Good for gliding through tight spaces, but should be avoided unless you can be absolutely sure it is solid rock you are gripping. In many areas, what looks like a solid rocky floor, is fine clay. Do not pull on the guideline under any circumstances.

• **Backward finning.** Used to gently back away from touching the cave. It is basically the frog kick

in reverse. Maintain proper horizontal trim. Start with your thighs and calves at 90 degrees and your ankles rolled in to cause the bottoms of your feet to face one another. Stretch your legs out, keeping them on your trim line. Then, with your fin tips pointed down and out, pull them up towards your body to move you in reverse. Roll your ankles in and start again.

## Maintain good trim

Keep all equipment clipped as close to your body as possible, particularly gauges, stages and side mounts. Balance your weights so your body is horizontal as you move and stays horizontal when you glide to a stop.

Trim can change. Realise that if you lift your head to look forward during your power stroke, it will act like a rudder and bring you upwards. Before you look up, try to gauge how close you are to the roof structure. Do it very slowly.

## Adjust buoyancy

Maintain neutral buoyancy using your BCD and breathing.

Your position is easier to maintain with forward momentum, even with buoyancy not perfectly adjusted. So, be careful when slowing down. Can you glide to a stop without floating up or sinking? If so, you are good at buoyancy control.

Do your feet float up? If so, try using less air in your suit, which often ends up at your feet. You'll then need more air in your BCD, which will lift your torso. Try a little more weight on your waist, and therefore more air in your BCD. Try ankle weights. Try moving your tanks lower in your harness. Try strapping the lower legs of your dry suit to reduce the amount of air that can migrate to your legs.

Do your feet sink? Try the reverse of the previous actions.

One of us used to have huge problems with floating legs. It turned out that it was because of using squat 75 cubic foot steel tanks, which put the weight high on the back. Hundred cubic foot tanks solved the problem.

We also had problems with air running to our feet. We found that we needed to use the least amount of air possible in our suit: just enough to maintain comfort and warmth.

*continues page 36*



# Impact!! By Degrees

By Peter Mosse

*Tank Cave was dived in the early 1960s, again in 1983/84 and extensively in 1989.*

*Major new passage systems were added in 1993 and 1994.*

*I often wonder about the thrill of those first dives and the gradual extension into virgin passages. What it must have been like? Some of us are undoubted explorers who will probably get a chance to recapture or capture that experience for themselves. Others like me are just weekend warriors, content with going where others have been, but enthralled with nature's gallery.*

I first dived Tank Cave in 2002, strange as it may seem after having dived the cenotes of the Yucatan Peninsula. My first thoughts were it lacked the spectacle of those decorated Mexican caves and was a bit disappointing, but within a few dives Tank had worked its magic and captured me. So much so that it's pretty much all I dive at Mount Gambier now.

What was it like, to be amongst the first to travel the pristine passages of Tank Cave? Pristine is a word that is overused today, but as the Oxford Dictionary puts it, pristine is ancient, primitive, unspoilt. Clearly Tank Cave ticks the first two descriptions but what about the third?

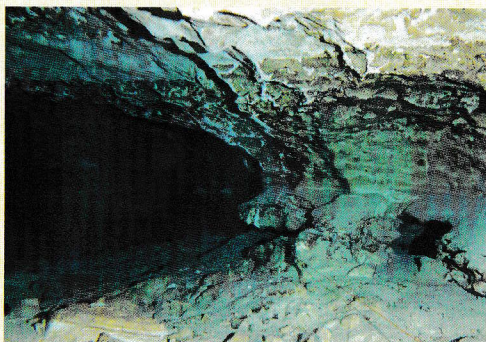
Those first divers, some of the legendary names in Australian Cave Diving history, found no hand, or

fin or knee marks. Untouched perfect clay blocks. No bright white scars on ceilings and walls where tanks have scraped. Soft grey silt, like freshly fallen powder snow formed over thousands of years. But with the opening up of the cave in the late 1990s and early 2000, man had arrived. Man, the diver, you arrive and no matter the best intentions, contact will occur.

Tank Cave has taken many millions of years to form. Exquisitely coloured and sculptured limestone surfaces where time has allowed water to craft the surfaces, and iron and organic material in the water to colour that surface. The soft grey clay blankets, smooth like a mountain slope after fresh powder snow. The clay blocks with their sharp edges and sandwiched layers of different

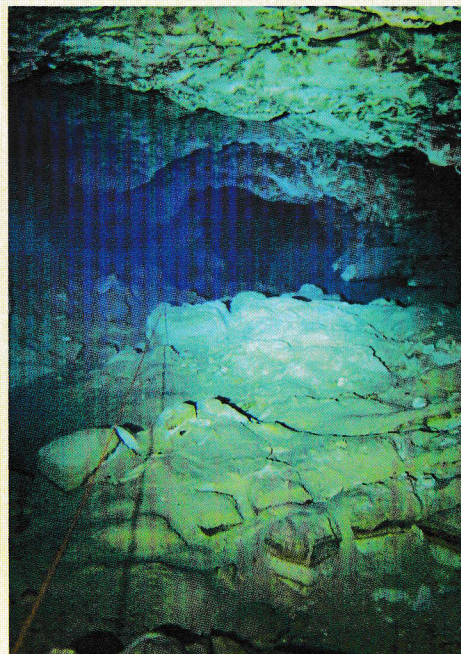


*Tunnels further out as yet essentially undamaged*

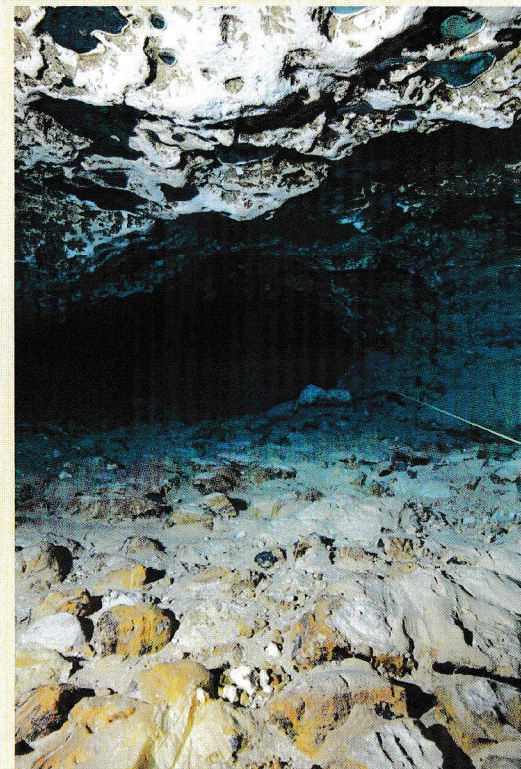


*A wide tunnel showing significant wear*

*Clay blocks as they were  
(photo courtesy Liz Rogers)*



*Examples of degraded clay blocks in heavily travelled but large passages. Note also the heavily abraded roof in both cases. (Lower photo courtesy Liz Rogers)*





colours. In contrast, the areas where there have been recent (geologically) roof falls, are white and stark.

These naturally time crafted surfaces are vulnerable. A hand or fin print takes only a second to make, but is there for eternity. The forces that have crafted the natural surfaces will not erase these marks of the passage of man. A momentary loss of buoyancy and a white scar is left on the roof and a lump of limestone tumbles to the floor and forever marks the indiscretion as an incongruous lump in the middle of the grey field. No one likes to see these changes but we recognise that we will over the passage of time and passage of divers have that impact. The challenge is to try to limit that and preserve what we see and love for those who come after us. That is the plain and simple reason why we need to conserve Tank Cave. Without it, Tank Cave could become a series of conduits more like concrete pipes than a natural wonder.

The other problem is that new divers entering Tank Cave for the first time see its current state as the baseline and may not appreciate where it has come from. Conservation becomes more difficult with the current state as that baseline. We cannot

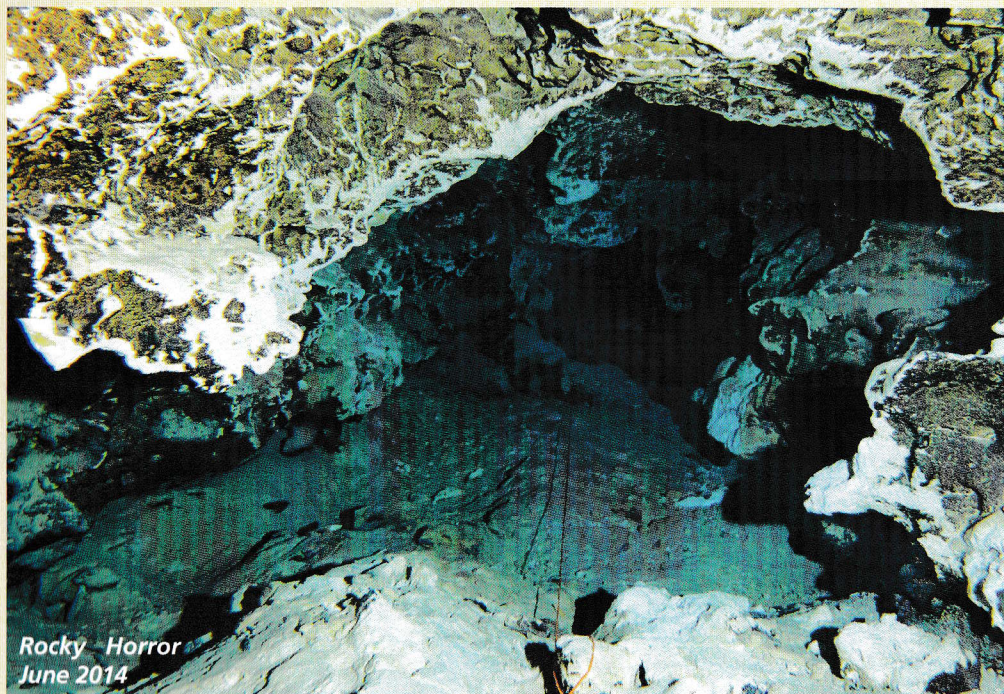
go back to what was, we can only hope to preserve what is and the challenge is that the further out passages do not become like the nearer passages.

