



Englebrechts East.

*Divers are Terri Allen, Fred Headley
and Ryan Bovanizer.*

Photo by Jane Headley



C.D.A.A. Newsletter

No. 144 - JUNE 2018



CAVE DIVERS ASSOCIATION OF AUSTRALIA

(Incorporated in South Australia)

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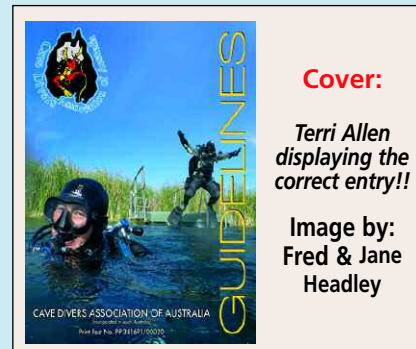
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CAVE DIVERS ASSOCIATION OF AUSTRALIA

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

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Insurer: Affinity Insurance Brokers Level 1, 1265 Nepean Highway, Cheltenham, VIC 3912.
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Photo by Liz Rogers

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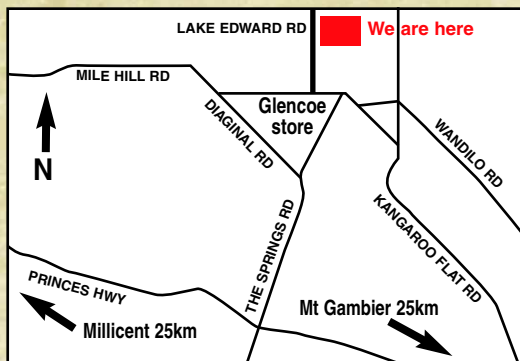
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EDITORIAL
MEGGAN ANDERSON

Hi all

Welcome to another edition of Guidelines. When Dave sent me the draft, I was stressed and cranky but as soon as I saw the cover I had a good laugh. I take my job as a director seriously but for people who don't know me, I don't like to take myself too seriously. I like to have a laugh...so for those who seriously thought the CDAA Facebook post about getting llamas at Tank Cave was serious...I am sorry to say it was not (hence why I posted it on 1 April).

On the topic of Facebook, for those of you who don't know the CDAA does have an official Facebook page, so please like it if you are on Facebook: <https://www.facebook.com/cdaacentral/>

Please do not despair however if you are not on Facebook – important information is still communicated via email (including notifications of events) and on the Notices section of the website. Some of photos and news we have posted over the last few months have been used in this edition of Guidelines and will be used in future editions. With regards to moving the forum to Facebook, I have no desire to do that for a number of reasons, the main being it would disadvantage members who are not on Facebook and it is more private. So please utilize the forum. Please do not make comments on CDAA Facebook posts or page that would paint the association (whether past or present) in a negative light, our audience is broad and it does more harm than good.

I have been getting out and about, such as diving Kilsbys and I went to my local state event and was also fortunate enough to get invited on some dinners with some new CDAA friends I made. I strongly encourage you to get involved and take up opportunities to socialize with other members, it is worth the effort. However I will be spending most of my time in June busy with membership renewals!

Until next time, remember to have fun like our cover star Terri Allen!

Meg

*Meggan Anderson #4942 | Publications and Records Director
M: 0415 291 904 | E: publications@cavedivers.com.au*

Did you know?

You can opt for an electronic copy of Guidelines rather than a paper copy. **Simply login to your CDAA online account**, select the dropdown menu under the My Records tab and click on Update My Details. Handy for those who have multiple CDAA members in their household or for those wanting to do their bit for the environment!

Articles for Guidelines Sept. 2018 - Deadline is Aug 15th

- Send articles and jpeg images by email to guidelines@cavedivers.com.au

NATIONAL COMMITTEE UPDATE

JUNE 2018

It's been another action-packed quarter for the National Committee. It's hard to believe we are already putting the call out for director nominations in the lead up to another AGM – not sure where the time has gone!

I'd like to take this opportunity to thank the members of the current NC and the State Reps for all the hard work they've been putting in. There's an enormous amount of time and effort invested behind the scenes to keep the CDAA moving forward.

In the last month the Victorian State Rep (Benn Walton) and South Australian State Rep (Damian Bishop) have organised CDAA social events in their respective states. Both events had great turnouts, with a mix of older and newer members alike. Keep an eye out for future events. I encourage all of you to make the effort to attend – you won't be disappointed.

With the help of the State Reps, we were able to use the State events as a platform to put some questionnaires out to members. This has helped the NC get a gauge of diving habits, frequency, as well as member sentiment about electronic voting. We will use these results to help shape our decisions moving forward. We'll also look at ways we might be able to extend these questions to the broader membership.

In April, I had the pleasure of making a last-minute trip across to Mt Gambier to dive Kilsby Sinkhole for the first time in a number of years. It was a perfect day – sunny weather, great company, and of course a simply spectacular place to dive. A great time was had by all, and it's been a pleasure to see lots of positive media as a result. As mentioned in my previous report, the NC have

now ratified the abolishment of the previous back-fee structure, consolidating it with a once-off late fee of \$50. This ensures that members who have had to leave for a year or two for legitimate reasons are not dissuaded from re-joining the Association. If you know any former-members to whom this might apply and who might be interested in getting back into cave-diving, I encourage you to invite them to re-join the CDAA.

Finally, we are announcing a competition to come up with a new CDAA logo. The current logo has served us well – but it is time for a freshen-up. This is your opportunity to become a part of CDAA history – so get inspired and design a modern logo that might just serve the CDAA for another 40 years! Look for further details in this edition of Guidelines.



Pete
CDAA National Director

On behalf of the National Committee



Mathew Rochford,
Business Director



Kelvyn Ball,
Site Director



John Dalla-Zuanna,
Standards Director



Meggan Anderson,
Publications and
Records Director



Hi All,
Last time, I reported I was out diving the Nullabor. An exciting and adventurous time through to Toad Hall, Cocklebidy Cave with friends. Diving this site is highly recommended. It takes a lot of planning, physical fitness and co-ordination of a great team though. But well worth the feeling of achievement at the end. Thanks to everyone who made this wonderful feat attainable.

We are tracking along well with the recent re-opening of Kilsby Dive Site. Thank you to Graham and Ben Kilsby for working alongside Peter Wolf and I and other committee members. Peter has put in a lot of time into research, legalities and paperwork and I especially thank him for his dedication in helping me to getting this site back up and running.

Kilsby Dive Site is in a trial period, so all divers please take special note of what is involved, with due diligence and respect, hopefully we can continue diving this site going forward.

Allendale Cave recently received a minor facelift a few weekends ago. Steps were cleaned and some put back into place with the help of Steven Meyer.

New progress is coming along with thanks to Patrick Fitzgerald for all his extra input. Pat is looking into getting access to Earl's Cave and has been looking at a new dry cave with more info to come. Keep tunnelling Pat.

Pannikin Plains access is moving along well and hopefully some news in the future as we have had good discussions with Rob Blok.

Tank Cave – informing the AOs to double check they have the new code for the lock before heading out to the site for the day.

Last but not least – One Tree – A sign in book has recently been purchased and will need to be filled out when collecting the key please. We need traceability as the landowner's gates have been left open a number of times and as there are cattle on the property the gates need to be closed at all times. It is in members' best interests to make sure that this is followed through. It would be a shame if we were to lose the access to this site because of a minority.

Keep warm and happy diving during the winter months.

Kelvyn Ball, Site Director.

Come stay at the Divers Church, Kongorong

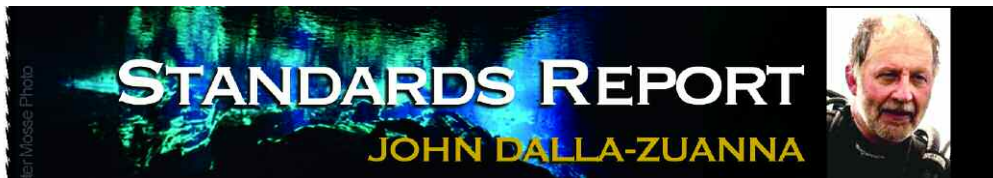
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Sorry for missing the last report ... being in the mountains of the South Island and not having any internet or any phone connection is one of the pleasures of cave diving in New Zealand. With the rollout of the name change of Deep Cavern to Basic Cave, all the CDAAs student/instructor notes, instructor Powerpoint presentations and Record of Training forms required updating and errors amended. Furthermore, the Cave course student notes and instructor pptx presentations were also updated with the Adv Cave course getting a treatment next. I'd like to thank Joseph Bicanic for his enormous assistance with this.

The last few months have also seen some new members join the CDAAs through both our crossover programs and our Advanced Cave equivalency after undertaking training overseas. In addition, our instructors have been busy certifying new local members.

On the instructor front, I wish to welcome and congratulate our newest Basic Cave instructor, Dominic Hodalin. Based in Queensland, Dominic has been seen down the Mount regularly and I know, will be a great asset for the CDAAs.

Also, Robert Main has upgraded his instructor rating to Cave instructor. Congratulations to you too.

I encourage any diving instructor member wishing to teach cave diving to contact me to get further specific details on becoming a CDAAs instructor.

An instructor workshop has also been called for late June 2018 in Mt Gambier. This will focus on training issues and future directions.