Perhaps this is the one that stunned me most. I last dived Rocky Horror in 2011. A recent trip in June 2014 revealed the now sad and sorry state. The photograph shows the entrance to Rocky Horror in June 2014, a shadow of its former self. Clearly a rattle route. This is nothing what it started out like. I don't have photographs to prove it, just the memories.

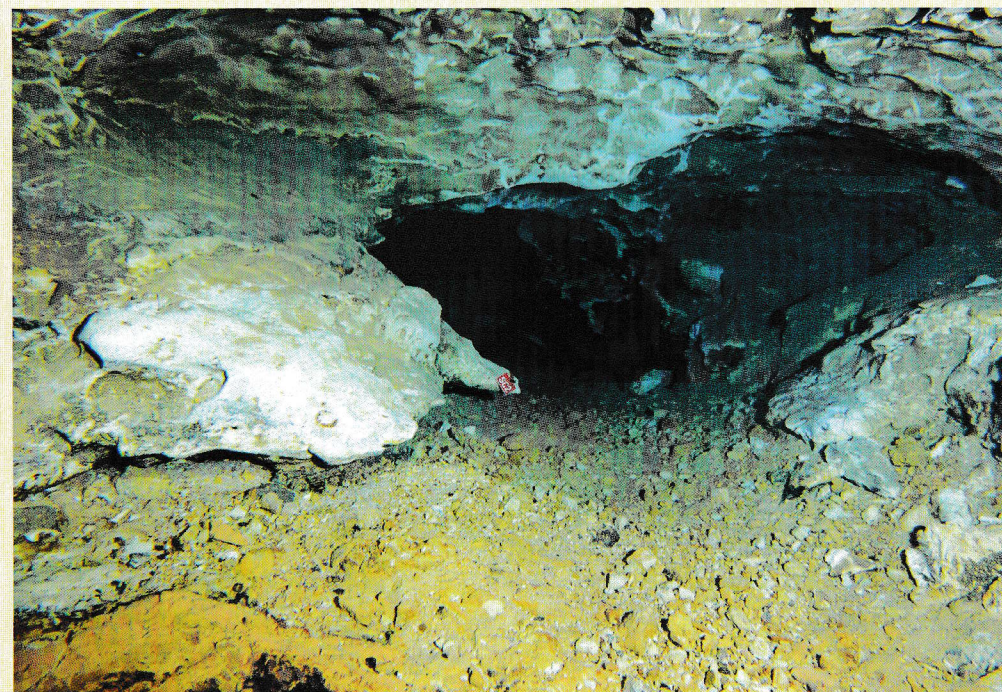
In an area such as the Letter Box, or Goat Track, or heavily travelled areas such as the Short Cut, there is little a diver can do but add to the wear on the cave.

What was perhaps worse was diving B tunnel. A large tunnel with plenty of room. So if that is the case, how can we understand the scars around the big doorway? It's huge. How is it possible to have impact scars all around it?

Diving in Tank Cave is only very recent. In geological times, the blink of an eye. However diving can have a significant and lasting impact on the cave. The challenge for Tank Cave is to limit that impact.



*Letter Box and Short Cut areas June 2014*







**The big door in B Tunnel. Note the scarring around the door and high up near the roof.**

This article may prompt discussion and possibly the odd outrageous statement or a forum rant. Issues of who or what is to blame will almost certainly surface. Old divers, new divers, back mount, side mount or stages. While constructive discussion is healthy, anything else is not. Trying to apportion blame is totally unconstructive. The issue is not what has been, but where we go from here. Do we want the whole of Tank Cave to look like the worn areas in the photos above, or do we want to do all in our power to preserve it for our children and our children's children? Once we have made that decision, the question is how do we protect it, while allowing as many people as possible an experience as close as possible to what the original explorers experienced.

#### What a Difference a Year Makes!

I first wrote this article in June 2014 and haven't dived Tank Cave since then until late October 2015. The untouched passageways of F tunnel are no more. Most of the photographs of essentially undamaged passages above, were taken in F tunnel. It would now be virtually impossible to take such photographs. It is early days yet in terms of damage but it is happening and happening fast. In looking at the damage sites, it is very difficult to understand how this can occur on the roof and walls in such a wide, deep open passage.

Take also the entrance to J tunnel, in the last twelve months this area has clearly seen a lot of diver traffic and sustained a lot of damage. Rocky Horror, J Tunnel, F Tunnel, we need to do something and we need to do something soon. We own Tank Cave, but will we be proud to say this in 10 years?

A culture seems to have developed of late where divers embark on epic circuits and journeys, often taking at least one and sometimes two stages. Perhaps we need to rethink our diving objectives in Tank Cave and change from one of how far can we go, to one of how far can we go without touching walls, roofs and floors. Sure that is not possible in some areas, but there are too many places where it is possible. Next time you dive K tunnel see if you can do it without touching. This should be the new challenge and in so doing, slow down the rate of impact on this marvellous place.

*In the words of Joni Mitchell (Big Yellow Taxi), "you don't know what you've got til it's gone", we know what we have, some of us know what we had, let's not let it be gone.*

## bellum hotel

### Special Rates for CDAA Members!

Conveniently situated half way btw Port MacDonnell and Mt. Gambier!

**Stop in For a Meal**  
**\$10 Lunches every day!**

Open Every Day Except Good Friday & Christmas Day.

22339 Riddoch Highway  
Mount Schank SA 5291



## FREEDOM TO EXPLORE

## BLACK TECH ADVANTAGE

Scubapro's Black Tech regulators use a combination of Diamond Like Carbon and Carbon Fibre materials to achieve the ultimate in protection, reliability and style. Available on their highest end regulators the stand out A700 and G260 are world renowned for their performance under pressure. When combined with the MK25 First stage these systems come into a world of their own. Available instore now from any Scubapro Dealer.

SCUBAPRO.COM





# Diving Zimbabwe's magical Chinhoyi Caves

By Annie Rademeyer

*The Silent Pool of the Chinhoyi cave system lies just a few kilometers outside the similarly named town in the northern reaches of Zimbabwe. This poor country has many attractions to be discovered, and in 2012 a team of visiting cave divers from South Africa was intent on doing just that.*

The first European to discover the caves was allegedly Frederick Selous – a British explorer who traveled and hunted all over Africa and saw the caves the first time in 1887. Prior to his discovery, the caves were used by a notorious Shona outlaw called Nyamakwere, who murdered victims by throwing them down the 40m cliffs into Chirorodziva – Pool of the fallen. He was later defeated by the headman Chinhoyi and thus the name of the town and surrounds. The pool was later renamed “Silent pool”.

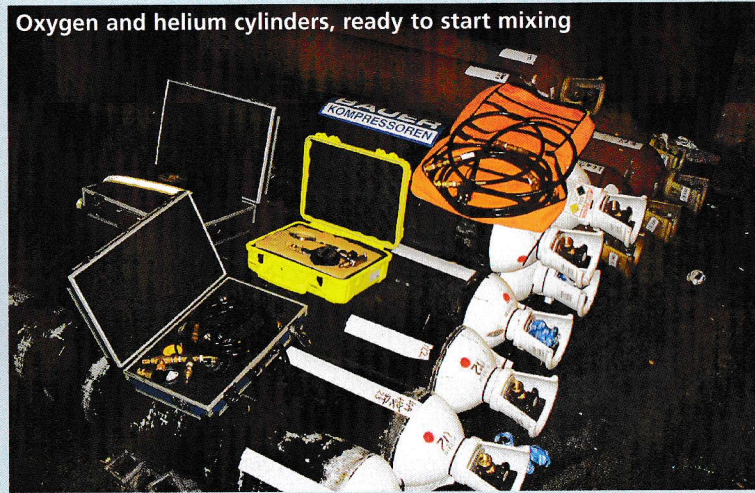
Organising a large diving expedition to Zimbabwe can be a logistical nightmare and

without the whole teams' input and hard work, it would not have come true. We had some local support in Zimbabwe from Craig Barnett and his mother Cathy. They smoothed most of the bumps in the road, without us even noticing. They rallied the locals for fresh produce donations and even organised the local media for interviews.