In early January, Peter Wolf and I met with the CDAAs insurers (see previous Guidelines). On the table was the meshing of three major issues which had a lot of background work already progressed, Vertical Access, Pannikin Plains & Kilsby Sinkhole.

The CDAAs Vertical Access program was driven by the opportunity for the members to safely

enter and enjoy one of our premier sites on the Nullarbor plains, Pannikin Plains cave. Because of both its precarious entry and biodiversity, a number of tests were completed with recommendations made to the WA Dept of Parks & Wildlife. The summary of these reports make up the site background information to be released on the CDAAs website shortly.

So, the CDAAs is about to announce the access protocol for diving Pannikin Plains and there will be a requirement for at least one member of the team on each permit to hold at least CDAAs Level 2 Vertical Access endorsement or equivalent. These endorsements can be gained by successfully completing an assessment day or undertaking a course, and you will shortly be emailed full details.

I also reservedly welcome the Kilsby decision to work with the CDAAs under the current access protocols.

As CDAAs members, we have a responsibility to demonstrate to the wider community the benefits of our training and protocols when accessing our precious natural resources. Our new generation of members have and will have new challenges to meet in taking the CDAAs forwards.

Keep an eye out for an update to having your other diving certifications added to your CDAAs membership card, particularly useful if you're planning to travel overseas... for the moment, look at "CDAAs CHECK" on the CDAAs home page.

Lastly, as a result of the recent successful Victorian State Social Night, focusing on cave mapping & surveying, a number of surveying info & workshop evenings have been setup in Melbourne, with hopefully more to follow in other states soon. Keep an eye on your emails and check in often to the CDAAs website & Facebook page.

Cheers all! JDZ.



Preparations are underway for our Annual General Meeting and the symposium. Our international guest speaker this year is Patrick Widmann, whom I know many of you have dived and trained with in Mexico. Patrick will be talking this year on exploration in Madagascar and the Dominican Republic. I know what an amazing speaker Patrick is, so I want to know what will get you to Mt Gambier for this year's event so you can find out for yourself. If you've got some feedback on what will make the AGM and symposium weekend work for you, please reach out to me at business@cavedivers.com.au. This year the State based talks will be taking place in Brisbane (15/10), Newcastle (16/10), and Perth, (31/10), with the AGM/symposium weekend 20 October in Mount Gambier. Your State representatives will have more details soon.

I'm also putting together the speaking roster for the symposium, with some great speakers

already being suggested. If you have someone you want to hear from, please reach out. Similarly, if your business wants to get involved, please reach out as our members love to support those who support us. There will be updates to the speaking roster and plan for the day over the coming months.

Similar to last year, you will be called on to vote on a move to digital voting for our association. This move is widely supported when I speak to members, but can only happen if we get a large turnout to our constitutional change proposal. If you want change, you need to get involved. More to come on this one.

It is also time for member motions to be put forward and voting on National Committee positions. Time to get involved.

Mathew Rochford #4827
Business Director.

A promotional poster for the '2018 ANNUAL SYMPOSIUM' in Mount Gambier on 20 October. It features a photo of Patrick Widmann, the international guest speaker, in a wetsuit. The text includes the event details and a description of the topics: 'International Guest Speaker Patrick Widmann talking on exploration in Madagascar and the Dominican Republic'. The CDAAs logo is in the bottom left corner.

Cave Divers Association of Australia

2018 ANNUAL SYMPOSIUM

MOUNT GAMBIER

20 OCTOBER

International Guest Speaker Patrick Widmann talking on exploration in Madagascar and the Dominican Republic

COMPETITION TIME

The CDAA logo is synonymous with cave diving in Australia, and has well and truly stood the test of time. After nearly 45 years though, it's time for a revamp.

We'd like to give you, the CDAA members, a chance to be a part of CDAA history, by designing a new, modern logo that will serve the CDAA long into the 21st Century.



NEW LOGO PARAMETERS

In keeping with the theme of the current logo, we'd like the new logo to include;

- * The text "CDAA" or "Cave Divers Association of Australia"
- * The stylised form, outline or silhouette of a cave diver
- * The stylised form, outline or silhouette of Australia.
- * Consist of no more than 4 colours.
- * Be suitable for use on black or white background material.

*** PRIZES ***

The successful designer will win a voucher for CDAA merchandise incorporating the new logo to the value of \$200, not to mention everlasting fame amongst the Australian cave diving community.

RULES

- The competition is open to all current diving and non-diving members.
- Depending on the number of entries, Directors will determine a finalist shortlist
 - To determine the winner, shortlisted logos will be put to a member poll
 - Entries close JULY 20th 2018
- The winner will be announced, and the logo revealed, at the 2018 CDAA AGM/Symposium

All entries and questions should be submitted to: media@cavedivers.com.au

CAVE DIVERS ASSOCIATION OF AUSTRALIA Inc.

Notice of 2018 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 20th, 2018 at the Main Corner Dress Circle, Mt. Gambier, SA.**

The Annual General Meeting will commence at 11:00am and will conclude no later than 12:00pm.

This notice also serves to call for:

- *Nominations for Business Director, and Standards 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, 27 July, 2018.

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, 27 July 2018

Items received after this date will not be accepted nor will any extensions to this date be granted.

Mail to: Mathew Rochford, CDAA Business Director – PO Box 544, Mount Gambier SA, 5291

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, 12 October, 2018.

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 (#145), on the Association website 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, 12 October 2018

Please note that Australia Post quote 2-6 days for standard delivery from capital cities to Mount Gambier.

Detailed voting information will be provided with the ballot papers.

Questions may be directed to the Returning Officer at returningofficer@cavedivers.com.au

Mathew Rochford, Business Director - business@cavedivers.com.au.

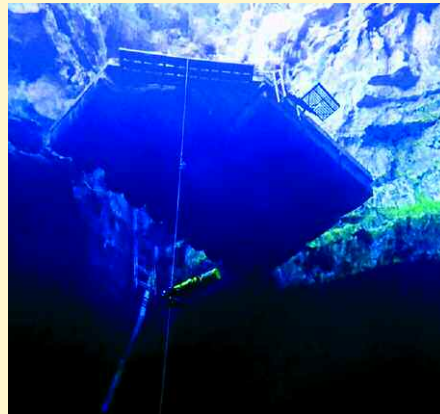
Out & About

by Meg Anderson

Return to Kilsbys April 2018:



After a hiatus of 2 years and a bit, the CDAA returned to Kilsby's Sinkhole trial a new access agreement. We'd like to thank those members who joined us, it was a really awesome day and it was great to meet some new members and catch up with old ones. Thank you to the Kilsby's for the scones and to those who joined us for a bbq. If you have any questions, feedback or anything you're unsure about regarding the new access agreement, please feel free to contact the directorate. And make sure you book on!



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CDAA State Events – Victoria May 2018

A great turnout at the Victorian CDAA social night organised by the State Rep Benn Walton. 40 members enjoyed dinner at the Bentleigh RSL, followed by two excellent (and very different) presentations on surveying and mapping. First up was a talk by TFM's Steve Fordyce on "quick & dirty" techniques to survey cave in challenging conditions. John Dalla Zuanna then treated members to a demonstration of the MNEMO cave surveying tool. There were lots of laughs and it was great to see some new faces. If you haven't been to one of these CDAA social nights before - keep an eye out for the next one and make sure you come along!



South Australia May 2018

We had a great turnout for the SA Social Night at the Maid of Auckland Hotel. 39 people attended which was great to see for SA! There were some old faces, some new ones and even a couple of prospective cave divers who are waiting for their course to start.



Thank you to all the suppliers who donated the demo equipment for our touch & feel portion of the night. Cave divers love playing with new gear and there were some very impressed looking people around the room! And thank you to everyone who helped out, spreading the word, setting up and packing up.

- The DiveTub / Scuba Imports
- Light Monkey equipment
- Halcyon Australia & Reef 2 Ridge
- Halcyon & Santi equipment
- Damien Siviero
- Underwater Light Dude lights
- Grant Pearce - Scurion lights

(Thanks James for bringing yours along!).

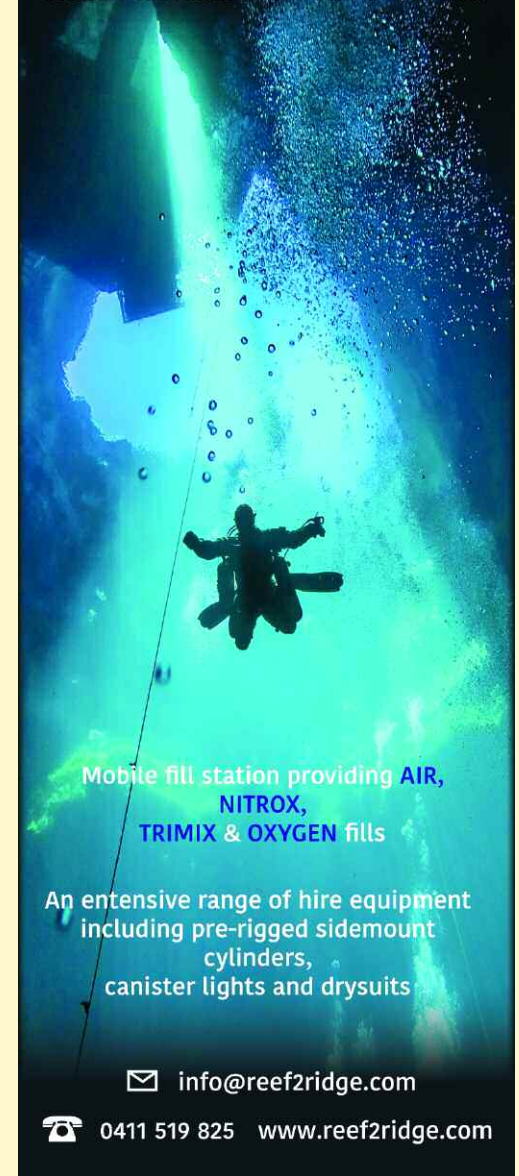
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Kilsby agreement allows cave divers association members to return

By Leon Rademeyer

AFTER two years without access, the gates to Kilsby's Sinkhole at Mount Schank are once again open to members of the Cave Divers Association of Australia. A new access agreement between the association and the Kilsby family now fulfills the objectives of both parties, paving the way for the association to regularly visit the site after a number of initial dives last weekend.



READY TO DIVE: Cave Divers Association of Australia site director Kelvyn Ball with Steven Meyer, CDAA national director Peter Wolf and Benn Walton at the Kilsby's Sinkhole pontoon near Mount Schank. The CDAA has recently secured a new access agreement with the landowners. Picture: ANNIE RADEMEYER

Famous for its crystal clear water and static diving conditions, the hole offers spectacular views from above and beneath the water's surface. Limestone cliffs rise to 20 metres from the water's surface, encircling the tranquil pool which reaches a maximum depth of 63 metres. Sinkhole site access manager Ben Kilsby told The Border Watch the Kilsby family had been working to diversify access to the unique site over the past three years.

He said diversifying access was in response to an ever-increasing interest in the sinkhole's use for a range of activities, including sightseeing and photography, snorkelling, freediving and "open water" recreational diving activity. To achieve this, the family has worked with insurers, legal advisers and diving industry representatives to develop a safety framework which guides all aspects of site access. "It's been a significant undertaking to build an

access model that was both responsible and sustainable," said Graham Kilsby, fourth generation operator of the family-owned farm that surrounds the sinkhole. "Naturally, any underwater activity has an element of risk and it was important from the outset that we developed a model which worked to ensure the safety of our guests." Ben Kilsby said the family felt a responsibility to share the site with others. "As a region, we have amazing natural attractions that are among some of the most unique in the world," he said. "It is important these sites are accessible to people for a variety of uses - not just to look at, but to interact and engage with." Since diversifying access, the Kilsby family has welcomed thousands of new visitors to the site and has received positive feedback - not only from visitors, but also from local businesses. "Over the past three years, numerous invest-

ments have been made at the site, including landscaping, the installation of lighting, toilets and showers and the creation of change rooms, training spaces and barbecue/ kitchenette areas," Ben said. "Plans are in place for the installation of a new viewing platform, which will greatly enhance the viewing of the sinkhole from the ground level." Ben said the CDAA played an important role in the industry by maintaining standards regarding the safe access to caves and other fresh water sites where advanced levels of training is paramount. "We look forward to working alongside the CDAA to continue to promote the unique, world renowned diving opportunities Mount Gambier has on offer," he said. Kilsby Sinkhole can be visited through booking with a licensed guide. Visit www.kilsbysinkhole.com



BACK ON SITE: Returning members of the Cave Divers Association of Australia celebrate at Kilsby's Sinkhole in Mount Schank after a hiatus of more than two years.

The Case of the Exploding Torch

Neville R. Skinner

Whilst preparing for a dive recently (I was already in my dry suit) at Fossils cave, a water dragon or the like, of a reasonable size about 30-40cm long and maybe around 10cms across the body, came out of the grass surrounding the doline, shot down the vertical rock face and then travelled about 50cms in a horizontal direction at an incredible speed into one of the grass covered holes in the northern side of the doline. It appeared to be of a black & white appearance, or should I say a black & white blur, because this creature moved so fast that it was difficult to capture an image on the retina. There were four of us present and I was pleased that one of the other three also reported seeing it, but was also not able to register any detail(s). At that point I decided to withdraw from the dive, so that I could look for the creature whilst the other three completed the dive.

After they entered the water I grabbed one of my backup dive torches off a tank, and proceeded to look in all the holes on the northern side of the doline. I had no luck seeing anything of interest and came away with nothing more than a few nettle stings. I then went across to the southern side of the doline and was checking out the holes when the torch exploded in my hand. The sound was like a shotgun going off, with a clear conical shaped image that resembled a shock wave, about 20cms long, emanating from the face of the torch, and a smaller conical shaped flash, bluish in appearance for the first 15mm, appeared within this. The foul odour given off was quite strong and I later learnt these fumes are very toxic and should not be breathed.

I instinctively dropped the torch on the ground, and when I bent down to pick it up, I found it was far too hot to handle and could only be picked up by the dog clip attached to it. The glass from the front of the torch was gone and there was brown staining around the reflector, but the LED remained in place.

I took it to the water's edge to cool it before deciding to let it cool naturally rather than allow

any contaminates to enter the water. I was thankful the torch was not made of plastic and that it had been machined out of aluminium, which had largely contained the explosive energy. The torch had contained two TOVATEC non-rechargeable Lithium CR123 dry cell batteries, out of four that came with my two backup torches, and are used for their longer burn time (no pun intended) and longer shelf life, compared to the usual Li-Ion or Li-Po batteries that one might suspect as being more likely to explode. The batteries had been in the torch for around two years and were still fully charged and ready for use. They remained in the dive tub with the other gear when not in use and were stored in the spare bedroom hallway between trips. I could think of no reason for them exploding, nor had they been mistreated in any way.

I have no doubts that had this happened in the vehicle or at home in the house whilst I was at

I then went across to the southern side of the doline and was checking out the holes when the torch exploded in my hand. The sound was like a shotgun going off!



The two destroyed batteries, with two others bought at the same time – note one is considerably swollen.

work, or sleeping, the result would have been far more serious.

Much has been written about rechargeable Lithium-Ion and Lithium-Polymer batteries and their reputation for exploding during charging, but that is not what I am talking about here. I am talking about **non**-rechargeable Lithium-Metal batteries exploding for no apparent reason. So what might have happened? I researched this and learnt that over time a crystalline structure called Dendrites will grow out of the Lithium metal anodes. As these Dendrites grow long enough they can short with the cathode, producing a heat source that in turn leads to a condition called thermal runaway, where the heat generation feeds on itself and the temp increases rapidly until the battery explodes.

I did locate one article at <https://seekingalpha.com/article/3976731-teslas-huge-mistake-thin-film-lithium-ion-batteries-power-ev-revolution> that explains in simple terms the history of batteries, the different types and gives some insight into the pros & cons for each battery. (*I highly recommend reading this article if you have any interest in batteries.*) In this article it says:

“Experimental Lithium Metal batteries had existed in the literature for many decades, but were considered too dangerous because of their unfortunate tendency to explode. Finally, in 1981, Dr. John Bannister Goodenough of Oxford University had a breakthrough and invented modern Lithium Ion batteries, specifically the Cathode material which makes them possible. Sony commercialized the technology in 1991 when it paired the new cathode material with a charcoal anode. The revolutionary batteries became an

instant blockbuster, and helped Sony sell a tremendous amount of equipment like hand-held video recorders. All modern Lithium batteries, including Tesla's, derive directly from this technology.”

Another good article *“Stabilizing lithium metal using ionic liquids for long-lived batteries”* can be found at <https://www.nature.com/articles/ncomms11794>, where it explains how they discovered

that immersing the electrodes in ionic liquid electrolytes for a period of time before battery assembly suppresses dendrite formation at the lithium metal anodes during cycling, thus preventing the battery from exploding.

So it seems that Lithium-Ion batteries were created to replace the unstable Lithium-Metal batteries that were inclined to explode, leaving me puzzled as to why it is still possible to buy the mongrels. Further research on this led me to http://batteryuniversity.com/learn/article/primary_batteries:

“High specific energy, long storage times and instant readiness give primary batteries a unique advantage over other power sources. They can be carried to remote locations and used instantly, even after long storage; they are also readily available and environmentally friendly when disposed.”