Two sponsors who made the whole expedition possible were Afrox and High Pressure systems. With gas and compressors available to us, the expedition was a definite go.

On Thursday morning, July 26 all the planning,

Oxygen and helium cylinders, ready to start mixing



hustling and thinking were at an end and we were on our way to Mesuna, the largest town in northern South Africa. This will be our first stop-over before the notorious Beitbrug border crossing. Travelling in convoy through this great country was once again a privilege and as you drive over the scenic mountains at Louis Trichardt and through the twin Hendrik Verwoerd tunnels, you feel like you are on another planet. Large baobab trees adorn the side of the road and small stalls

A good night's rest was essential to be able to face the Beitbrug border post bright eyed and bushy tailed, but that was not to be. Our accommodation was very scenic, but it felt like everything that could crawl and bite was also taking advantage of this quiet spot. But alas, we survived the night and drove into the unknown and feared – from many travelers' horror stories. The border post between South Africa and Zimbabwe loomed. Hundreds of people

manned by the locals sell everything from oranges to pecan nuts, even soap in a pinch. Just when you think the road will never end, the town of Mesuna appears. This border town is busy 24/7. I was amazed at the variety of little shops the town hosts. Hotels, bars, fruit and veggie corners, foreign exchange – both legal and black market, bottle stores and even a pizza place.



The Silent pool



squeezed together combined with the constant fear that you will lose sight of the runner with you passport made for an adrenaline charged two hours. But with our letter from the Zimbabwe National parks and Chinhoyi Police Superintendent in hand, we got through without any major hassles.

Another 800 km of unknown roads awaited us. Just as the sun was sluggishly rising over the horizon, we turned off towards Harare and with spotlights on bright, illuminating this desolate landscape, eyes straining for wandering animals on the road, the convoy settling into a steady pace.

One thing can be said about Zimbabwe, they are serious about their traffic control. Before and after each town, small and large, we encountered a police blockade. Very friendly officers either let you go, or tried to catch you without something on their "must have in your car list". Fire extinguishers, insurance papers, TIP forms (temporary import permit), driver's licenses and passports were checked on a regular basis. We encountered at least 20 of them on the road north and became routine after the second road block.

Just when our driver was about to fall asleep at

the wheel, we came to the town of Chinhoyi. The first thing you notice is the size – bigger than imagined and run down. Zimbabwe is slowly getting back to its feet after the crippling blow their economy experienced between 1999 and 2008. Switching to the American Dollar helped to stabilise the economy, but inflation is still rife and luxury items are non-existing. But the people make a plan and survive, no matter what comes their way.

The Chinhoyi Caves National Park is a short drive from town on the way to Lake Kariba. With the sun sinking fast, we quickly pitched our tents and had a camp briefing of the site, including the inevitable list of duties. We walked to the viewpoint, looking 40 meters down to the Silent Pool and got goose bumps – this will be our dive spot for the next six days, anticipation was building. Dinner was the job for the ladies on the first night and with twelve hungry mouths to be fed, we set to the task immediately. Everybody settled in, had a nice sundowner and we chatted around the camp fire until the first yawns signaled bedtime. Tomorrow we will see the cave and have the first dip in the cobalt-blue waters.

We were treated as local celebrities because we were "brave" enough to even go into the water

– and the ladies as well! Myth and mystery surround these waters and local people will not even go close to the edge, too afraid that "something" in the water will catch them and pull them into the black depths. Another folklore which seems to still be believed is that when you throw a rock into the Sleeping Pool and it is thrown back, you will have bad luck for the rest of your life. School children from around the country visit the pool on a regular basis as part of their school curriculum and they were astonished by white people diving in these

sacred waters. Each time we had to explain the whole expedition and the reasons for our dives. Within two days our local porters were so knowledgeable about our mission that they took over the role of spoke persons.

The National Parks board of Zimbabwe was generous enough to give us an invitation to explore as much as we can in this geological wonder, without disturbing any ritual gifts or even human remains we might find in the caves. With the support of the local police superintendent – Mr. Shumba, we had no hassles with security and even had our own security on site each day. We were told that some of the visitors who spoke to us were from the Zimbabwean secret police, who work for Robert Mugabe, the president. All they were interested in were diamonds. They wanted to check that we were not prospecting secretly. No such luck!

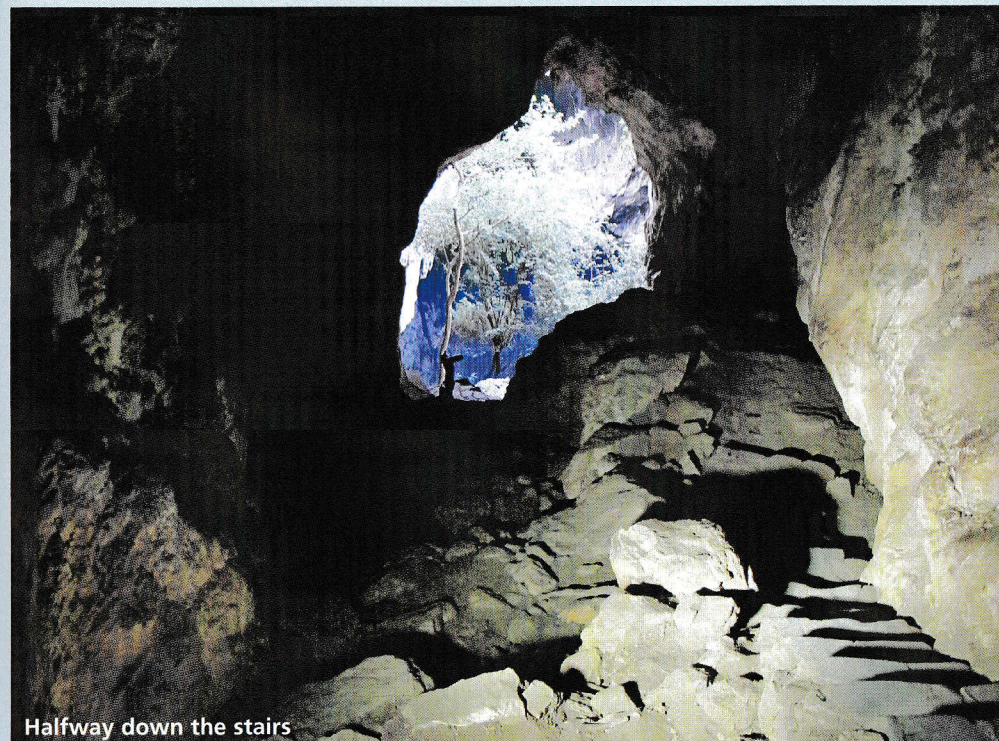
The main obstacle to diving in these wonderful waters is the trek to get your gear to the bottom. First is has to be loaded at the campsite and driven to the side of the main entrance. From there the porters take it over the small land bridge which forms part of the cave ceiling and then down around 280 steps to the water's edge. The

last five meters were the most perilous as there are no steps and only large boulders over which gear had to be man-handled. Each person had to kit up as his/her gear came down, to make space for the next lot arriving. Our porters did a super-human job. Carrying 11 sets of twins with a minimum of two slings per diver and dive bags up and down each day, took a herculean effort.

The first dive was an orientation dive for the group. We had to get a feel for the layout of the cave and plan the exploration areas. With the crystal-clear water and visibility of up to 80 meters, disorientation was a major concern. Going over the lip of the slope and freefalling into the ever darkening cobalt blue depths is an unreal experience. Looking back up to the other divers still descending it seems like they are suspended in air. Your buddy is your only reference and only the bubbles strung along like large white jellyfish make you realise you are actually in the water. When ascending it feels like you are standing still and only your dive computer gives an indication of up and down. The light of my torch could not even reach the sides of the cave, making you feel very small in this magnificent place.

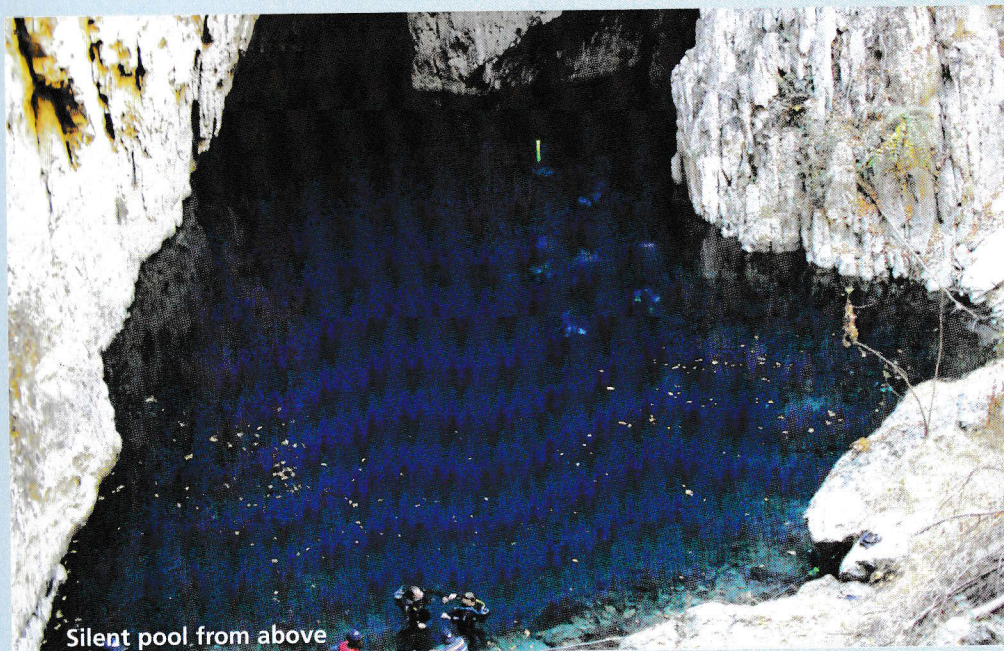


View rim 40 meters above the water



Halfway down the stairs





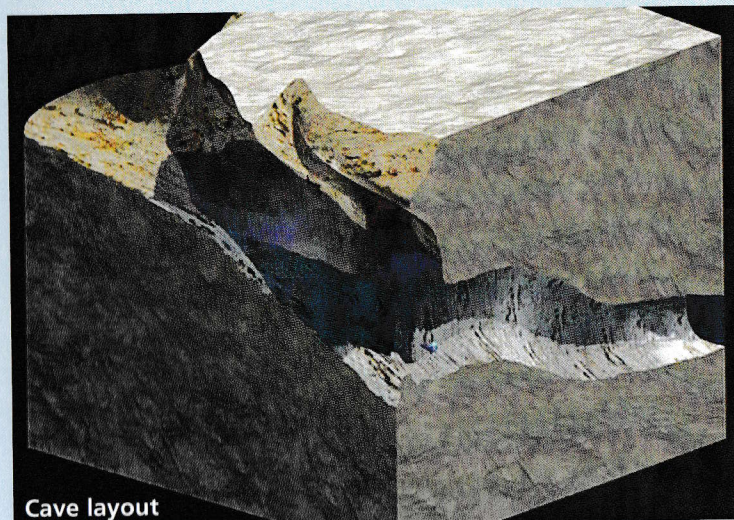
Silent pool from above

After the shake down dive, we split into two teams – a deep team and a team of support divers. With one deep dive planned per day, the deep team would descend to the bottom of the Silent Pool at a depth of 85m and enter the cave tunnel. The team would follow its contours up to the first sandy “bump” at around 110m. On their way back the team would be met by the support team at 50m. On the following day the teams would alternate. Rest days and casual

exploration days were scheduled between deep dives.

While the boys were rapidly building up their CNS load, we ladies were doing a shallow leisurely tour of the perimeter of the walls, inspecting all the nooks and crannies. Looking for old bones and if you are lucky, and old Zimbabwean half penny with a hole in the middle. Some locals do open water dives here and they have scoured the shallow parts already, but we are not to waste our safety stops in the shallows and shamelessly scratch around the leaf and rock rubble for a lost penny.

The best part of the dive is when you ascent and peer up. The water is so clear you can easily identify the individual trees on the top rim, 40 meters above the water surface. This is all framed by dark cliffs ominously looming over you and is a bit disconcerting until you are shallow again and start moving up the slope for the inevitable safety stops.



Cave layout



Deep diver descending





Deco stop, looking through the leaf rubble

Once each group is safely out of the water, the reverse of the trek down commence. The shallow teams de-kit, pack the gear into bags, hand over to the porters and up they go. If you are up to it, you can follow, but the pace is slow and too

much work getting out is definitely not recommended after such serious dives. The deep teams have the luxury of doing lunch at the water's edge to maximize the surface time. Then there is just enough time to relax a bit, plan dinner and start mixing gas for the next day. Filling a minimum of three cylinders each for 11 people each night with different mixes are no mean feat. Shallow teams are easy, just some air in the backs with a deco mix, or even using leftover deco mix. Deep teams have to dump the gas in their backs, because they will do a shallow dive the next day and make sure their back-up and deco mixes are correct. Then the delicate balance of

mixing ensues, trying to use as much of the helium out of the tanks (large cylinders) as possible. All this is being done with the reassuring hum of generators and compressors in the background. This is also the time for debriefing, learning from the more experienced divers and generally keeping the spirits up. When the chaos quiets down and all tasks are delegated, you have a bit of time to go for a cold shower, relax with a cold one and just enjoy the environment. There is nothing like a nice wood campfire, good friends and the African bush to really relax. This is living the good life.

All good things do come to an end and after a week of diving, we had to pack up and leave this magical place. Cathy's farewell dinner was a great hit and gulped down by the hungry divers before they had to face the long road back home again. This expedition was made a success by the support from the Zimbabwean people, police, porters and locals, good sponsors and a group of people who worked together to make it special for each other.

'Sara zvakanaka' my friends, if all goes well I will be back.



Divers, porters and police



The author & husband Léon

In 2013 there was an inter-nations team, pushing deeper and reaching 190m after a horizontal penetration of 200m on rebreathers and scooters. (<http://coastaltechnicaldivers.com>)

\* See diagram courtesy of [coastaltechnicaldivers.com](http://coastaltechnicaldivers.com)

#### About the author:

Annie started diving in 2001 and has been a PADI MSDT since 2007. She has worked as an instructor at various locations in South Africa and Mozambique. Her favourite dives are reef dives where a diversity of life can be found.

She co-authored and published a Marine Species guide with accompanying underwater slates. She reluctantly started technical diving with her husband in 2010, but enjoys it now as much as recreational diving. Annie was a major contributor to the logistics of the Zimbabwe expedition, especially the food, sponsored clothing and paperwork for crossing the border. She was part of the exploration team, and completed her Trimix course with a dive to 80m in the Silent Pool. Annie and her husband Leon migrated to Australia in 2014 and became CDAA Cave divers in 2015.

## We Specialise in Dry Suit Repairs

We are the authorised repairer for most drysuits on the market

And we supply and repair for commercial divers, fisheries and government organisations!



'Damn Good Drysuit Repairs'



## DKG DRYSUITS



### Supplier of these Quality Products:

- RB consumables & Repairs • She-P distributor
- Shearwater Products • DiveX distributor
- Sorb (intersorb and sofnoime)
- Narked at 90 Distributor
- Kubi Dry glove system
- Otter Drysuits MTM

[www.drysuit.com.au](http://www.drysuit.com.au)

Contact: Damo 0466 912 190

[damien@drysuit.com.au](mailto:damien@drysuit.com.au)





## NEW GEAR

# MK25 EVO/A700 CARBON BLACK TECH

Race Car Sleek, Battle Tank Tough – It's Diving's Ultimate Reg System

*SCUBAPRO's premium high-performance regulator enters 2016 with a carbon fiber upgrade that makes it not only the best-breathing reg in SCUBAPRO's line, but also the leader in advanced design and materials and the toughest in terms of high-tech durability.*

Like the original A700, the A700 Carbon's casing is full metal to take advantage of the extremely high heat exchange rate that makes this second stage such an excellent choice for cold-water diving. What's new is its screw-down front cover, hand-made out of carbon fiber – the same material you'll find on aircraft and high-speed race cars. Carbon fiber is both lightweight and bullet-proof. Unlike metal that can change shape when dropped or struck against a hard object, carbon fiber can resist substantial shocks without damage.

Performance-wise, the A700 Carbon retains the same muscular performance as the all-metal A700. Its air-balanced valve technology and oversized exhaust valve work in conjunction with a well designed sectional exhaust tee, a first-rate purge and responsive user controls to create a tech-tough breather with effortless inhalation and an ease of exhalation that is unmatched.



MK 25 First Stage Black Tech DIN

The A700 Carbon is teamed with the MK25 EVO, widely considered the gold standard in first stage performance. This air-balanced flow-through piston design provides divers with consistent and effortless airflow, regardless of depth, tank pressure, or breathing rate. With the addition of its ultra-freeze-resistant Extended Thermal Insulating System (XTIS), the MK25 EVO offers thermal insulation from the environment by fully isolating the mechanical elements of the first stage from the cold, all without compromising breathing performance.

Finishing off this premium air delivery system is a DLC (Diamond-Like Carbon) Black Tech coating that's applied to both first and second stages. This unique coating not only lends a sleek technical look to the system, its scratch- and corrosion-resistant properties perform an important function in protecting the reg against the strains and stresses of technical diving as well as the ravages of the saltwater environment.

### MK25 EVO/A700 CARBON BLACK TECH AT-A-GLANCE. 2nd STAGE:

- New screw-down carbon fiber front cover, metal casing and metal valve housing make for a rugged second stage able to withstand years of aggressive diving.
- Able to resist substantial shocks without damage, carbon fiber is virtually bulletproof.
- Carbon fiber is also extremely lightweight. The A700 Carbon's cover weighs only 10 grams, compared to the 42-gram weight of the original A700's metal cover, resulting in more comfortable diving.