“The most popular primary battery is alkaline. It has a high specific energy and is cost effective, environmentally friendly and leak-proof even when fully discharged. Alkaline can be stored for up to 10 years, has a good safety record and can be carried on an aircraft without being subject to UN Transport and other regulations. The negative is low load currents, limiting its use to light loads such as remote controls, flashlights and portable entertainment devices. **Moving into higher capacities and better loading leads to lithium-metal batteries. These have very strict air shipping guidelines and are subject to Dangerous Good Regulations involving Class 9 hazardous material. (See BU-704a: Shipping Lithium-based Batteries by Air.)**

The Figure 1 compares the specific energy of lead acid, NiMH and Li-ion as secondary, as well as alkaline and lithium-metal as primary batteries.” (Yes, I understand Lithium-Ion and Lithium-

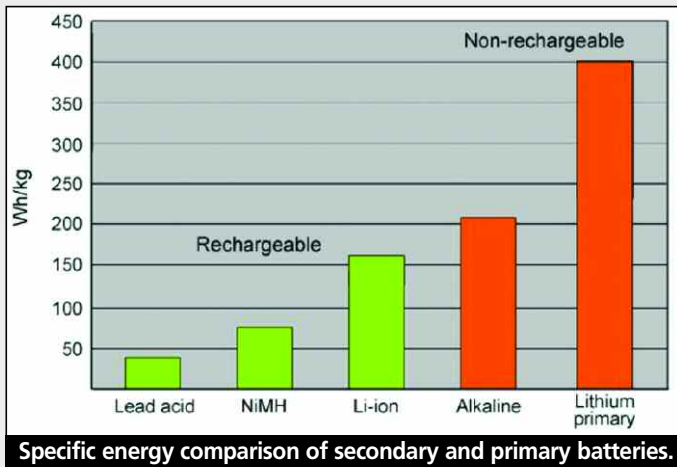
Polymer batteries can also explode, but as far as I know this is invariably when being recharged under incorrect or uncontrolled conditions, leading to overvoltage or overcurrent charging, again resulting in the battery getting hot and then running into thermal runaway. It is worth saying here, that one must always use a good quality, properly designed Li-Ion charger to charge Li-Ion batteries, as it is the electronic circuitry that prevents them from exploding. And one should only use high quality brand-name Li-Ion batteries that contain the appropriate internal electronic circuitry to prevent overcharging or overvoltage.)

The Lithium Batteries Safety Guidelines for the Concordia University in Montreal, Canada says:

2.2 Lithium-Metal Batteries.

Lithium-Metal batteries (Figure 3) are known as primary batteries and are usually non-rechargeable. They contain metallic lithium and feature higher charge densities (longer life) than other non-rechargeable batteries (e.g. alkaline or zinc-carbon). The most common type of lithium batteries use metallic lithium as anode, manganese dioxide as cathode and a salt of lithium dissolved in an organic solvent, usually composed of a mixture of a high-permittivity (e.g. propylene carbonate) and a low-viscosity solvent (e.g. dimethoxyethane).

Having a longer life, lithium-metal batteries can replace ordinary alkaline batteries in many consumer devices, such as calculators, pacemakers, remote car locks, cameras or watches.



And at http://batteryuniversity.com/learn/article/bu_304c_battery_safety_in_public, it says:

“While Li-ion is rechargeable, there are non-rechargeable lithium batteries that exceed Li-ion in capacity. They contain a metallic anode and are often called lithium-metal. This increases volatility and these batteries are subject to tighter shipping regulations than the more benign lithium-ion. Primary lithium batteries come in many varieties and are mainly used for industrial uses. (See BU-106a: Choices of Primary Batteries.)

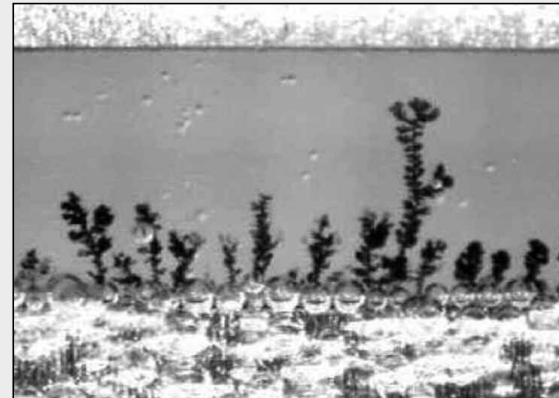
From http://batteryuniversity.com/learn/article/safety_concerns_with_li-ion:

“All batteries carry a safety risk, and battery makers are obligated to meet safety requirements; less reputable firms are known to make shortcuts and it’s “buyer beware!” Battery manufacturers strive to minimize the presence of metallic particles. The semiconductor industry has spent billions of dollars to find ways in reducing particles that reduce the yield in wafers. Advanced clean-rooms are Class 10 in which 10,000 particles larger than 0.1µm per cubic meter are present (ISO 4 under ISO 14644 and ISO 14698). In spite of this high cleanliness, particle defects still occur in semiconductor wafers. Class 10 reduces the particles count but does not fully eliminate them.”

“There are two basic types of battery failures. One occurs at a predictable interval-per-million and is connected with a design flaw involving the electrode, separator, electrolyte or processes. These defects often involve a recall to correct a discovered flaw. The more difficult failures are random events that do not point to a design flaw. It may

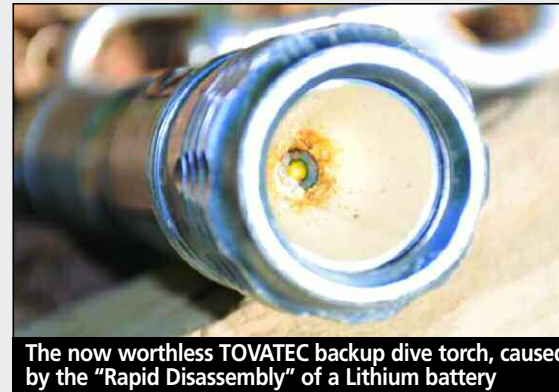
be a stress event like charging at sub-freezing temperature, vibration, or a fluke incident that is comparable to being hit by a meteor.”

“A mild short will only cause elevated self-discharge and the heat build-up is minimal because the discharging power is very low. If enough microscopic metallic particles converge on one spot, a sizable current begins to flow between the electrodes of the cell, and the spot heats up and weakens. As a small water leak in a faulty hydro dam can



The now worthless TOVATEC backup dive torch, caused by the “Rapid Disassembly” of a Lithium battery

develop into a torrent and take a structure down, so too can heat build-up damage the insulation layer in a cell and cause an electrical short. The



The now worthless TOVATEC backup dive torch, caused by the “Rapid Disassembly” of a Lithium battery

temperature can quickly reach 500°C, at which point the cell catches fire or it explodes. This thermal runaway that occurs is known as “venting with flame.” “Rapid disassembly” is the preferred term by the battery industry.”

For those seeking information on the best battery to use for a particular application, or the best method for charging a particular battery, etc., I highly recommend you read the articles found at

<http://batteryuniversity.com/learn/>.

This is one of the most informative websites for battery information that I have seen and is a must-read for anyone considering designing or assembling their own battery packs.

The bad news is that I not only need to buy new batteries, but I also need a new torch.

The good news – I get to keep my house!

Note:

- 1. Incorrect treatment of batteries includes excessive vibration (such as bouncing around in a dive tub in the back of a trailer or 4WD), elevated heat and charging Li-ion below freezing.**
- 2. It is advisable to store batteries when not in use in the refrigerator – this keeps them stable and extends their storage life dramatically.**

Did you see the latest Feature. . .

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Bent in Eucla 2014

Peter Mosse (CDAА 347) and Graeme Bartle Smith (CDAА 237)

Homeward, farewells and the trailer saga at Eucla. A silly trailer jack knife, a bent axle and a dented bumper and rear panel and it's all over. We leave the trailer at Eucla, load as much as we can onto a pallet and head off without the trailer. The gear will hopefully follow us home in a week or so, a few \$ poorer. Not worth worrying about, good dives, good company, good food, no injuries and it's a minor blemish.

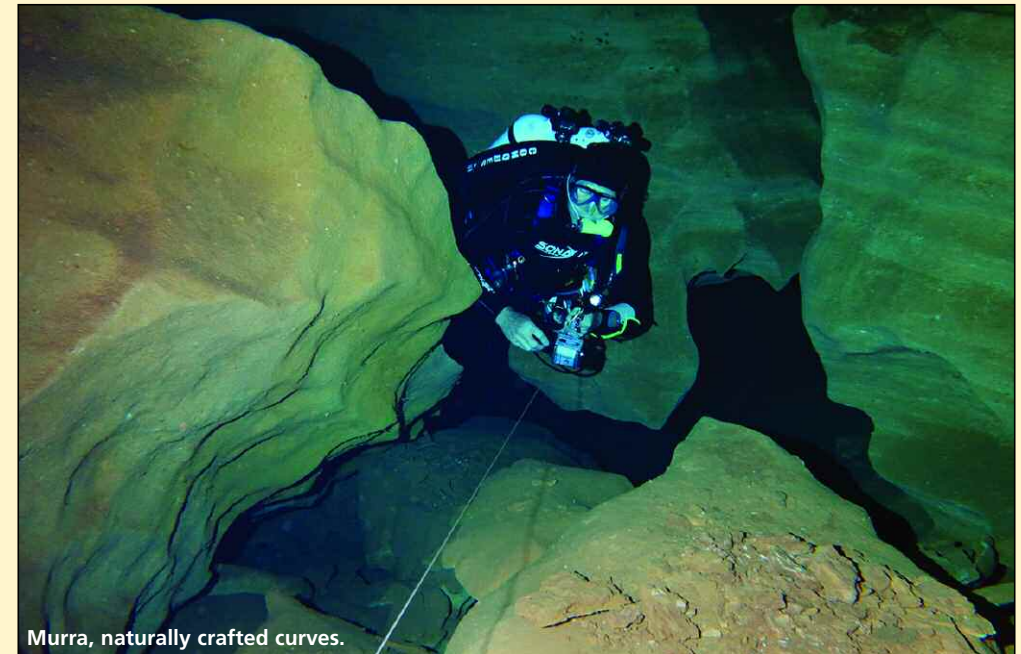
Nullarbor diving requires planning. Lots of it. And if things go wrong, even more planning! Pete's dive log records it thus, (*as per the intro para!*)

Graeme's dive log records it this way. Actually, he prefers not to record it.

We had decided that since we could use a company car for the trip we would. However, we

were also aware from some of the reading on diving the Nullarbor that a 4WD would be useful. We decided to drive the company car and trailer to Ceduna, hire a 4WD and continue on. We transferred gear from the car to the 4WD ute, switched the trailer over and continued on.

We dived Weebubbie and Murra El Elewyn, met up by chance with Peter and Andrew, both sea-



Murra, naturally crafted curves.

soned Nullarbor campaigners and had a thoroughly wonderful series of dives.

On the way home, we intended to check out the Eucla Telegraph station. Heading east after our

diving was complete, we drove past the turn-off a short way. Graeme, who was driving at the time, decided to back up, kind of forgetting we had the trailer on.



Weebubbie Lake.
Why would you not go?



Weebubbie, big and white.



The abandoned trailer at Eucla roadhouse.

Hours and hours of a long, straight strip of bitumen, mesmerising white dots, dry heat and being engrossed in a talking book; all combine to rid the mind of key pieces of information – like “you’ve got a trailer on the back”. So, a jack knife resulted. A quick look and all seemed OK, so we drove to the Telegraph Station, walked on the beach and admired the view. Eventually we decided to head off. Stopped at the Roadhouse had a drink and drove on. Things seemed OK. A short distance out of Eucla is the fruit inspection point. We stopped and I decided to check the trailer. The bear-



The loaded pallet on arrival back home. Mostly safe and sound.



The trailer on arrival at Ceduna prior to the transfer to the hired 4WD.

ings on one side were smoking, due to a bent stub axle, and it was clear the trailer wasn't going far.

This then raised the awkward question of how to get the equipment home.

Nothing for it but to limp back to Eucla. We quickly realised that any repair process was going to be long and tedious so we made the decision to abandon the trailer at Eucla.

After many phone calls to transport companies and much discussion with the people at the roadhouse, we finally arranged for a single packed pallet of equipment to be picked up and delivered to Melbourne on a regular run across the Nullarbor.

We organised a pallet from the Eucla roadhouse and then spent hours figuring how to get the maximum amount of equipment on the pallet and get the rest into the 4WD Ute. We certainly tried many configurations but we just couldn't fit it all in. Particularly the extension ladder, so that had to go! We left that in part payment for assistance by the road house owners who certainly helped us out.

A week or so later, our pallet arrived back in Morwell, none the worse for wear.

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Greece, Europe's Newest Cave Country

By Stratis Kas

For the occasional, or even the habitual, summer visitor to Greece, the country has long been associated with pristine beaches and turquoise seascapes. For the tech diving community, the country embodies a historical playground with countless wrecks dating from ancient times to World War II. But for a small group of local divers, Greece means caves, all kinds of caves: from amazingly decorated sea caves reminiscent of cenotes to pure, untouched, mountain springs, there are caves with big rooms and caves with tight tunnels. So, the question is, could Greece be Europe's newest cave country?

Logistics have been a challenge in Greece. It's hard to fill trimix outside of Athens, so divers undertaking exploration must bring everything with them. This, along with the fact that Greece is not connected to central Europe by an "easy drive south," as is the case with the Lot region in France or even Italy, has kept it off the map for European cave divers.

Even so, for cave aficionados, Greece is undoubtedly the place to visit next. Because they have been complicated to visit and therefore neglected, most caves here are unexplored and feel "new" to most divers who have visited so many caves elsewhere. Cave divers love the sport for many reasons, but they all share the joy of being somewhere seldom visited. Though there are likely no caves that are entirely unexplored, rarely visited spots are plentiful. Caves with unmarked passages or even entire branches are here waiting to be "discovered."

AMPHITRITE CAVE, PAROS, CYCLADES

The sea cave of Amphitrite lies between the Cycladic islands of Paros and Antiparos and is special. There is no available historical information

about its formation, age, or under what conditions it flooded. It's a solution cave, which means a diver will come across an atypical variety and quantity of speleothems, the result of mineral depositions.

Impressive stalactites and stalagmites in various sizes and forms will remind visitors of typical cenotes and caves. The cave ceiling is mostly covered by straws, though divers will also come across impressive draperies, flow stones, and massive columns. One of the most unique characteristics of this cave is the "snow white" valleys and cliffs resulting from millennia of deposits.

Locally known as "The Hole," the cave is accessible by boat, but unless you know exactly where it is it is hard to find even when you are right on top of it. GPS coordinates do not help much either, as the in-water-landscape is similar throughout the area; many holes mistakenly give the appearance of a cave entrance. Once located, however, the entrance is impressive on its own.

An almost perfect triangle with a secondary, smaller opening next to it that allows for a convenient and safe primary tie-off is what the diver sees first. Once through the opening, there is a

small cavern zone with plenty of daylight that comes in through the many smaller openings on top. This offers a perfect spot for deco, as there are plenty of small fish and colorful sponges and corals. Once through the cavern, the main line begins.

Upon entering, there are two options: head straight to the deeper section known as the "cathedral" that goes 50 m deep, or go to the longer, shallower passage called the "attic" that ranges between 16 m to 27 m depth. Beginning from the attic's secondary tie-off, divers immediately see the feature Amphitrite is known for: an almost surreal, snowy mountain aerial view is the closest analogy that comes to mind. Dark rock formations resembling mountains are covered with sediment that looks snow white due to the water's blue natural "filter." The "snow" also covers the floor and is part sand, part clay. Water temperatures here range from whatever the open water is (depending on the season this can vary from 25 degrees Celsius in August to almost 15 degrees Celsius in March) to a constant 16 degrees Celsius in the actual cave, creating a thermocline that is not visible but is felt, even in a wet-suit.

Continuing through the attic, divers make their way to the main room, which is the size of a concert hall with a series of formations on the surrounding walls. In this room, many jumps lead to secondary passages, most of which are suitable for back-mount configuration.

Visibility exceeds 30 m most days, so divers can fully appreciate the incredible decorations of the cave. Spectacular "cages," or valleys with 0.5 – 1.5 m formations that look like alligator teeth, and the ever-present decorated walls and roof complete the picture. There are also columns more than 15 m high that resemble the world-famous stalagmite of the Antiparos dry cave, the oldest in Europe and is estimated to be 45 million years old.

Further into the cave, divers arrive at the second main line that leads into the deep part where the temperature drops and the rooms are much larger. From here divers can see the "snow mountains" even better as these deeper rooms are full of them. The main line leads the way from 47 m deep with another 3 to 5 m below it to the cave floor at 52 m depth. A significant component of the rocky bottom is the carbonate rocks where karstic processes have resulted in the formation of



Divers visiting Sintzi Spring must enter the cave via the natural pool.

this marine cave. Amphitrite rock formations are very dark, much darker than what we normally find in a sea cave in the area. They are, however, almost entirely covered with sediment leaving us with the impression that we are in a bright white cave. As if the natural beauty of the cave was not enough, Amphitrite's decompression-stop locations seem man-made. There are comfortable "shelves" from 21 m to 12 m in the cavern with the exit at 9 m. During deco, divers can enjoy sponge species covering the cave, a number of common fishes such as groupers, damselfish, porgies, or nocturnal species, and even lobsters. For cave divers who prefer sites that do not require extreme penetrations or depths but who still enjoy formations, Amphitrite is the perfect cave. Maximum penetration can be done with or without rebreathers and does not require a DPV. Like most sea caves, it is not a particularly long cave, but there is so much to explore in all the side passages that divers can easily stay busy for a series of dives.

As mentioned before, Amphitrite is only reachable by boat. The Top2Bottom team offers guided visits, equipment rental, luxury accommoda-

tion, and full logistical support for divers who wish to visit or train at this site.

SINTZI SPRING, ARCADIA, ANCIENT MANTINIA, PELOPONNESE

The drive from Athens to the Sintzi Spring (also mentioned as Sizzi) in the Peloponnese is a singular treat. A landscape filled with natural beauty and historical sites emerges once the industrial surroundings of Athens are left behind. Most of the drive to the spring follows the coastline and provides spectacular views. The trip takes about 2.5 hours; the last portion before reaching the spring is on a small, easy mountain road and is found just before the village of Kandyla of Arcadia. Sintzi is the spring of the country's largest underground river and is home to Greece's deepest cave, exceeding the depth of 180 m and a penetration of over 1,500 m.

To enter the cave, divers must walk through a short, shallow, natural pool. Once in front of the cave's entrance, divers must conduct their last checks before submerging entirely into the water. The depth of the pool at the entrance varies depending on rainfall and the season, from 1 m to a mere 0.5 m, which makes it a bit challeng-

ing to enter. To pass through the entrance, divers must negotiate a tight restriction by crawling through; though all types of configurations can successfully pass, contact with the walls and roof is certain. The restriction is short and not dangerous, but could be a bit of a challenge for a novice diver.

Once through the restriction, divers arrive at the first chamber where the main guideline begins. Already the characteristic sharp formations of the cave are evident. The dive begins at a depth of about 7 m and unless divers decide to visit the "wells" that drop to more than 200 m, depth seldom exceeds 20 m anywhere in the cave. Visibility is always more than 30m as there is very little sediment. What little sediment is present gets quickly washed out by the flow.