- DLC Black Tech coating protects from corrosion and scratches and lends a technical look to the regulator.
- Special Torx screws are able to support a higher tightening torque without damage.
- Air-balancing smoothes out the inhalation effort when diving at varying depths and supply pressures.
- User controls include a diver-adjustable inhalation effort knob and coaxial Venturi-Initiated Vacuum Assist (VIVA) switch.
- Super-flow hose features an oversized bore to increase airflow.
- High-comfort orthodontic mouthpiece is easy to grip yet doesn't inhibit airflow.

### 1st STAGE:

- Air balanced flow-through piston first stage provides constant and effortless airflow that's unaffected by depth, tank pressure, or breathing rate.
- DLC Black Tech coating protects from corrosion and scratches and lends a technical look to the regulator.
- Patent pending XTIS (Extended Thermal Insulating System) offers thermal insulation from the environment by fully isolating the mechanical elements of the first stage from the cold, increasing freezing resistance 30 percent over its predecessor without compromising breathing performance.
- New spring insulating coating, body insulating bushing, anti-freeze cap, bigger body and cap thread work in concert with the XTIS to improve cold-water performance.



MK25 EVO BLACK TECH 1st Stage Yoke

- Anti-freeze protection radically increases breathing reliability when diving in the most extreme water temperatures.
- Two opposing high pressure ports allow the first stage to be positioned either up or down.
- Five high-flow low pressure ports on a swivel turret maximize hose routing options.
- External intermediate pressure adjustment enables technicians to fine-tune first stage performance quickly and easily.
- Available in either 232bar/3364psi INT or 300bar/4350psi DIN configurations.

### SUMMARY:

The MK25 EVO/A700 Carbon Black Tech offers the ultimate in regulator performance. A bona fide muscle reg, repeated independent tests have shown that the more you stress this reg, the better it behaves. The second stage, with its carbon fiber cover backed by a full-metal casing, can stand up to anything an aggressive diver can throw at it. The first stage, thanks to SCUBAPRO'S exclusive Extended Thermal Insulating System (XTIS), is a superb performer in all water conditions, including extreme cold-water. Add the Black Tech coating and you have diving's leading reg system, sporting race-car-sleek styling that looks as good as it works.



A700 Carbon First Stage



# The cave divers who went back for their friends

By William Kremer - BBC World Service • 9 May 2016

*In February 2014 two divers died at a depth of more than 100m in a huge cave system in Norway. The authorities said it was too dangerous to retrieve their bodies, but four friends of the men decided to take the risk - and seven weeks later they descended into the dark and glacial waters.*

At the end of the Plurdalen valley in central Norway a 35m-wide river rises abruptly out of the ground.

If you dive into this strange pond, known as Plura, and swim underground for half a kilometre, you will emerge into a long, colourful cave. Diving hobbyists can climb out of the water here to admire the grotto, before returning to Plura. But if you are highly trained and experienced - and an insatiably curious individual - you might continue on a course that quickly plunges much deeper, becoming narrow and difficult, through ice-cold, pitch-black water.

After negotiating this "sump" - an underground

pocket of water - you will finally ascend to the cave of Steinugleflaget. And about 90m above the cave's vaulted ceiling lies your exit - a crack in the collapsed side of a hill.

On 6 February 2014, two divers cut a triangular hole in the ice at Plura, and, encased in water-proof dry suits and diving equipment, slipped into the water. Two hours later, after the sediment raised by the first divers had been allowed to settle, three of their friends followed behind. The destination for all five men was Steinugleflaget. They were Finnish divers who knew one another from explorations they had made of the Ojamo mine, west of Helsinki. As

was the custom of the group, no-one was in overall command, but the first diver to set off was Patrik Gronqvist, one of a trio of Finns who had discovered the passage between the caves the year before. He was diving with his good friend Jari Huotarinen, who was attempting the traverse for the first time.

The trip was at the extreme end of a dangerous sport. While most amateur divers might restrict themselves to dives of between 30 minutes and an hour, at a depth of 30m or so, the trip to Steinugleflaget would be a five-hour dive, with the aid of underwater scooters, to depths of more than 130m.

"The deeper part is very demanding, very cold water and narrow tunnels, and deep as well - it is the world's deepest sump that has been dived through," says Gronqvist.

*"I got to that narrow place, where that first diver got stuck, and I had to decide what to do"*

**Vesa Rantanen, Cave diver**

At such depths and temperatures, a tear in a dry suit on the sharp cave floor could result in death. There is also the possibility of equipment failure, and hypercapnia - carbon dioxide poisoning. "Carbon dioxide absorbs into the bloodstream much faster and easier at depth," says Gronqvist. Cave divers use "rebreathers" which artificially absorb the carbon dioxide they exhale, but these can become overloaded if the divers start breathing quickly, and at depth it is more difficult for them to control their breathing. "If you have to do anything physical - swim harder or faster or anything - that's very dangerous," says Gronqvist.



Hypercapnia can be deadly, but even a mild case may cause confusion and disorientation, which in a deep cave is liable to have serious consequences.

About an hour into the dive, shortly after the pair had swum through the deepest section and were about 110m lower than the cave entrance at



**Patrik Gronqvist**

Plura, Gronqvist realised that Huotarinen was not behind him. He went back and found his friend had become stuck in a narrow section of the cave, entangled in a cord connected to a piece of his equipment. He was using his torch to signal distress.

Huotarinen seemed to be starting to panic, which meant he risked breathing too fast. Gronqvist gave him a cylinder of gas to reduce the amount of carbon dioxide in his system, but while Huotarinen was switching mouthpieces, he started helplessly swallowing water. To Gronqvist's horror, his friend died in front of his eyes - but getting agitated would put Gronqvist himself at risk



**The divers head towards the site of the accident**



of hypercapnia. After a brief effort to free the body, he forced himself to calm down.

There was nothing for it but to continue to Steinugleflaget - very slowly. Divers who have spent time in deep water cannot go straight to the surface because of the risk of decompression sickness, another potentially fatal hazard. The deeper the dive, the longer the decompression. Because he had stopped to help his friend, spending about 20 minutes at a depth of 110m, Gronqvist knew he would have to spend hours making additional decompression stops before surfacing.

He also knew that at some point the second group of divers would find Huotarinen's body blocking their way.

#### The Plura divers

- 1st team:
  - Patrik Gronqvist,
  - Jari Huotarinen
- 2nd team:
  - Vesa Rantanen,
  - Jari Uusimaki
  - Kai Kankanen

The first diver in the second team was Vesa Rantanen.

"I got to that narrow place, where that first diver got stuck, and I had to decide what to do," he recalls. "My options were to try to pass that dead diver, or to turn around and try to do a very long dive back, go back to the deepest section and try to survive to the surface.

"I decided to go forward, and that was a very good decision for me. But it took me at least 15

minutes to get past that dead diver."

He eventually met up with Gronqvist, but Rantanen's struggle to pass Huotarinen's body had added three hours to his decompression time.

Because he began to run low on gas he was forced to surface 80 minutes early. Soon afterwards, he began to suffer mild pains in his knees and elbows. These symptoms of decompression sickness - often called "the bends" - grew steadily more serious over the following hours.

Rantanen later found out that while he had been struggling to pass Huotarinen's body, the diver behind him, Jari Uusimaki, was also running into difficulties. Norwegian police believe Uusimaki panicked after he reached the scene of the first accident. The fifth and final diver, Kai Kankanen, tried unsuccessfully to come to Uusimaki's aid. In interviews, Kankanen has said his memories of exactly what happened are sketchy (he was unavailable to contribute to this article). But unlike Vesa Rantanen, Kankanen decided not to push through to Steinugleflaget. Instead he turned around and swam the long way back to the starting point.

He finally emerged from the cave in the early hours of the next day, more than 11 hours after setting off on a dive that was supposed to take five hours. By the time he reached Plura, he had to



Patrik Gronqvist



Vesa Rantanen, cave diving since 2007



Sami Paakkarinen, cave diving since 2004

break a thin layer of ice to climb out of the water. The three survivors were all hospitalised with decompression sickness. The Norwegian authorities took statements from them and closed the Plura cave.

In the cave-diving world, discovering how caves are linked together is a weighty achievement, one of the ultimate goals of the whole sport. When Gronqvist had made his original traverse of the Plura caves in 2013, he had done it with Kai Kankanen, and a third team member, Sami Paakkarinen.

Equipped with a dry sense of humour and a passing physical resemblance to Hollywood tough guy Vin Diesel, Paakkarinen had been diving longer than any of the others.

At the time of the accident he was teaching a diving course in Mexico.

*"I told the widow that we would go and get them, I told her that they are not going to be left there, that we would think of something"*

*Patrik Gronqvist, Cave diver*

"When you wake up and you see that there are 10 missed calls and 10 messages on the phone, you know immediately that something is wrong," he says.

Paakkarinen spoke to the three survivors on the phone from hospital, then spent the day walking around his hotel courtyard. He had trained both the victims and counted them as good friends. He felt unable to go in the water to teach, but he was unsure what he could usefully do.