Sintzi is a complex cave system by Greek standards and can be considered a circuit. There are many side passages, but not all are marked or have a guideline. The main line is in excellent condition with the appropriate markings and letter tags so that divers with a map can easily navigate. After the initial restriction, there are no more tight passages, and the divers can penetrate in relative comfort mostly single line. Still largely unexplored

and suitable for rebreather and/or DPV diving, Sintzi is an ideal cave for divers who are looking for extreme depths and possible virgin passages.

ARKADIKO CHORIO CAVE, PELOPONNESE

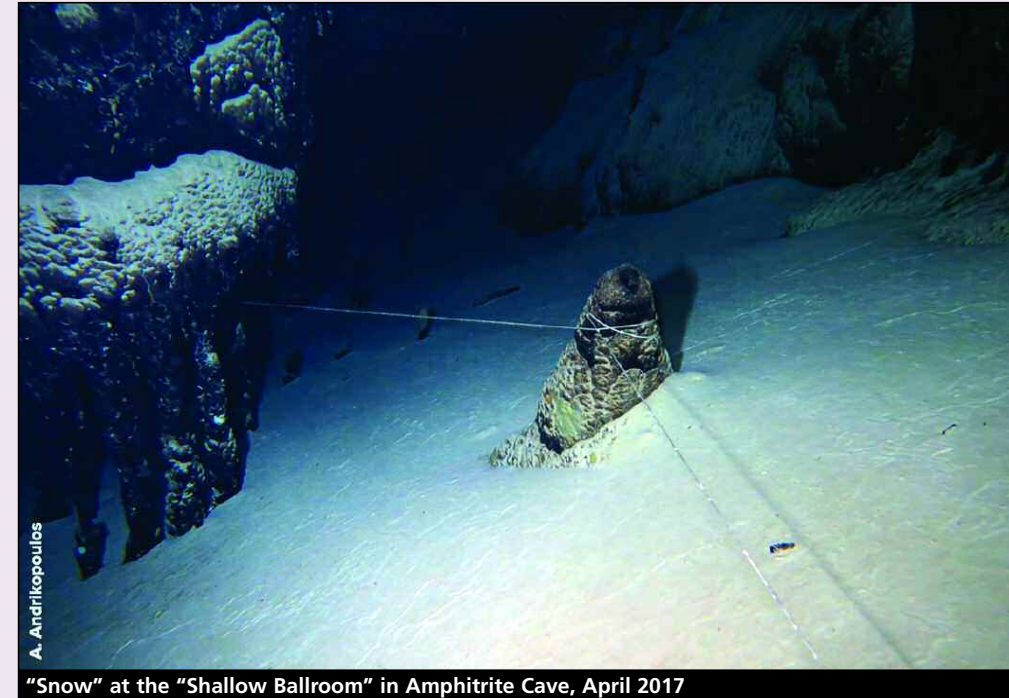
Still in the Peloponnese, not far from Sintzi, we find the coastal village of Arkadiko Chorio, which belongs to the municipality of North Kynouria in the prefecture of Arcadia. The village lies over a hill, which leads to a nice beach where the cave's entrance is found. Not more than 70 m from the sea and right next to the beach parking lot between short trees and bushes, there is a sinkhole of approximately 15 m by 4 m in size. For safety reasons, the sinkhole is fenced and has a gate; the municipality of Arkadiko Chorio must be contacted prior to a dive to arrange for the gate to be opened.

Once through the gate, a short path leads to the water where stage bottles can be attached to a rope. Divers dress in the parking area and walk to the water, as there is not a lot of room next to the entrance to gear up. Once ready, divers can jump (a 3 m drop) or walk to the water.

Divers descend vertically to the bottom of the sinkhole, where at a depth of 30 m they pass



Floating in the "Main Room" in front of stalactite drapes at -35m in Arkadiko Chorio Cave, July 2017



"Snow" at the "Shallow Ballroom" in Amphitrite Cave, April 2017

through an opening that marks the beginning of the cave zone. Inside the cave, the visibility is limited only by the power of divers' lights. The main room is large, 60 m by 20 m with a max depth of 55 m. The vast majority of the cave's walls and its ceiling are covered with fragile draping stalactites. Though many of them are impressive in size, none can compare to the main stalagmite that stands practically in the center of the cave and measures more than 20 m high. This cave is also not fully explored.

A permanent guideline begins at the right side of the cave entrance and follows the wall in a counter-clockwise direction, for almost 75% of the cave. Once the stalagmites end, so does the line. Any diver looking for massive rooms and intense decoration will find Arkadiko Chorio cave exciting and well worth a visit.

EPILOGUE

These are only a few of the many caves in Greece. The country's natural landscape diversity offers a variety of cave types, from super-silty tunnels like Kefalovryso in the Peloponnese to giant caves filled with 28 degrees Celsius water like Vouliagmeni Lake in Athens. As cave training

picks up momentum here, both local and international divers are choosing Greece as the location for their certification courses.

Top2Bottom is a group of passionate people from a variety of disciplines: trained cave divers, instructors, scientists, photographers, film makers, composers, writers, and IT technicians who are joined by their love of nature and exploration. This experienced team specializes in exploring, surveying, professional filming, and editing using a blend of cutting edge technology and modern media applications. These results are reported to the scientific community and used to educate the public on what cave diving is and its global importance.

While the team's primary focus is on the fragile and important Mediterranean Sea region, Top2Bottom is available for projects around the world. Top2Bottom also offers full support for cave divers who wish to visit or train in Greece.

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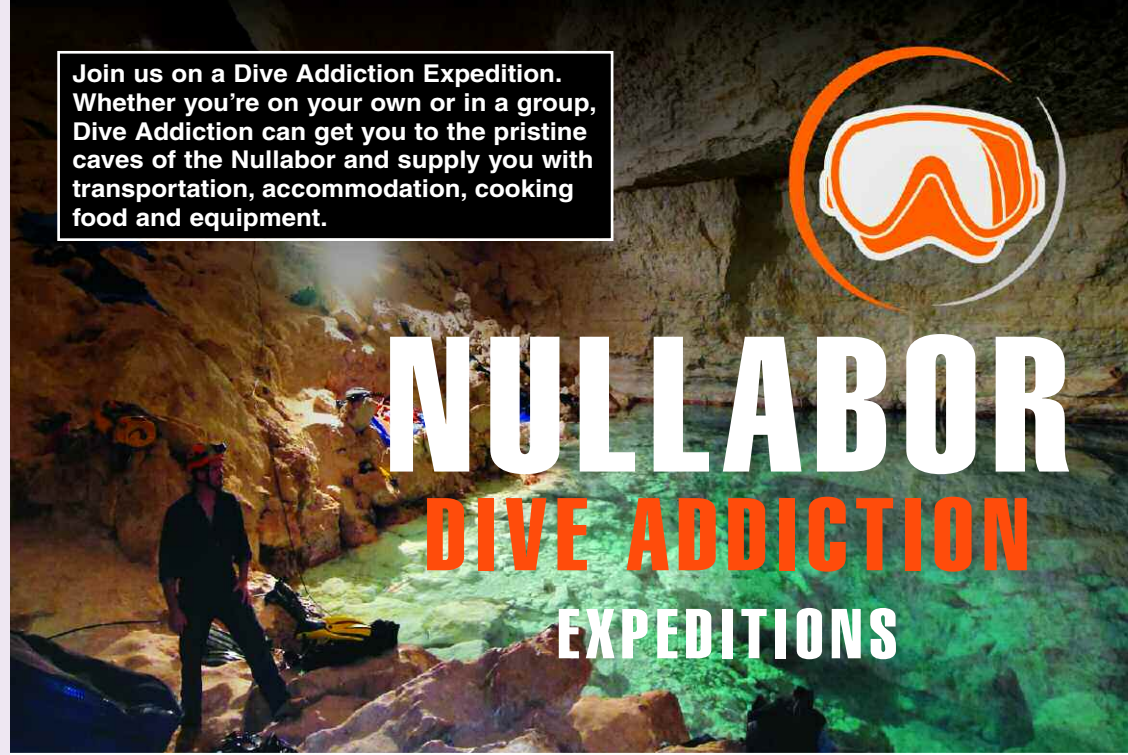
Floating in the "Main Room" in front of stalactite drapes at -35m in Arkadiko Chorio Cave, July 2017

V. Tsieliris

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*Terms & Conditions: All participants must be certified cave divers and will be involved in all aspects of camp set up, meal preparation and gear hauling. A minimum of 6 and a maximum of 10 participants is required for a guaranteed departure. Trips are based on single site expeditions, multi-site expeditions subject to additional charges. An additional Credit Card Service Fee will be applied to the dollar amount paid by credit or charge card. Prices and inclusions are correct at time of issue and are subject to change. Offers may be withdrawn at anytime without notice.



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Cave diving in Switzerland

Beat Müller (English translation by HJ. Stieger)

Swiss Cave Diving was founded in January 2004 by Fritz Schatzmann, Beat Müller and Trudy Müller. All founding members already had approx. 15 years of experience in cave diving at that time and wanted to make their experiences accessible to a broader public and, above all, to promote contact with peers and also raise awareness for the environmental protection aspect in relation to cave diving. Swiss Cave Diving, was founded as a legal entity under Swiss Civil Code and is neutral politically and in relation to confessional matters. In the meantime, the association is 13 years old and established not only in Switzerland, but also beyond the national borders within 9 European countries.

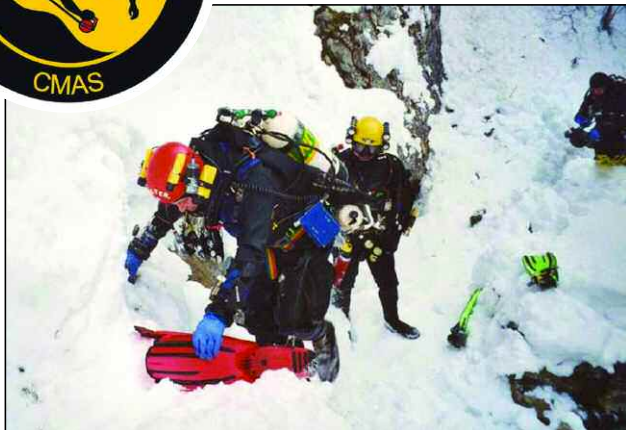
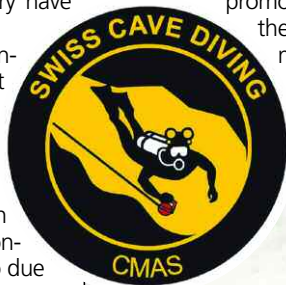
According to its statutes, the associations' primary goal is the safe education of cave divers and the development of suitable training material. In addition, Swiss Cave Diving fosters behaviour which ensures the protection of the caves. A false fin kick, a thoughtless movement, and already a few thousand years of history have been irretrievably lost.

Thus, not only the corresponding diving technique, but also the necessity of observing safety standards, is taught during training. Furthermore, for the association a good public perception and comprehensive nature conservation is critical. This is also due to the fact that the respective theoretical part of the training is mediated by a representative of the Swiss Society for Cave Research (SGH, see below).

Who can become a member?, Go's" and No Go's of Swiss Cave Diving...

All divers who are interested in caves, or are interested in a recognized cave dive certification, as well as divers who have already started

with a cave dive training, can become a member. The association is characterized by openness and comradeship. To this extent all those are welcome for whom technical/cave dive is not a "substitute religion", but for something to enjoy. The association is not concerned with ideology but with the promotion of togetherness and the enjoyment of the beauty of nature below our feet. At the moment, the number of members is 130, distributed among 19 cantons in Switzerland (from all three linguistic regions) and ten countries (CH, D, A, NL, IT, F, Li, Lux, Spain, Aus).



This also shows that the community of cave divers has always been internationally connected. Unfortunately, this development does not apply to all associations, partly because subsections of certain associations do not recognize the certifications of another subsection.

Since all activities are financially self-sustaining, the annual contribution was kept at a very low level of CHF 20.

Connection to SUSV

The SUSV (Swiss Underwater Sports Association) is the umbrella organization of all divers in Switzerland. This is, in turn, connected to the World Sports Association CMAS, but since 2003 no longer in the field of training. CMAS diving training in Switzerland has since been carried out exclusively by the instructors of cmas.ch.

Some of the Swiss Cave Diving members are also part of the SUSV through their "normal" diving club or as a single member. Since 2014, Swiss Cave Diving itself is now also a collective member of the SUSV.

Connection to cmas.ch

Several certified Swiss Cave Diving instructors are also instructors with active status at cmas.ch, as well as colleagues from abroad. The past (and founding) President of Swiss Cave Diving, Beat Müller, has also been head of the Department of Cave Diving of CMAS.ch for 13 years and from 2004 to 2013, has been Head of the Cave Diving Working Group of CMAS International.

Training staff

Currently, the association has two Cave Diving Staff Instructors (instructor trainers/course directors), eleven Full Cave Diving instructors and three Cavern Diving Instructors, some of them also with dive instructor activities by cmas.ch. Most of them are also holders of numerous other instructor certificates in the field of TEC-diving, be it from cmas.ch or other recognized associations.

Scooter group

It is also interesting that approximately 25 members of Swiss Cave Diving have one or more Scooter, practically all SUEX Zeuxos, from ADV-7 "for the small luggage" up to the big XK-1. With 30 such "toys", this makes the association probably the largest scooter diving group in Switzerland.

Connection to SGH

The SGH (Swiss Society for Cave Research) is an organization well known beyond the national

borders. While their main focus is dry research, they still have a diving committee. In addition, some Swiss Cave Diving members are also members of the SSS (Spéléo Secours Suisse), the national cave rescue team.

In the past, numerous attempts have been made between the two presidents of SGH and SCD to work together. Unfortunately, on the decisive vote on whether to accept Swiss Cave Diving as a new SGH section, a thin majority voted against. Too big was the ill-advised and groundless fear, that "foreigners" could penetrate "their" holy caves. SCD reacted by founding a new scientific & research commission. Currently, a team is working on the complete renewal of the mainline in the famous cave of Vallorbe (Source de l'Orbe, Switzerland).

Training / Courses

The focus of the training offered by the instructors of Swiss Cave Diving is in the training courses Cavern / HT1 (only Switzerland), Cave / HT1/2 combined course (CH + F), HT2 (CH + F) and Full Cave / HT3 (CH + F).



The Swiss karst topology entails that HT2 and especially HT3 courses in Switzerland would be much too expensive. Here other areas are more suitable, such as the Lot / Dordogne or Ardèche area in France. There you find a sufficient number of caves which are suitable for training and can be found within a radius of 50 min. travel time from the base camp in Rocamadour.

The courses Spéléo Suisses as they were called, which have been held there since 1988 (by W. Keusen at that time), are already legendary and are literally world famous. Cave divers from all over the world are participating in the courses, including guests from Australia (Rick Nash). These 2 x 1-week seminars are very well attended with about 20-30 participants per week and offer the right mixture of communal experience, adventure, hard UW-work, beautiful nature, exciting dives and active holidays.

Usually, two seminar blocks are held, one during the Ascension/Pentecost period, one (in a smaller circle) mostly in autumn. Also in autumn, a further HT1 course in Switzerland is usually held for people who are late starters.

New, cave diving weeks are also held in autumn in Sardinia. In addition, a whole series of further courses around caves or technical diving will be offered, such as Nitrox, Trimix, Ice- and Wreck Diving, Scooter and Sidemount.

Last but not least, SCD started giving courses in Mexico, at the Riviera Maya, in Germany and on Mallorca, a prime European holiday site.

Website

The swiss-cave-diving.ch website, which was launched in 2004, has also developed into a well-known stopover in cave diving circles, which has an annual audience of approx. 250,000 visitors. In addition to almost daily news, it offers an inexhaustible source of literature, downloads, videos, links and inspiring photos from the caves of this world, above and below water.

Development from 2014 on

From spring 2014 on, Swiss Cave Diving acts as an independent training association on the worldwide market and issues its own certificates. However the status of an accredited cmas.ch dive- and training center has been retained so far. Due to the fact that the Standards Director of Swiss Cave Diving, the former president Beat Müller, is the author of the CMAS International Standards for Cave-/Sidemount-/Scooter-/Wreck- and Ice-Diving and therefor the legal holder of all intellectual property rights, the switch was swift

and easy.

During the past 3 years, the Standards have been permanently updated and adapted to new challenges, such as Scooter- and Sidemount Diving in Caves and last but not least Cave Diving with rebreathers (CCR only, which are EN14143 certified).



About Beat A. Mueller

Born on 03.01.1953 in Bern (Switzerland), having a M.Sc. in Mech. Eng. from the Swiss Federal Institute of Technology (ETH), he has been working nearly 20 years in the computer science industry. From 2010 to his retirement in January 2016 he was working as a project manager in one of the biggest Swiss Enterprises, with focus on energy procurement.

Beat Müller began diving in 1980 and can look back on over 4500 dives all over the world, of which over 700 are in wrecks and caves.

Start of his instructor career was back in 1983 (M1 CMAS) and up to the top as a National Instructor (4*CMAS) in 2009. Besides this, he holds numerous other instructor certifications from CMAS, NAUI, PADI, FASSAS and SCD. Appointed Staff Instructor Cave Diving by cmas.ch in 2004. In the mid-eighties, cooperation with Prof. Dr. A.A. Buehlmann in Zurich, with his direct involvement in the high altitude diving research- and test-program up to 2500m asl. He was the responsible software engineer who wrote the software for the famous '86 Bühlmann air-diving tables, as well as the high altitude dive tables for the diving expedition of a group of divers of the British Rhine Army at Lake Titicaca at 3800m asl. He also gave contributions to publications such as "Decompression – Decompression Sickness (Bühlmann) and "Deeper into Diving" (J. Lippman).