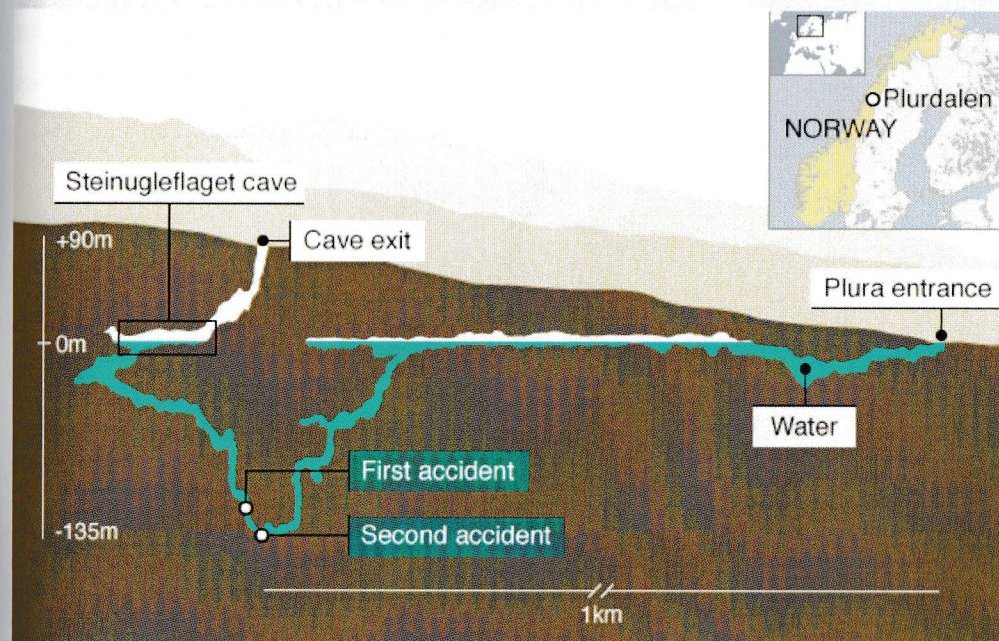
Eventually he fielded a Skype call from the British cave diver Rick Stanton. World-renowned for his rescue and recovery work in caves, Stanton had a feeling he would be asked to travel to Plurdalen to retrieve the bodies - he had done a recovery there in 2006 - and had already started to find out what he could.

Sure enough, before long Stanton received a request for help from the Norwegian police, and two weeks later, he and two other British divers, John Volanthen and Jason Mallinson, clambered into Steinugleflaget.

But when they dived down to survey the site of Huotarinen's accident, they discovered that he could not be readily freed from the Steinugleflaget side, and he blocked access to the second victim, Uusimaki.

"It was evident that it was going to be quite a protracted affair, lots of dives, down deep and cold - and that was really beyond our remit," says Stanton.

The only alternative was to perform the traverse from Plura all over again, and thus gain access to the victims from the other side. Stanton says that





he and his fellow divers considered it, and decided it was too risky. So the Norwegian police called off the recovery. At that point Gronqvist, a firefighter by trade, made Jari Huotarinen's wife a promise.

"I told the widow that we would go and get them," he recalls. "I told her that they are not going to be left there, that we would think of something."

Having the bodies would help the families grieve, and would also help to prevent lengthy delays to insurance and inheritance settlements.

He soon discovered his friends had all had the same idea. "Everyone was waiting for the SMS," he says.

All three survivors would be involved, plus Paakkari.

***"It's a code that no-one is left behind - you always have to do your best to get your friends out, wherever they are"***

***Sami Paakkari, Cave diver***

It's well known that some of the world's most challenging peaks are dotted with the remains of mountaineers whose bodies could not be safely retrieved. But Paakkari says that leaving bodies in the Norwegian cave would have been like

leaving victims of a car crash by the side of the road.

"It's a code that no-one is left behind," he says. "You always have to do your best to get your friends out, wherever they are."

He and his friends also knew that there was a chance that part of northern Europe's biggest wet cave system would remain closed to the sport forever if they failed.

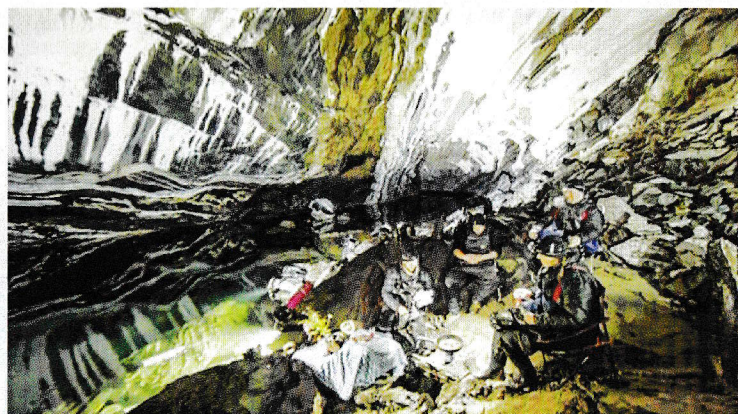
But the mission had to be planned in secret. If they asked the Norwegian police for permission, it was certain to be refused.

They had a distinct advantage over the British rescue team - they had performed the traverse before, so felt confident they could reach the bodies from the Plura side, cut Huotarinen's body free and guide both of them to the surface.

"I don't say that there was no risk to us," says Paakkari. "Quite the opposite, it is one of the most challenging dives that you can do, this Plura

traverse. But then again, we have the best knowledge of the place, we are the original explorers of the place, we know the place like our own pockets."

But this advantage was offset by the fact that the men knew the victims they would be rescuing. How would they react when they came to the site of the accident, and had to handle their corpses? Would they become upset and breathe more quickly, or



make a silly mistake that could lead to another tragedy?

For this reason, Paakkari says they tried to process "all the emotional stuff" in the month leading up to the rescue, so that when the time came they could focus on the task in hand, working almost like robots.

A new documentary, currently on release in Finland, depicts what happened.

In *Diving into the Unknown*, we do not see any of the divers collapsing into tears, or talking emotionally about lost friends. Instead, the atmosphere is one of intense single-mindedness, as the team discuss how to manoeuvre the bodies through the water, and preserve them until the police, notified after the fact, could come and collect them.

In all, a team of 27 people descended on Plurdalen on 22 March 2014 - 17 Finns and 10 Norwegians. Two teams of support divers would work at shallower levels at both ends of the traverse, while Gronqvist, Paakkari and Kankanen would dive once again to the deepest section of the cave to raise the bodies up.

Vesa Rantanen, who was still recovering from a spinal injury caused by his decompression sickness, would be surface manager.

This time they took no chances. The first step in the five-day operation was to lug more than a tonne of gear into the cave at Steinugleflaget,

winching it bit by bit up a cable to the mountain. Then they spent a day setting up equipment, leaving 50 cylinders of gas along the route and, on the Plura side, an underwater habitat. This is a pocket of air that divers can use during decompression stops, allowing them to get out of the cold water, remove their masks and even eat. If the divers found Huotarinen's body impossible to shift, they would have to make the long trip back to Plura, and such a device might well be a life-saver.

On the third day, 24 March, the divers began the recovery itself, slipping once again beneath the icy lid of Plura, accompanied by underwater camera operators.

But after descending about 85m Kankanen returned.

Looking upset, he explains in the film that he slept badly and is simply not in the right frame of mind for the operation. Paakkari and Gronqvist continue the descent alone.

In gripping footage, the divers' torches catch the jagged edges of the cave walls. We hear the clanking of their gas cylinders and the intermittent whirring of underwater scooters. The men's breathing, the bubbles released from their equipment, and the occasional muffled command complete the soundtrack.

They pass the floating body of Jari Uusimaki. Then, just 20m or so further on they encounter







Jari Huotari, exactly as Gronqvist had left him seven weeks earlier.

Cutting his equipment away, they manage to release the body and negotiate it through the narrow part of the cave. Then Gronqvist steers a dive scooter towards the surface, towing the body, while Paakkari follows to help manoeuvre it.

Gronqvist is the first to surface, eventually, in Steinugleflaget, where Vesa Rantanen is waiting to greet him.

"I've been thinking about this every single night since I walked out of here," Gronqvist says evenly. "Last time I didn't know whether to come back up or stay down there," he adds, hinting at what Huotari's death has cost him.

"If we had done a practice run then, things would have been different. It was totally our own fault."

**"Why do these guys who have families and everything, why do they go to these harsh places? It's their calling"**

**Juan Reina, Film director**

Cave divers the world over need to have remarkable self-command, but Diving into the Unknown can be seen as a study in a character trait beloved of Finns - *sisu*, grit in the face of adversity. The film's director, Juan Reina, laughingly agrees that there is little in his film to contradict the national reputation for cool-headed composure.

Finns also have a proud history of going to great lengths to retrieve the bodies of deceased friends. The phrase "*kaveria ei jätetä*" - "never leave a friend behind" - was used by Finnish soldiers, who put themselves in grave danger to recover the bodies of fallen comrades during the

Winter War against the USSR in 1939-1940.

The following day Gronqvist and Paakkari returned to retrieve Jari Uusimäki's body, assisted at depth by another diver, Jari Santala. This time the team launched their recovery from Steinugleflaget.

It proved a more difficult day than they anticipated.