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CDAА SITE ACCESS - www.cavedivers.com.au

Remember: Access is a privilege, not a right. Please be considerate of landowners wishes.
BC = BASIC CAVE C = CAVE AC = ADVANCED CAVE

SITE	LEVEL	OWNER	ACCESS DETAILS
MT. GAMBIER - SA Ewens Ponds	Nil	DEWNR	Groups of 6 or more, phone DEWNR on (08) 8735 1177 for booking. Smaller groups, no need.
Gouldens	BC	DEWNR	<p>Complete a permit and indemnity online at: https://www.environment.sa.gov.au/parks/find-apark/Browse_by_region/Limestone_Coast/piccaninnie-ponds-conservation-park/booking/diving/diving-indemnity-form</p> <p>Bookings for Piccaninnie Ponds can be made online at: https://www.environment.sa.gov.au/parks/booking#PiccaninniePiccaninniePondsConservationPark</p> <p>To Book Gouldens, The Sisters and Fossil phone DEWNR on 08 8735 1177.</p>
The Sisters	BC	DEWNR	
Fossil	C		
Piccaninnie Ponds	BC	DEWNR	
Horse & Cart Tea Tree	BC BC	Dale & Heather Perkins Dale & Heather Perkins	Phone (08) 8738 4083 or email dhperkins@bigpond.com at least 24 hours in advance.
Little Blue	BC	District Council of Grant	Booking can be made online from www.cavedivers.com.au .
Allendale	C	District Council of Grant	Obtain key from Lady Nelson Tourist Information Centre.
Ela Elap	BC	Dean & Carol Edwards	Obtain key from Management at Bellum Hotel.
One Tree	BC	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 CDAА website).
Hells Hole	BC	Forestry SA	Booking can be made online from www.cavedivers.com.au . Show ForestrySA Permit to obtain key from Lady Nelson Tourist Ctr.
Pines	C/AC	Forestry SA	Bookings can be made online from www.cavedivers.com.au . Cave Rated divers cannot enter Advanced Cave Section of Pines.
Mud Hole	C	Forestry SA	Bookings can be made online from www.cavedivers.com.au
Nettle Bed	AC	Forestry SA	Bookings can be made online from www.cavedivers.com.au . Show ForestrySA Permit to obtain key from Lady Nelson Tourist Ctr.
Stinging Nettle Cave	AC	Forestry SA	Bookings can be made online from www.cavedivers.com.au . Show ForestrySA Permit to obtain key from Lady Nelson Tourist Ctr.
Iddlebidy	AC	Forestry SA	Bookings can be made online from www.cavedivers.com.au . Show ForestrySA Permit to obtain key from Lady Nelson Tourist Ctr.
Kilsby Sinkhole	BC	Kilsby Family	Bookings can be made online at www.cavedivers.com.au Email: kilsby@cavedivers.com.au

CDAА SITE ACCESS - www.cavedivers.com.au

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CN = CAVERN S = SINKHOLE C = CAVE AC = ADVANCED CAVE

SITE	LEVEL	OWNER	ACCESS DETAILS
MT. GAMBIER - SA (continued) The Shaft	BC/C	Trevor Ashby	Booking can be made online from www.cavedivers.com.au . Landowner mandates Dive Supervisors (with their own Insurance) leading all dive trips.
Engelbrechts - East - West	C AC	Mt Gambier Council Lessee: Ph: 08 8723 5552 Owner:	Obtain key from Lady Nelson Tourist Information Centre. Diving should be avoided after heavy rain due to possible water contamination. Diving hours are now restricted to 8am to 8pm CST.
Three Sisters Access available for	AC	Wattle Range Council	Download Indemnity from www.cavedivers.com.au and email to council@wattlerange.sa.gov.au . A \$30 processing fee can be made over the phone on (08) 8733 0900 after Council has received your indemnity. Allow 4 wks for indemnities to be processed.
Tank Cave	AC	CDAА	Bookings can be made online at www.cavedivers.com.au Booking Officer is Noel Dillon Email: tankcave@cavedivers.com.au
Baker's Cave	C	Janet & Bruce Saffin	Bookings can be made online at www.cavedivers.com.au Booking Officer is Matthew Skinner. Email: bakerscave@cavedivers.com.au Climbing equipment required. One member must have previous dive experience at site.
NULLARBOR - WA			
Cocklebidy	C/AC	WA Dept of Parks & W'Life	Apply in writing for permission to dive at least 4 weeks in advance of trip to:
Murra El Elevyn Tommy Grahams	C/AC C	WA Dept of Parks & W'Life WA Dept of Parks & W'Life	District Manager, PO Box 234, Esperance, W.A. 6450. Phone: (08) 9083 2100.
Burnabbie	AC	WA Department of Lands	Apply in writing or email for permission to dive at least four weeks in advance of trip.
Olwolgjin Cave	AC	WA Department of Lands	Miss Shannon Alford, Email: Shannon.alford@lands.wa.gov.au Phone: (08) 6552 4661 Fax: (08) 6552 4417
Weebubbie	S/C	WA Department of Lands	P.O. Box 1143, West Perth WA 6872. A site indemnity form must be filled out for each visit to the site. Diving permission acknowledged by official letter from Land Owner.
WELLINGTON CAVES - NSW			
Limekiln (McCavity) Cave	C/AC	Wellington Caves Management	Access coordinated by Greg Ryan Email: giryan@gmail.com Ph: (02) 9743 4157 Both Cave and Advanced Cave Level are being accepted for this site depending on its water level at the time. When entrance is under water, Advanced Cave Divers only!
Water (Anticline) cave	C	Wellington Caves Management	Access coordinated by Greg Ryan Email: giryan@gmail.com Ph: (02) 9743 4157 Affected by high CO ₂ levels during Summer/Autumn.

Scout Hall recreated as Divers Accommodation

The original Scouts Hall at 8 Douglas Street, Mount Gambier has been long-time owned by local Peta Cassar. She has started welcoming CDAA members and other divers to her 'unique' building for comfortable accommodation close to town. From what we have heard it's good, but as more divers visit, Peta is getting ideas to make it even more suitable for her customers. Peta recently put together a brief summary of what she has to offer...

Terri describes her accommodation as a Shared facility whereby you share her house, and from advice given to us she is very accommodating and welcoming.

She says, "the hall area is spacious with a couple of nooks where people may comfortably sleep (if bringing their own camp mattress). Floor space could have up to another five people if bringing their own camp mattress/sleeping gear."

PRIMARY FACILITIES:

1. Shared open-plan kitchen
2. Shared bathroom/ laundry (washer/dryer)
3. Shared open-plan Lounge/TV area
4. Sleeps 6 (two front rooms with double and queen bed; sofa bed in lounge, open plan area has double mattress).
5. Linen available for up to six people OR BYO.
6. Portable Baby Q barbecue
7. Open fireplace and Wood Stove
8. Off-street parking
9. Office / utility room with power points.

Entry is via Murdie Street opposite Melaleuca Reserve.






OTHER FACILITIES / SITES:

Restaurants/RSL/ library facilities are all in town and within 2km easy access.

A couple of local wineries are nearby - Caroline Hills Winery Strickland Road Caroline Hills; Herbert Vineyard Bishop Road Mount Gambier
Further information please telephone 0439981960 or email bellamalita@bigpond.com.



CDAA INSTRUCTORS

NAME	Basic Cave	Cave Cave	Adv.	NAME	Basic Cave	Cave Cave	Adv.
NEW SOUTH WALES				VICTORIA Continued			
 FEATONBY, Tim (CDAA 3327) Worring Heights, NSW Mob: 0402 129 253 E: tim.featonby@hotmail.com	Yes	Yes	Yes	 CLARIDGE, Linda (CDAA 2214) Mob: 0408 052 070 E: garinda@tpgi.com.au	Yes	Yes	Yes
QUEENSLAND				DALLA-ZUANNA, John (CDAA 236) Mob: 0407 887 060 E: jdz@paintandcustom.com.au			
 HODALIN, Dominic (# 4782) Mob: 0418 870 202 E: dominic_hodalin@yahoo.com	Yes			 EDWARDS, Chris (CDAA 2247) Mob: 0417 116 372 Email: chrisedwards01@me.com	Yes		
SOUTH AUSTRALIA				McDONALD, Warrick (CDAA 1882) Mob: 0408 374 112 E: info@oceandivers.com.au			
 MAIN, Robert (CDAA 4909) Mob: 0411 519 825 E: rob@reef2ridge.com	Yes	Yes		 MONACO, Rubens (CDAA 1731) Mob: 0413 429 533 E: info@idcscuba.com.au	Yes	Yes	Yes
 PAYNE, Timothy (CDAA 2640) Mob: 0448 147 927 E: Tim@diveessentials.com	Yes	Yes	Yes	 MUSCAT, Tim (CDAA 4557) Mob: 0422 127 802 E: tim_muscat@bigpond.com	Yes	Yes	
VICTORIA				WESTERN AUSTRALIA			
 ALLEN, Terri (CDAA 3483) Mob: 0419 176 633 E: terri.allen@monash.edu	Yes	Yes	Yes	 BICANIC, Josip (CDAA 4691) Mob: 0412 571 779 Email: joseph_b@me.com	Yes	Yes	
 BARCLAY, Gary (CDAA 1735) Mob: 0407 527 921 E: garinda@bigpond.com	Yes	Yes	Yes	 PAYNTER, Geoff (CDAA 3784) Mob: 0407 445 112 E: gpaynter60@bigpond.com	Yes	Yes	Yes
 BOWMAN, Jane (CDAA 1880) Mob: 0407 566 455 E: janelbowman@hotmail.com	Yes	Yes	Yes				
 CHAMBERS, Geoffrey (CDAA 3484) Mob: 0438 059 886 E: geoffie1@gmail.com	Yes						