This body was more buoyant and unwieldy than the first, and Paakkari came close to disaster when a part of the cave collapsed on him. At last, though, both victims were lifted up to Steinugleflaget, where they were placed in body bags Gronqvist had taken from his fire station. The whole operation had taken 101 hours of diving time. The group held a moment's silence in the beautiful cave.

**"They've made a film and they all come out as heroes - but these two people should never have died in the first place"**

**Rick Stanton, Cave diver**

The following afternoon they went to the local police station. Paakkari says that he sensed the Norwegian police were pleased that they had recovered the bodies, but "they let us know that we had broken some rules and they had to investigate that".

It was another six months before the group was told that they would face no charges for their illegal dive. The Finnish president awarded Gronqvist the First Class Medal of the White Rose of Finland, after he was nominated by his colleagues in the fire service.

For Rick Stanton, the British diver from the first, aborted, recovery mission, the Finns' effort was well-planned and executed, if "a little bit out-there in terms of danger".

But he remains troubled by the events in the Pluradalen valley.

"This incident happened, and then they've made a film and they all come out as heroes," he says. "But these two people should never have died in the first place."

He says that while people who have never been cave diving might think it's so dangerous that a

few people will inevitably die, with proper training and planning, accidents such as this should never happen to experienced divers.

Despite everything, Gronqvist, Rantanen, Kankari and Paakkari continue to enjoy the sport.

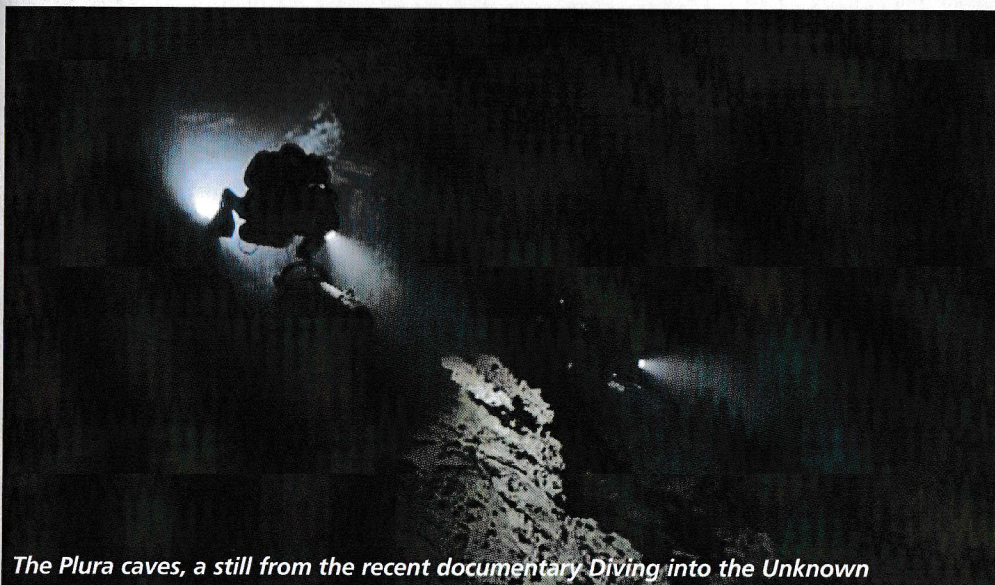
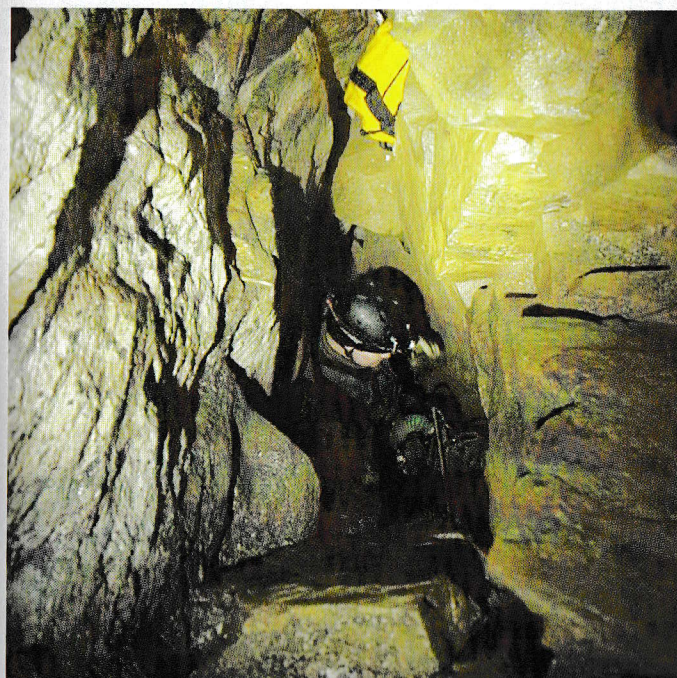
"Why do these guys who have families and everything, why do they go to these harsh places?" asks Juan Reina.

"It's not that they are just enjoying the thrill of risking their lives - there's more to it than that. It's their calling."

"It is very easy to judge them if you have never explored that world, if you've never been on the journey with them. That's why I wanted to take the viewers on that journey. Although there are two victims here, and a sad accident has happened - when you go through this journey with them, I hope people understand why they do this."

The Plura caves are now open once again. Nobody has made a new attempt at the traverse, but Sami Paakkari says for him it's only a matter of time.

"There are lots of questions - the original questions - about where the cave goes, and where the water comes from, and they are still there," he says. "And I am not afraid of the cave."



**The Plura caves, a still from the recent documentary *Diving into the Unknown***



### Stay with the Line

By staying as close as possible to the line, you confine any impact you do have to the immediate area around the line. The rest of the cave remains untouched.

If you are tempted to "run a line to explore that little side tunnel because it looks so nice", do it with extreme care. If it looks too small, the risk of damage is too high so just light it up, enjoy the beautiful view, and leave it for others to enjoy as well.

The side tunnels in J and K sections of Tank are inviting, but it is clear that we couldn't enter them without doing damage. What we like to do is use the best light we have to light up the distance whilst staying in the main tunnels. By putting a little distance between us in J and K and, as we weave through the passages along the fixed line, our combined lights light up the distance through the side passages.

### Use Stages carefully

Stages add to your bulk, increase your circle of influence, limit mobility, make trim more difficult and contribute to fatigue. All pose a risk to the cave. After a long dive with stages, fatigue leads to narrowing focus onto the guideline as you swim to the exit. Cave conservation may slip from your mind.

Think about the planned route. Do you really need to take that stage down that narrow passage, or can you go a slightly longer way with less risk of damage to the cave?

We've known of some people using stages for their first dive and keeping the back (or side mount) gas for their second dive. This is not taught and is not a recommended practice. It leads to unnecessarily carting stages on the first dive, with all its risk of damaging the cave. Is there a better way? It's simple to set the stages up in a harness as back gas or side mounts for the second dive. Might take a bit of extra work getting ready but it's worth protecting the cave; and the swim will be a lot easier.

### Placing Stages

Choose your sites carefully. Ideally, stages should be placed on hard rock. However rocky areas in Mt Gambier can be very difficult to find. Untouched mud can look horribly like rock! Ask the site guide where the best places are to place stages to avoid damaging the cave.

It will be useful to have staging points clearly marked on site maps and even marked with tags at the stage point itself. Maybe in future CDAA could install stage fixing-poles to further reduce the risk of damage.

As you approach a stage point, start unhitching your stage. Aim to remove the stage and clip it to the fixing point without stopping your forward momentum. You'll be far less likely to touch the cave.

### Damage control

Sometimes divers will inadvertently move closer to cave features than they had anticipated. When trying to correct, damage may occur, so:

- Reduce your body movements to a bare minimum.
- If heading for the floor, inhale, inflate your BCD and wait to lift away.
- If heading for the roof, exhale fully, dump some BCD air and wait to drop away.
- Use gentle backward finning technique to back away from features.

Refrain from fin movements until well clear. Do everything in your power not to touch down or up. Relax & allow time for the altered buoyancy to take effect. Then readjust your buoyancy.

### Previous damage is not an excuse to cause more

Sure, the goat track cannot be traversed without contact but there are many other areas, like F, J and K-tunnels in Tank and some areas in Pines, where damage has occurred where it just should not have. Avoid making it worse. Just because it is already scarred is no reason to be complacent about further damage.

### Graffiti

A long-term scar on the environment, graffiti can be above water in the dry cave, on the tables and stools, or shed walls or information bays. Graffiti can also be underwater, with initials on limestone walls or in soft grey clay. It is sad that some people feel obliged to leave a mark. Think about others who come after you and care for what we have. We carry that responsibility. Imagine how you would feel if someone carved their initials on your 4WD?

### And one last thing

Remember to leave the topside area clean and tidy for the next group to enjoy.

# CDAA INSTRUCTORS

## NAME

Deep Cavern Cave Adv. Cave

### NEW SOUTH WALES

 BOULTON, Alex (CDAA 4125) Yes  
Mob:  
E: alex@subaquaservices.com.au

### SOUTH AUSTRALIA

 PAYNE, Timothy (CDAA 2640) Yes Yes Yes  
Mob: 0448 147 927  
E: Tim@diveessentials.com

### VICTORIA

 BARCLAY, Gary (CDAA 1735) Yes Yes Yes  
Mob: 0407 527 921  
E: garinda@bigpond.com

 BOWMAN, Jane (CDAA 1880) Yes Yes Yes  
Mob: 0407 566 455  
E: janelbowman@hotmail.com

 CHAMBERS, Geoffrey (CDAA 3484)  
Mob: 0438 059 886 Yes  
E: geoffie1@gmail.com

 CLARIDGE, Linda (CDAA 2214)  
Mob: 0408 052 070 Yes Yes Yes  
E: garinda@tpgi.com.au

 DALLA-ZUANNA, John (CDAA 236)  
Mob: 0407 887 060 Yes Yes Yes  
E: jdz@paintandcustom.com.au

## NAME

Deep Cavern Cave Adv. Cave

### VICTORIA Continued

 EDWARDS, Chris (CDAA 2247) Yes  
Mob: 0417 116 372  
Email: cedwards@aanet.com.au

 McDONALD, Warrick (CDAA 1882)  
Mob: 0408 374 112 Yes Yes Yes  
E: info@oceandivers.com.au

 MONACO, Rubens (CDAA 1731)  
Mob: 0413 429 533 Yes Yes Yes  
E: info@idscuba.com.au

 TIM MUSCAT (CDAA 4557)  
Mob: 0422 127 802 Yes  
E: tim\_muscat@bigpond.com

### WESTERN AUSTRALIA

 JOSIP BICANIC (CDAA 4691)  
Mob: 0421 571 779 Yes  
Email: joseph\_b@me.com

 PAYNTER, Geoff (CDAA 3784)  
Mob: 0407 445 112 Yes Yes  
E: gpaynter60@bigpond.com



# CDAA SITE ACCESS - [www.cavedivers.com.au](http://www.cavedivers.com.au)

Remember: Access is a privilege, not a right. Please be considerate of landowners wishes.  
CN = CAVERN S = SINKHOLE C = CAVE AC = ADVANCED CAVE

SITE	LEVEL	OWNER	ACCESS DETAILS
<b>MT. GAMBIER - SA</b>			
Ewens Ponds	Nil	DEWNR - P.O. Box 1046 Mt Gambier 5290	Groups of 6 or more, phone/mail to Dept. for Environment, Water & Natural Resources (DEWNR). Smaller groups, no need. (08) 8735 1177 Fax: (08) 8735 1135
Gouldens	CN	DEWNR	<b>General Diving:</b> Divers to contact DEWNR and notify of date and site to be dived. Please make requests by phone or fax only.
2 Sisters	CN	DEWNR	Divers must have the correct CDAA diving endorsement for the site and carry current financial CDAA membership card.
Fossil	C		The diver must have signed an indemnity with DEWNR before access is permitted and original copy must be received by DEWNR prior to diving. <b>Training:</b> The Instructor is to notify DEWNR of the date the sites are needed and to forward signed indemnities from each student and their temporary card number/ membership number.
Piccaninnie Ponds	S	DEWNR	Bookings can be made online via the CDAA web site.
Horse & Cart	CN	Dale & Heather Perkins	At least 1 week prior by email: dhperkins@bigpond.com or phone (08) 8738 4083.
Tea Tree	CN	Dale & Heather Perkins	
Little Blue	S	District Council of Grant	Signed indemnity required and must carry card.
Allendale	C	District Council of Grant	Obtain key from Lady Nelson Tourist Information Centre.
Ela Elap	S	Dean & Carol Edwards	Key available from Simon Livingstone at the Bellum Hotel.
One Tree	S	Mr. Peter Norman	Visit the house before diving. If no one is home - no dive!
Dave's Cave	C		Maximum 3 divers all weekends between May & November inclusive (check and update on CDAA website).
Hells Hole	S		At least 4 divers in group - 1 with previous site experience.
Pines	C/AC	<b>Forestry Sth. Australia</b> Phone: (08) 8724 2876 Fax: (08) 8724 2870	Unrestricted days or numbers - Cave rated divers must not enter Penetration sections (stop signs)
Mud Hole	C	or book on-line via the CDAA website to arrange permit.	Unrestricted days or numbers.
Nettle Bed	AC		Open every weekend. Maximum of 4 divers per weekend undertaking 1 dive only (check an update on CDAA site).
Stinging Nettle Cave	AC	email: conservationandrecreation@forestrysa.com.au	Open every w'end max 3 divers per day undertaking 1 dive per day (check updates on CDAA website).
Iddlebidy	AC	<b>Forestry Sth. Australia</b>	Open every Saturday max 4 divers, 1 dive only (check an update on CDAA website) <ul style="list-style-type: none"> <li>No diving on Total Fire Ban Days.</li> <li>Permit also required to run compressors during fire danger season.</li> <li>Keys for Hells Hole, Nettle Bed, Iddlebidy and Stinging Nettle Cave can be obtained from Lady Nelson Visitor Ctr on presentation of Forestry SA permits.</li> </ul>
Kilsby's	S	Landowner leased to CDAA	Refer to CDAA website. Twin Tanks - Maximum depth of 40 metres on Air. Diving slots are 8am, 11am, 2pm. Book on-line at <a href="http://www.cavedivers.com.au">www.cavedivers.com.au</a> or Contact Craig at kilsby@cavedivers.com.au No mid-week diving allowed. <b>No diving on Total Fire Ban Days.</b>

# CDAA SITE ACCESS - [www.cavedivers.com.au](http://www.cavedivers.com.au)

Remember: Access is a privilege, not a right. Please be considerate of landowners wishes.  
CN = CAVERN S = SINKHOLE C = CAVE AC = ADVANCED CAVE

SITE	LEVEL	OWNER	ACCESS DETAILS
<b>MT. GAMBIER - SA (continued)</b>			
Shaft	S/C	Generally open one weekend a month. Trevor Ashby	For access dates go to the CDAA web page. Nitrox as a diving mix is not allowed in the Shaft unless a trimix endorsement is held but deco mixes attached to the shot line are permissible. Refer to Shaft access bulletin within CDAA Regulations. Divers applying to dive in the Shaft for the first time must document dive experience with twin tanks. <a href="#">Download form off website.</a>
Engelbrechts - East - West	C AC	Mt Gambier Council Lessee: Ph: 08 8723 5552 Owner: John & Sue Douglas	Obtain key from Mt Gambier Tourist Information Centre. Access agreement must be signed prior to diving. 2 divers must sign out keys, all divers must sign in advising which groups they are diving with. Diving should be avoided after heavy rain due to possible water contamination. Diving hours are now restricted to 8am to 8pm CST.
Three Sisters	AC	Millicent Council	Download Indemnity from Web Page. Access available for experienced Penetration divers only. Access agreement must be signed prior to diving. Allow 4 wks for indemnity process.
Tank Cave	AC	CDAA	Access Manager: Noel Dillon. Email: tankcave@cavedivers.com.au
Baker's Cave	C	Janet & Bruce Saffin	Access Manager: Matthew Skinner. Email: bakerscave@cavedivers.com.au Climbing equipment required. One member must have previous dive experience at site.
<b>NULLARBOR - WA</b>			
Cocklebidy	C/AC	DEC	Apply in writing for permission to dive at least 4 weeks in advance of trip to: District Manager, Department of Environment and Conservation (DEC), PO Box 234, Esperance, W.A. 6450. Phone: (08) 9083 2100 Fax: (08) 9071 3657.
Murra El Elevyn	C/AC	DEC	
Tommy Grahams	C	DEC	
Burnabbie	AC	Department of Lands, WA	Apply in writing or email for permission to dive at least four weeks in advance of trip. Miss Shannon Alford, Email: Shannon.alford@lands.wa.gov.au Phone: (08) 6552 4661 Fax: (08) 6552 4417 P.O. Box 1143, West Perth WA 6872.
Olwolgin Cave	AC	Department of Lands, WA	A site indemnity form must be filled out for each visit to the site. Diving permission acknowledged by official letter from Land Owner.
Weebubbie	S/C	Department of Lands, WA	
<b>WELLINGTON CAVES - NSW</b>			
Limekiln (McKavity) cave	C/AC	Wellington Caves	Both Penetration and Cave Level are being accepted for this cave depending on its water level at the time. The cave has a restriction at the entrance which is underwater making it a Penetration Dive. During drought, the water level drops to form a small lake below the restriction allowing experienced Cave Divers access to this delicate cave.
Water (Anticline) cave	C	Wellington Caves	Affected by high CO <sub>2</sub> levels during Summer/Autumn. Access is co-ordinated with the Wellington Caves management by Greg Ryan - Email: gjryan@gmail.com. Phone (02) 9743 4157.
Rum Jungle Lake	S	Coomalie Community Govt Council	Unrestricted access currently exists - Please refer to website.
Burrinjuck Dam	S/C/AC	NSW Parks & Wildlife	Please refer to website. There are no specific access arrangements.





*NEXT ISSUE: An Interview with Australia's first Lady of Scuba Diving*